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NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 2 Laboratory Report, Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, Sample Location Report, SDG 2000390

MCAS
Tustin, CA
April 2021

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

March 09, 2020

Vista Work Order No. 2000390

Ms. Kimberly Shiroodi
KMEA
2423 Hoover Avenue
National City, CA 91950

Dear Ms. Shiroodi,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on February 22, 2020 under your Project Name 'MCAS El Toro and Tustin, PFAS'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2000390
Case Narrative

Sample Condition on Receipt:

One blank water and four groundwater samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The following samples contained particulate and were centrifuged prior to extraction:

Laboratory ID	Sample Name
2000390-02	TW14S-20200221
2000390-03	TW17S-20200221
2000390-04	TW16S-20200221
2000390-05	TW15S-20200221

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 of the LOQ concentrations. The LCS/LCSD recoveries were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
2000390-03	TW17S-20200221	PFAS Isotope Dilution Method	13C2-PFOA	H	160

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2000390-01	EB06-20200221	21-Feb-20 07:00	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-02	TW14S-20200221	21-Feb-20 07:35	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-03	TW17S-20200221	21-Feb-20 08:05	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-04	TW16S-20200221	21-Feb-20 08:22	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-05	TW15S-20200221	21-Feb-20 08:45	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Aqueous

Laboratory Data

Lab Sample: B0B0213-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHxA	307-24-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
HFPO-DA	13252-13-6	ND	0.00241	0.00300	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHpA	375-85-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
ADONA	919005-14-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHxS	355-46-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFOA	335-67-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFNA	375-95-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFOS	1763-23-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
9Cl-PF3ONS	756426-58-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFDA	335-76-2	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
MeFOSAA	2355-31-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
EtFOSAA	2991-50-6	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFUnA	2058-94-8	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
11Cl-PF3OUdS	763051-92-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFDoA	307-55-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFTrDA	72629-94-8	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFTeDA	376-06-7	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.0	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C3-HFPO-DA	IS	88.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFHxA	IS	92.3	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C4-PFHpA	IS	96.5	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C3-PFHxS	IS	89.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C5-PFNA	IS	95.1	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFOA	IS	90.3	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C8-PFOS	IS	88.1	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFDA	IS	91.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
d3-MeFOSAA	IS	83.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFUnA	IS	81.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
d5-EtFOSAA	IS	71.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFDoA	IS	67.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFTeDA	IS	72.7	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	KMEA	Lab Sample:	B0B0213-BS1/B0B0213-BSD1
Project:	MCAS El Toro and Tustin, PFAS	QC Batch:	B0B0213
Matrix:	Aqueous	Samp Size:	0.250/0.250 L
		Date Extracted:	02-Mar-20
		Column:	BEH C18

Analyte	CAS Number	LCS (ug/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ug/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	375-73-5	0.0413	0.0400	103		0.0353	0.0400	88.2	15.7		72-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHxA	307-24-4	0.0441	0.0400	110		0.0437	0.0400	109	1.11		72-129	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
HFPO-DA	13252-13-6	0.0407	0.0400	102		0.0433	0.0400	108	6.17		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHpA	375-85-9	0.0428	0.0400	107		0.0408	0.0400	102	4.76		72-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
ADONA	919005-14-4	0.0404	0.0400	101		0.0395	0.0400	98.9	2.12		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHxS	355-46-4	0.0397	0.0400	99.2		0.0419	0.0400	105	5.42		68-131	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFOA	335-67-1	0.0429	0.0400	107		0.0420	0.0400	105	2.03		71-133	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFNA	375-95-1	0.0443	0.0400	111		0.0435	0.0400	109	1.80		69-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFOS	1763-23-1	0.0403	0.0400	101		0.0436	0.0400	109	7.91		65-140	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
9Cl-PF3ONS	756426-58-1	0.0409	0.0400	102		0.0361	0.0400	90.3	12.5		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFDA	335-76-2	0.0422	0.0400	105		0.0446	0.0400	112	5.63		71-129	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
MeFOSAA	2355-31-9	0.0412	0.0400	103		0.0426	0.0400	107	3.50		65-136	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
EtFOSAA	2991-50-6	0.0400	0.0400	100		0.0414	0.0400	104	3.45		61-135	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFUnA	2058-94-8	0.0424	0.0400	106		0.0392	0.0400	98.0	7.83		69-133	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
11Cl-PF3OUdS	763051-92-9	0.0405	0.0400	101		0.0443	0.0400	111	9.01		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFDoA	307-55-1	0.0433	0.0400	108		0.0487	0.0400	122	11.8		72-134	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFTrDA	72629-94-8	0.0414	0.0400	104		0.0449	0.0400	112	8.03		65-144	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFTeDA	376-06-7	0.0405	0.0400	101		0.0425	0.0400	106	4.69		71-132	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBS	IS	95.9		102		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C3-HFPO-DA	IS	95.9		87.3		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFHxA	IS	95.4		92.7		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C4-PFHpA	IS	97.3		95.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C3-PFHxS	IS	102		97.4		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C5-PFNA	IS	95.0		92.8		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFOA	IS	89.2		91.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C8-PFOS	IS	96.0		98.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFDA	IS	97.8		91.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
d3-MeFOSAA	IS	87.0		86.3		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFUnA	IS	80.2		83.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
d5-EtFOSAA	IS	74.1		80.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFDoA	IS	82.6		79.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	KMEA	Lab Sample:	B0B0213-BS1/B0B0213-BSD1	Date Extracted:	02-Mar-20
Project:	MCAS El Toro and Tustin, PFAS	QC Batch:	B0B0213	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFTeDA	IS	76.5		78.2		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Sample ID: EB06-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Blank Water
Date Collected: 21-Feb-20 07:00

Laboratory Data

Lab Sample: 2000390-01
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHxA	307-24-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
HFPO-DA	13252-13-6	ND	0.00237	0.00294	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHpA	375-85-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
ADONA	919005-14-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHxS	355-46-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFOA	335-67-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFNA	375-95-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFOS	1763-23-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
9Cl-PF3ONS	756426-58-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFDA	335-76-2	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
MeFOSAA	2355-31-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
EtFOSAA	2991-50-6	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFUnA	2058-94-8	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
11Cl-PF3OUdS	763051-92-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFDoA	307-55-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFTrDA	72629-94-8	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFTeDA	376-06-7	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.9	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C3-HFPO-DA	IS	96.3	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFHxA	IS	91.8	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C4-PFHpA	IS	94.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C3-PFHxS	IS	91.3	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C5-PFNA	IS	93.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFOA	IS	92.9	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C8-PFOS	IS	93.5	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFDA	IS	96.7	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
d3-MeFOSAA	IS	103	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFUnA	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
d5-EtFOSAA	IS	75.1	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFDoA	IS	80.2	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFTeDA	IS	72.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW14S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 07:35

Laboratory Data

Lab Sample: 2000390-02
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0362	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHxA	307-24-4	0.0640	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
HFPO-DA	13252-13-6	ND	0.00239	0.00298	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHpA	375-85-9	0.0209	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHxS	355-46-4	0.124	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFOA	335-67-1	0.172	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFNA	375-95-1	0.00256	0.00136	0.00198	0.00396	J, Q	B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFOS	1763-23-1	0.0250	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFDA	335-76-2	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.8	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C3-HFPO-DA	IS	90.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFHxA	IS	87.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C4-PFHpA	IS	86.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C3-PFHxS	IS	89.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C5-PFNA	IS	90.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFOA	IS	83.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C8-PFOS	IS	92.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFDA	IS	89.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
d3-MeFOSAA	IS	92.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFUnA	IS	73.3	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
d5-EtFOSAA	IS	71.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFDoA	IS	64.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFTeDA	IS	54.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW17S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:05

Laboratory Data

Lab Sample: 2000390-03
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.551	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHxA	307-24-4	3.09	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
HFPO-DA	13252-13-6	ND	0.00239	0.00296	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHpA	375-85-9	0.741	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHxS	355-46-4	3.42	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
PFOA	335-67-1	8.92	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
PFNA	375-95-1	0.0166	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFOS	1763-23-1	1.32	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFDA	335-76-2	0.00195	0.00136	0.00198	0.00396	J	B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.8	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C3-HFPO-DA	IS	87.4	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFHxA	IS	144	50 - 150	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C4-PFHpA	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C3-PFHxS	IS	150	50 - 150	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C5-PFNA	IS	90.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFOA	IS	160	50 - 150	D, H	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C8-PFOS	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFDA	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
d3-MeFOSAA	IS	97.2	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFUnA	IS	77.8	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
d5-EtFOSAA	IS	87.3	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFDoA	IS	76.0	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFTeDA	IS	71.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW16S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:22

Laboratory Data

Lab Sample: 2000390-04
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0536	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHxA	307-24-4	0.172	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
HFPO-DA	13252-13-6	ND	0.00240	0.00299	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHpA	375-85-9	0.0655	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
ADONA	919005-14-4	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHxS	355-46-4	0.341	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFOA	335-67-1	0.319	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFNA	375-95-1	0.00578	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFOS	1763-23-1	0.172	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
9Cl-PF3ONS	756426-58-1	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFDA	335-76-2	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
MeFOSAA	2355-31-9	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
EtFOSAA	2991-50-6	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFUnA	2058-94-8	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
11Cl-PF3OUdS	763051-92-9	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFDoA	307-55-1	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFTrDA	72629-94-8	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFTeDA	376-06-7	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	98.0	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C3-HFPO-DA	IS	78.5	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFHxA	IS	83.1	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C4-PFHpA	IS	85.2	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C3-PFHxS	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C5-PFNA	IS	80.7	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFOA	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C8-PFOS	IS	91.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFDA	IS	91.2	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
d3-MeFOSAA	IS	94.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFUnA	IS	74.4	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
d5-EtFOSAA	IS	81.4	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFDoA	IS	68.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFTeDA	IS	66.3	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW15S-20200221 **PFAS Isotope Dilution Method**

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:45

Laboratory Data

Lab Sample: 2000390-05
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.115	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHxA	307-24-4	0.554	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
HFPO-DA	13252-13-6	ND	0.00239	0.00298	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHpA	375-85-9	0.184	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHxS	355-46-4	0.468	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFOA	335-67-1	0.721	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFNA	375-95-1	0.00341	0.00136	0.00198	0.00397	J, Q	B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFOS	1763-23-1	0.155	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFDA	335-76-2	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	90.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C3-HFPO-DA	IS	85.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFHxA	IS	84.8	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C4-PFHpA	IS	89.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C3-PFHxS	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C5-PFNA	IS	84.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFOA	IS	77.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C8-PFOS	IS	98.3	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFDA	IS	84.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
d3-MeFOSAA	IS	105	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFUnA	IS	82.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
d5-EtFOSAA	IS	88.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFDoA	IS	74.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFTeDA	IS	65.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical

1104 Windfield Way
El Dorado Hills, CA 95762
TEL: 916-673-1520

2000390 1.8°C

Vista PM: Jade White-Dobbs

CHAIN OF CUSTODY RECORD

DATE: 2/21/2020

PAGE: 1 OF 1

LABORATORY CLIENT: KMEA		CLIENT PROJECT NAME / NUMBER: MCAS El Toro and Tustin, PFAS	P.O. NO.: TO 008 Mod 4
ADDRESS: 9210 Sky Park Court, Suite 220		PROJECT CONTACT: Kimberly Shiroodi / Brian Johnson	CONTRACT NO.: N62473-16-D-2405
CITY: San Diego, CA 92123		SAMPLER(S): (SIGNATURE) Ley Rutte	LAB USE ONLY:
TEL: (619) 399-5900	E-Mail: kimberly.shiroodi@woodplc.com	E-MAIL: brian.johnson@woodplc.com	

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 10 DAYS ☒ Standard

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Samples potentially contain elevated levels of PFAS.
* additional sample volume provided. High turbidity.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	QC Level	PFAS by LC/MS-MS
	EB06-20200221	2/21/20	7:00	BW	2		X
	TW14S-20200221	"	7:35	GW	2	IV	X
	TW17S-20200221	"	8:05	"	2	IV	X
	TW16S-20200221	"	8:22	"	3*	IV	X
	TW15S-20200221	"	8:45	"	3*	IV	X

LR 2-21-20

Relinquished by: (Signature) Ley Rutte	Received by: (Signature) / Carrier Tracking Number FedEx	Date: 2/21/20	Time: 11:00
Relinquished by: (Signature) FedEx	Received by: (Signature) Hayden Grannis	Date: 02/22/2020	Time: 10:15
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2000390 TAT 14

Samples Arrival:	**Date/Time** 02/22/2020 10:15		**Initials:** HDG		**Location:** WR-2 **Shelf/Rack:** NA		
Delivered By:	(FedEx)	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None
Temp °C: 1.8 (uncorrected)			**Probe used:** Y / (N)		**Thermometer ID:** IR-4		
Temp °C: 1.8 (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill — Trk # 3905 5715 8096	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista / (Client) / Retain / (Return)		Dispose	
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 02/22/20 1168	**Initials:** CM	**Location:** WR-2/R-13 **Shelf/Rack:** E-6 / A-4	
COC Anomaly/Sample Acceptance Form completed?			✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2000390

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2000390-01	A EB06-20200221	☑		21-Feb-20 07:00	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-01	B EB06-20200221	☑		21-Feb-20 07:00	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-02	A TW14S-20200221	☑		21-Feb-20 07:35	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-02	B TW14S-20200221	☑		21-Feb-20 07:35	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-03	A TW17S-20200221	☑		21-Feb-20 08:05	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-03	B TW17S-20200221	☑		21-Feb-20 08:05	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	A TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	B TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	C TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	A TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	B TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	C TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		
Preservation Documented: Na2S2O3 Trizma None Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments:

Verifed by/Date: CM 02/22/20

March 09, 2020

Vista Work Order No. 2000390

Ms. Kimberly Shiroodi
KMEA
2423 Hoover Avenue
National City, CA 91950

Dear Ms. Shiroodi,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on February 22, 2020 under your Project Name 'MCAS El Toro and Tustin, PFAS'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2000390
Case Narrative

Sample Condition on Receipt:

One blank water and four groundwater samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The following samples contained particulate and were centrifuged prior to extraction:

Laboratory ID	Sample Name
2000390-02	TW14S-20200221
2000390-03	TW17S-20200221
2000390-04	TW16S-20200221
2000390-05	TW15S-20200221

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 of the LOQ concentrations. The LCS/LCSD recoveries were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
2000390-03	TW17S-20200221	PFAS Isotope Dilution Method	13C2-PFOA	H	160

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2000390-01	EB06-20200221	21-Feb-20 07:00	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-02	TW14S-20200221	21-Feb-20 07:35	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-03	TW17S-20200221	21-Feb-20 08:05	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-04	TW16S-20200221	21-Feb-20 08:22	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
2000390-05	TW15S-20200221	21-Feb-20 08:45	22-Feb-20 10:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Aqueous

Laboratory Data

Lab Sample: B0B0213-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHxA	307-24-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
HFPO-DA	13252-13-6	ND	0.00241	0.00300	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHpA	375-85-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
ADONA	919005-14-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFHxS	355-46-4	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFOA	335-67-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFNA	375-95-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFOS	1763-23-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
9Cl-PF3ONS	756426-58-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFDA	335-76-2	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
MeFOSAA	2355-31-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
EtFOSAA	2991-50-6	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFUnA	2058-94-8	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
11Cl-PF3OUdS	763051-92-9	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFDoA	307-55-1	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFTrDA	72629-94-8	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
PFTeDA	376-06-7	ND	0.00137	0.00200	0.00400		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.0	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C3-HFPO-DA	IS	88.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFHxA	IS	92.3	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C4-PFHpA	IS	96.5	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C3-PFHxS	IS	89.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C5-PFNA	IS	95.1	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFOA	IS	90.3	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C8-PFOS	IS	88.1	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFDA	IS	91.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
d3-MeFOSAA	IS	83.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFUnA	IS	81.8	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
d5-EtFOSAA	IS	71.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFDoA	IS	67.2	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1
13C2-PFTeDA	IS	72.7	50 - 150		B0B0213	02-Mar-20	0.250 L	04-Mar-20 21:48	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	KMEA	Lab Sample:	B0B0213-BS1/B0B0213-BSD1
Project:	MCAS El Toro and Tustin, PFAS	QC Batch:	B0B0213
Matrix:	Aqueous	Samp Size:	0.250/0.250 L
		Date Extracted:	02-Mar-20
		Column:	BEH C18

Analyte	CAS Number	LCS (ug/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ug/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	375-73-5	0.0413	0.0400	103		0.0353	0.0400	88.2	15.7		72-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHxA	307-24-4	0.0441	0.0400	110		0.0437	0.0400	109	1.11		72-129	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
HFPO-DA	13252-13-6	0.0407	0.0400	102		0.0433	0.0400	108	6.17		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHpA	375-85-9	0.0428	0.0400	107		0.0408	0.0400	102	4.76		72-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
ADONA	919005-14-4	0.0404	0.0400	101		0.0395	0.0400	98.9	2.12		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFHxS	355-46-4	0.0397	0.0400	99.2		0.0419	0.0400	105	5.42		68-131	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFOA	335-67-1	0.0429	0.0400	107		0.0420	0.0400	105	2.03		71-133	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFNA	375-95-1	0.0443	0.0400	111		0.0435	0.0400	109	1.80		69-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFOS	1763-23-1	0.0403	0.0400	101		0.0436	0.0400	109	7.91		65-140	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
9Cl-PF3ONS	756426-58-1	0.0409	0.0400	102		0.0361	0.0400	90.3	12.5		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFDA	335-76-2	0.0422	0.0400	105		0.0446	0.0400	112	5.63		71-129	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
MeFOSAA	2355-31-9	0.0412	0.0400	103		0.0426	0.0400	107	3.50		65-136	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
EtFOSAA	2991-50-6	0.0400	0.0400	100		0.0414	0.0400	104	3.45		61-135	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFUnA	2058-94-8	0.0424	0.0400	106		0.0392	0.0400	98.0	7.83		69-133	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
11Cl-PF3OUdS	763051-92-9	0.0405	0.0400	101		0.0443	0.0400	111	9.01		70-130	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFDoA	307-55-1	0.0433	0.0400	108		0.0487	0.0400	122	11.8		72-134	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFTrDA	72629-94-8	0.0414	0.0400	104		0.0449	0.0400	112	8.03		65-144	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1
PFTeDA	376-06-7	0.0405	0.0400	101		0.0425	0.0400	106	4.69		71-132	30	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBS	IS	95.9		102		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C3-HFPO-DA	IS	95.9		87.3		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFHxA	IS	95.4		92.7		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C4-PFHpA	IS	97.3		95.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C3-PFHxS	IS	102		97.4		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C5-PFNA	IS	95.0		92.8		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFOA	IS	89.2		91.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C8-PFOS	IS	96.0		98.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFDA	IS	97.8		91.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
d3-MeFOSAA	IS	87.0		86.3		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFUnA	IS	80.2		83.5		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
d5-EtFOSAA	IS	74.1		80.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1
13C2-PFDoA	IS	82.6		79.6		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	KMEA	Lab Sample:	B0B0213-BS1/B0B0213-BSD1	Date Extracted:	02-Mar-20
Project:	MCAS El Toro and Tustin, PFAS	QC Batch:	B0B0213	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFTeDA	IS	76.5		78.2		50-150	04-Mar-20 21:58	1	04-Mar-20 22:09	1

Sample ID: EB06-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Blank Water
Date Collected: 21-Feb-20 07:00

Laboratory Data

Lab Sample: 2000390-01
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHxA	307-24-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
HFPO-DA	13252-13-6	ND	0.00237	0.00294	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHpA	375-85-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
ADONA	919005-14-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFHxS	355-46-4	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFOA	335-67-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFNA	375-95-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFOS	1763-23-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
9Cl-PF3ONS	756426-58-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFDA	335-76-2	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
MeFOSAA	2355-31-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
EtFOSAA	2991-50-6	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFUnA	2058-94-8	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
11Cl-PF3OUdS	763051-92-9	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFDoA	307-55-1	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFTrDA	72629-94-8	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
PFTeDA	376-06-7	ND	0.00134	0.00196	0.00393		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.9	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C3-HFPO-DA	IS	96.3	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFHxA	IS	91.8	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C4-PFHpA	IS	94.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C3-PFHxS	IS	91.3	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C5-PFNA	IS	93.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFOA	IS	92.9	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C8-PFOS	IS	93.5	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFDA	IS	96.7	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
d3-MeFOSAA	IS	103	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFUnA	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
d5-EtFOSAA	IS	75.1	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFDoA	IS	80.2	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1
13C2-PFTeDA	IS	72.4	50 - 150		B0B0213	02-Mar-20	0.255 L	05-Mar-20 00:46	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW14S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 07:35

Laboratory Data

Lab Sample: 2000390-02
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0362	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHxA	307-24-4	0.0640	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
HFPO-DA	13252-13-6	ND	0.00239	0.00298	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHpA	375-85-9	0.0209	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFHxS	355-46-4	0.124	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFOA	335-67-1	0.172	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFNA	375-95-1	0.00256	0.00136	0.00198	0.00396	J, Q	B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFOS	1763-23-1	0.0250	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFDA	335-76-2	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.8	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C3-HFPO-DA	IS	90.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFHxA	IS	87.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C4-PFHpA	IS	86.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C3-PFHxS	IS	89.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C5-PFNA	IS	90.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFOA	IS	83.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C8-PFOS	IS	92.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFDA	IS	89.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
d3-MeFOSAA	IS	92.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFUnA	IS	73.3	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
d5-EtFOSAA	IS	71.9	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFDoA	IS	64.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1
13C2-PFTeDA	IS	54.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 00:57	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW17S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:05

Laboratory Data

Lab Sample: 2000390-03
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.551	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHxA	307-24-4	3.09	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
HFPO-DA	13252-13-6	ND	0.00239	0.00296	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHpA	375-85-9	0.741	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFHxS	355-46-4	3.42	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
PFOA	335-67-1	8.92	0.0203	0.0296	0.0594	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
PFNA	375-95-1	0.0166	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFOS	1763-23-1	1.32	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFDA	335-76-2	0.00195	0.00136	0.00198	0.00396	J	B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00396		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.8	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C3-HFPO-DA	IS	87.4	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFHxA	IS	144	50 - 150	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C4-PFHpA	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C3-PFHxS	IS	150	50 - 150	D	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C5-PFNA	IS	90.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFOA	IS	160	50 - 150	D, H	B0B0213	02-Mar-20	0.253 L	05-Mar-20 20:23	15
13C8-PFOS	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFDA	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
d3-MeFOSAA	IS	97.2	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFUnA	IS	77.8	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
d5-EtFOSAA	IS	87.3	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFDoA	IS	76.0	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1
13C2-PFTeDA	IS	71.5	50 - 150		B0B0213	02-Mar-20	0.253 L	05-Mar-20 01:08	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW16S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:22

Laboratory Data

Lab Sample: 2000390-04
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0536	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHxA	307-24-4	0.172	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
HFPO-DA	13252-13-6	ND	0.00240	0.00299	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHpA	375-85-9	0.0655	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
ADONA	919005-14-4	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFHxS	355-46-4	0.341	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFOA	335-67-1	0.319	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFNA	375-95-1	0.00578	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFOS	1763-23-1	0.172	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
9Cl-PF3ONS	756426-58-1	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFDA	335-76-2	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
MeFOSAA	2355-31-9	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
EtFOSAA	2991-50-6	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFUnA	2058-94-8	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
11Cl-PF3OUdS	763051-92-9	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFDoA	307-55-1	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFTrDA	72629-94-8	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
PFTeDA	376-06-7	ND	0.00137	0.00199	0.00399		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	98.0	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C3-HFPO-DA	IS	78.5	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFHxA	IS	83.1	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C4-PFHpA	IS	85.2	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C3-PFHxS	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C5-PFNA	IS	80.7	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFOA	IS	85.5	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C8-PFOS	IS	91.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFDA	IS	91.2	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
d3-MeFOSAA	IS	94.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFUnA	IS	74.4	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
d5-EtFOSAA	IS	81.4	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFDoA	IS	68.9	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1
13C2-PFTeDA	IS	66.3	50 - 150		B0B0213	02-Mar-20	0.251 L	05-Mar-20 20:13	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: TW15S-20200221

PFAS Isotope Dilution Method

Client Data

Name: KMEA
Project: MCAS El Toro and Tustin, PFAS
Matrix: Groundwater
Date Collected: 21-Feb-20 08:45

Laboratory Data

Lab Sample: 2000390-05
Date Received: 22-Feb-20 10:15
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.115	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHxA	307-24-4	0.554	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
HFPO-DA	13252-13-6	ND	0.00239	0.00298	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHpA	375-85-9	0.184	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
ADONA	919005-14-4	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFHxS	355-46-4	0.468	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFOA	335-67-1	0.721	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFNA	375-95-1	0.00341	0.00136	0.00198	0.00397	J, Q	B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFOS	1763-23-1	0.155	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
9Cl-PF3ONS	756426-58-1	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFDA	335-76-2	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
MeFOSAA	2355-31-9	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
EtFOSAA	2991-50-6	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFUnA	2058-94-8	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
11Cl-PF3OUdS	763051-92-9	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFDoA	307-55-1	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFTrDA	72629-94-8	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
PFTeDA	376-06-7	ND	0.00136	0.00198	0.00397		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	90.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C3-HFPO-DA	IS	85.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFHxA	IS	84.8	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C4-PFHpA	IS	89.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C3-PFHxS	IS	89.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C5-PFNA	IS	84.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFOA	IS	77.5	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C8-PFOS	IS	98.3	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFDA	IS	84.7	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
d3-MeFOSAA	IS	105	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFUnA	IS	82.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
d5-EtFOSAA	IS	88.0	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFDoA	IS	74.4	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1
13C2-PFTeDA	IS	65.1	50 - 150		B0B0213	02-Mar-20	0.252 L	05-Mar-20 01:29	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical

1104 Windfield Way
El Dorado Hills, CA 95762
TEL: 916-673-1520

2000390 1.8°C

Vista PM: Jade White-Dobbs

CHAIN OF CUSTODY RECORD

DATE: 2/21/2020

PAGE: 1 OF 1

LABORATORY CLIENT: KMEA		CLIENT PROJECT NAME / NUMBER: MCAS El Toro and Tustin, PFAS	P.O. NO.: TO 008 Mod 4
ADDRESS: 9210 Sky Park Court, Suite 220		PROJECT CONTACT: Kimberly Shiroodi / Brian Johnson	CONTRACT NO.: N62473-16-D-2405
CITY: San Diego, CA 92123		SAMPLER(S): (SIGNATURE) Ley Rutte	LAB USE ONLY:
TEL: (619) 399-5900	E-Mail: kimberly.shiroodi@woodplc.com	E-MAIL: brian.johnson@woodplc.com	

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 10 DAYS ☒ Standard

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS

Samples potentially contain elevated levels of PFAS.
* additional sample volume provided. High turbidity.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	QC Level	PFAS by LC/MS-MS
	EB06-20200221	2/21/20	7:00	BW	2		X
	TW14S-20200221	"	7:35	GW	2	IV	X
	TW17S-20200221	"	8:05	"	2	IV	X
	TW16S-20200221	"	8:22	"	3*	IV	X
	TW15S-20200221	"	8:45	"	3*	IV	X

Ley Rutte 2-21-20

Relinquished by: (Signature) Ley Rutte	Received by: (Signature) / Carrier Tracking Number FedEx	Date: 2/21/20	Time: 11:00
Relinquished by: (Signature) FedEx	Received by: (Signature) Hayden Grann	Date: 02/22/2020	Time: 10:15
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2000390 TAT 14

Samples Arrival:	**Date/Time** 02/22/2020 10:15		**Initials:** HDG		**Location:** WR-2 **Shelf/Rack:** NA		
Delivered By:	(FedEx)	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None
Temp °C: 1.8 (uncorrected)			**Probe used:** Y / (N)		**Thermometer ID:** IR-4		
Temp °C: 1.8 (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill — Trk # 3905 5715 8096	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista / (Client) / Retain / (Return)		Dispose	
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 02/22/20 1168	**Initials:** CM	**Location:** WR-2/R-13 **Shelf/Rack:** E-6 / A-4
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 2000390

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2000390-01	A EB06-20200221	☑		21-Feb-20 07:00	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-01	B EB06-20200221	☑		21-Feb-20 07:00	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-02	A TW14S-20200221	☑		21-Feb-20 07:35	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-02	B TW14S-20200221	☑		21-Feb-20 07:35	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-03	A TW17S-20200221	☑		21-Feb-20 08:05	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-03	B TW17S-20200221	☑		21-Feb-20 08:05	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	A TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	B TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-04	C TW16S-20200221	☑		21-Feb-20 08:22	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	A TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	B TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	
2000390-05	C TW15S-20200221	☑		21-Feb-20 08:45	☑	HDPE Bottle, 250 mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		
Preservation Documented: Na2S2O3 Trizma None Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments:

Verifed by/Date: CM 02/22/20

EXTRACTION INFORMATION

PRIORITY

Process Sheet

Workorder: 2000390

Prep Expiration: 2020-03-06
Client: KMEA

Workorder Due: 09-Mar-20 00:00

TAT: 16

Method: **537M PFAS DOD QSM 5.3 (LOQ as mRL)**
Matrix: **Aqueous**

Prep Batch: BOB0213

Prep Data Entered: ONL 03/03/20
Date and Initials

Version: 537.1 List of 18
DoD: DoD QSM 5.3

Initial Sequence: SOC0014

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
2000390-01	A	☑	☑	EB06-20200221		R-13 A-4	HDPE Bottle, 250 mL
2000390-02		☑	☑	TW14S-20200221		R-13 A-4	HDPE Bottle, 250 mL
2000390-03		☑	☑	TW17S-20200221		R-13 A-4	HDPE Bottle, 250 mL
2000390-04		☑	☑	TW16S-20200221		R-13 A-4	HDPE Bottle, 250 mL
2000390-05		☑	☑	TW15S-20200221		R-13 A-4	HDPE Bottle, 250 mL

WO Comments: **May have elevated PFAS levels - isolate samples.**
Instrument - begin w/ dils.

Pre-Prep Check Out: CHT 02/25/20
Pre-Prep Check In: CHT 02/25/20

Prep Check Out: ME 03/02/2020
Prep Check In: N/A

Prep Reconciled Initals/Date: CHT 02/25/20
Spike Reconciled Initals/Date: ME 03/02/2020
VialBoxID: Lurkin

Matrix: Aqueous

Method: 537M PFAS DOD QSM 5.3 (LOQ as mRL)

Vista Internal Chain-of-Custody

B0B0213

Vista Analytical Laboratory

	Location		L2	R13	L2	R12	L2	R12	L4		
	Reason		Prep	R9	R4	R2	R6	R9	R8		
	Initials		CHT	CHT	ME	HR	HR	n	VG		
	Date/Time		02/25/20 1125	02/25/20 1157	03/02/2020 06:39	03/02/20 1833	03/03/20 0646	03/5/20 1328	03/04/20 16:50		
Initial Storage	LabNumber	Cont									
R-13 A-2	2000372-01	A	O	O	O	E	E				
R-13 A-2	2000372-02										
R-13 A-2	2000372-03										
R-13 A-2	2000372-04										
R-13 A-2	2000372-05										
R-13 A-2	2000372-06										
R-13 A-2	2000372-07										
R-13 A-2	2000372-08										
R-13 A-2	2000373-01										
R-13 A-2	2000373-02										
R-13 A-2	2000373-03										
R-13 A-2	2000373-05										
R-13 A-4	2000390-01										
R-13 A-4	2000390-02										
R-13 A-4	2000390-03										
R-13 A-4	2000390-04										
R-13 A-4	2000390-05										

Location Key:
L1 = Prep Lab 1
L2 = Prep Lab 2
L3 = HRMS Diox
L4 = Instrument
Other = _____

Reason Key:
R1 = Percent Solids
R2 = Eluate Preservation
R3 = Sub-Sample
R4 = Extraction
R6 = Concentration
R7 = Filtering
R8 = Analysis
R9 = Storage
Other = _____

Type Key:
O = Original Sample
E = Extract of Sample

Matrix: Aqueous

Method: 537M PFAS DOD QSM 5.3 (LOQ as mRL)

PREPARATION BENCH SHEET

B0B0213

Chemist: ME

Prep Date: 03/02/2020

Prep Time: 06:58

Hood#: 06

Prepared using: ☐ Sonication Shaker ☒ SPE Extraction ☒ Centrifuge ID: C3 | C4

Rec Date/Initals: 2 030320

Date/Initals: CHT 02/25/20

BalanceID: HRMS-9

Cen	VISTA Sample ID	Rec Vial1	Rec Vial2	pH	Chlorine (Cl)	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE and Reconciliation	ENVI-Carb and Reconciliation	RS CHEM/WIT DATE
☒	B0B0213-BLK1	☑	☐	5	0	NA	NA	(0.250)	ME HR 03/02/2020	ME 03/02/2020	ME 03/02/2020	ME 03/02/2020
☒	B0B0213-BS1	☐	☐	5	0	↓	↓	(0.250)	↓	↓	↓	↓
☒	B0B0213-BSD1	☐	☑	5	0	↓	↓	(0.250)	↓	↓	↓	↓
☐	2000372-01	☐	☐	6	0	276.92	25.97	0.25095	↓	↓	↓	↓
☒	2000372-02	☐	☑	6	0	279.98	25.94	0.25404	↓	↓	↓	↓
☒	2000372-03	☑	☐	6	0	273.87	26.05	0.24752	↓	↓	↓	↓
☒	2000372-04	☑	☐	6	0	274.75	25.94	0.24881	↓	↓	↓	↓
☒	2000372-05	☑	☑	6	0	272.82	26.03	0.24679	↓	↓	↓	↓
☒	2000372-06	☑	☑	6	0	275.03	25.92	0.24911	↓	↓	↓	↓
☒	2000372-07	☑	☑	6	0	273.13	25.81	0.24732	↓	↓	↓	↓
☒	2000372-08	☑	☑	6	0	277.33	26.58	0.25075	↓	↓	↓	↓
☒	2000373-01Ⓐ	☑	☑	6	0	272.15	26.13	0.24602	↓	↓	↓	↓
☒	2000373-02	☑	☑	6	0	275.70	26.26	0.24944	↓	↓	↓	↓
☒	2000373-03	☑	☑	6	0	276.71	26.13	0.25058	↓	↓	↓	↓
☒	2000373-05	☑	☑	6	0	279.71	25.64	0.25407	↓	↓	↓	↓

IS: 20A0801, (V14), 10µL

IS SUP: N/A

NS: 20A0803, (V7), 10µL

NS SUP: N/A

RS: 20A0804, (V15), 10mL

SPE Chem: Strata XL-AW 100µm 200mg/6mL

SPE Lot#: S18-006865

ENVI-Carb Lot#: B03074

Ele SOLV: MeOH/0.5%NH4OH in MeOH

Final Volume(s) 1 mL

Notes:
Ⓐ Foamy sample after shake. ME 03/02/2020.

Comments: Assume 1 g = 1 mL
Cen = Centrifuged
Rec = Reconcile final vial transfer

1 = Sample centrifuged twice
2 = Sample deeply colored after centrifuge
3 = Cartridge sorbent discolored after SPE
4 = Sample clogged cartridge, additional cartridge(s) used
5 = Sample recombined at final volume
6 = Sample took longer to SPE, required stronger vacuum
7 = Required Nitrogen line to finish SPE
8 = Required Nitrogen line to finish elution
9 = Sample arrived with low volume
10 = Trizma added to QC (5g/L)

Matrix: Aqueous

Method: 537M PFAS DOD QSM 5.3 (LOQ as mRL)

PREPARATION BENCH SHEET

B0B0213

Chemist: ME

Prep Date: 03/02/2020

Prep Time: 06:58

Hood#: 06

Prepared using: ☐ Sonication Shaker ☒ SPE Extraction ☒ Centrifuge ID: C3|C4

Rec Date/Initals: M 03/03/20

Date/Initals: CHR 02/25/20

BalanceID: HRMS-9

Cen	VISTA Sample ID	Rec Vial1	Rec Vial2	pH	Chlorine (Cl)	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE and Reconciliation	ENVI-Carb and Reconciliation	RS CHEM/WIT DATE
☐	2000390-01	☑	☑	4	0	280.78	26.05	0.25473	ME HP 03/02/2020	ME 03/02/2020	ME 03/02/2020	ME 03/02/2020
☒	2000390-02	☑	☑	6	0	278.42	26.08	0.25234				
☒	2000390-03	☑	☑	6	0	278.35	25.82	0.25253				
☒	2000390-04	☑	☑	6	0	276.70	25.93	0.25077				
☒	2000390-05	☑	☑	6	0	277.84	25.96	0.25188				

IS: 20A0801, (V14), 10µL

IS SUP: N/A

NS: 20A0803, (V7), 10µL

NS SUP: N/A

RS: 20A0804, (V15), 10µL

SPE Chem: Strata XL-AW 100µm 200mg/6mL

SPE Lot#: S18-006865

ENVI-Carb Lot#: B03074

Ele SOLV: MeOH/0.5%NH4OH in MeOH

Final Volume(s): 1 mL

Notes:

Comments: Assume 1 g = 1 mL
Cen = Centrifuged
Rec = Reconcile final vial transfer

1 = Sample centrifuged twice
2 = Sample deeply colored after centrifuge
3 = Cartridge sorbent discolored after SPE
4 = Sample clogged cartridge, additional cartridge(s) used
5 = Sample recombined at final volume
6 = Sample took longer to SPE, required stronger vacuum
7 = Required Nitrogen line to finish SPE
8 = Required Nitrogen line to finish elution
9 = Sample arrived with low volume
10 = Trizma added to QC (5g/L)

Batch: B0B0213

Matrix: Aqueous

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
2000372-01	0.25095	NA	NA	1000	02-Mar-20 06:58	ME			Blank Water	537M PFAS DOD QSM 5.3
2000372-02	0.25404			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-03	0.24752			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-04	0.24881			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-05	0.24679			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-06	0.24911			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-07	0.24732			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000372-08	0.25075			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000373-01	0.24602			1000	02-Mar-20 06:58	ME			Wastewater	537M PFAS DOD QSM 5.3
2000373-02	0.24944			1000	02-Mar-20 06:58	ME			Wastewater	537M PFAS DOD QSM 5.3
2000373-03	0.25058			1000	02-Mar-20 06:58	ME			Wastewater	537M PFAS DOD QSM 5.3
2000373-05	0.25407			1000	02-Mar-20 06:58	ME			Wastewater	537M PFAS DOD QSM 5.3
2000390-01	0.25473			1000	02-Mar-20 06:58	ME			Blank Water	537M PFAS DOD QSM 5.3
2000390-02	0.25234			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000390-03	0.25253			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000390-04	0.25077			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
2000390-05	0.25188			1000	02-Mar-20 06:58	ME			Groundwater	537M PFAS DOD QSM 5.3
B0B0213-BLK1	0.25			1000	02-Mar-20 06:58	ME				QC
B0B0213-BS1	0.25			1000	02-Mar-20 06:58	ME	20A0803	10		QC
B0B0213-BSD1	0.25			1000	02-Mar-20 06:58	ME	20A0803	10		QC

All bolded data on report verified against written benchsheet by (initial/date) QM 03/03/20

Printed: 3/3/2020 7:43:14AM
Page 1 of 1

Sample Data – PFAS Isotope Dilution Method

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7		9.92e2	0.250		2.41						
2	7	PFHxA	313.0 > 269.0		1.40e4	0.250		2.94						
3	9	HFPO-DA	285.1 > 168.9		3.09e3	0.250		3.14						
4	11	PFHpA	363.0 > 318.9		8.15e3	0.250		3.54						
5	12	ADONA	376.8 > 250.9		8.15e3	0.250		3.62						
6	51	13C3-PFBS-EIS	302.0 > 98.8	9.92e2		0.250	82.647	2.53	2.41	992	47.9890	96.0		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.40e4		0.250	1213.080	2.94	2.94	14000	46.1301	92.3		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.09e3		0.250	280.215	3.25	3.14	3090	44.1126	88.2		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	8.15e3		0.250	676.004	3.58	3.54	8150	48.2346	96.5		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	8.15e3		0.250	676.004	3.58	3.54	8150	48.2346	96.5		
11	-1													
12	13	L-PFHxS	398.9 > 79.7		2.12e3	0.250		3.68						
13	1...	Total PFHxS	398.9 > 79.7	0.00e0	2.12e3	0.250		3.93		0.000				
14	16	L-PFOA	412.8 > 368.9		1.15e4	0.250		4.06						
15	1...	Total PFOA	412.8 > 368.9	0.00e0	1.15e4	0.250		4.60		0.000				
16	21	PFNA	463.0 > 418.8		1.03e4	0.250		4.51						
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.12e3		0.250	190.058	3.68	3.68	2120	44.6098	89.2		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.12e3		0.250	190.058	3.68	3.68	2120	44.6098	89.2		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.15e4		0.250	1016.548	4.06	4.06	11500	45.1627	90.3		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.15e4		0.250	1016.548	4.06	4.06	11500	45.1627	90.3		
21	65	13C5-PFNA-EIS	468.2 > 422.9	1.03e4		0.250	867.408	4.51	4.51	10300	47.5633	95.1		
22	-1													
23	23	L-PFOS	498.9 > 79.7		2.29e3	0.250		4.60						
24	1...	Total PFOS	498.9 > 79.7	0.00e0	2.29e3	0.250		5.13		0.000				
25	25	9Cl-PF30NS	530.7 > 350.8		2.29e3	0.250		4.80						
26	26	PFDA	513 > 468.8		1.08e4	0.250		4.90						
27	33	PFUdA	563.0 > 518.9		1.25e4	0.250		5.24						
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.29e3		0.250	207.944	4.60	4.60	2290	44.0623	88.1		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.29e3		0.250	207.944	4.60	4.60	2290	44.0623	88.1		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.29e3		0.250	207.944	4.60	4.60	2290	44.0623	88.1		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.08e4		0.250	944.999	4.90	4.90	10800	45.9039	91.8		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.25e4		0.250	1226.695	5.24	5.24	12500	40.8997	81.8		
33	-1													
34	29	L-MeFOSAA	570 > 419		2.04e3	0.250		5.06						
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	2.04e3	0.250		5.19		0.000				
36	31	L-EtFOSAA	584.1 > 419		2.56e3	0.250		5.22						

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Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	0.00e0	2.56e3	0.250		5.37		0.000				
38	35	11Cl-PF30UdS	630.9 > 450.9		1.02e4	0.250		5.45						
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.04e3		0.250	195.067	5.07	5.06	2040	41.8861	83.8		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.04e3		0.250	195.067	5.07	5.06	2040	41.8861	83.8		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.56e3		0.250	288.034	5.21	5.22	2560	35.5977	71.2		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.56e3		0.250	288.034	5.21	5.22	2560	35.5977	71.2		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.02e4		0.250	1212.024	5.50	5.52	10200	33.5902	67.2		
44	-1													
45	37	PFDoA	612.9 > 569.0		1.02e4	0.250		5.52						
46	39	PFTrDA	662.9 > 618.9		1.02e4	0.250		5.77						
47	41	PFTeDA	713.0 > 669.0		9.71e3	0.250		5.99						
48	1...	TDCA	498.3>106.9			0.250		4.59						
49	99	13C4-PFBA	217.0 > 172.0	9.53e3	9.53e3	0.250	1.000	1.23	1.21	12.5	50.0000	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.02e4		0.250	1212.024	5.50	5.52	10200	33.5902	67.2		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.02e4		0.250	1212.024	5.50	5.52	10200	33.5902	67.2		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	9.71e3		0.250	1069.279	5.92	5.99	9710	36.3284	72.7		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.29e3		0.250	207.944	4.60	4.60	2290	44.0623	88.1		
54	1...	13C5-PFHxA	318.0 > 272.9	1.45e4	1.45e4	0.250	1.000	2.94	2.94	12.5	50.0000	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	9.62e2	9.62e2	0.250	1.000	3.67	3.68	12.5	50.0000	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.57e4	1.57e4	0.250	1.000	4.05	4.06	12.5	50.0000	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.24e4	1.24e4	0.250	1.000	4.90	4.90	12.5	50.0000	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.69e4	1.69e4	0.250	1.000	5.23	5.24	12.5	50.0000	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.86e3	2.86e3	0.250	1.000	4.60	4.60	12.5	50.0000	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.23e4	1.23e4	0.250	1.000	4.51	4.51	12.5	50.0000	100.0		

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Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

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Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

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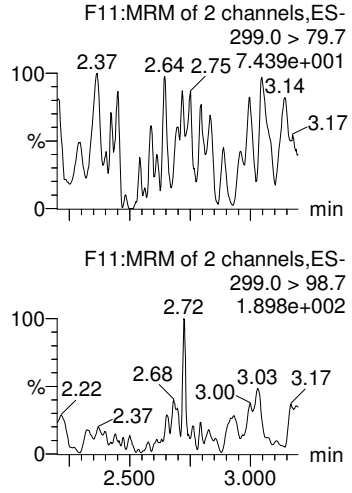
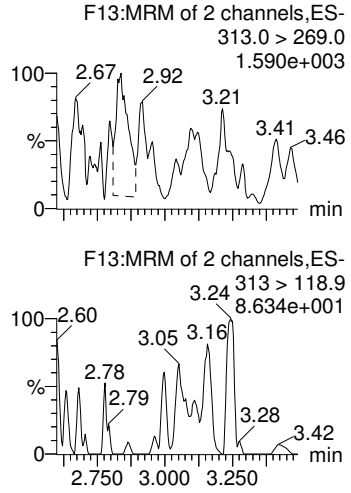
Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

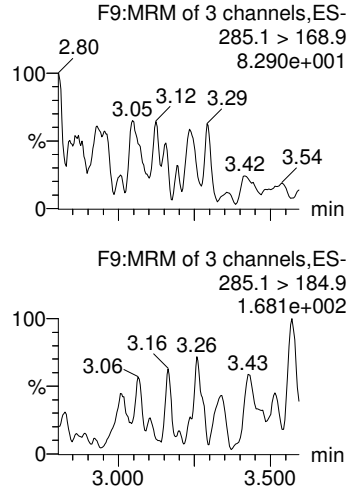
PFBS



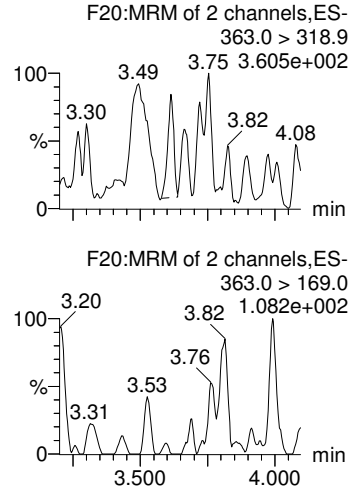
PFHxA



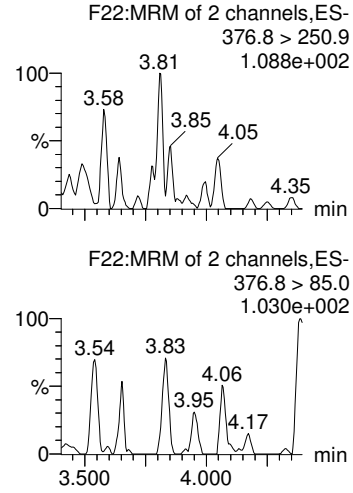
HFPO-DA



PFHpA



ADONA



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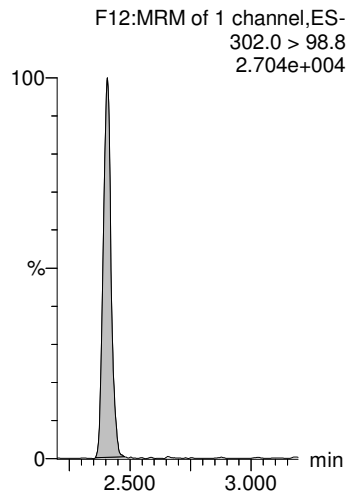

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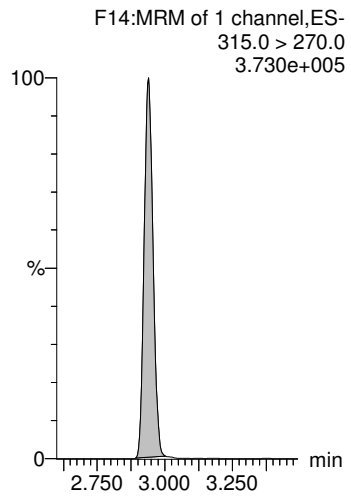

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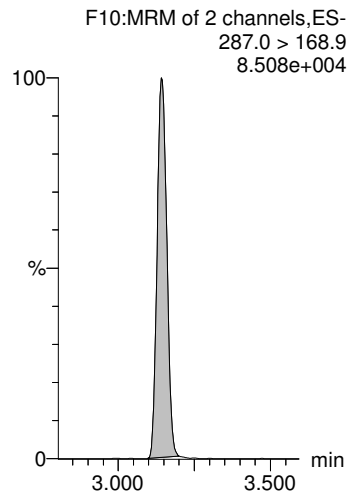

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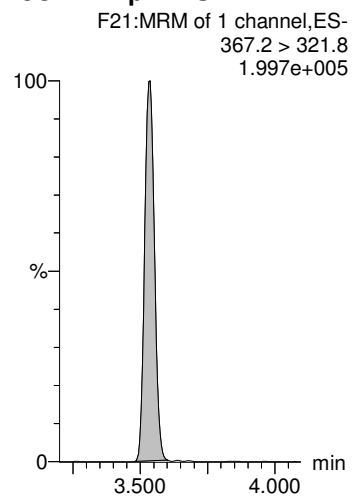

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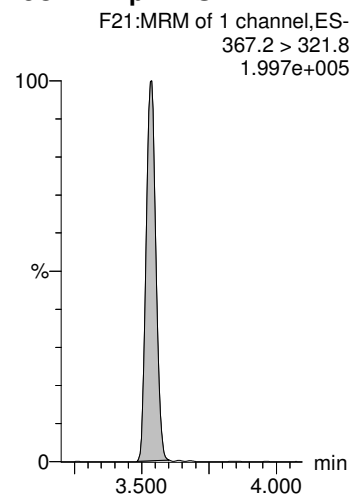

Review: AMR 3/6/2020

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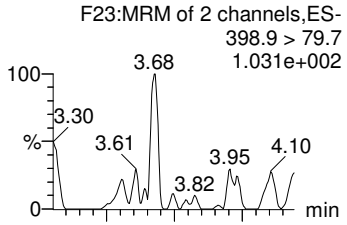
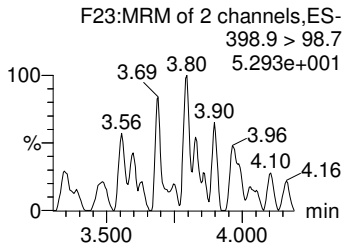
Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

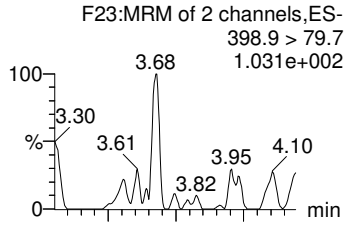
Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

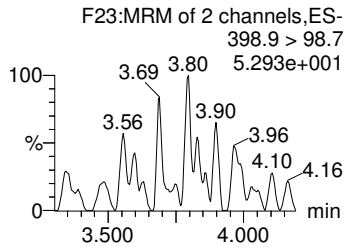
L-PFHxS



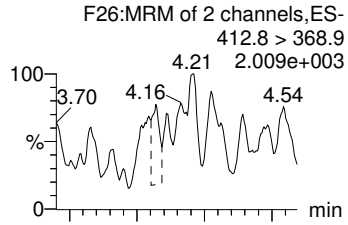


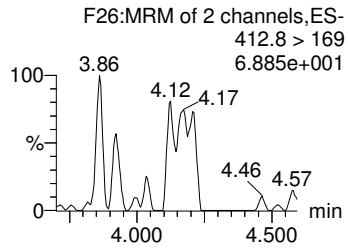
Total PFHxS



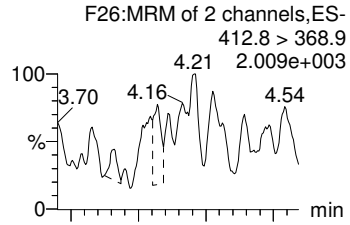


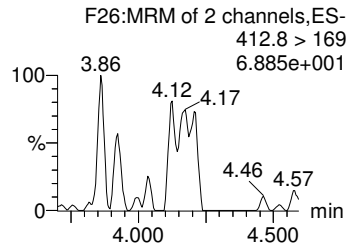
L-PFOA



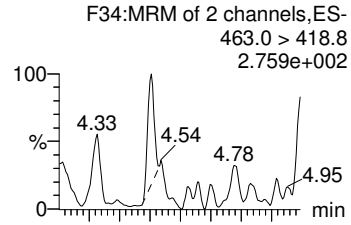


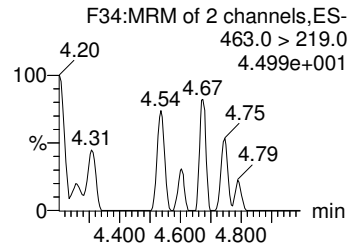
Total PFOA





PFNA





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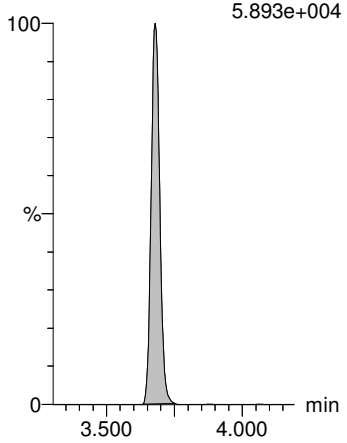
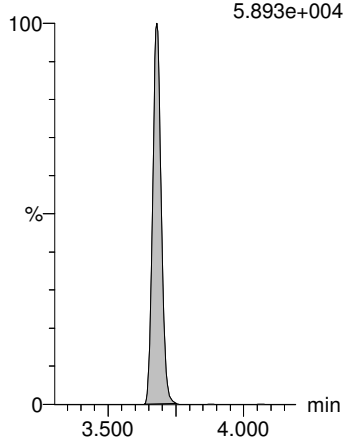


13C3-PFHxS-EIS



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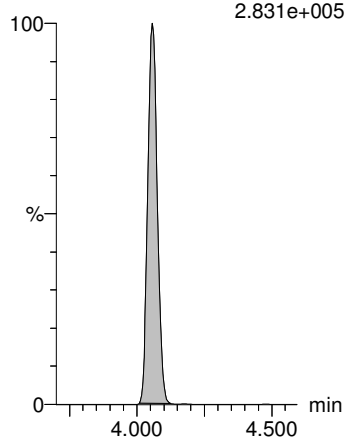

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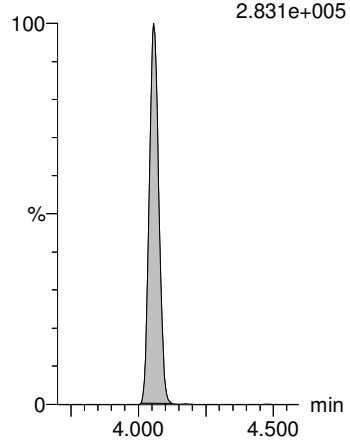
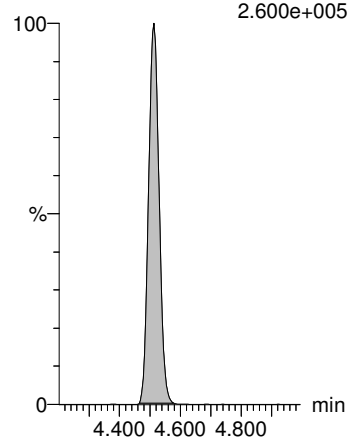


13C5-PFNA-EIS



 RK 3/5/2020

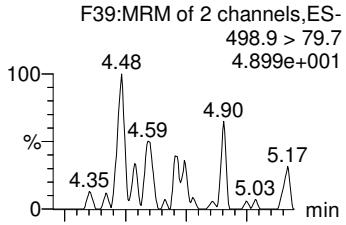
Review: AMR 3/6/2020

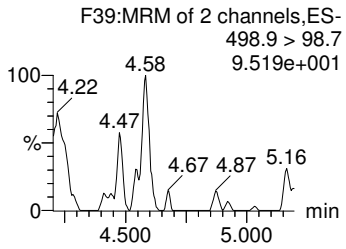
Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

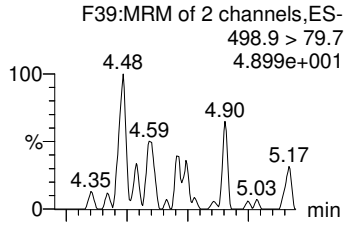
Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

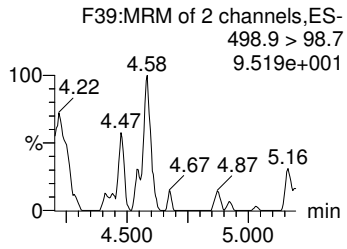
L-PFOS



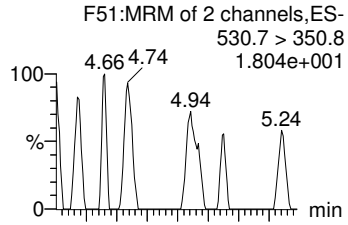


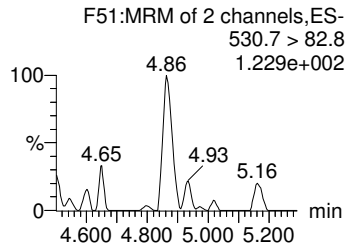
Total PFOS



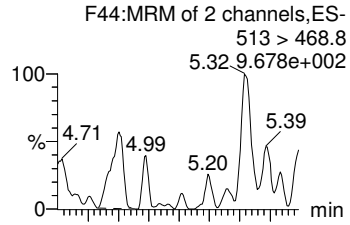


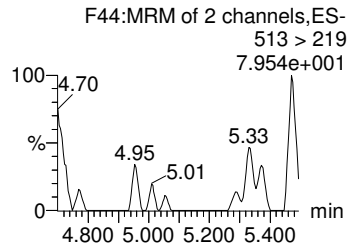
9Cl-PF30NS



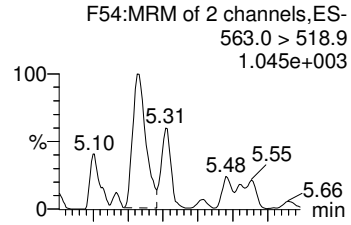


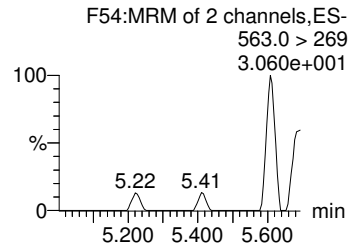
PFDA



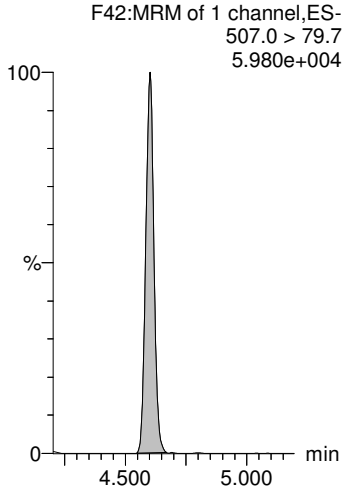


PFUdA





13C8-PFOS-EIS



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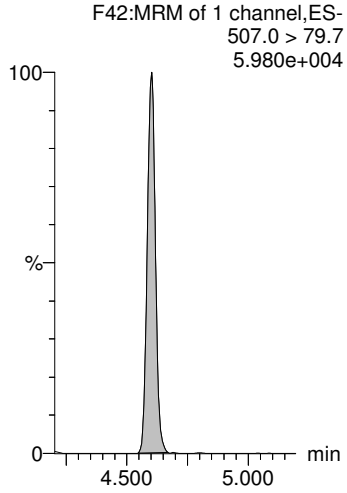

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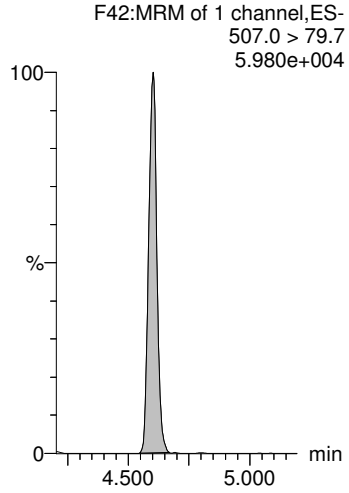
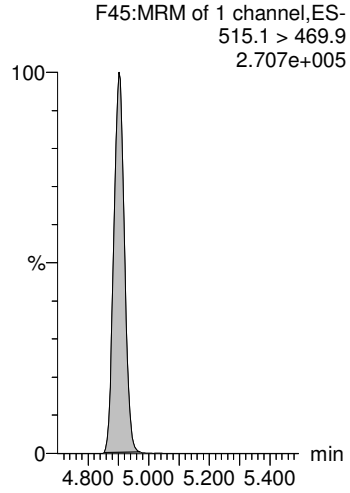
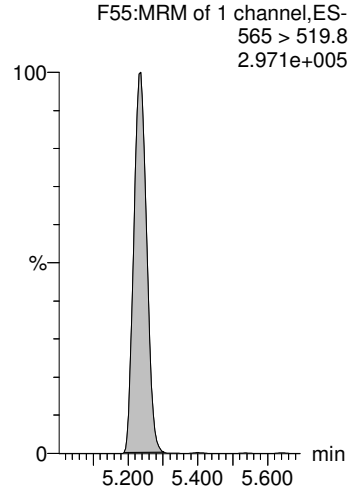


13C2-PFDA-EIS



13C2-PFUdA-EIS



 RK 3/5/2020

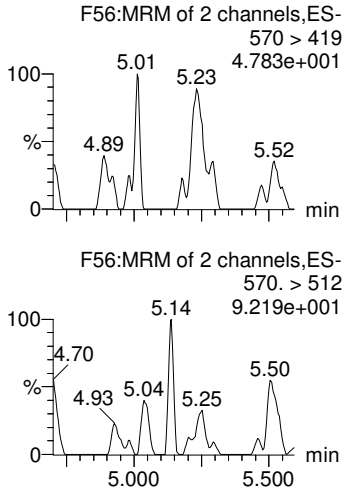
Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

L-MeFOSAA



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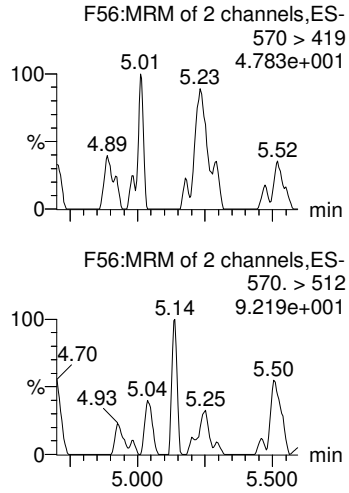
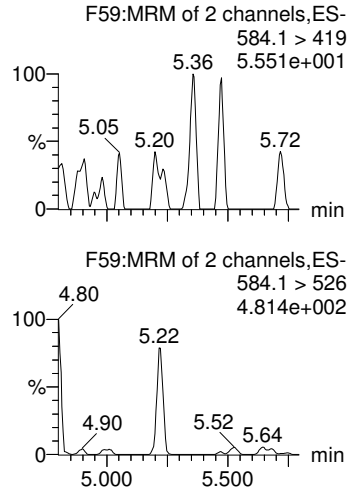


L-EtFOSAA



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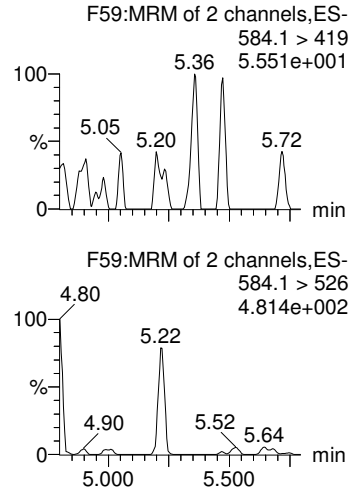
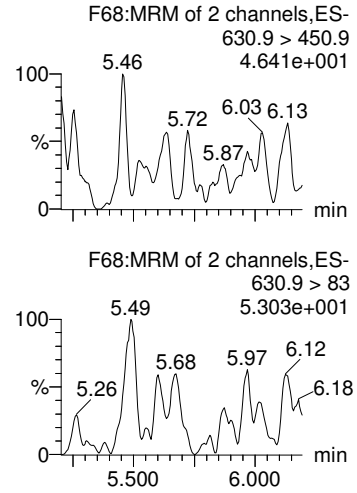
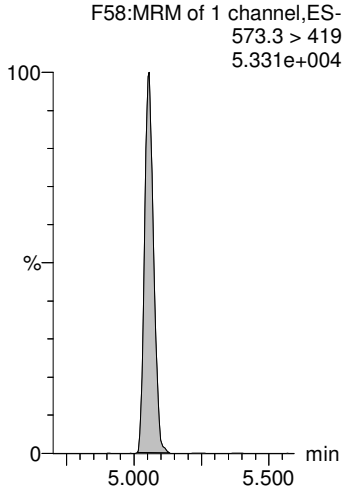


11Cl-PF30UdS



d3-N-MeFOSAA-EIS



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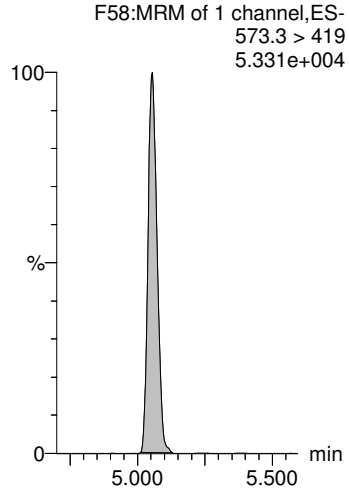
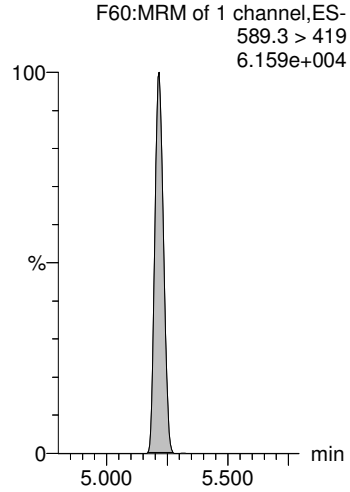


d5-N-EtFOSAA-EIS



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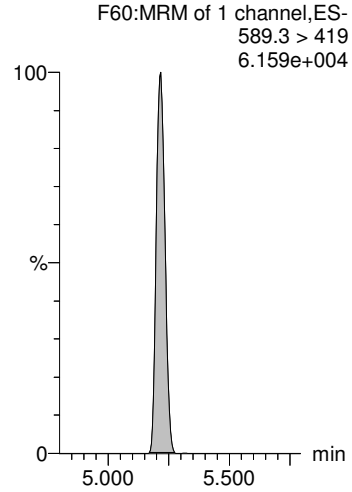
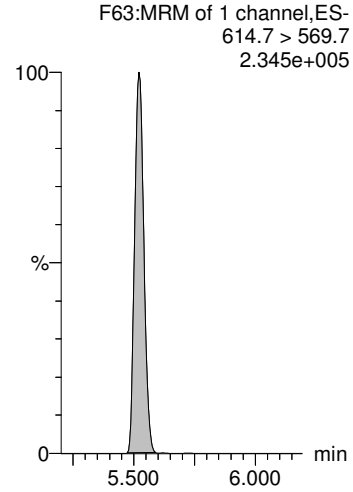


13C2-PFDoA-EIS



 RK 3/5/2020

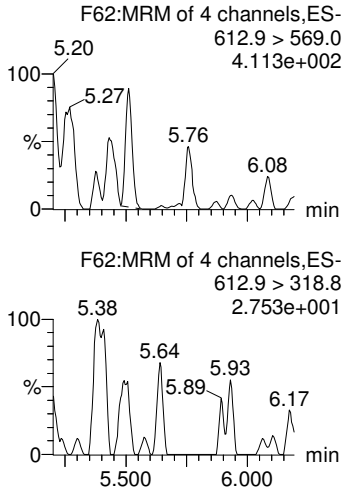
Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

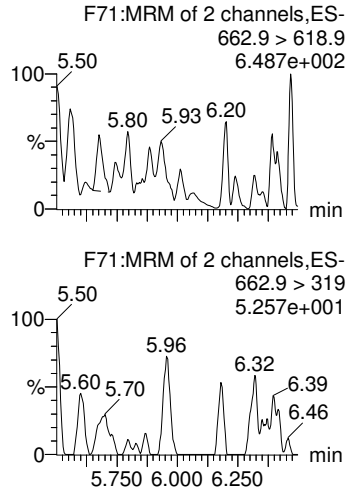
Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

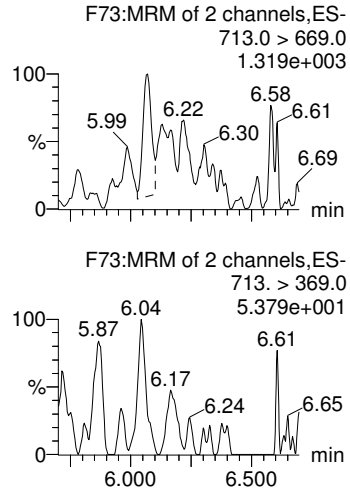
PFDoA



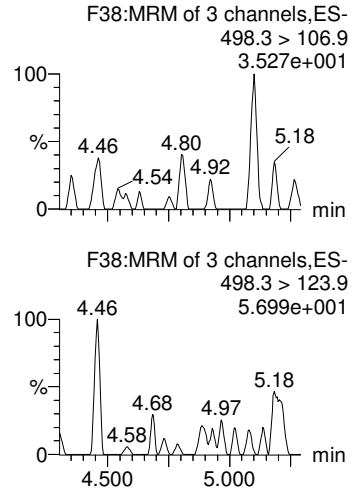
PFTrDA



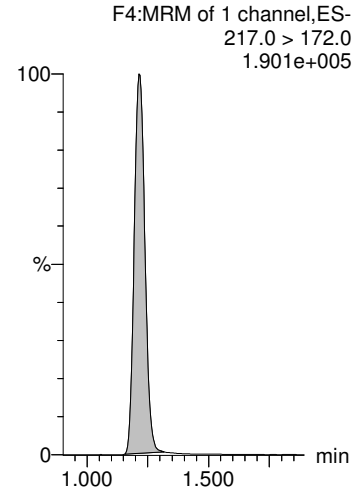
PFTeDA



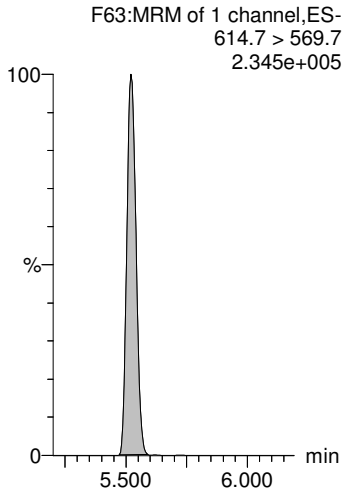
TDCA



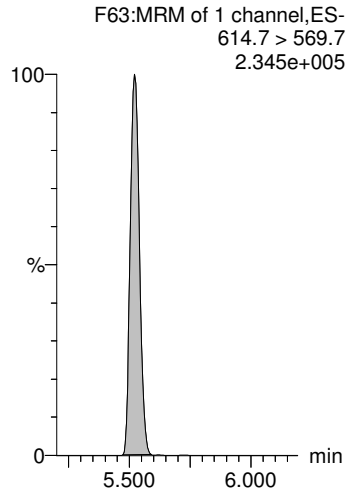
13C4-PFBA



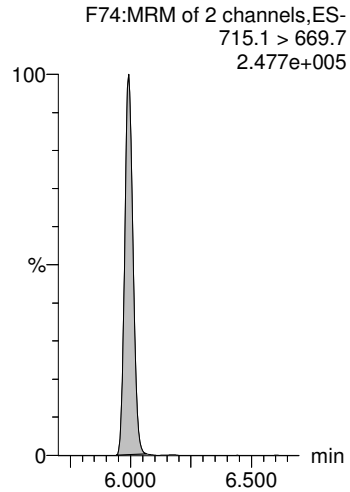
13C2-PFDoA-EIS



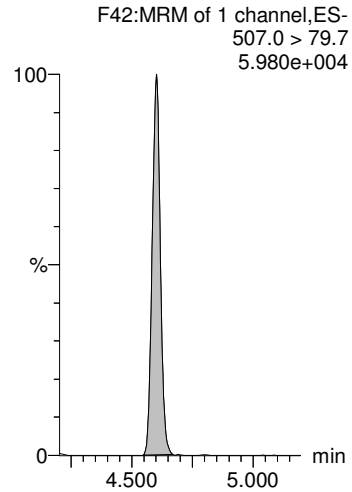
13C2-PFDoA-EIS



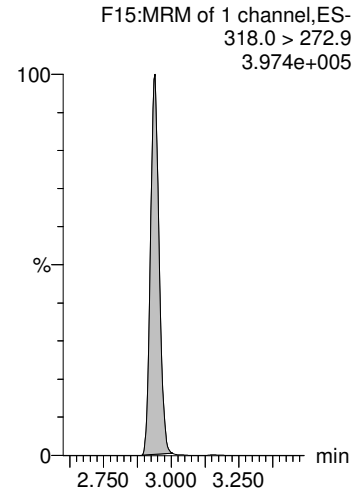
13C2-PFTeDA-EIS



13C8-PFOS-EIS



13C5-PFHxA



 RK 3/5/2020

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-16.qld

Last Altered: Thursday, March 05, 2020 12:59:30 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:00:30 Pacific Standard Time

Name: 200304P2-16, Date: 04-Mar-2020, Time: 21:48:26, ID: B0B0213-BLK1 Method Blank 0.25, Description: Method Blank

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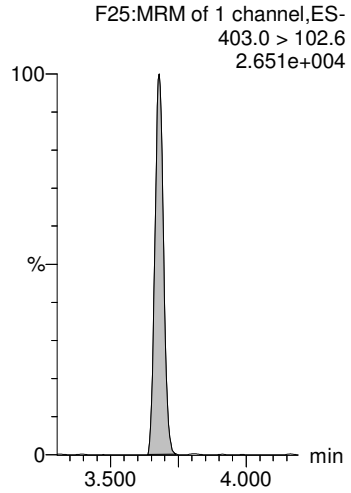
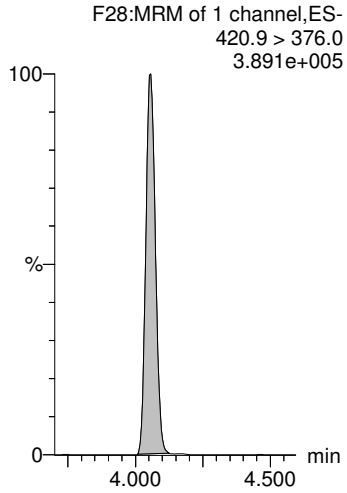
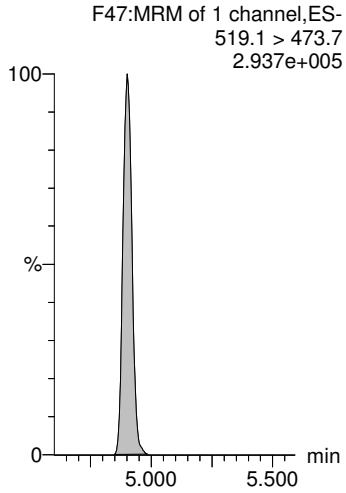


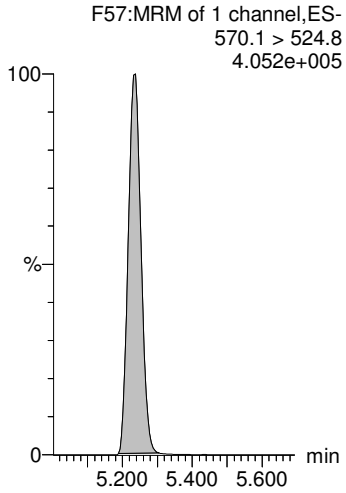
13C8-PFOA



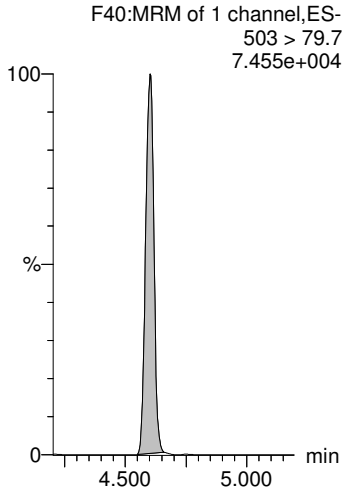
13C6-PFDA



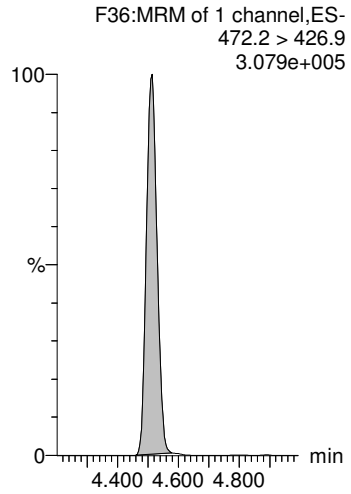
13C7-PFUdA



13C4-PFOS



13C9-PFNA



 RK 3/5/2020

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-17.qld

Last Altered: Thursday, March 05, 2020 13:57:40 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:59:11 Pacific Standard Time

Name: 200304P2-17, Date: 04-Mar-2020, Time: 21:58:57, ID: B0B0213-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7	2.11e3	9.90e2	0.250		2.41	2.41	26.6	41.2861	103.2	3.227	NO
2	7	PFHxA	313.0 > 269.0	1.13e4	1.45e4	0.250		2.94	2.94	9.74	44.1411	110.4	19.233	NO
3	9	HFPO-DA	285.1 > 168.9	3.03e3	3.36e3	0.250		3.15	3.15	11.3	40.6751	101.7	2.668	NO
4	11	PFHpA	363.0 > 318.9	8.50e3	8.22e3	0.250		3.54	3.54	12.9	42.8249	107.1	17.160	NO
5	12	ADONA	376.8 > 250.9	2.27e4	8.22e3	0.250		3.62	3.64	34.5	40.3935	101.0	3.908	NO
6	51	13C3-PFBS-EIS	302.0 > 98.8	9.90e2		0.250	82.647	2.53	2.41	990	47.9266	95.9		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.45e4		0.250	1213.080	2.94	2.94	14500	47.7213	95.4		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.36e3		0.250	280.215	3.25	3.15	3360	47.9313	95.9		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	8.22e3		0.250	676.004	3.58	3.54	8220	48.6275	97.3		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	8.22e3		0.250	676.004	3.58	3.54	8220	48.6275	97.3		
11	-1													
12	13	L-PFHxS	398.9 > 79.7	1.97e3	2.43e3	0.250		3.68	3.68	10.1	39.6727	99.2	2.242	NO
13	1...	Total PFHxS	398.9 > 79.7	1.97e3	2.43e3	0.250		3.93		10.1	39.6727			
14	16	L-PFOA	412.8 > 368.9	1.24e4	1.13e4	0.250		4.06	4.06	13.7	42.8500	107.1	3.110	NO
15	1...	Total PFOA	412.8 > 368.9	1.24e4	1.13e4	0.250		4.60		13.7	42.8500			
16	21	PFNA	463.0 > 418.8	1.14e4	1.03e4	0.250		4.51	4.51	13.8	44.2636	110.7	5.922	NO
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.43e3		0.250	190.058	3.68	3.68	2430	51.2238	102.4		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.43e3		0.250	190.058	3.68	3.68	2430	51.2238	102.4		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.13e4		0.250	1016.548	4.06	4.06	11300	44.6138	89.2		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.13e4		0.250	1016.548	4.06	4.06	11300	44.6138	89.2		
21	65	13C5-PFNA-EIS	468.2 > 422.9	1.03e4		0.250	867.408	4.51	4.51	10300	47.4868	95.0		
22	-1													
23	23	L-PFOS	498.9 > 79.7	1.88e3	2.50e3	0.250		4.60	4.60	9.40	40.2701	100.7	2.175	NO
24	1...	Total PFOS	498.9 > 79.7	1.88e3	2.50e3	0.250		5.13		9.40	40.2701			
25	25	9Cl-PF30NS	530.7 > 350.8	3.20e3	2.50e3	0.250		4.80	4.82	16.0	40.9490	102.4	16.127	NO
26	26	PFDA	513 > 468.8	1.31e4	1.16e4	0.250		4.90	4.90	14.1	42.1853	105.5	9.355	NO
27	33	PFUdA	563.0 > 518.9	9.81e3	1.23e4	0.250		5.24	5.24	9.98	42.4042	106.0	16.221	NO
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.50e3		0.250	207.944	4.60	4.60	2500	48.0174	96.0		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.50e3		0.250	207.944	4.60	4.60	2500	48.0174	96.0		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.50e3		0.250	207.944	4.60	4.60	2500	48.0174	96.0		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.16e4		0.250	944.999	4.90	4.90	11600	48.9190	97.8		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.23e4		0.250	1226.695	5.23	5.24	12300	40.0946	80.2		
33	-1													
34	29	L-MeFOSAA	570 > 419	3.64e3	2.12e3	0.250		5.06	5.06	21.5	41.1757	102.9	2.468	NO
35	1...	Total N-MeFOSAA	570. > 419	3.64e3	2.12e3	0.250		5.19		21.5	41.1757			
36	31	L-EtFOSAA	584.1 > 419	2.81e3	2.67e3	0.250		5.21	5.22	13.2	39.9997	100.0	1.078	NO

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-17.qld

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Name: 200304P2-17, Date: 04-Mar-2020, Time: 21:58:57, ID: B0B0213-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	2.81e3	2.67e3	0.250		5.37		13.2	39.9997			
38	35	11Cl-PF30UdS	630.9 > 450.9	4.57e3	1.25e4	0.250		5.45	5.45	4.57	40.4657	101.2	21.723	NO
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.12e3		0.250	195.067	5.06	5.06	2120	43.5205	87.0		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.12e3		0.250	195.067	5.06	5.06	2120	43.5205	87.0		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.67e3		0.250	288.034	5.20	5.21	2670	37.0413	74.1		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.67e3		0.250	288.034	5.20	5.21	2670	37.0413	74.1		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.25e4		0.250	1212.024	5.49	5.52	12500	41.2815	82.6		
44	-1													
45	37	PFDoA	612.9 > 569.0	1.09e4	1.25e4	0.250		5.52	5.52	10.8	43.3163	108.3	10.008	NO
46	39	PFTrDA	662.9 > 618.9	1.09e4	1.25e4	0.250		5.77	5.77	10.9	41.4189	103.5	38.996	NO
47	41	PFTeDA	713.0 > 669.0	1.18e4	1.02e4	0.250		5.99	5.99	14.4	40.5307	101.3	16.733	NO
48	1...	TDCA	498.3>106.9			0.250		4.59						
49	99	13C4-PFBA	217.0 > 172.0	9.89e3	9.89e3	0.250	1.000	1.23	1.22	12.5	50.0000	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.25e4		0.250	1212.024	5.49	5.52	12500	41.2815	82.6		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.25e4		0.250	1212.024	5.49	5.52	12500	41.2815	82.6		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	1.02e4		0.250	1069.279	5.92	5.99	10200	38.2572	76.5		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.50e3		0.250	207.944	4.60	4.60	2500	48.0174	96.0		
54	1...	13C5-PFHxA	318.0 > 272.9	1.54e4	1.54e4	0.250	1.000	2.94	2.94	12.5	50.0000	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.07e3	1.07e3	0.250	1.000	3.67	3.68	12.5	50.0000	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.57e4	1.57e4	0.250	1.000	4.05	4.06	12.5	50.0000	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.16e4	1.16e4	0.250	1.000	4.90	4.90	12.5	50.0000	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.65e4	1.65e4	0.250	1.000	5.23	5.23	12.5	50.0000	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.96e3	2.96e3	0.250	1.000	4.60	4.60	12.5	50.0000	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.20e4	1.20e4	0.250	1.000	4.51	4.51	12.5	50.0000	100.0		

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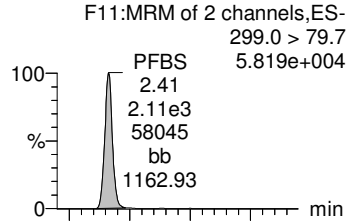

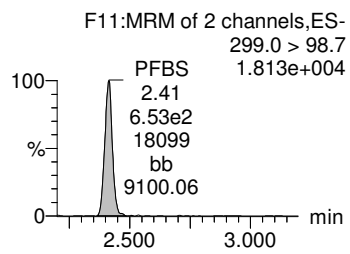

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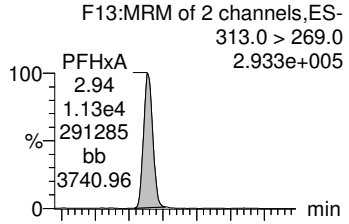

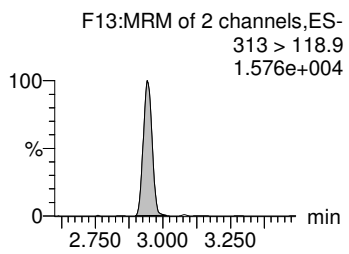

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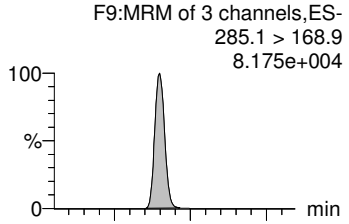

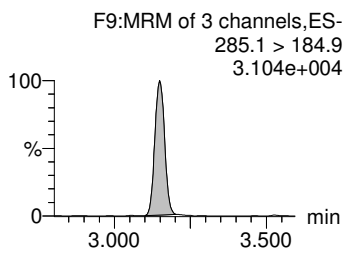

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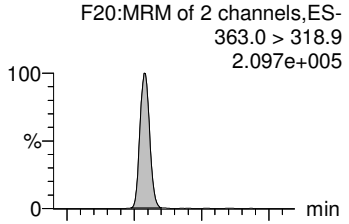

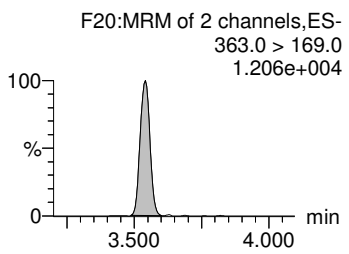

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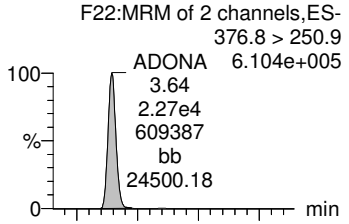

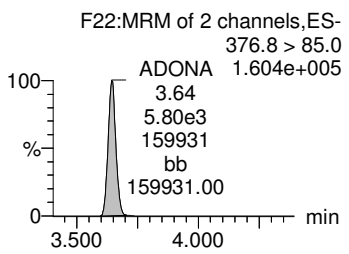

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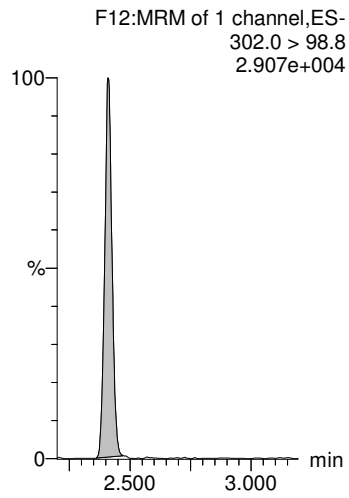

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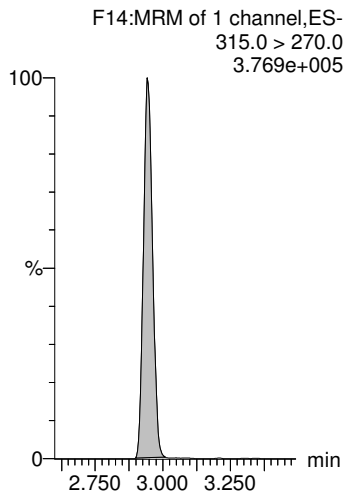

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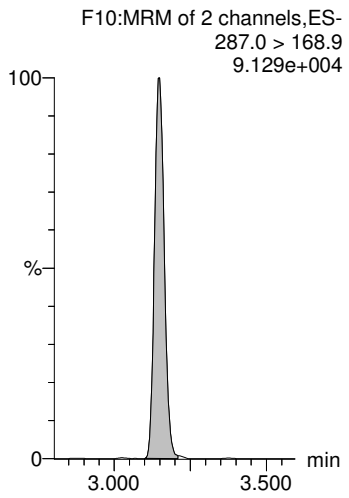

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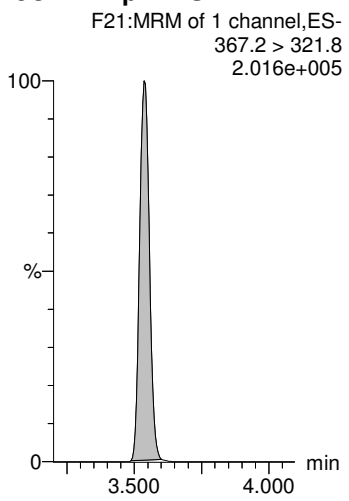

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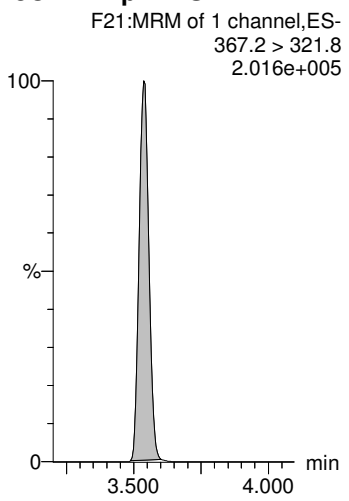

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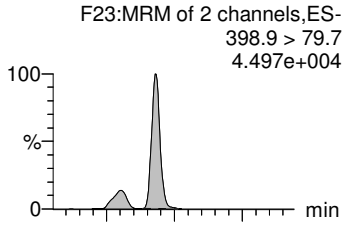

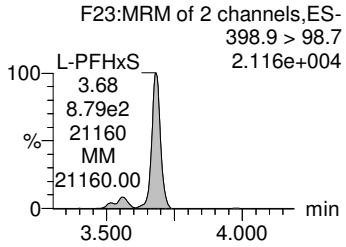

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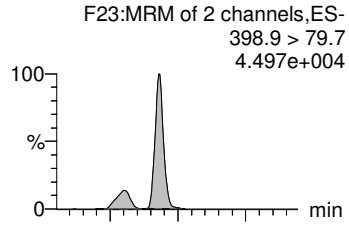

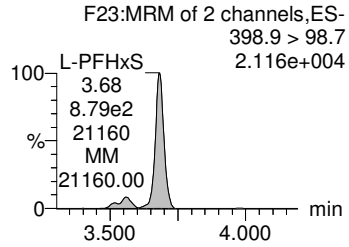

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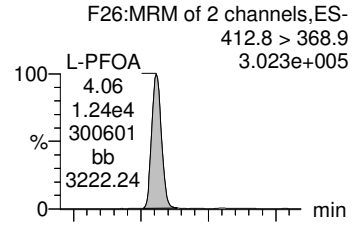

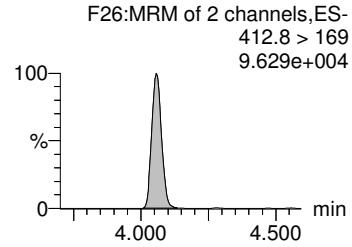

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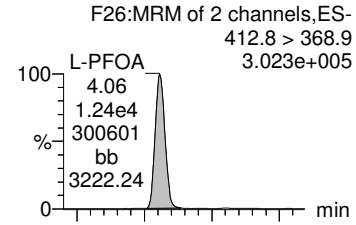

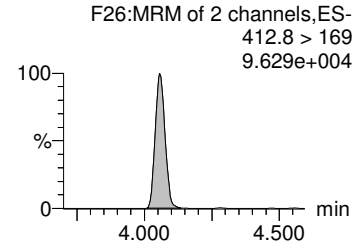

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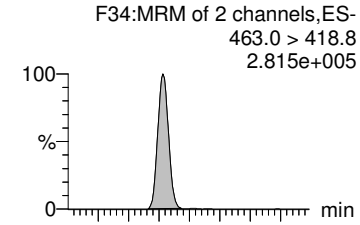

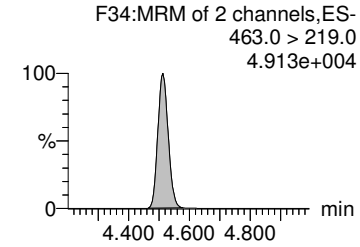

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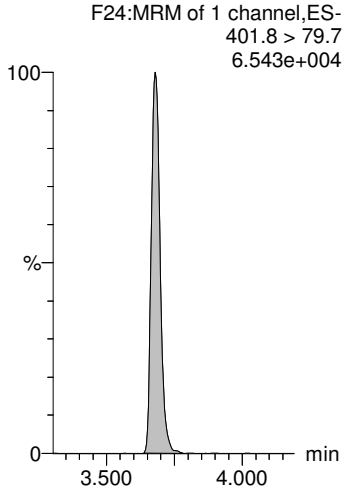

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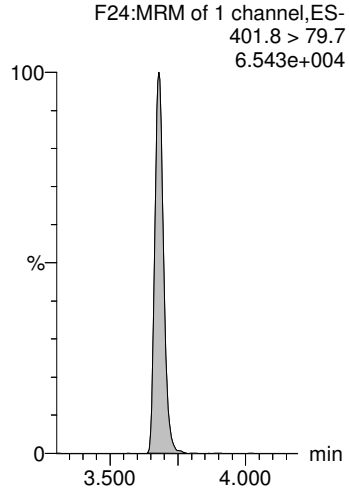

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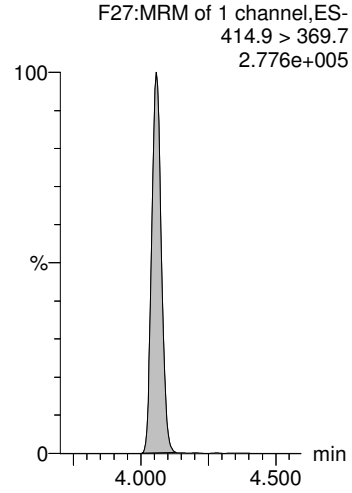

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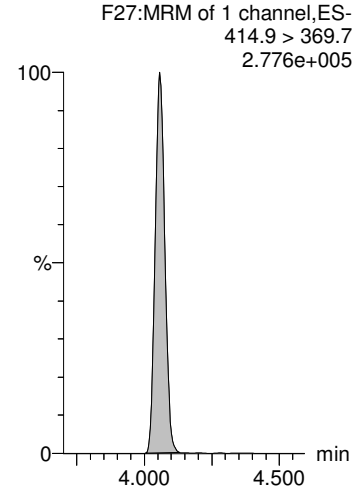

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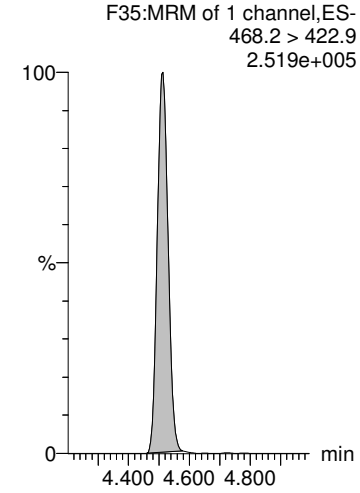

 RK 3/5/2020

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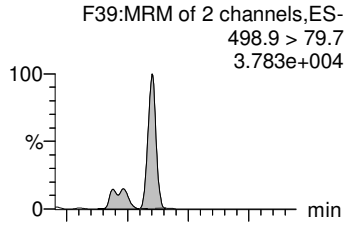
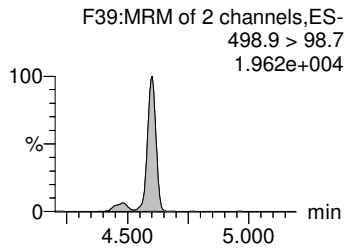
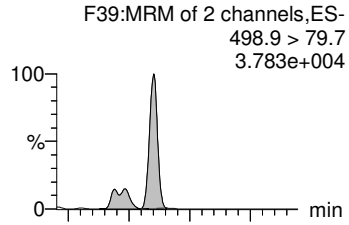
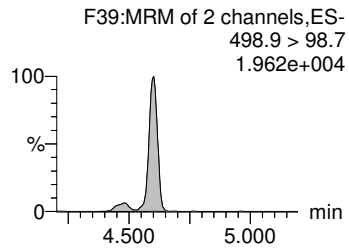
L-PFOS





Total PFOS





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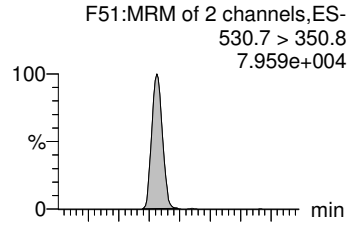
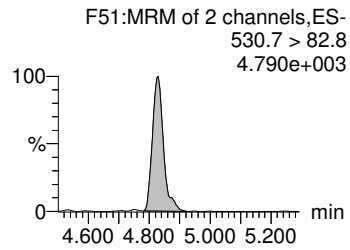
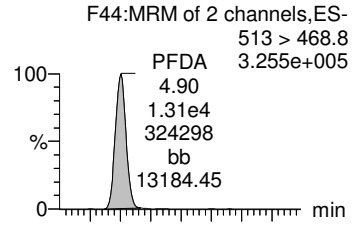
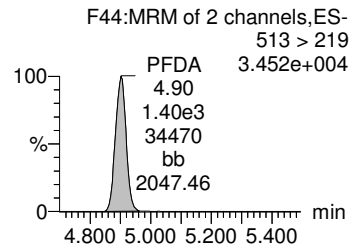


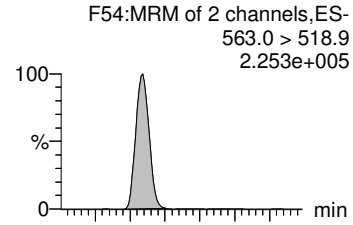


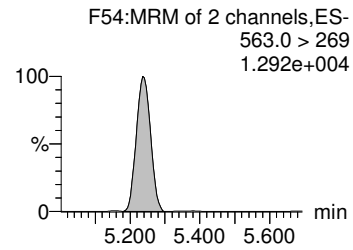
PFDA



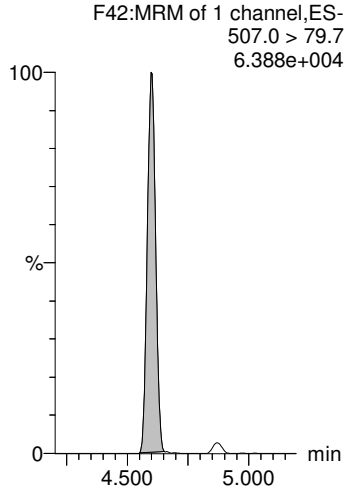


PFUdA





13C8-PFOS-EIS



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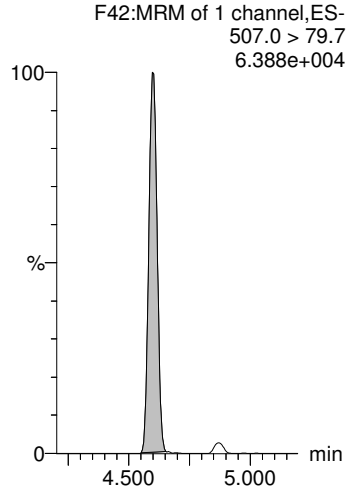
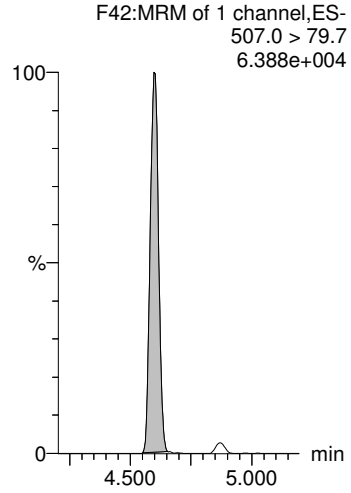
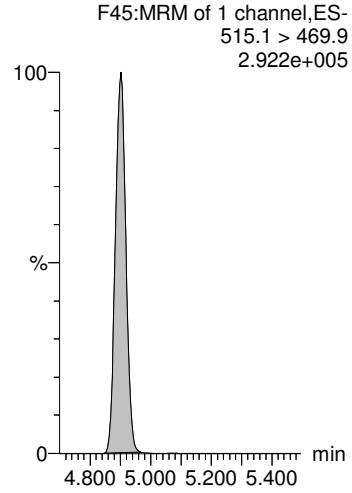


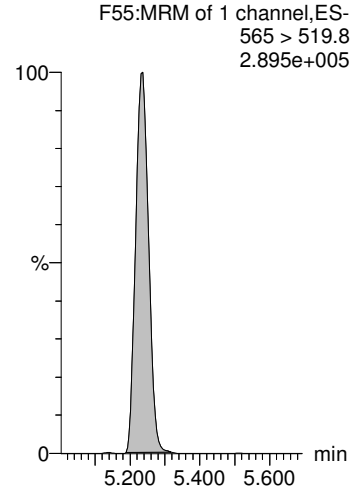
13C8-PFOS-EIS



13C2-PFDA-EIS



13C2-PFUdA-EIS



 RK 3/5/2020

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-17.qld

Last Altered: Thursday, March 05, 2020 13:57:40 Pacific Standard Time
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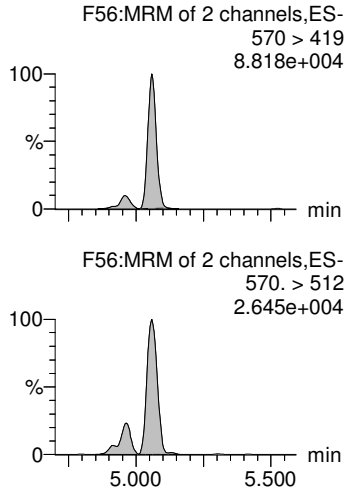
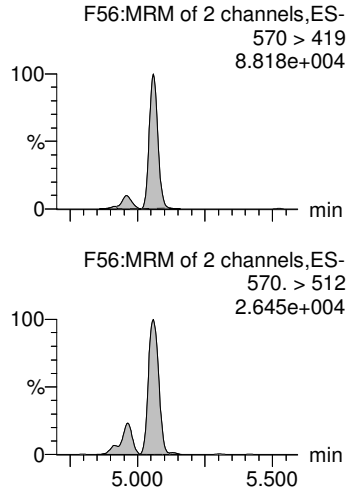
Name: 200304P2-17, Date: 04-Mar-2020, Time: 21:58:57, ID: B0B0213-BS1 OPR 0.25, Description: OPR

L-MeFOSAA



Total N-MeFOSAA



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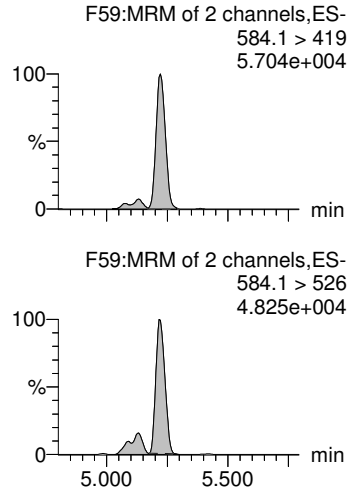
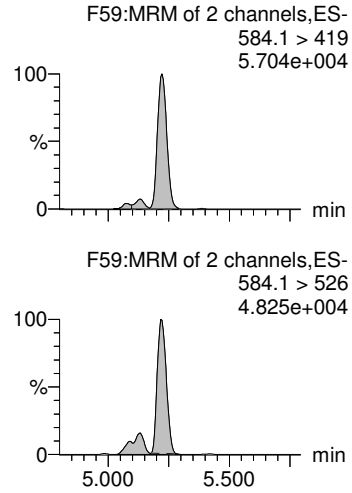
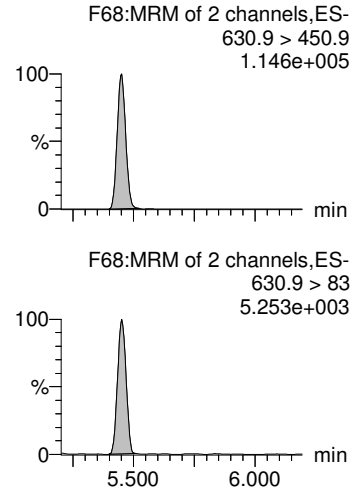


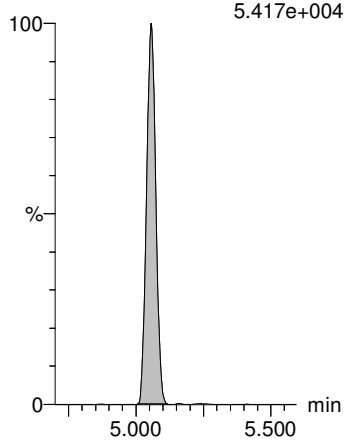
Total N-EtFOSAA



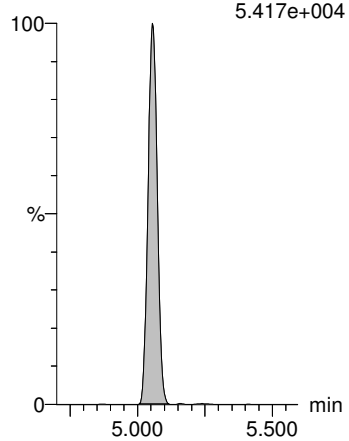
11Cl-PF30UdS



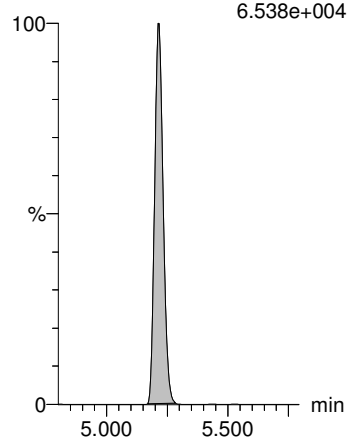
d3-N-MeFOSAA-EIS



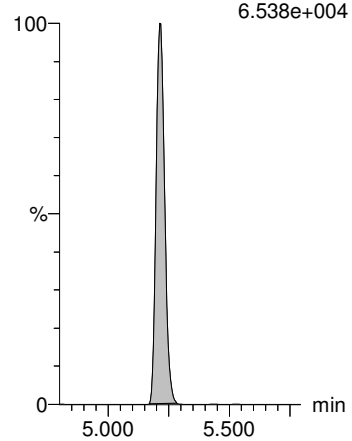
d3-N-MeFOSAA-EIS



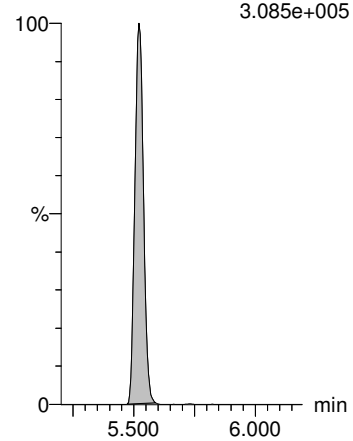
d5-N-EtFOSAA-EIS



d5-N-EtFOSAA-EIS



13C2-PFDoA-EIS



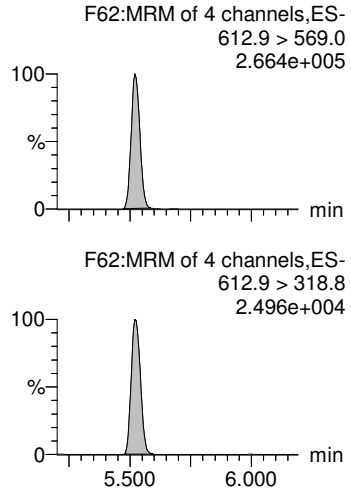
Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-17.qld

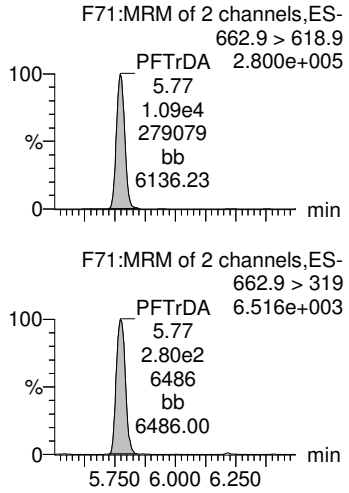
Last Altered: Thursday, March 05, 2020 13:57:40 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:59:11 Pacific Standard Time

Name: 200304P2-17, Date: 04-Mar-2020, Time: 21:58:57, ID: B0B0213-BS1 OPR 0.25, Description: OPR

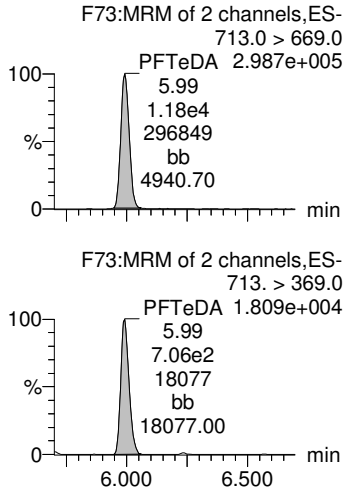
PFDoA



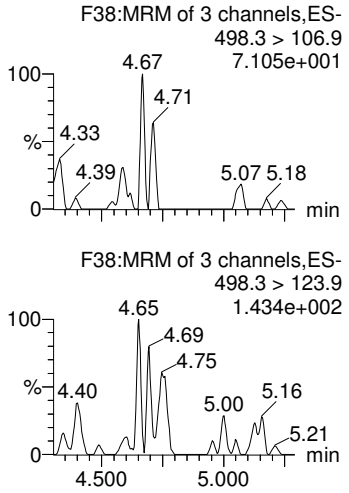
PFTrDA



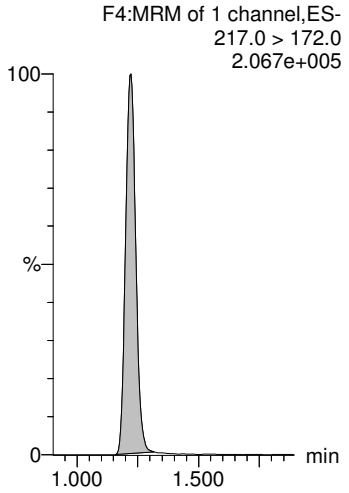
PFTeDA



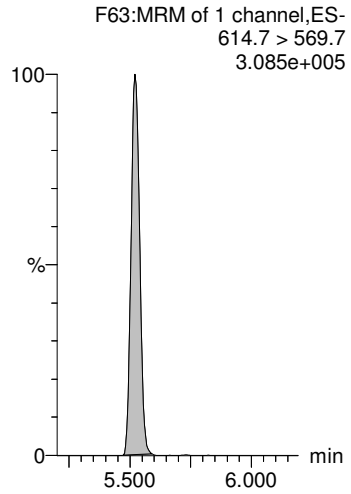
TDCA



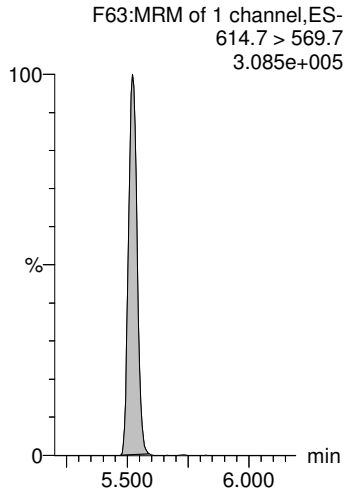
13C4-PFBA



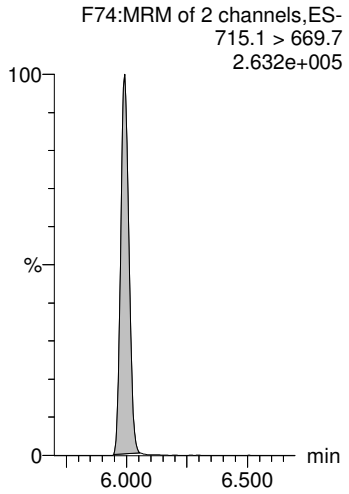
13C2-PFDoA-EIS



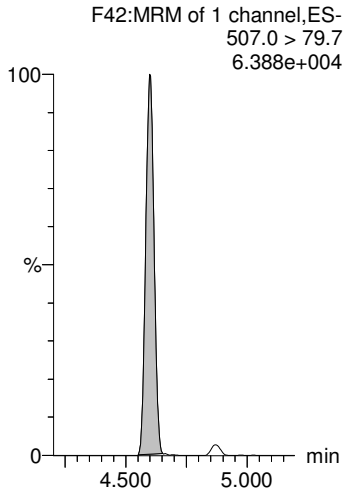
13C2-PFDoA-EIS



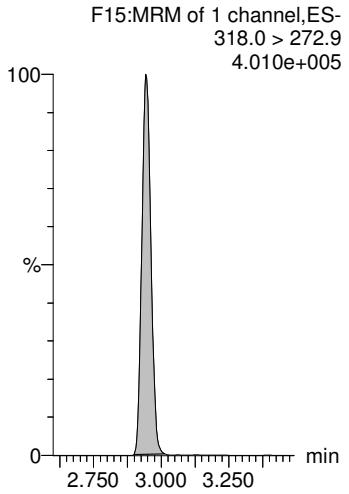
13C2-PFTeDA-EIS



13C8-PFOS-EIS



13C5-PFHxA



 RK 3/5/2020

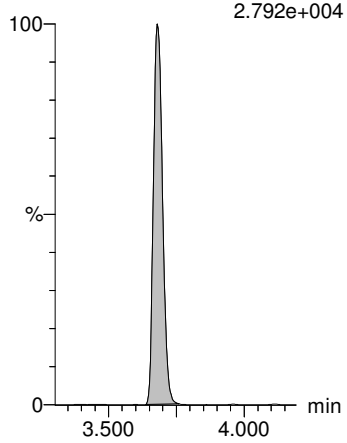
Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-17.qld

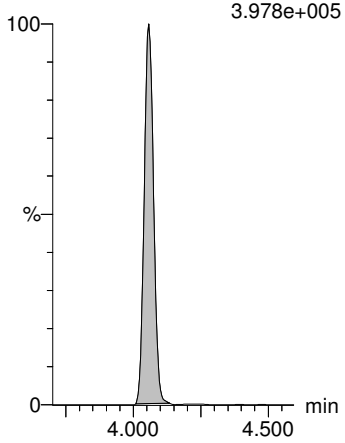
Last Altered: Thursday, March 05, 2020 13:57:40 Pacific Standard Time
Printed: Thursday, March 05, 2020 13:59:11 Pacific Standard Time

Name: 200304P2-17, Date: 04-Mar-2020, Time: 21:58:57, ID: B0B0213-BS1 OPR 0.25, Description: OPR

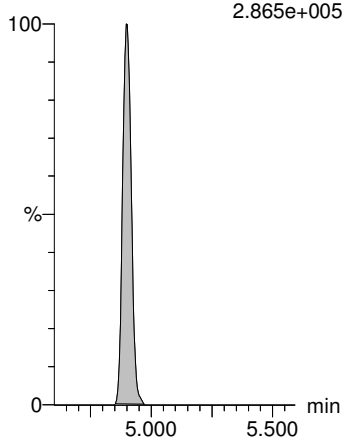
18O2-PFHxS



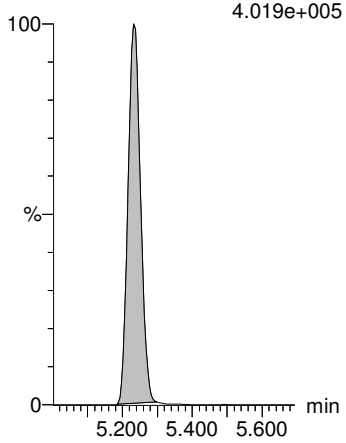
13C8-PFOA



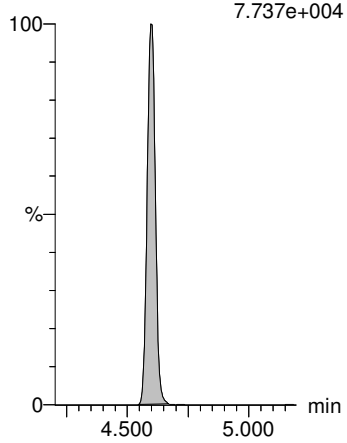
13C6-PFDA



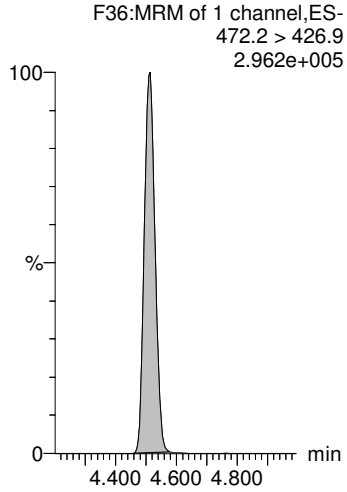
13C7-PFUdA



13C4-PFOS



13C9-PFNA



 RK 3/5/2020

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-18.qld

Last Altered: Thursday, March 05, 2020 14:03:56 Pacific Standard Time
Printed: Thursday, March 05, 2020 14:05:59 Pacific Standard Time

Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7	1.92e3	1.06e3	0.250		2.41	2.41	22.7	35.2882	88.2	2.888	NO
2	7	PFHxA	313.0 > 269.0	1.08e4	1.40e4	0.250		2.94	2.94	9.63	43.6537	109.1	21.863	NO
3	9	HFPO-DA	285.1 > 168.9	2.93e3	3.06e3	0.250		3.14	3.14	12.0	43.2645	108.2	2.711	NO
4	11	PFHpA	363.0 > 318.9	7.96e3	8.07e3	0.250		3.53	3.54	12.3	40.8357	102.1	14.212	NO
5	12	ADONA	376.8 > 250.9	2.18e4	8.07e3	0.250		3.62	3.64	33.8	39.5452	98.9	3.809	NO
6	51	13C3-PFBS-EIS	302.0 > 98.8	1.06e3		0.250	82.647	2.53	2.41	1060	51.1072	102.2		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.40e4		0.250	1213.080	2.94	2.94	14000	46.3277	92.7		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.06e3		0.250	280.215	3.24	3.14	3060	43.6381	87.3		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	8.07e3		0.250	676.004	3.58	3.53	8070	47.7330	95.5		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	8.07e3		0.250	676.004	3.58	3.53	8070	47.7330	95.5		
11	-1													
12	13	L-PFHxS	398.9 > 79.7	1.98e3	2.31e3	0.250		3.68	3.68	10.7	41.8829	104.7	2.404	NO
13	1...	Total PFHxS	398.9 > 79.7	1.98e3	2.31e3	0.250		3.93		10.7	41.8829			
14	16	L-PFOA	412.8 > 368.9	1.25e4	1.16e4	0.250		4.05	4.05	13.4	41.9895	105.0	3.093	NO
15	1...	Total PFOA	412.8 > 368.9	1.25e4	1.16e4	0.250		4.60		13.4	41.9895			
16	21	PFNA	463.0 > 418.8	1.09e4	1.01e4	0.250		4.51	4.51	13.6	43.4721	108.7	5.954	NO
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.31e3		0.250	190.058	3.68	3.68	2310	48.7119	97.4		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.31e3		0.250	190.058	3.68	3.68	2310	48.7119	97.4		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.16e4		0.250	1016.548	4.05	4.05	11600	45.7902	91.6		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.16e4		0.250	1016.548	4.05	4.05	11600	45.7902	91.6		
21	65	13C5-PFNA-EIS	468.2 > 422.9	1.01e4		0.250	867.408	4.51	4.51	10100	46.4006	92.8		
22	-1													
23	23	L-PFOS	498.9 > 79.7	2.09e3	2.56e3	0.250		4.60	4.60	10.2	43.5882	109.0	2.565	NO
24	1...	Total PFOS	498.9 > 79.7	2.09e3	2.56e3	0.250		5.13		10.2	43.5882			
25	25	9Cl-PF30NS	530.7 > 350.8	2.89e3	2.56e3	0.250		4.80	4.82	14.1	36.1159	90.3	18.451	NO
26	26	PFDA	513 > 468.8	1.29e4	1.08e4	0.250		4.90	4.90	15.0	44.6285	111.6	8.037	NO
27	33	PFUdA	563.0 > 518.9	9.46e3	1.28e4	0.250		5.23	5.24	9.23	39.2110	98.0	16.072	NO
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.56e3		0.250	207.944	4.60	4.60	2560	49.2527	98.5		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.56e3		0.250	207.944	4.60	4.60	2560	49.2527	98.5		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.56e3		0.250	207.944	4.60	4.60	2560	49.2527	98.5		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.08e4		0.250	944.999	4.90	4.90	10800	45.7816	91.6		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.28e4		0.250	1226.695	5.23	5.23	12800	41.7557	83.5		
33	-1													
34	29	L-MeFOSAA	570 > 419	3.74e3	2.10e3	0.250		5.06	5.06	22.2	42.6433	106.6	2.331	NO
35	1...	Total N-MeFOSAA	570. > 419	3.74e3	2.10e3	0.250		5.19		22.2	42.6433			
36	31	L-EtFOSAA	584.1 > 419	3.17e3	2.90e3	0.250		5.21	5.22	13.6	41.4032	103.5	1.361	NO

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-18.qld

Last Altered: Thursday, March 05, 2020 14:03:56 Pacific Standard Time
Printed: Thursday, March 05, 2020 14:05:59 Pacific Standard Time

Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	3.17e3	2.90e3	0.250		5.37		13.6	41.4032			
38	35	11Cl-PF30UdS	630.9 > 450.9	4.83e3	1.21e4	0.250		5.45	5.45	5.00	44.2827	110.7	19.961	NO
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.10e3		0.250	195.067	5.06	5.06	2100	43.1419	86.3		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.10e3		0.250	195.067	5.06	5.06	2100	43.1419	86.3		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.90e3		0.250	288.034	5.20	5.21	2900	40.3157	80.6		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.90e3		0.250	288.034	5.20	5.21	2900	40.3157	80.6		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.21e4		0.250	1212.024	5.49	5.52	12100	39.7884	79.6		
44	-1													
45	37	PFDoA	612.9 > 569.0	1.17e4	1.21e4	0.250		5.52	5.52	12.2	48.7417	121.9	10.469	NO
46	39	PFTrDA	662.9 > 618.9	1.14e4	1.21e4	0.250		5.77	5.77	11.8	44.8841	112.2	38.551	NO
47	41	PFTeDA	713.0 > 669.0	1.27e4	1.04e4	0.250		5.99	5.99	15.1	42.4766	106.2	18.136	NO
48	1...	TDCA	498.3>106.9			0.250		4.59						
49	99	13C4-PFBA	217.0 > 172.0	9.70e3	9.70e3	0.250	1.000	1.23	1.22	12.5	50.0000	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.21e4		0.250	1212.024	5.49	5.52	12100	39.7884	79.6		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.21e4		0.250	1212.024	5.49	5.52	12100	39.7884	79.6		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	1.04e4		0.250	1069.279	5.92	5.99	10400	39.0915	78.2		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.56e3		0.250	207.944	4.60	4.60	2560	49.2527	98.5		
54	1...	13C5-PFHxA	318.0 > 272.9	1.50e4	1.50e4	0.250	1.000	2.94	2.94	12.5	50.0000	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.13e3	1.13e3	0.250	1.000	3.67	3.68	12.5	50.0000	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.52e4	1.52e4	0.250	1.000	4.05	4.05	12.5	50.0000	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.20e4	1.20e4	0.250	1.000	4.90	4.90	12.5	50.0000	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.65e4	1.65e4	0.250	1.000	5.23	5.23	12.5	50.0000	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.85e3	2.85e3	0.250	1.000	4.60	4.60	12.5	50.0000	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.21e4	1.21e4	0.250	1.000	4.51	4.51	12.5	50.0000	100.0		

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-18.qld

Last Altered: Thursday, March 05, 2020 14:03:56 Pacific Standard Time
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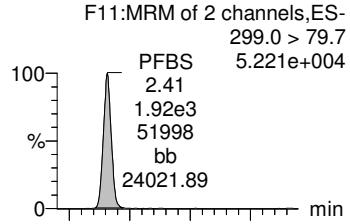

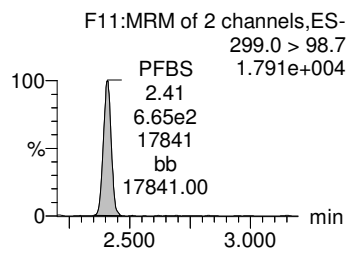

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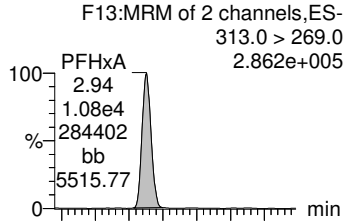

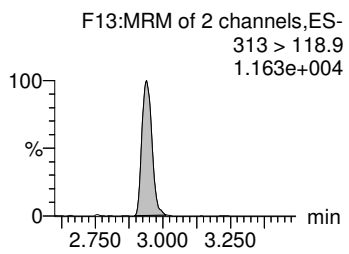

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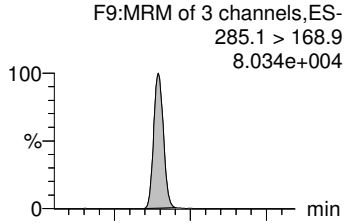

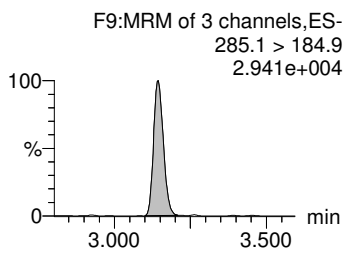

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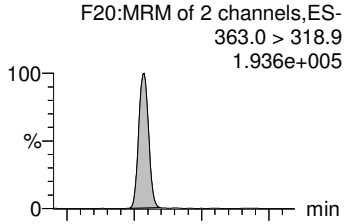

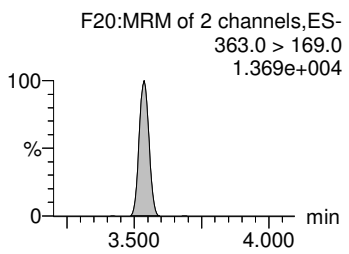

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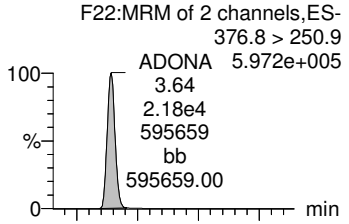

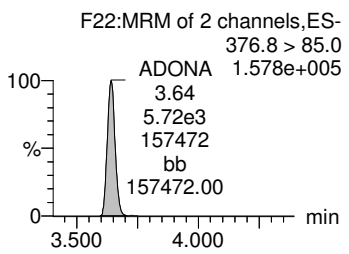

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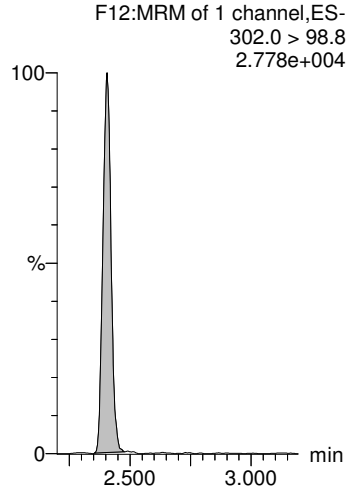

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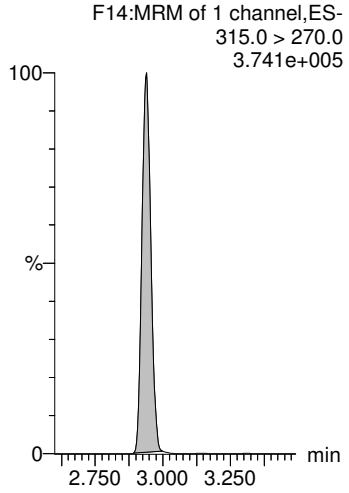

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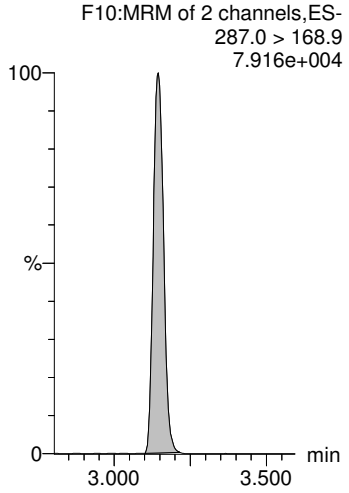

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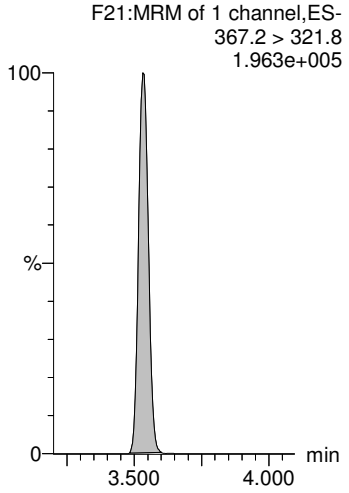

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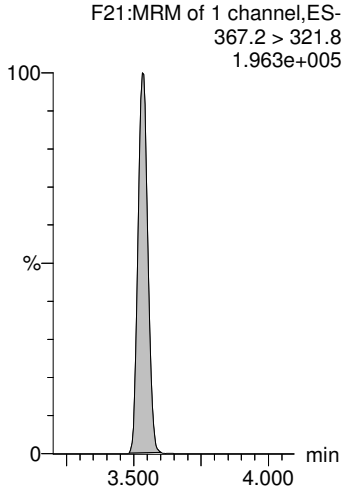

 RK 3/5/2020

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

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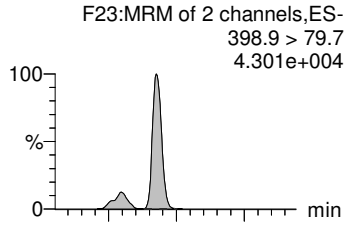

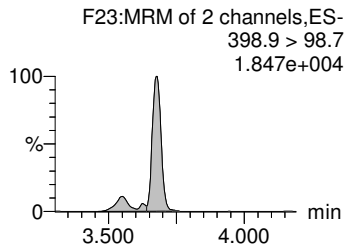

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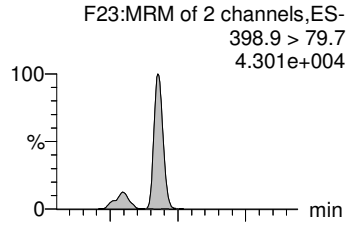
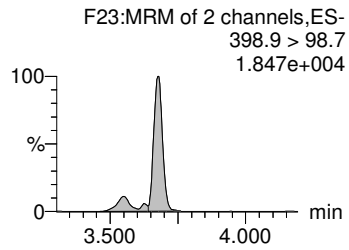
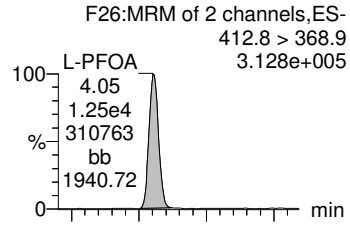
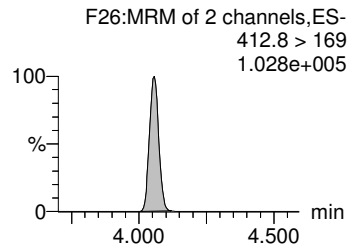




L-PFOA





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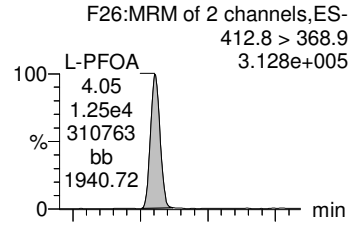

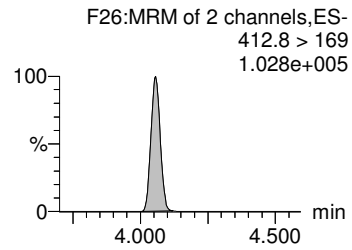

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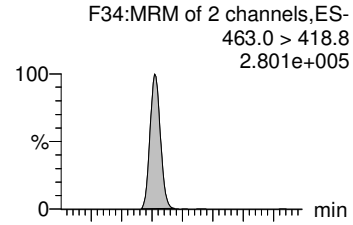

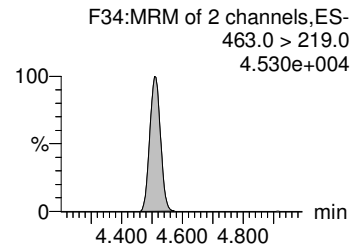

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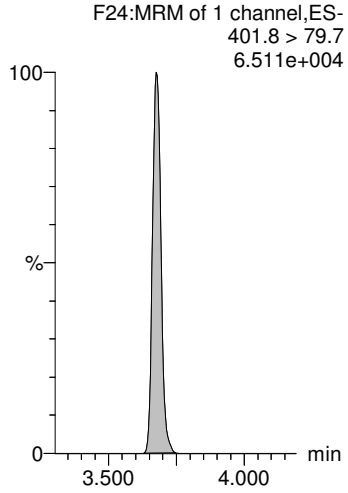

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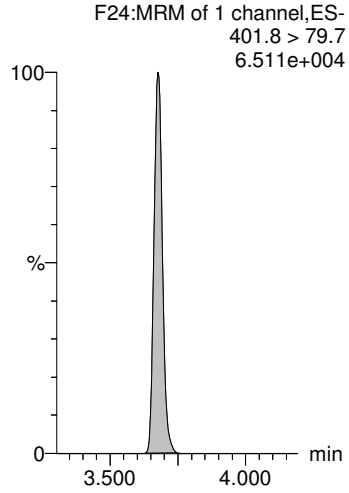

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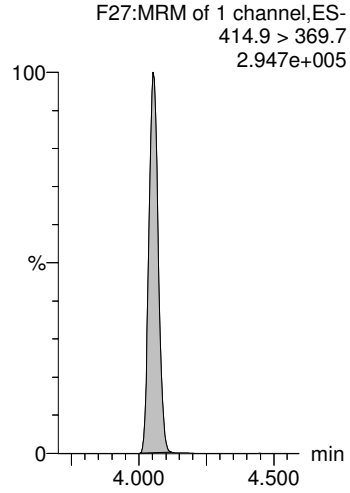

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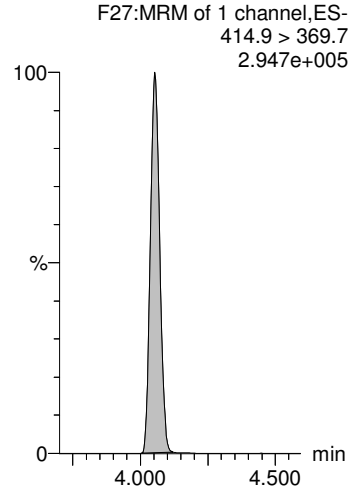

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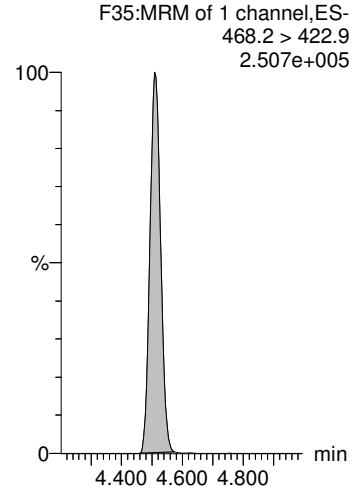

Review: AMR 3/6/2020

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Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

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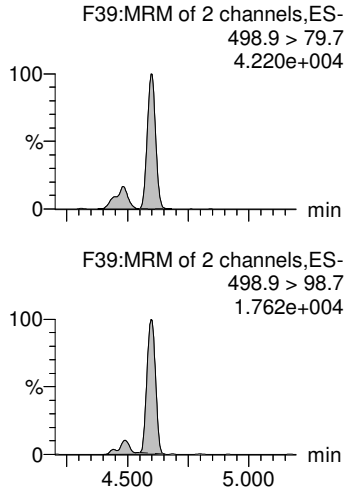

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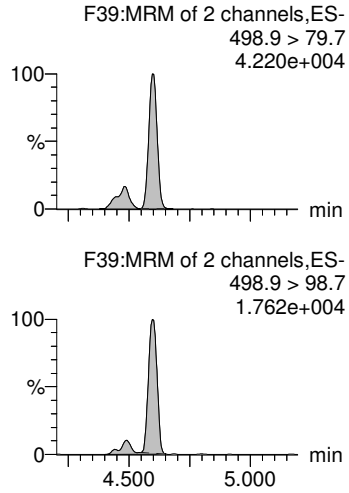

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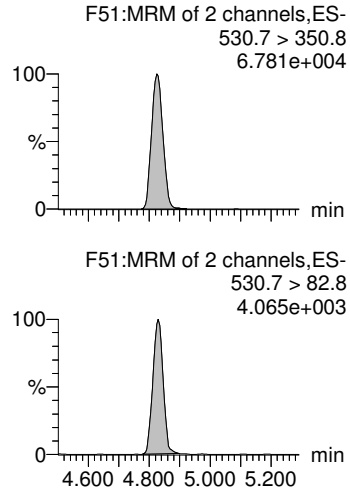

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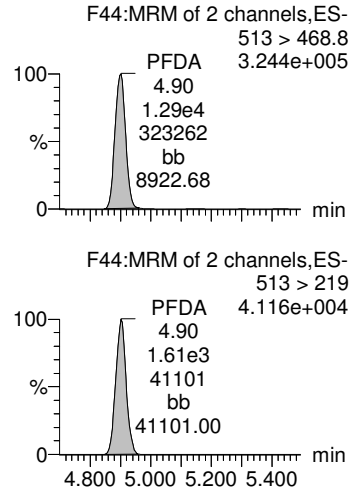

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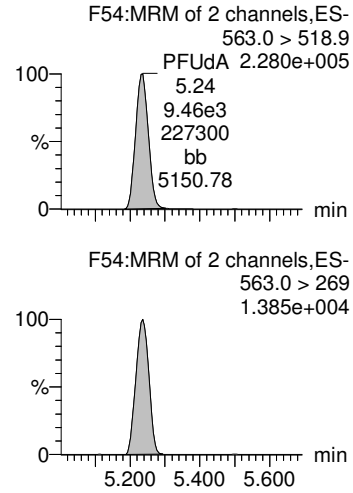

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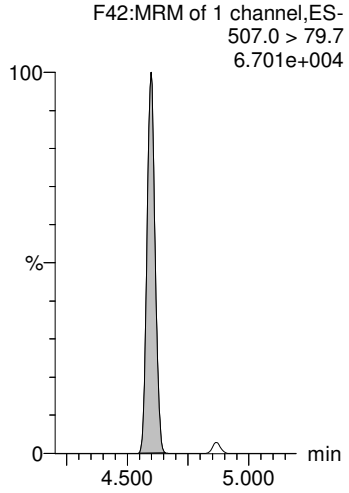

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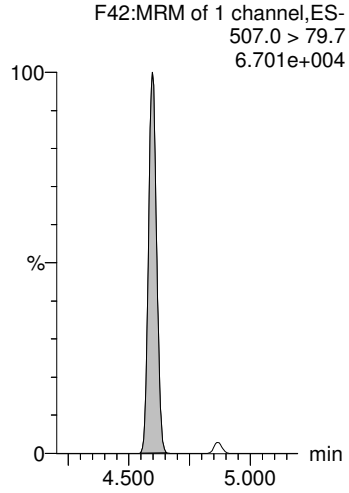

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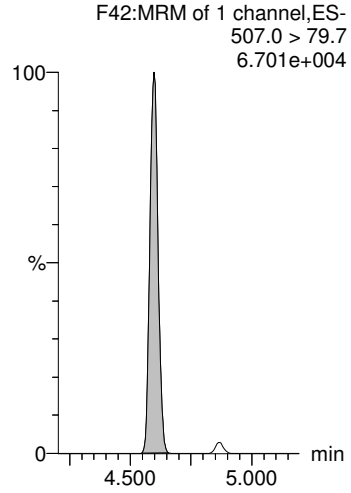

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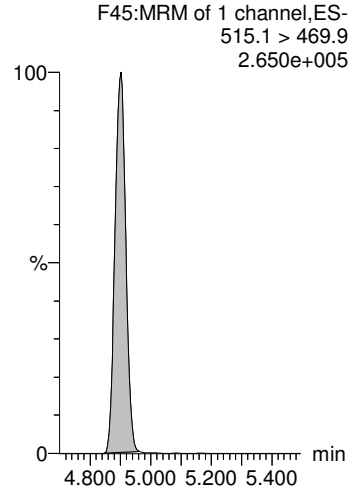

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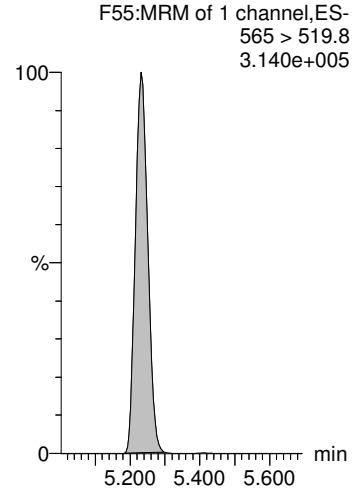

 RK 3/5/2020

Review: AMR 3/6/2020

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Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

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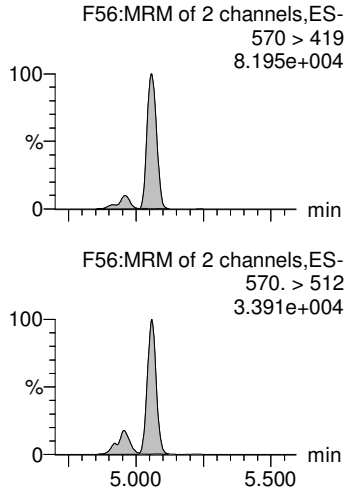

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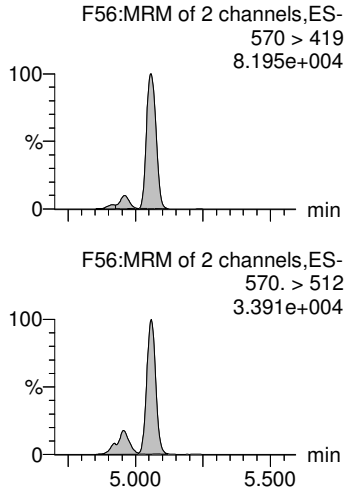
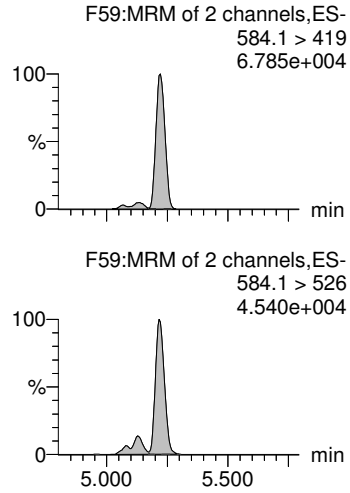
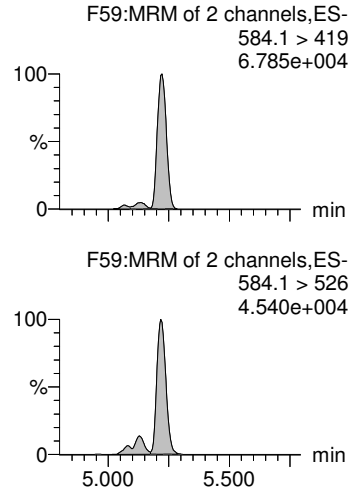


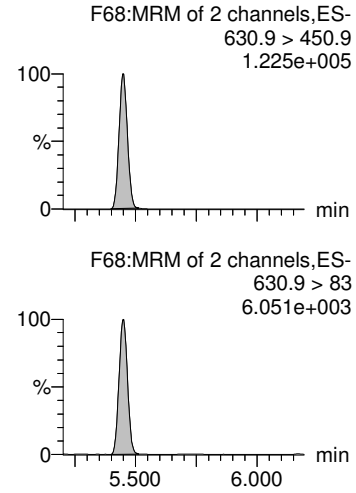
L-EtFOSAA



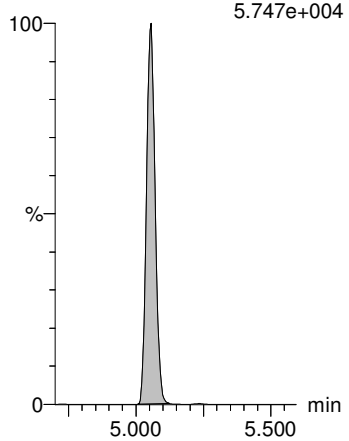
Total N-EtFOSAA



11Cl-PF30UdS



d3-N-MeFOSAA-EIS



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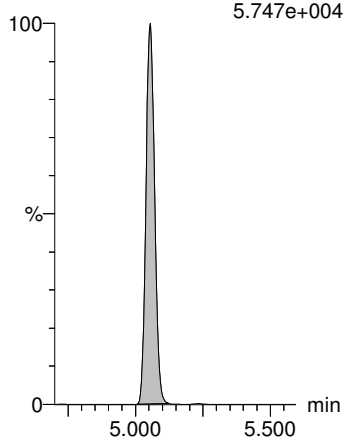

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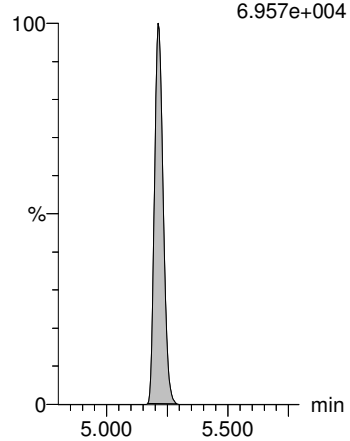

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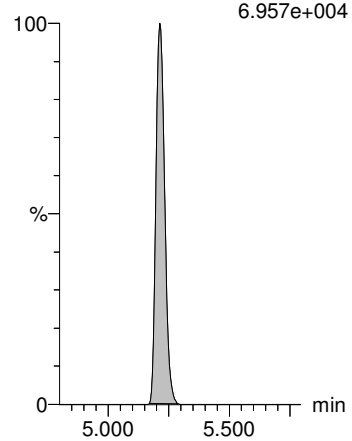
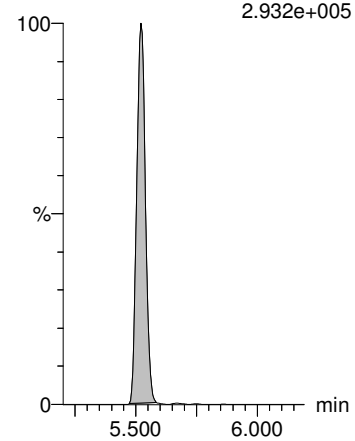


13C2-PFDoA-EIS



 RK 3/5/2020

Vista Analytical Laboratory L18

Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-18.qld

Last Altered: Thursday, March 05, 2020 14:03:56 Pacific Standard Time
Printed: Thursday, March 05, 2020 14:05:59 Pacific Standard Time

Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

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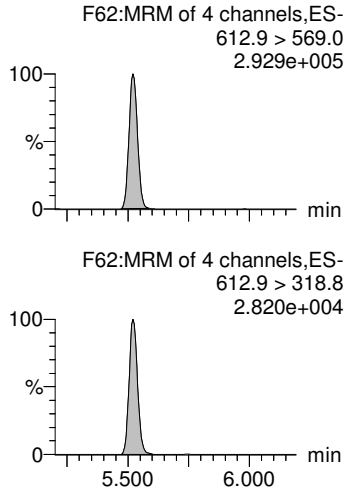
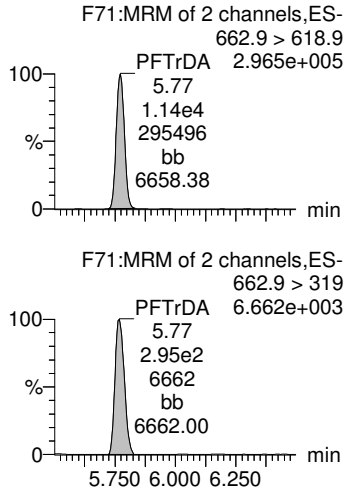
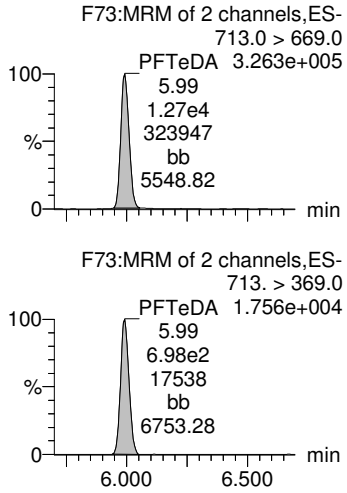


PFTrDA



PFTeDA



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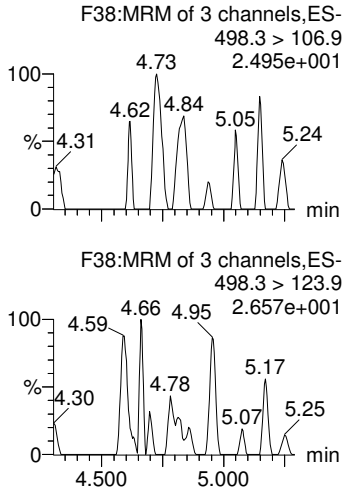
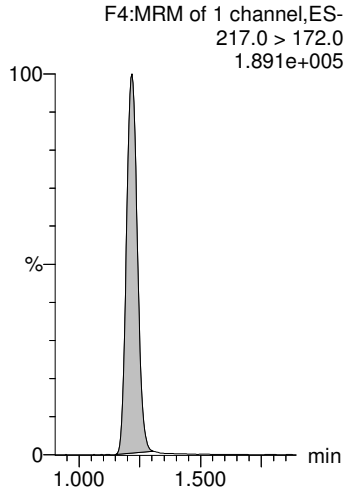
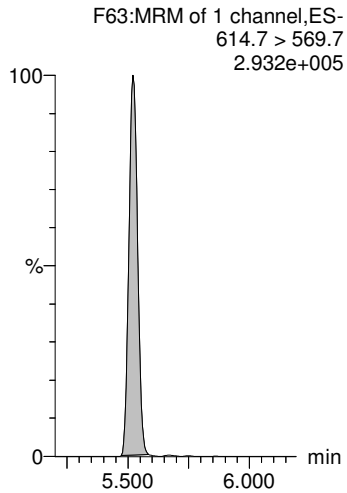


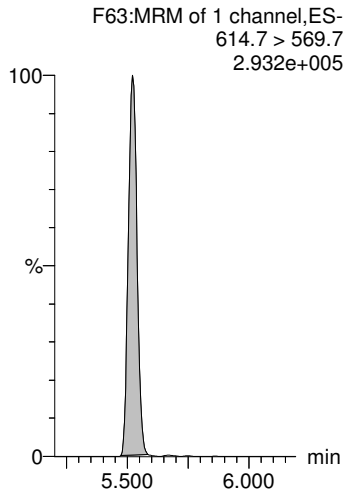
13C4-PFBA



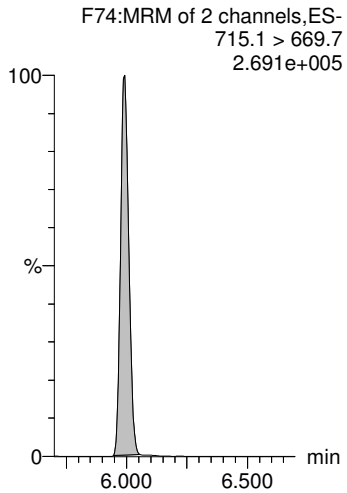
13C2-PFDoA-EIS



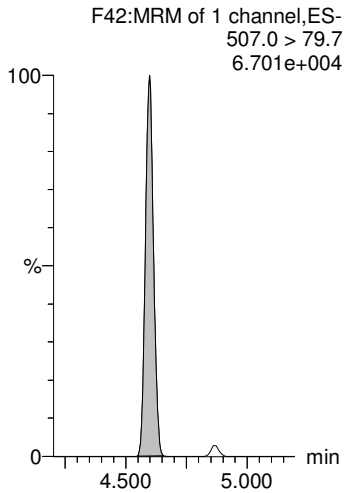
13C2-PFDoA-EIS



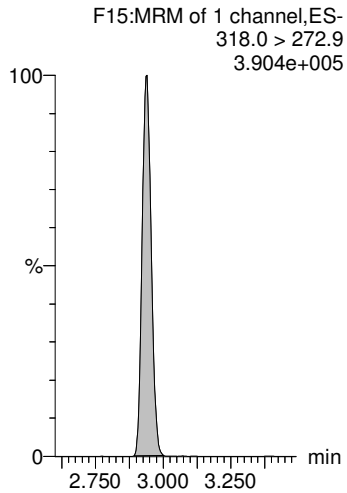
13C2-PFTeDA-EIS



13C8-PFOS-EIS



13C5-PFHxA



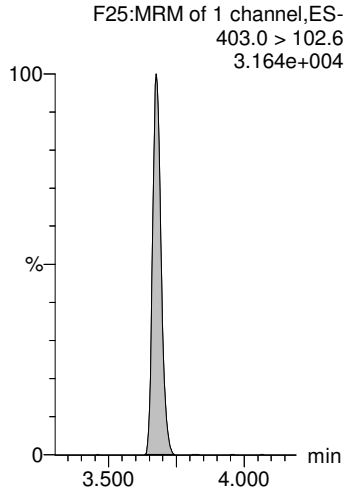
Review: AMR 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-18.qld

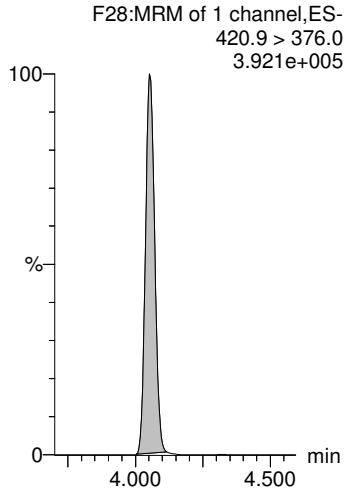
Last Altered: Thursday, March 05, 2020 14:03:56 Pacific Standard Time
Printed: Thursday, March 05, 2020 14:05:59 Pacific Standard Time

Name: 200304P2-18, Date: 04-Mar-2020, Time: 22:09:25, ID: B0B0213-BSD1 LCSD 0.25, Description: LCSD

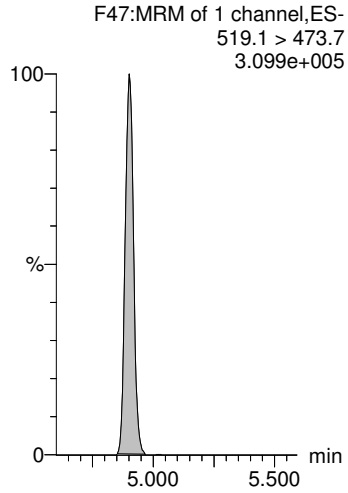
18O2-PFHxS



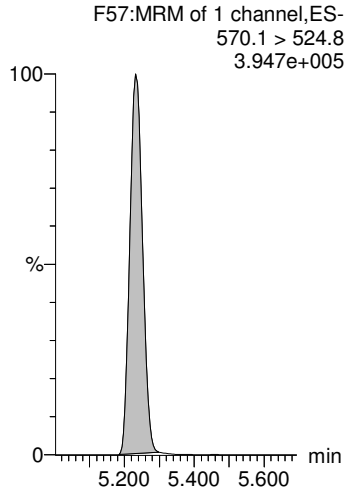
13C8-PFOA



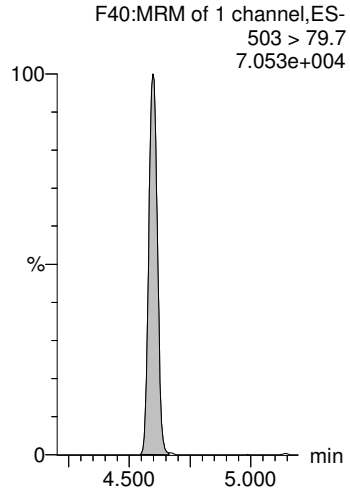
13C6-PFDA



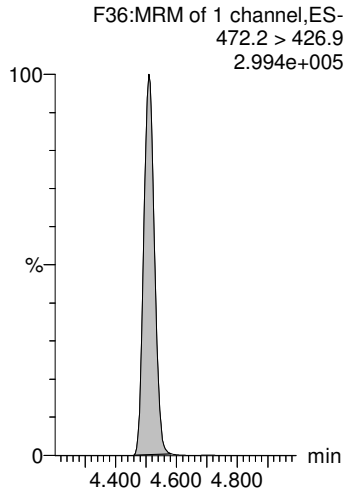
13C7-PFUdA



13C4-PFOS



13C9-PFNA



 RK 3/5/2020

Vista Analytical Laboratory L18

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
Printed: Friday, March 06, 2020 15:57:33 Pacific Standard Time

Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7		1.00e3	0.255		2.41						YES
2	7	PFHxA	313.0 > 269.0		1.39e4	0.255		2.94						YES
3	9	HFPO-DA	285.1 > 168.9		3.37e3	0.255		3.14						YES
4	11	PFHpA	363.0 > 318.9		7.98e3	0.255		3.54						YES
5	12	ADONA	376.8 > 250.9		7.98e3	0.255		3.62						YES
6	51	13C3-PFBS-EIS	302.0 > 98.8	1.00e3		0.255	82.647	2.53	2.41	1000	47.5624	96.9		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.39e4		0.255	1213.080	2.94	2.94	13900	45.0671	91.8		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.37e3		0.255	280.215	3.25	3.14	3370	47.2638	96.3		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	7.98e3		0.255	676.004	3.58	3.54	7980	46.3345	94.4		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	7.98e3		0.255	676.004	3.58	3.54	7980	46.3345	94.4		
11	-1													
12	13	L-PFHxS	398.9 > 79.7		2.17e3	0.255		3.68						YES
13	1...	Total PFHxS	398.9 > 79.7	0.00e0	2.17e3	0.255		3.93		0.000				
14	16	L-PFOA	412.8 > 368.9		1.18e4	0.255		4.06						YES
15	1...	Total PFOA	412.8 > 368.9	0.00e0	1.18e4	0.255		4.60		0.000				
16	21	PFNA	463.0 > 418.8		1.01e4	0.255		4.51						YES
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.17e3		0.255	190.058	3.68	3.68	2170	44.8235	91.3		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.17e3		0.255	190.058	3.68	3.68	2170	44.8235	91.3		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.18e4		0.255	1016.548	4.06	4.06	11800	45.6010	92.9		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.18e4		0.255	1016.548	4.06	4.06	11800	45.6010	92.9		
21	65	13C5-PFNA-EIS	468.2 > 422.9	1.01e4		0.255	867.408	4.51	4.51	10100	45.8434	93.4		
22	-1													
23	23	L-PFOS	498.9 > 79.7		2.43e3	0.255		4.60						YES
24	1...	Total PFOS	498.9 > 79.7	0.00e0	2.43e3	0.255		5.13		0.000				
25	25	9Cl-PF30NS	530.7 > 350.8		2.43e3	0.255		4.80						YES
26	26	PFDA	513 > 468.8		1.14e4	0.255		4.90						YES
27	33	PFUdA	563.0 > 518.9		1.36e4	0.255		5.23						YES
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.43e3		0.255	207.944	4.60	4.60	2430	45.8801	93.5		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.43e3		0.255	207.944	4.60	4.60	2430	45.8801	93.5		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.43e3		0.255	207.944	4.60	4.60	2430	45.8801	93.5		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.14e4		0.255	944.999	4.90	4.90	11400	47.4483	96.7		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.36e4		0.255	1226.695	5.24	5.23	13600	43.6682	89.0		
33	-1													
34	29	L-MeFOSAA	570 > 419		2.50e3	0.255		5.06						YES
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	2.50e3	0.255		5.19		0.000				
36	31	L-EtFOSAA	584.1 > 419		2.70e3	0.255		5.22						YES

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Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
Printed: Friday, March 06, 2020 15:57:33 Pacific Standard Time

Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	0.00e0	2.70e3	0.255		5.37		0.000				
38	35	11Cl-PF30UdS	630.9 > 450.9		1.22e4	0.255		5.45						YES
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.50e3		0.255	195.067	5.07	5.06	2500	50.2957	102.5		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.50e3		0.255	195.067	5.07	5.06	2500	50.2957	102.5		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.70e3		0.255	288.034	5.21	5.22	2700	36.8300	75.1		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.70e3		0.255	288.034	5.21	5.22	2700	36.8300	75.1		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.22e4		0.255	1212.024	5.50	5.52	12200	39.3720	80.2		
44	-1													
45	37	PFDoA	612.9 > 569.0		1.22e4	0.255		5.52						YES
46	39	PFTrDA	662.9 > 618.9		1.22e4	0.255		5.77						YES
47	41	PFTeDA	713.0 > 669.0		9.68e3	0.255		5.99						YES
48	1...	TDCA	498.3>106.9			0.255		4.59						YES
49	99	13C4-PFBA	217.0 > 172.0	9.67e3	9.67e3	0.255	1.000	1.23	1.22	12.5	49.0716	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.22e4		0.255	1212.024	5.50	5.52	12200	39.3720	80.2		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.22e4		0.255	1212.024	5.50	5.52	12200	39.3720	80.2		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	9.68e3		0.255	1069.279	5.92	5.99	9680	35.5470	72.4		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.43e3		0.255	207.944	4.60	4.60	2430	45.8801	93.5		
54	1...	13C5-PFHxA	318.0 > 272.9	1.54e4	1.54e4	0.255	1.000	2.94	2.94	12.5	49.0716	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.13e3	1.13e3	0.255	1.000	3.67	3.68	12.5	49.0716	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.55e4	1.55e4	0.255	1.000	4.05	4.06	12.5	49.0716	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.38e4	1.38e4	0.255	1.000	4.90	4.90	12.5	49.0716	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.54e4	1.54e4	0.255	1.000	5.23	5.24	12.5	49.0716	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.80e3	2.80e3	0.255	1.000	4.60	4.60	12.5	49.0716	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.23e4	1.23e4	0.255	1.000	4.51	4.51	12.5	49.0716	100.0		

Vista Analytical Laboratory L18

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
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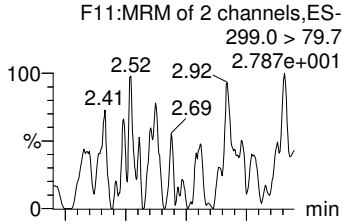
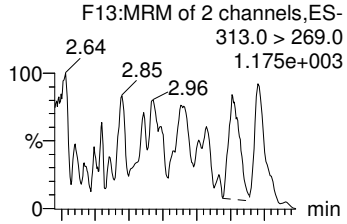
Method: Z:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

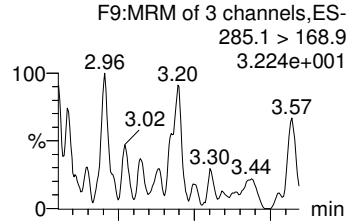
PFBS



PFHxA



HFPO-DA



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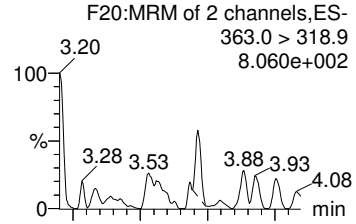

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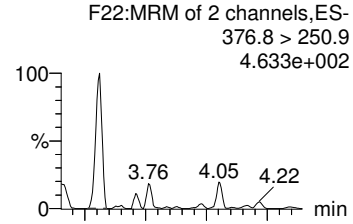
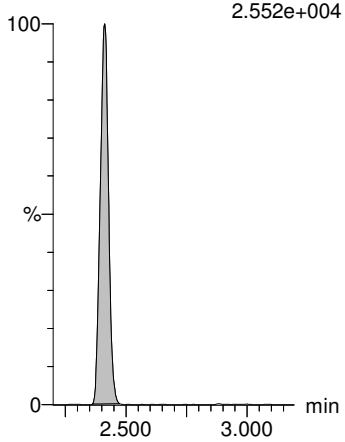


13C3-PFBS-EIS



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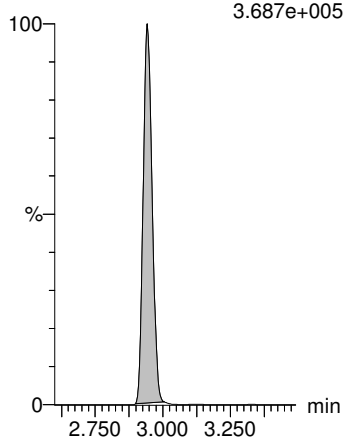

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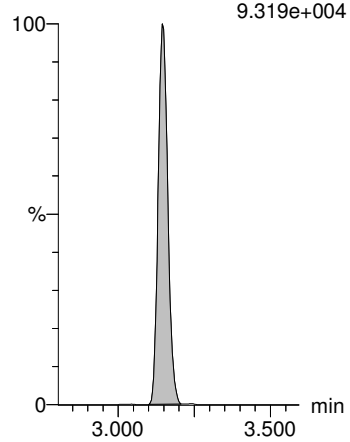

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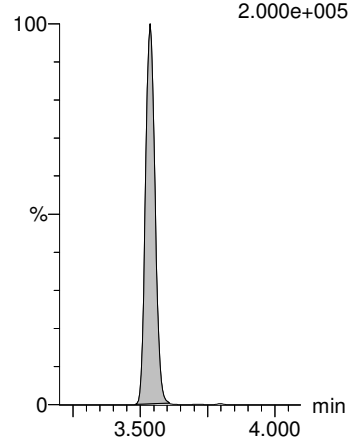

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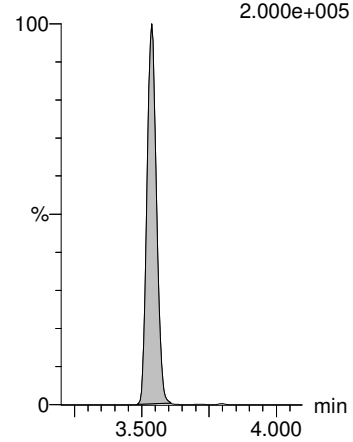

Vista Analytical Laboratory L18

Review: AMR 3/7/2020

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Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

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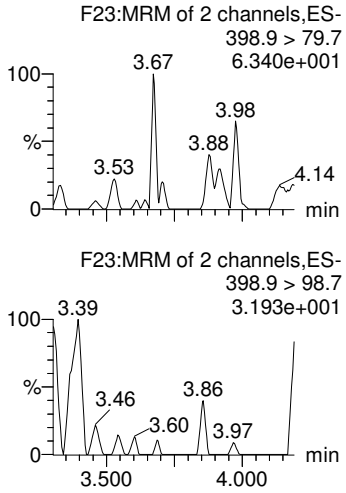

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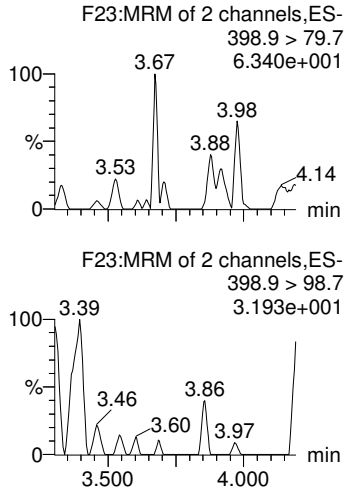

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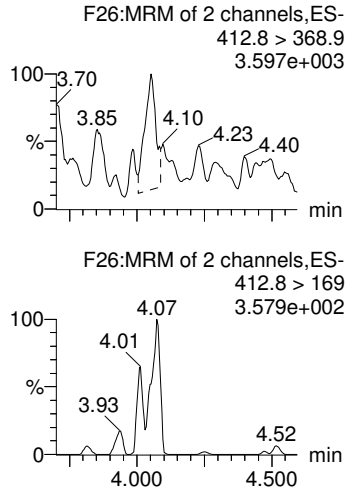

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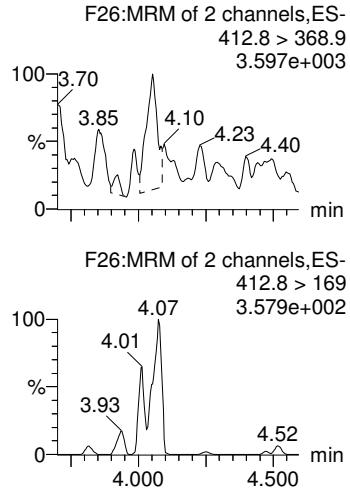

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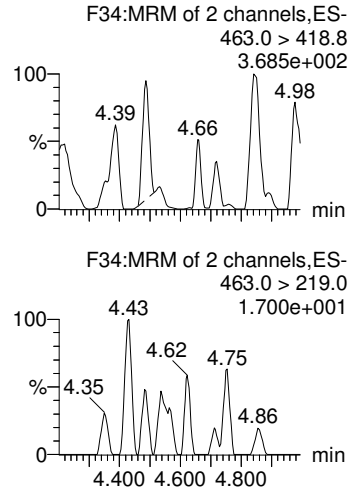

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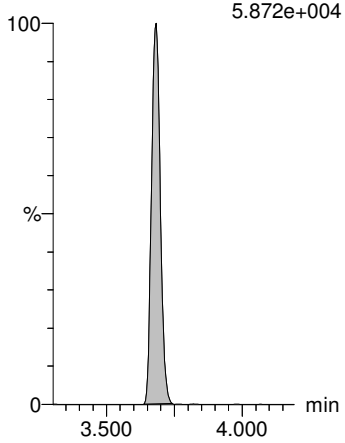

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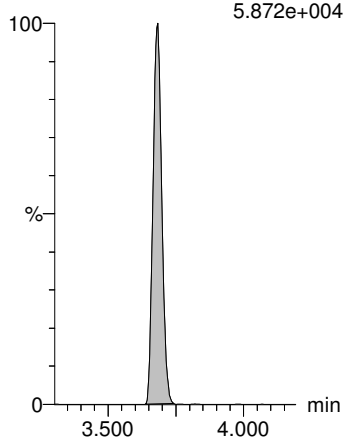

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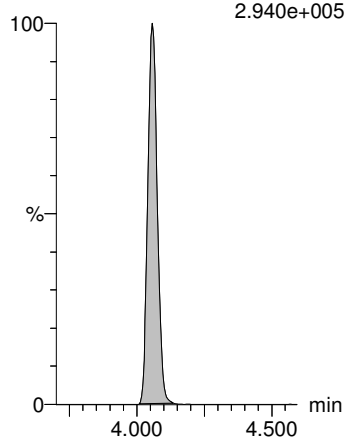

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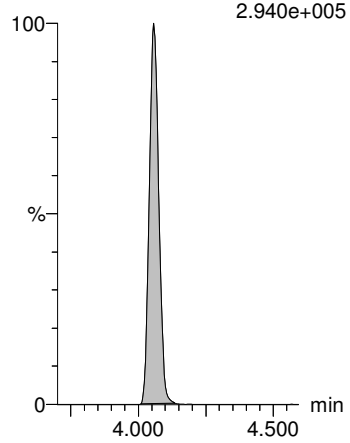

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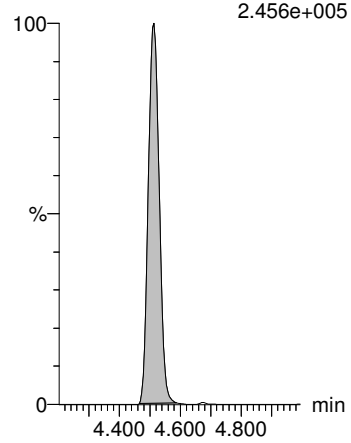

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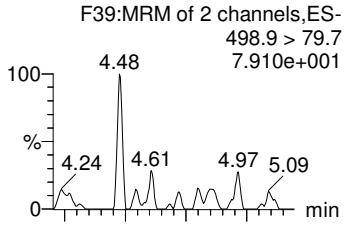

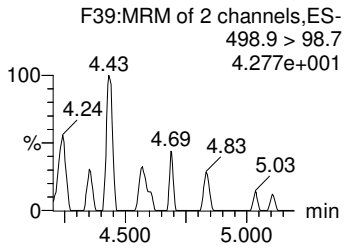

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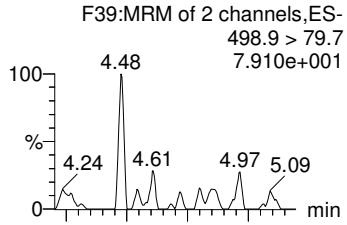

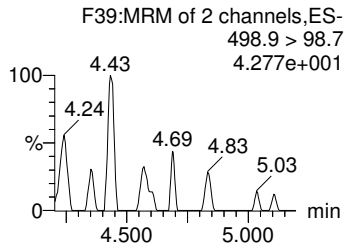

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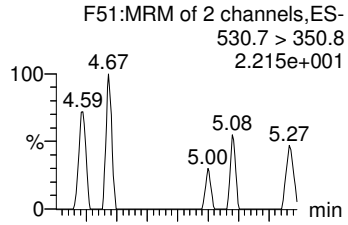

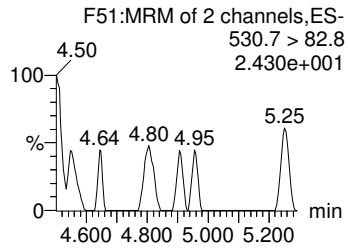

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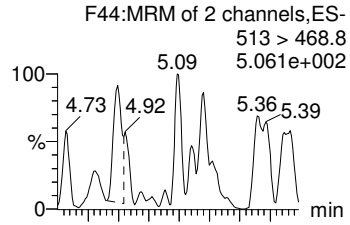

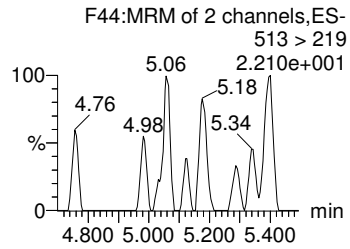

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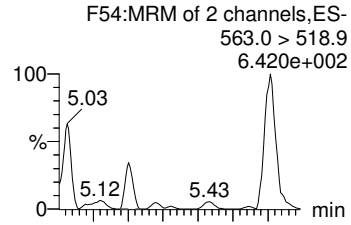

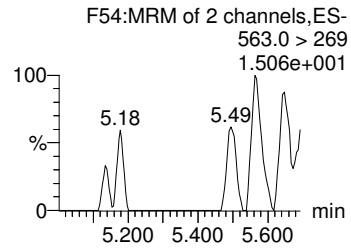

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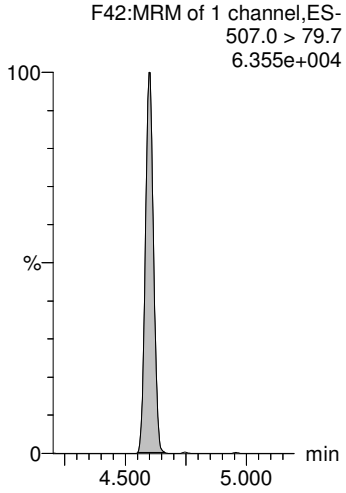

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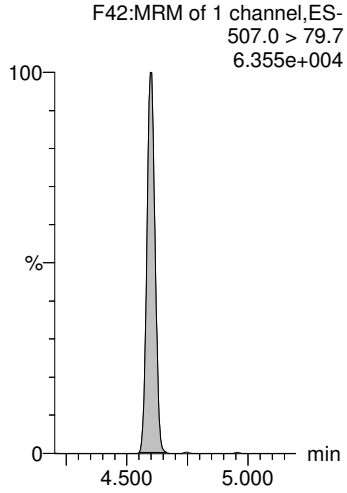

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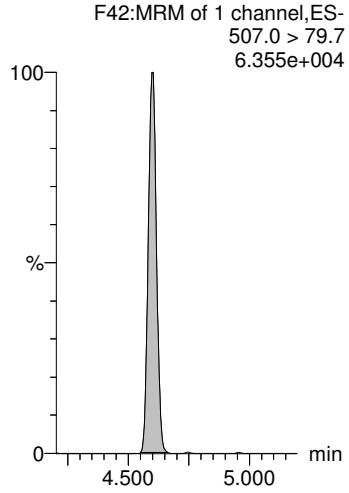

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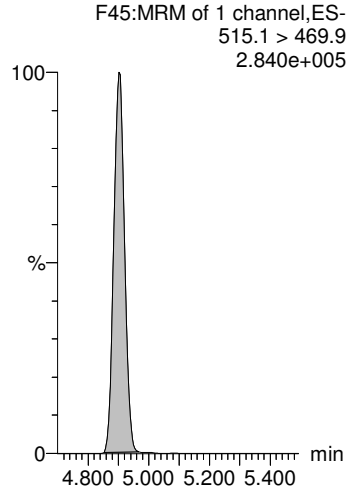

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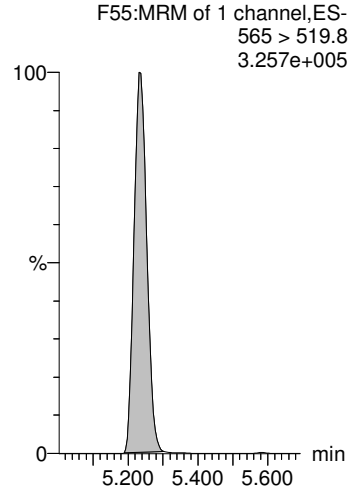

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Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

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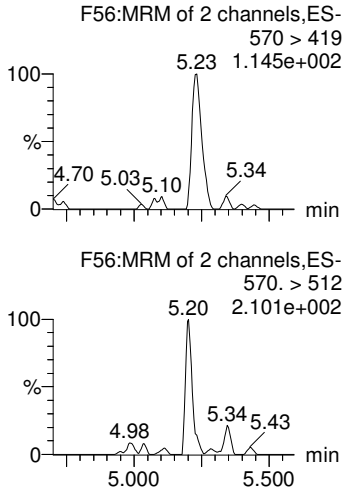

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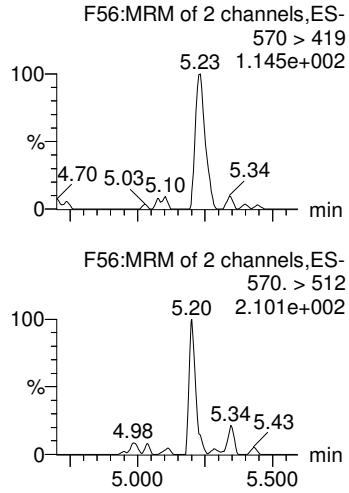
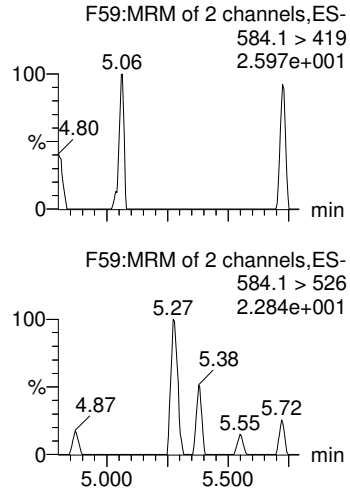


L-EtFOSAA



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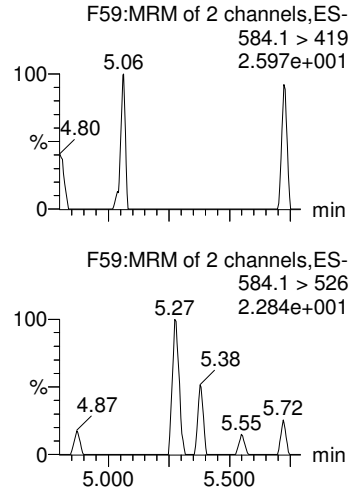

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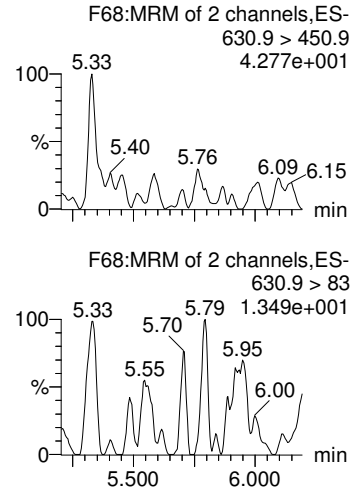

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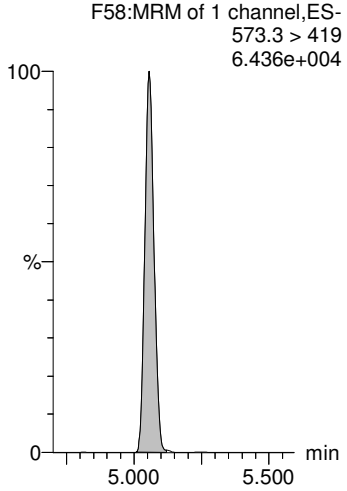

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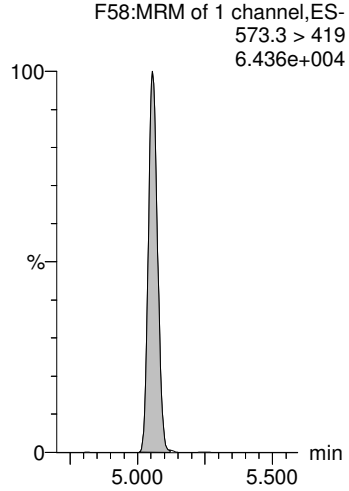

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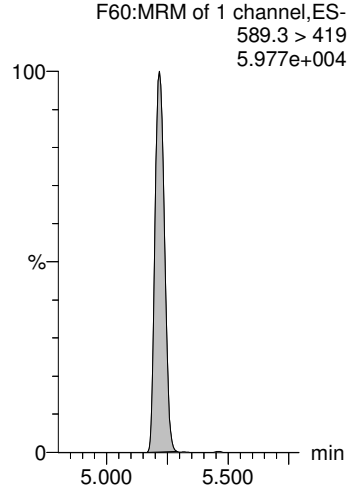

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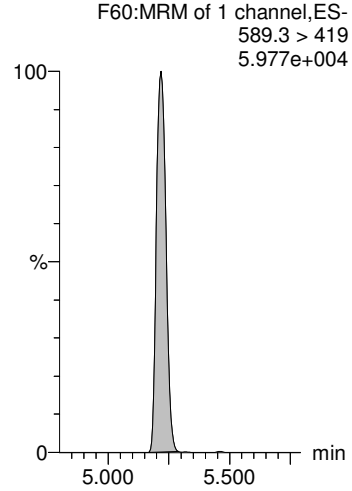

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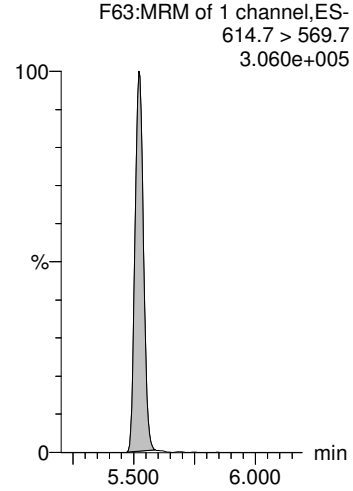

 QPV 3/6/2020

Review: AMR 3/7/2020

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Name: 200304P2-33, Date: 05-Mar-2020, Time: 00:46:59, ID: 2000390-01 EB06-20200221 0.25473, Description: EB06-20200221

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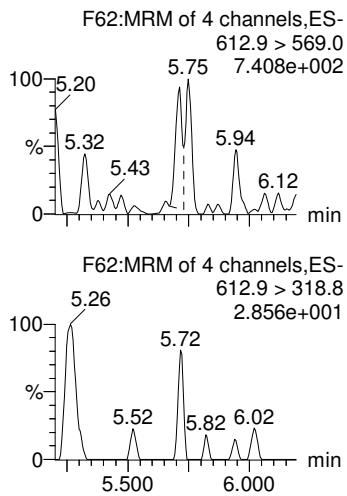

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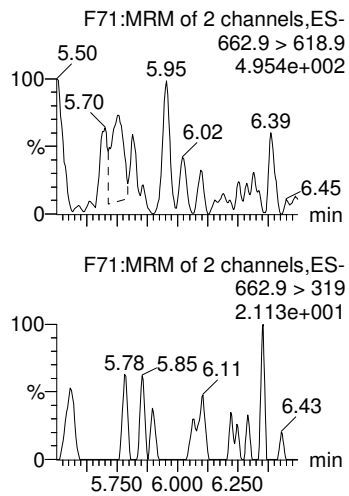

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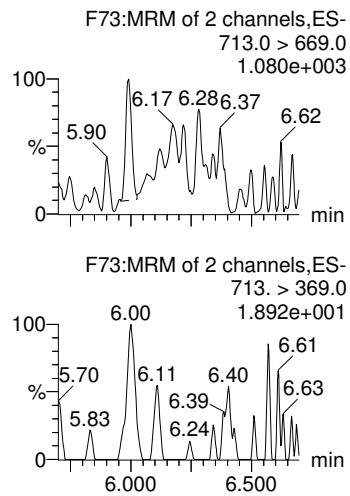

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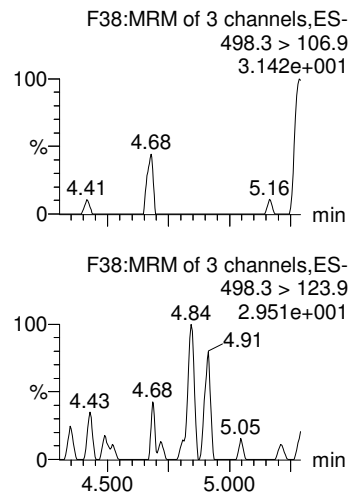

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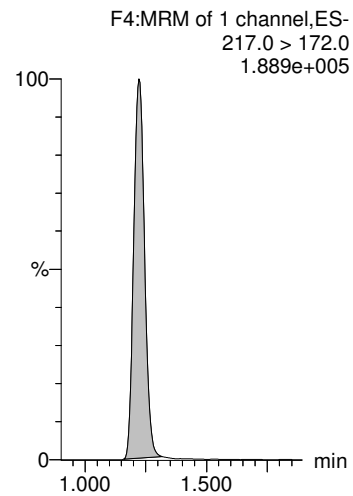

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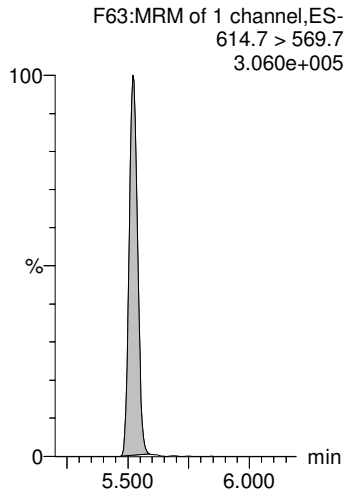

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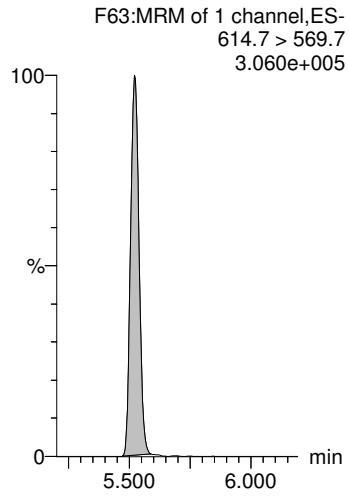

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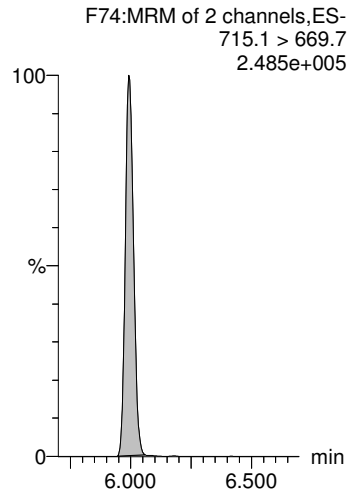

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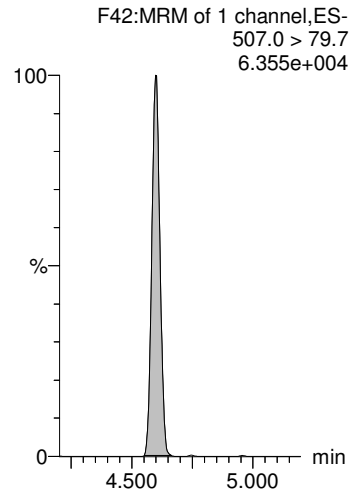

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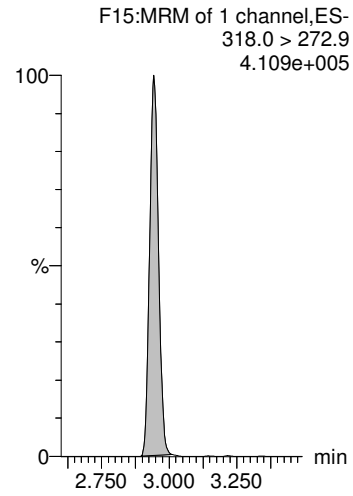

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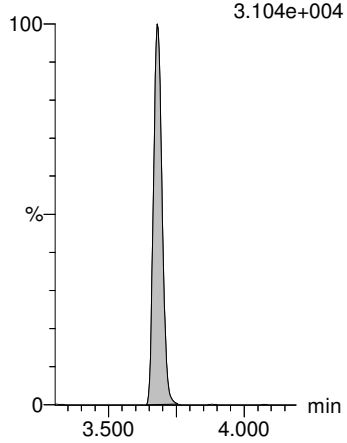
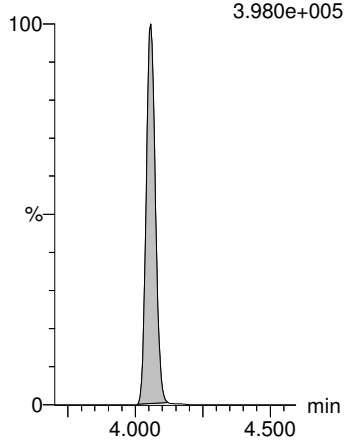
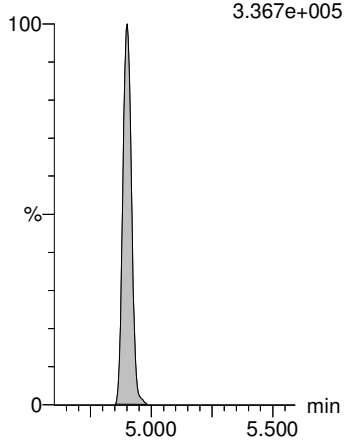
18O2-PFHxS



13C8-PFOA



13C6-PFDA



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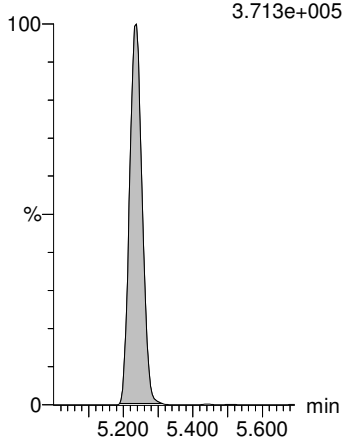
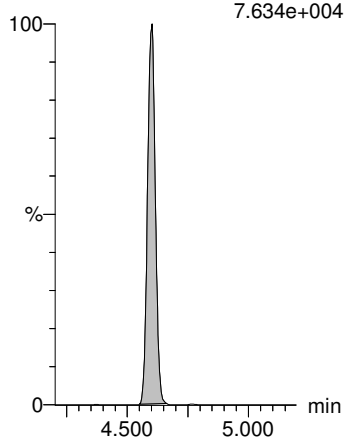
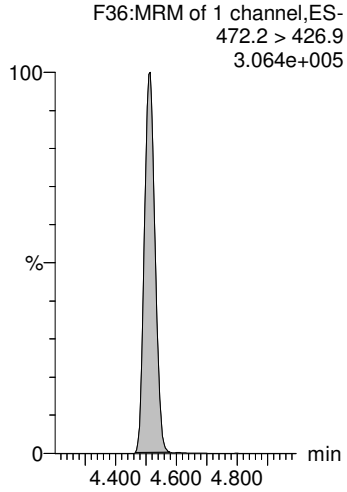


13C4-PFOS



13C9-PFNA



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Review: AMR 3/7/2020

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Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
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Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7	1.81e3	9.58e2	0.252		2.41	2.41	23.6	36.2104		2.856	NO
2	7	PFHxA	313.0 > 269.0	1.51e4	1.33e4	0.252		2.94	2.94	14.2	63.9574		18.209	NO
3	9	HFPO-DA	285.1 > 168.9		3.19e3	0.252		3.14						YES
4	11	PFHpA	363.0 > 318.9	3.76e3	7.30e3	0.252		3.54	3.54	6.44	20.9190		19.974	NO
5	12	ADONA	376.8 > 250.9		7.30e3	0.252		3.62						YES
6	51	13C3-PFBS-EIS	302.0 > 98.8	9.58e2		0.252	82.647	2.53	2.41	958	45.9528	92.8		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.33e4		0.252	1213.080	2.94	2.94	13300	43.3613	87.5		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.19e3		0.252	280.215	3.25	3.14	3190	45.0467	90.9		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	7.30e3		0.252	676.004	3.58	3.54	7300	42.7789	86.4		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	7.30e3		0.252	676.004	3.58	3.54	7300	42.7789	86.4		
11	-1													
12	13	L-PFHxS	398.9 > 79.7	5.47e3	2.12e3	0.252		3.68	3.68	32.2	124.4771		2.360	NO
13	1...	Total PFHxS	398.9 > 79.7	5.47e3	2.12e3	0.252		3.93		32.2	124.4771			
14	16	L-PFOA	412.8 > 368.9	4.69e4	1.06e4	0.252		4.06	4.06	55.1	172.2810		3.001	NO
15	1...	Total PFOA	412.8 > 368.9	4.69e4	1.06e4	0.252		4.60		55.1	172.2810			
16	21	PFNA	463.0 > 418.8	6.57e2	9.80e3	0.252		4.51	4.51	0.838	2.5575		8.665	YES
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.12e3		0.252	190.058	3.68	3.68	2120	44.2852	89.4		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.12e3		0.252	190.058	3.68	3.68	2120	44.2852	89.4		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.06e4		0.252	1016.548	4.06	4.06	10600	41.4790	83.7		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.06e4		0.252	1016.548	4.06	4.06	10600	41.4790	83.7		
21	65	13C5-PFNA-EIS	468.2 > 422.9	9.80e3		0.252	867.408	4.51	4.51	9800	44.7771	90.4		
22	-1													
23	23	L-PFOS	498.9 > 79.7	1.13e3	2.40e3	0.252		4.60	4.60	5.87	24.9520		2.289	NO
24	1...	Total PFOS	498.9 > 79.7	1.13e3	2.40e3	0.252		5.13		5.87	24.9520			
25	25	9Cl-PF30NS	530.7 > 350.8		2.40e3	0.252		4.80						YES
26	26	PFDA	513 > 468.8	1.54e2	1.06e4	0.252		4.90	4.90	0.182	0.3471		27.672	YES
27	33	PFUdA	563.0 > 518.9		1.12e4	0.252		5.24						YES
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.40e3		0.252	207.944	4.60	4.60	2400	45.7722	92.4		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.40e3		0.252	207.944	4.60	4.60	2400	45.7722	92.4		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.40e3		0.252	207.944	4.60	4.60	2400	45.7722	92.4		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.06e4		0.252	944.999	4.90	4.90	10600	44.5528	89.9		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.12e4		0.252	1226.695	5.23	5.24	11200	36.2957	73.3		
33	-1													
34	29	L-MeFOSAA	570 > 419		2.25e3	0.252		5.06						YES
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	2.25e3	0.252		5.19		0.000				
36	31	L-EtFOSAA	584.1 > 419		2.59e3	0.252		5.22						YES

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Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	0.00e0	2.59e3	0.252		5.37		0.000				
38	35	11Cl-PF30UdS	630.9 > 450.9		9.80e3	0.252		5.45						YES
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.25e3		0.252	195.067	5.06	5.06	2250	45.6240	92.1		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.25e3		0.252	195.067	5.06	5.06	2250	45.6240	92.1		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.59e3		0.252	288.034	5.20	5.22	2590	35.6075	71.9		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	2.59e3		0.252	288.034	5.20	5.22	2590	35.6075	71.9		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	9.80e3		0.252	1212.024	5.49	5.52	9800	32.0368	64.7		
44	-1													
45	37	PFDoA	612.9 > 569.0		9.80e3	0.252		5.52						YES
46	39	PFTrDA	662.9 > 618.9		9.80e3	0.252		5.77						YES
47	41	PFTeDA	713.0 > 669.0		7.23e3	0.252		5.99						YES
48	1...	TDCA	498.3>106.9			0.252		4.59						YES
49	99	13C4-PFBA	217.0 > 172.0	9.15e3	9.15e3	0.252	1.000	1.23	1.22	12.5	49.5363	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	9.80e3		0.252	1212.024	5.49	5.52	9800	32.0368	64.7		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	9.80e3		0.252	1212.024	5.49	5.52	9800	32.0368	64.7		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	7.23e3		0.252	1069.279	5.92	5.99	7230	26.7806	54.1		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.40e3		0.252	207.944	4.60	4.60	2400	45.7722	92.4		
54	1...	13C5-PFHxA	318.0 > 272.9	1.45e4	1.45e4	0.252	1.000	2.94	2.94	12.5	49.5363	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.02e3	1.02e3	0.252	1.000	3.67	3.68	12.5	49.5363	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.53e4	1.53e4	0.252	1.000	4.05	4.06	12.5	49.5363	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.42e4	1.42e4	0.252	1.000	4.90	4.90	12.5	49.5363	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.67e4	1.67e4	0.252	1.000	5.23	5.23	12.5	49.5363	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.92e3	2.92e3	0.252	1.000	4.60	4.60	12.5	49.5363	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.22e4	1.22e4	0.252	1.000	4.51	4.51	12.5	49.5363	100.0		

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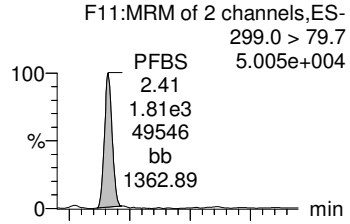
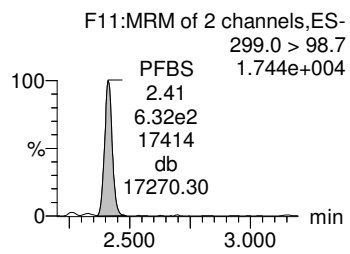
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

PFBS





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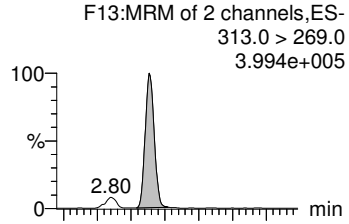
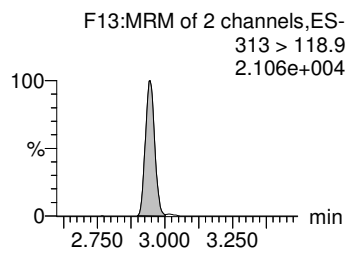
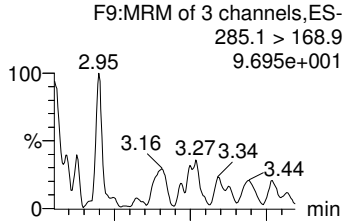
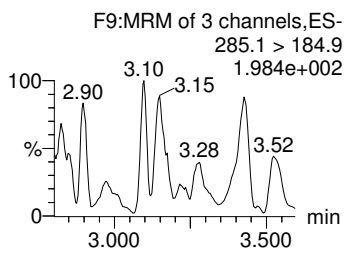


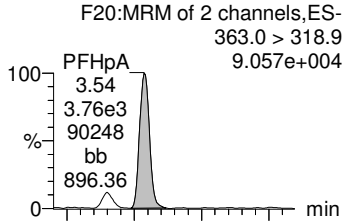


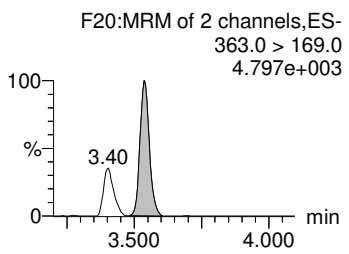
HFPO-DA



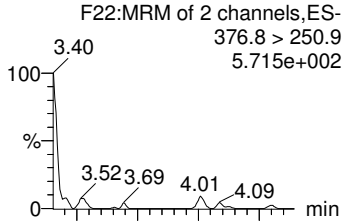


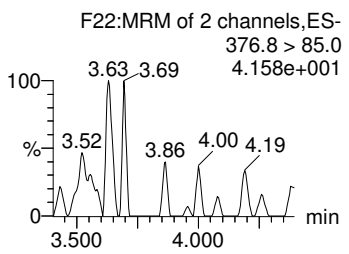
PFHpA



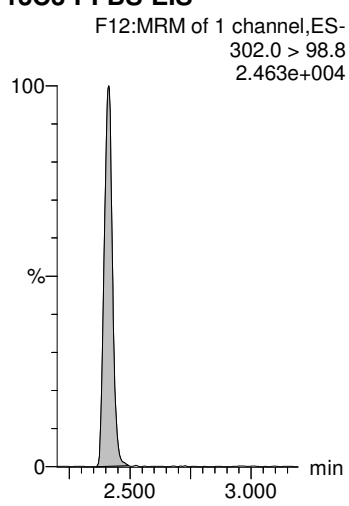


ADONA

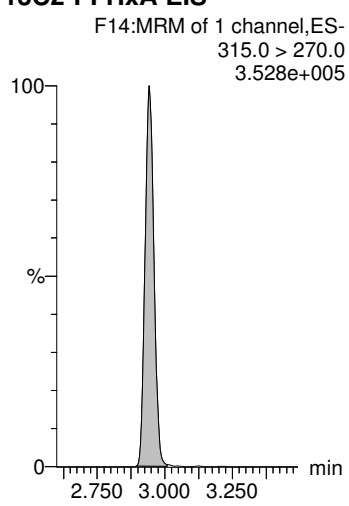




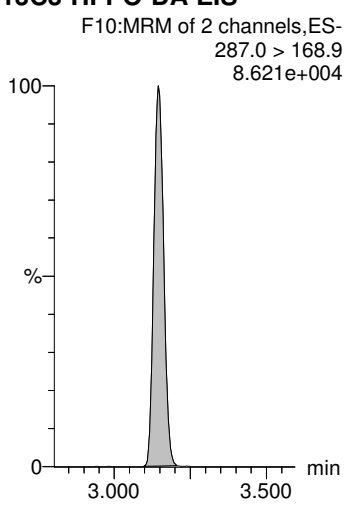
13C3-PFBS-EIS



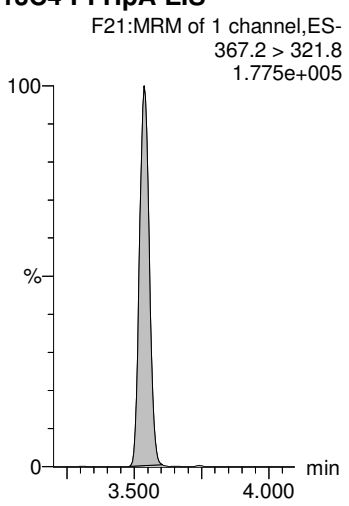
13C2-PFHxA-EIS



13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



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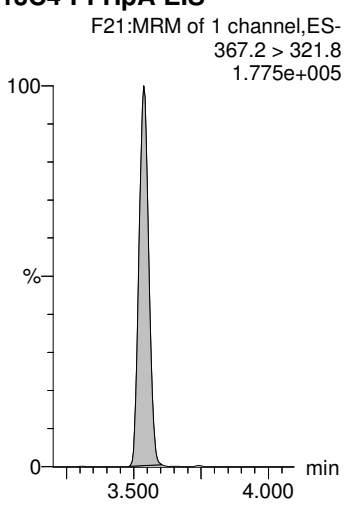

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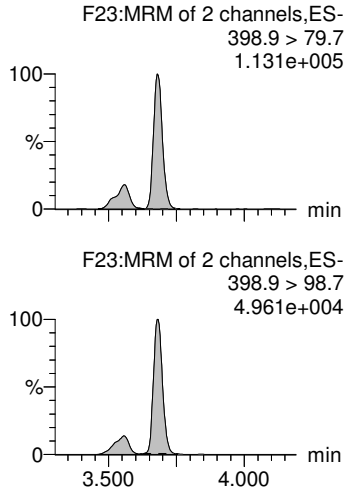
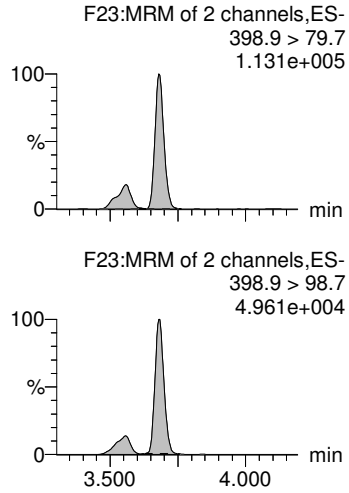
Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

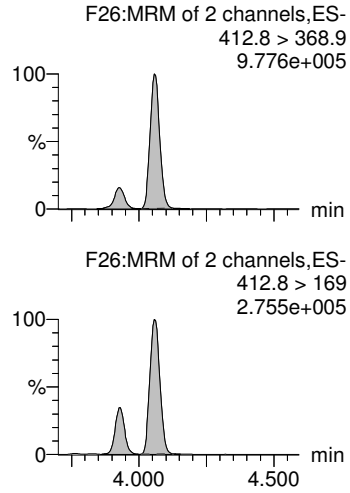
L-PFHxS



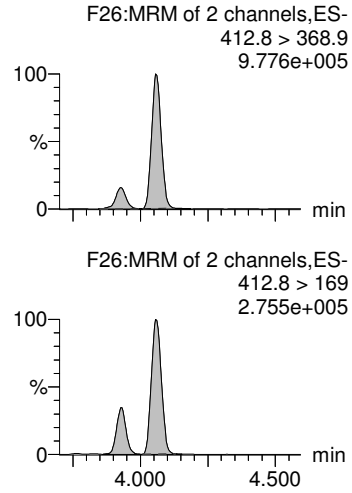
Total PFHxS



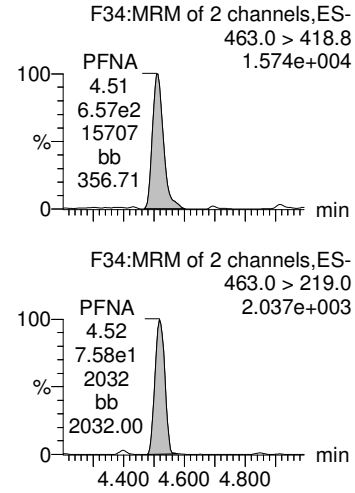
L-PFOA



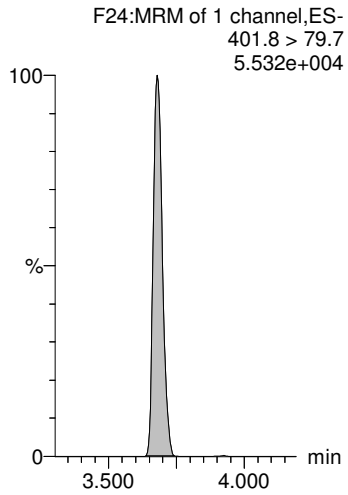
Total PFOA



PFNA



13C3-PFHxS-EIS



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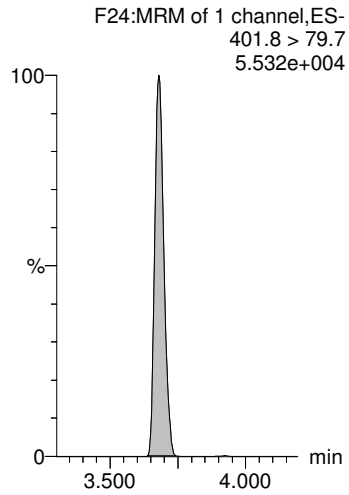

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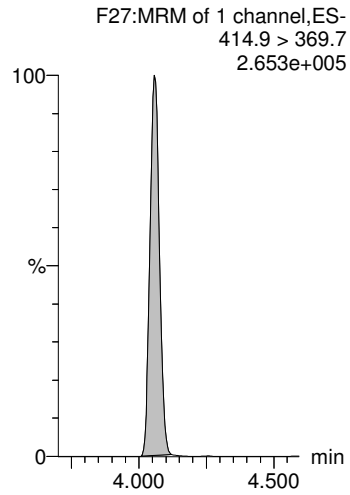
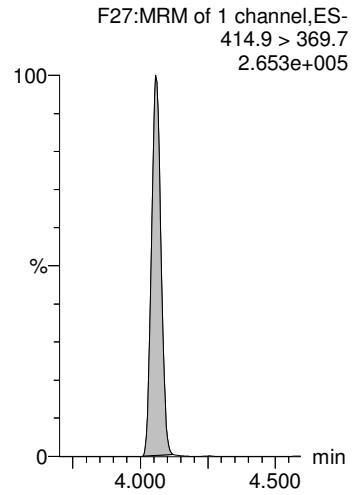
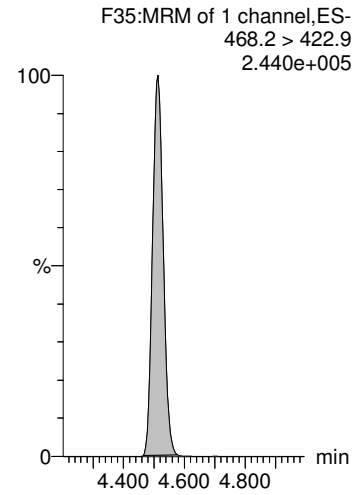


13C2-PFOA-EIS



13C5-PFNA-EIS



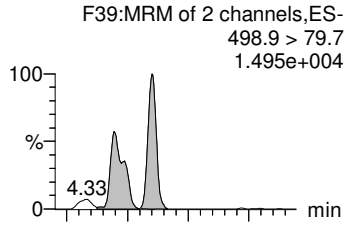
Review: AMR 3/7/2020

Dataset: Untitled

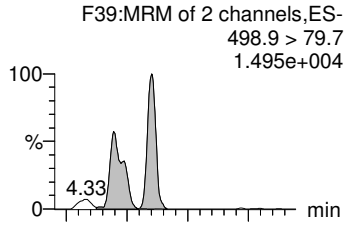
Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
Printed: Friday, March 06, 2020 16:01:06 Pacific Standard Time

Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

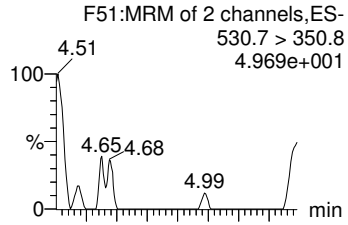
L-PFOS



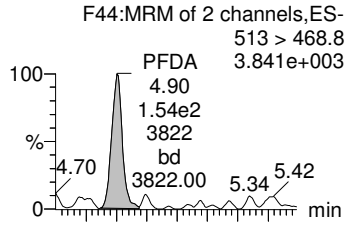
Total PFOS



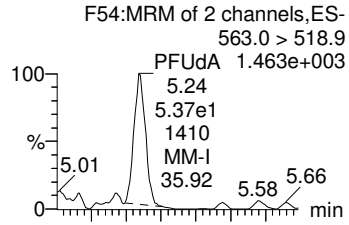
9Cl-PF30NS



PFDA



PFUdA



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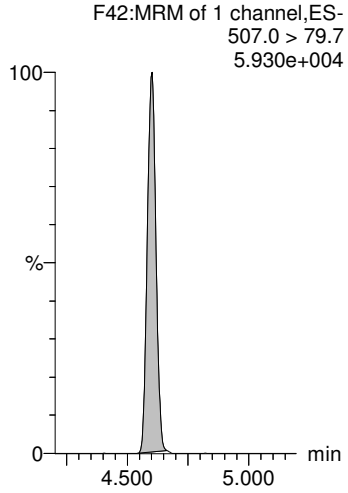

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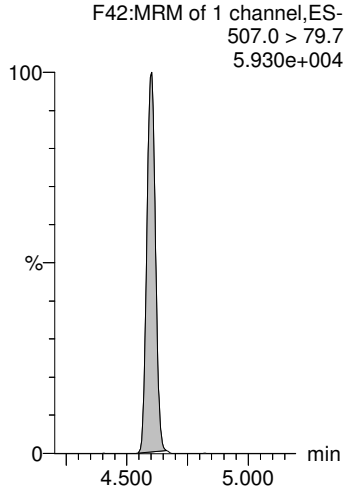

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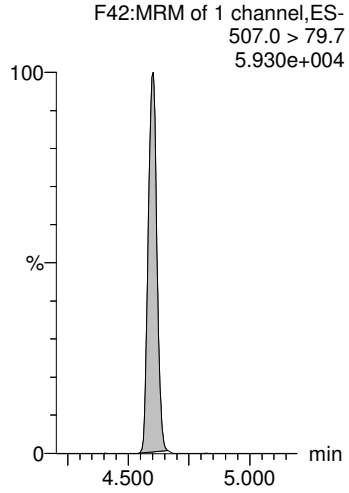

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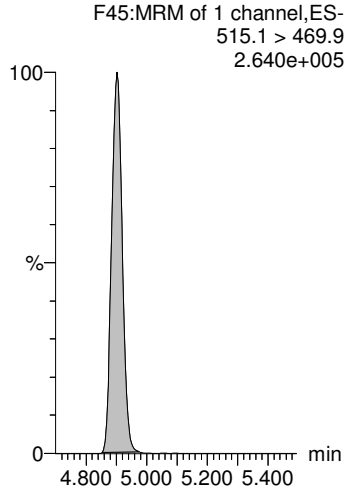

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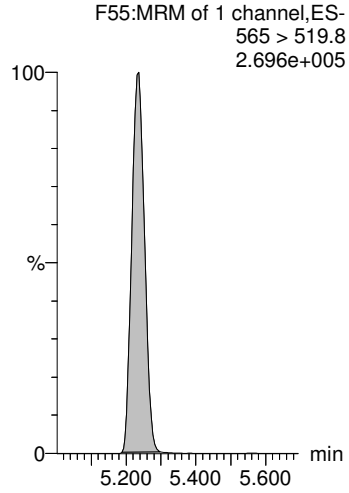

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Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
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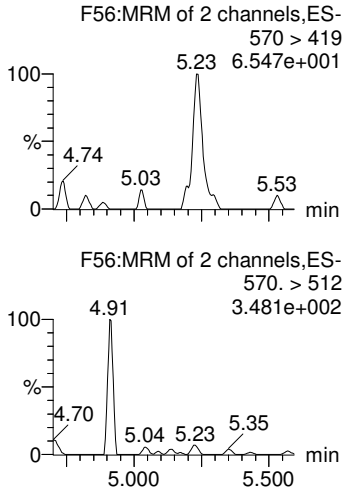
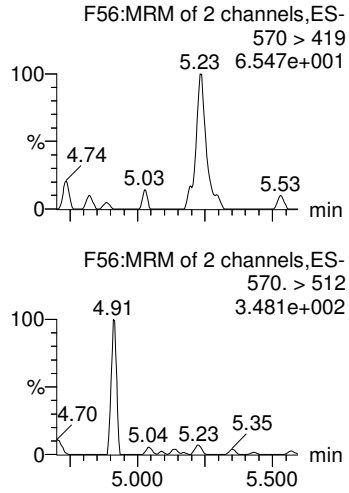
Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

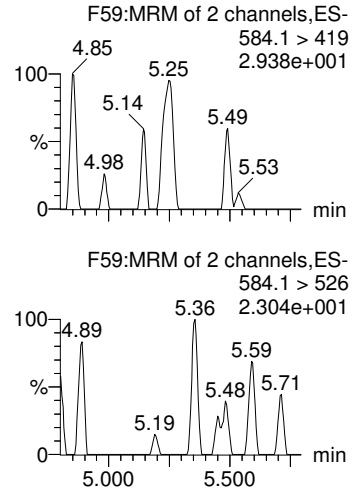
L-MeFOSAA



Total N-MeFOSAA



L-EtFOSAA



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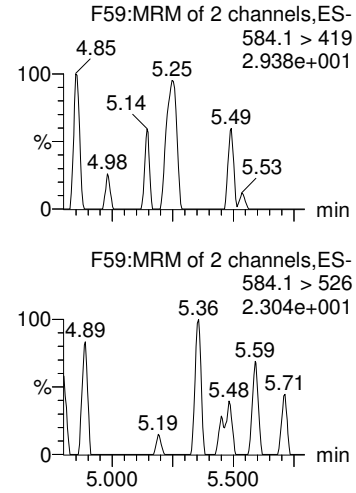
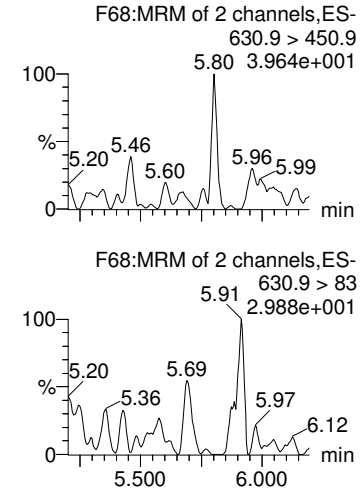


11Cl-PF30UdS



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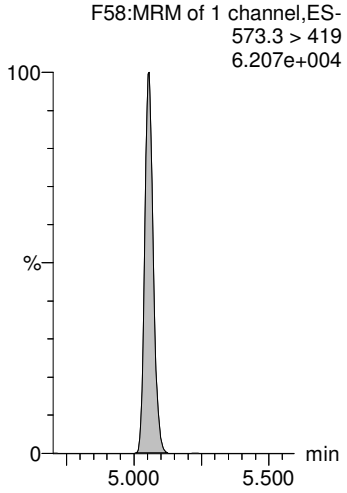

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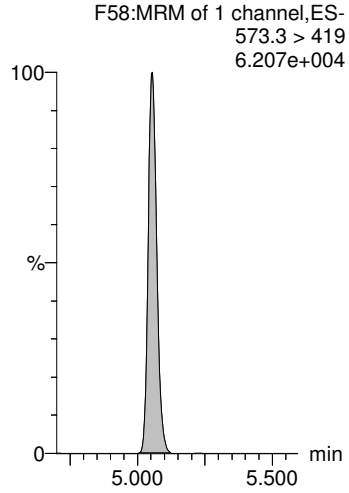
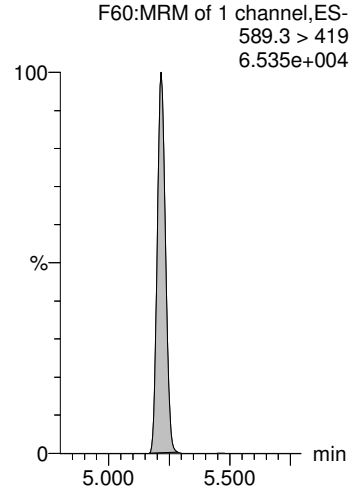


d5-N-EtFOSAA-EIS



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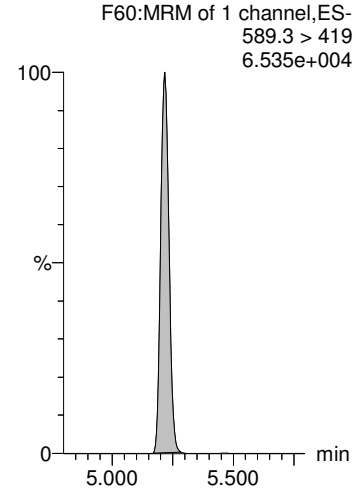
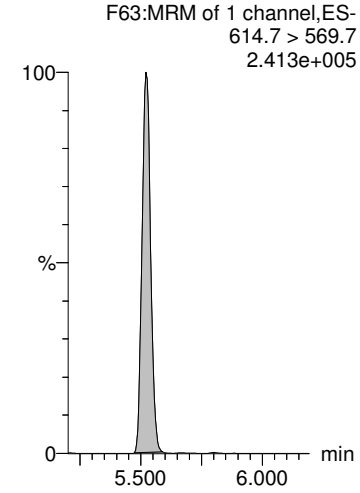


13C2-PFDoA-EIS



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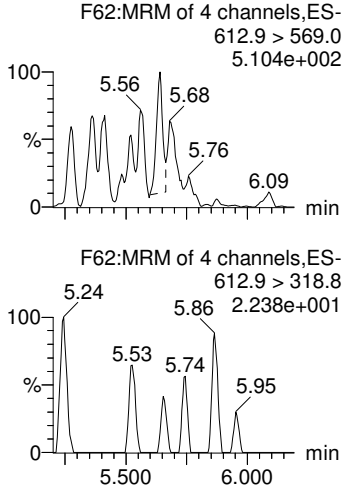
Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

PFDoA



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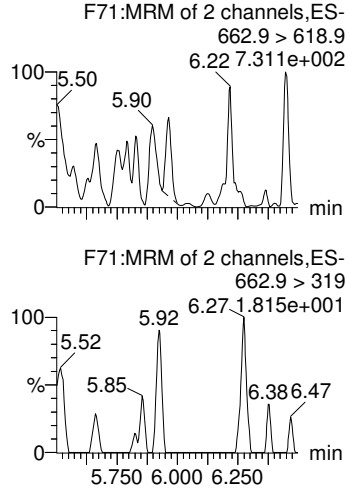

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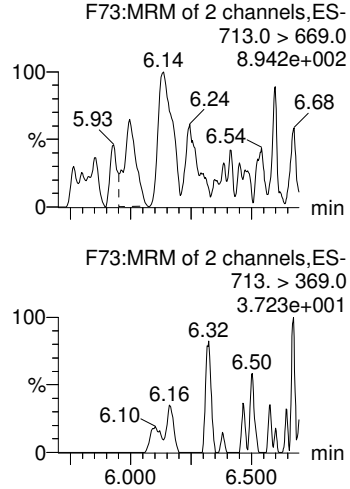
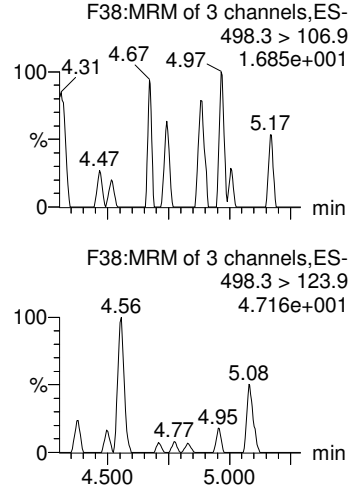


TDCA



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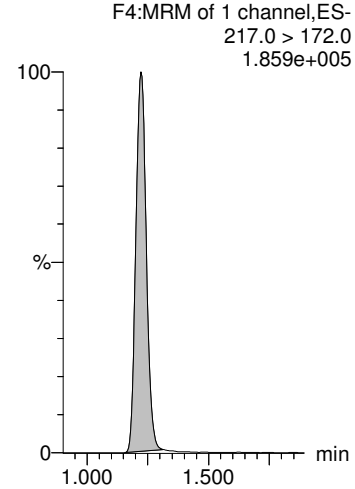
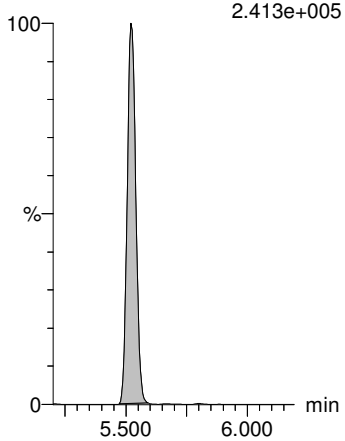


13C2-PFDoA-EIS



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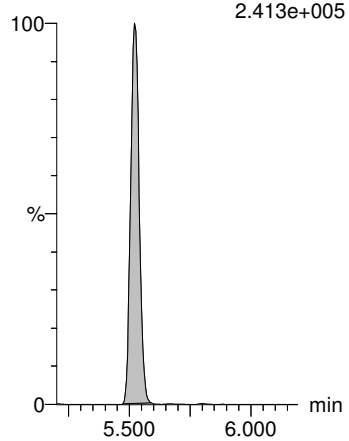
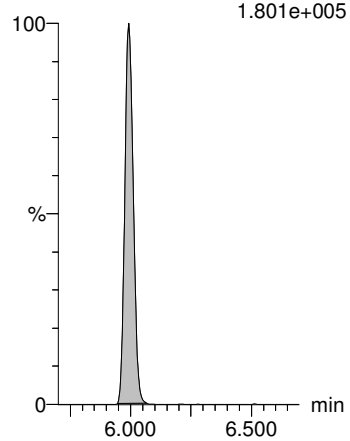
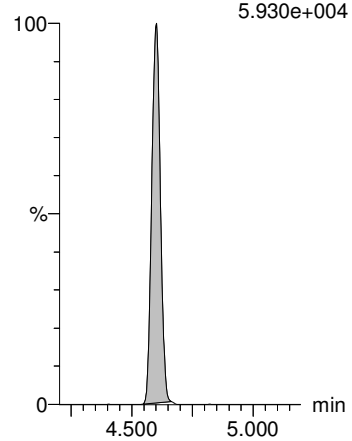


13C2-PFTeDA-EIS



13C8-PFOS-EIS



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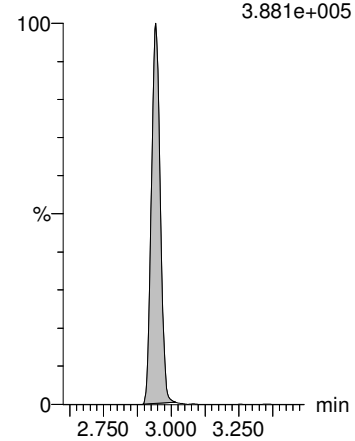

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Review: AMR 3/7/2020

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Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
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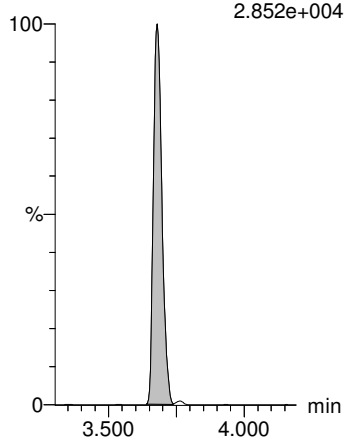
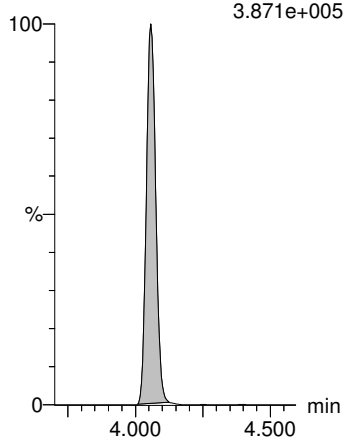
Name: 200304P2-34, Date: 05-Mar-2020, Time: 00:57:32, ID: 2000390-02 TW14S-20200221 0.25234, Description: TW14S-20200221

18O2-PFHxS



13C8-PFOA



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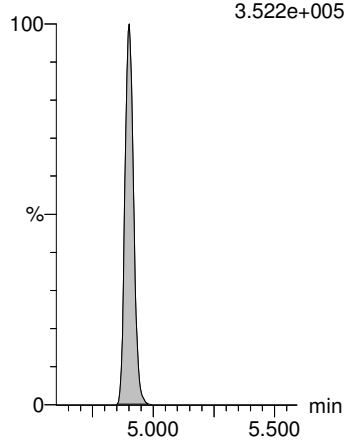
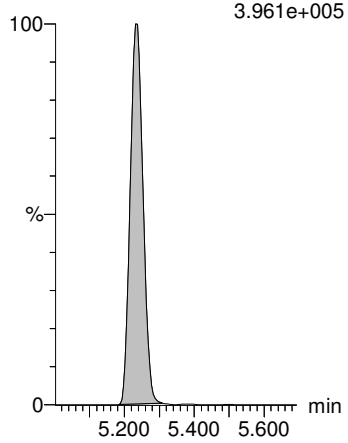
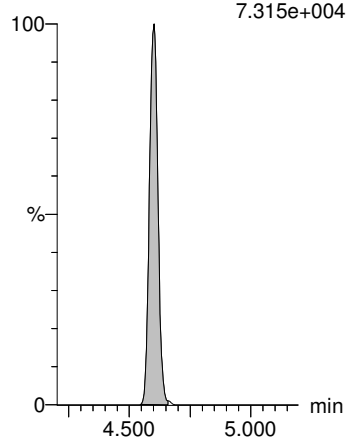


13C7-PFUdA



13C4-PFOS



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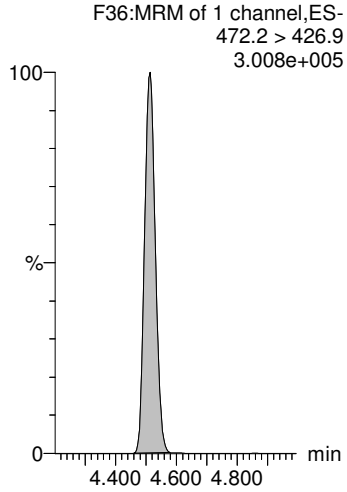

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Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time

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*SEE DILUTION

Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?	
1	5	PFBS	299.0 > 79.7	2.77e4	9.59e2	0.253		2.41	2.41	360	551.0847		3.239	NO	
2	7	PFHxA	313.0 > 269.0	5.89e5	1.21e4	0.253		2.94	2.94	607	2741.7658		17.149	NO	*E
3	9	HFPO-DA	285.1 > 168.9		3.06e3	0.253		3.14						YES	
4	11	PFHpA	363.0 > 318.9	1.29e5	7.23e3	0.253		3.54	3.54	224	741.1025		15.482	NO	
5	12	ADONA	376.8 > 250.9		7.23e3	0.253		3.62						YES	
6	51	13C3-PFBS-EIS	302.0 > 98.8	9.59e2		0.253	82.647	2.53	2.41	959	45.9580	92.8			
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.21e4		0.253	1213.080	2.94	2.94	12100	39.5399	79.9			
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3.06e3		0.253	280.215	3.25	3.14	3060	43.2510	87.4			
9	59	13C4-PFHpA-EIS	367.2 > 321.8	7.23e3		0.253	676.004	3.58	3.54	7230	42.3373	85.5			
10	59	13C4-PFHpA-EIS	367.2 > 321.8	7.23e3		0.253	676.004	3.58	3.54	7230	42.3373	85.5			
11	-1														
12	13	L-PFHxS	398.9 > 79.7	1.32e5	1.78e3	0.253		3.68	3.68	926	3567.6623		2.433	NO	*E
13	1...	Total PFHxS	398.9 > 79.7	1.32e5	1.78e3	0.253		3.93		926	3567.6623				
14	16	L-PFOA	412.8 > 368.9	2.14e6	8.39e3	0.253		4.06	4.06	3200	12337.3278		2.864	NO	*E
15	1...	Total PFOA	412.8 > 368.9	2.14e6	8.39e3	0.253		4.60		3200	12337.3278				
16	21	PFNA	463.0 > 418.8	4.13e3	9.81e3	0.253		4.51	4.51	5.27	16.6119		5.427	NO	
17	61	13C3-PFHxS-EIS	401.8 > 79.7	1.78e3		0.253	190.058	3.68	3.68	1780	37.0296	74.8			
18	61	13C3-PFHxS-EIS	401.8 > 79.7	1.78e3		0.253	190.058	3.68	3.68	1780	37.0296	74.8			
19	69	13C2-PFOA-EIS	414.9 > 369.7	8.39e3		0.253	1016.548	4.06	4.06	8390	32.6674	66.0			
20	69	13C2-PFOA-EIS	414.9 > 369.7	8.39e3		0.253	1016.548	4.06	4.06	8390	32.6674	66.0			
21	65	13C5-PFNA-EIS	468.2 > 422.9	9.81e3		0.253	867.408	4.51	4.51	9810	44.8054	90.5			
22	-1														
23	23	L-PFOS	498.9 > 79.7	5.86e4	2.22e3	0.253		4.60	4.60	330	1324.1225		2.316	NO	
24	1...	Total PFOS	498.9 > 79.7	5.86e4	2.22e3	0.253		5.13		330	1324.1225				
25	25	9Cl-PF30NS	530.7 > 350.8		2.22e3	0.253		4.80						YES	
26	26	PFDA	513 > 468.8	6.08e2	1.05e4	0.253		4.90	4.90	0.723	1.9517		8.486	NO	
27	33	PFUdA	563.0 > 518.9		1.19e4	0.253		5.24						YES	
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.22e3		0.253	207.944	4.60	4.60	2220	42.3070	85.5			
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.22e3		0.253	207.944	4.60	4.60	2220	42.3070	85.5			
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.22e3		0.253	207.944	4.60	4.60	2220	42.3070	85.5			
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.05e4		0.253	944.999	4.90	4.90	10500	44.0367	89.0			
32	79	13C2-PFUdA-EIS	565 > 519.8	1.19e4		0.253	1226.695	5.24	5.24	11900	38.5114	77.8			
33	-1														
34	29	L-MeFOSAA	570 > 419		2.37e3	0.253		5.06						YES	
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	2.37e3	0.253		5.19		0.000					
36	31	L-EtFOSAA	584.1 > 419		3.14e3	0.253		5.22						YES	

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Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	0.00e0	3.14e3	0.253		5.37		0.000				
38	35	11Cl-PF30UdS	630.9 > 450.9		1.15e4	0.253		5.45						YES
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.37e3		0.253	195.067	5.07	5.06	2370	48.0895	97.2		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.37e3		0.253	195.067	5.07	5.06	2370	48.0895	97.2		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.14e3		0.253	288.034	5.21	5.22	3140	43.1943	87.3		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.14e3		0.253	288.034	5.21	5.22	3140	43.1943	87.3		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.15e4		0.253	1212.024	5.50	5.52	11500	37.6116	76.0		
44	-1													
45	37	PFDoA	612.9 > 569.0		1.15e4	0.253		5.52						YES
46	39	PFTrDA	662.9 > 618.9		1.15e4	0.253		5.77						YES
47	41	PFTeDA	713.0 > 669.0		9.56e3	0.253		5.99						YES
48	1...	TDCA	498.3>106.9			0.253		4.59						YES
49	99	13C4-PFBA	217.0 > 172.0	8.93e3	8.93e3	0.253	1.000	1.23	1.22	12.5	49.4991	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.15e4		0.253	1212.024	5.50	5.52	11500	37.6116	76.0		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.15e4		0.253	1212.024	5.50	5.52	11500	37.6116	76.0		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	9.56e3		0.253	1069.279	5.92	5.99	9560	35.3858	71.5		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.22e3		0.253	207.944	4.60	4.60	2220	42.3070	85.5		
54	1...	13C5-PFHxA	318.0 > 272.9	1.18e4	1.18e4	0.253	1.000	2.94	2.94	12.5	49.4991	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	7.54e2	7.54e2	0.253	1.000	3.67	3.68	12.5	49.4991	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.00e4	1.00e4	0.253	1.000	4.05	4.06	12.5	49.4991	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.35e4	1.35e4	0.253	1.000	4.90	4.90	12.5	49.4991	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.57e4	1.57e4	0.253	1.000	5.23	5.24	12.5	49.4991	100.0		
60	1...	13C4-PFOS	503 > 79.7	2.63e3	2.63e3	0.253	1.000	4.60	4.60	12.5	49.4991	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.15e4	1.15e4	0.253	1.000	4.51	4.51	12.5	49.4991	100.0		

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Review: AMR 3/7/2020

Dataset: Untitled

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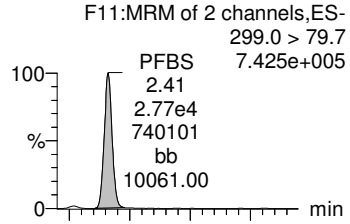
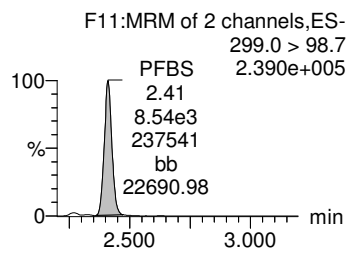
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

PFBS





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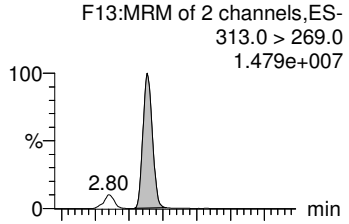

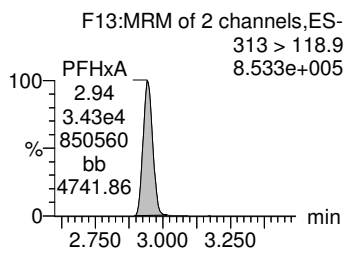

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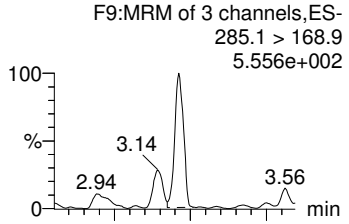

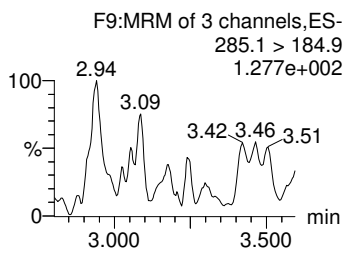

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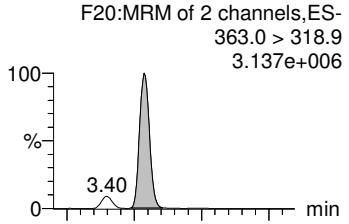

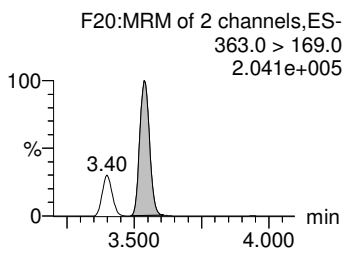

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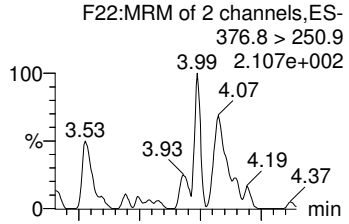

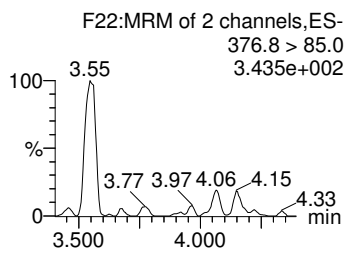

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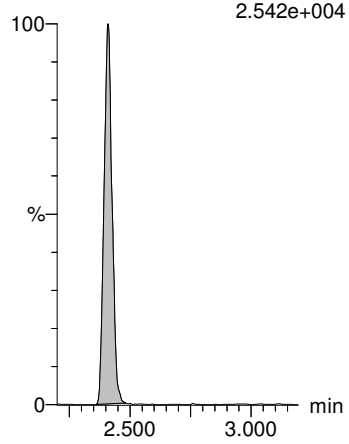

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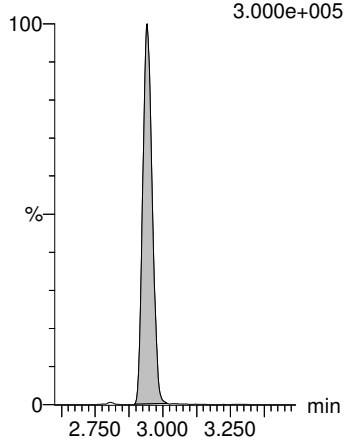

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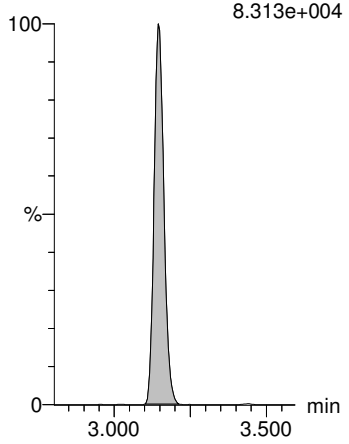

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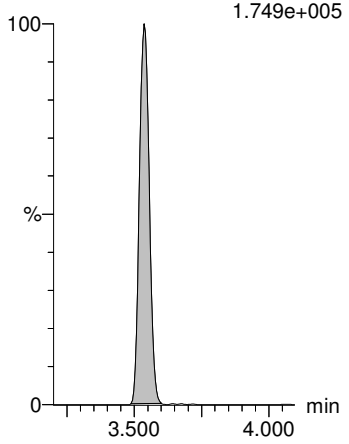

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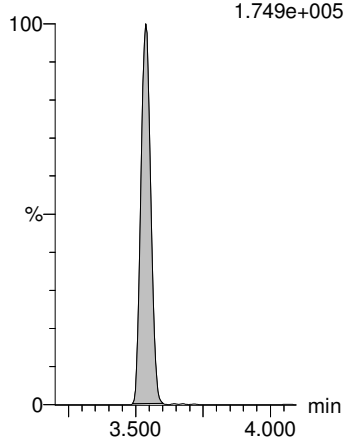

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Review: AMR 3/7/2020

Dataset: Untitled

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Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

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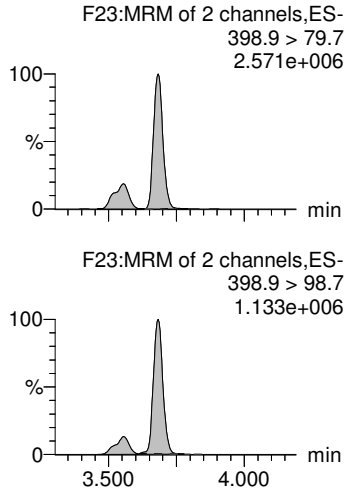

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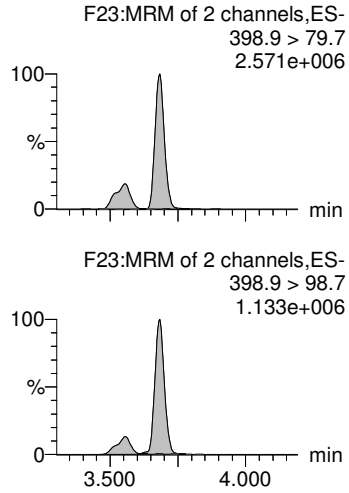

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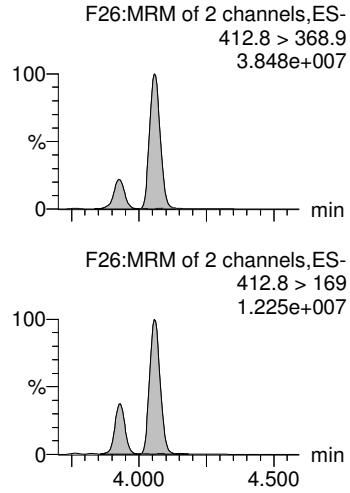

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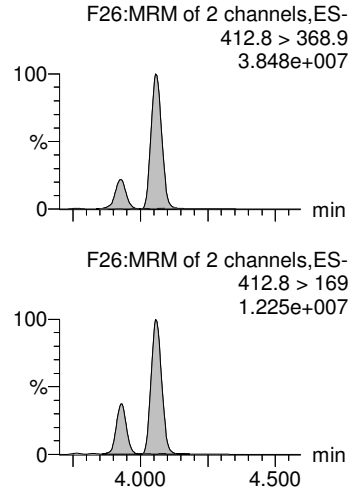

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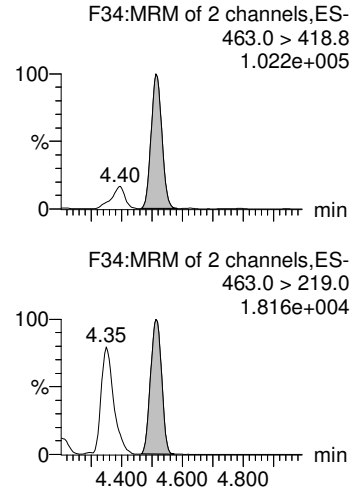

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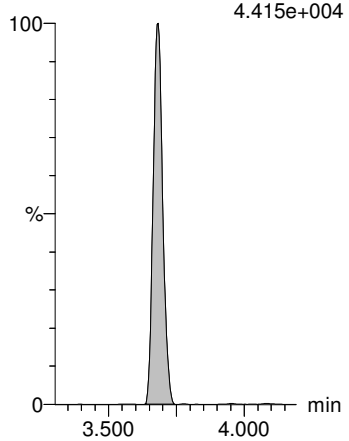

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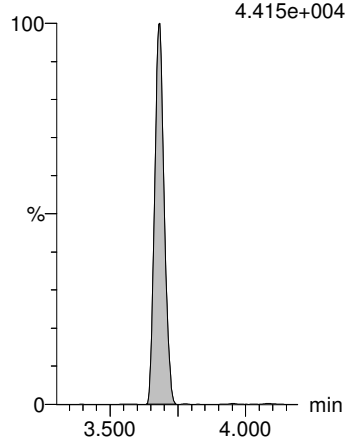

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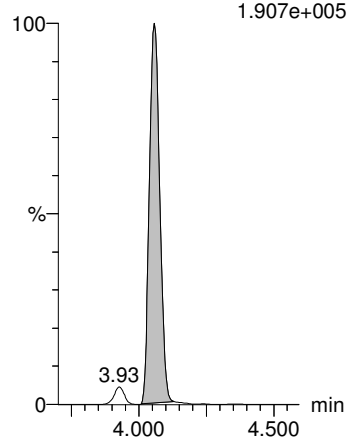

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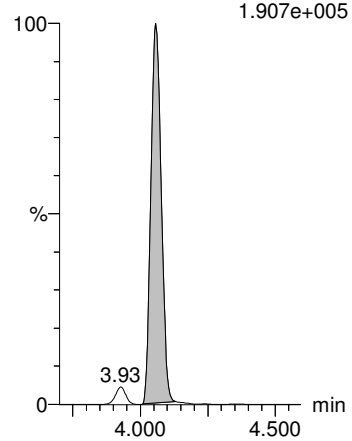

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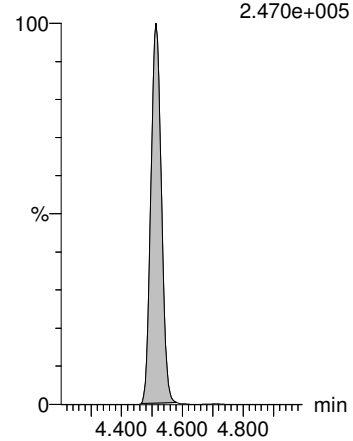

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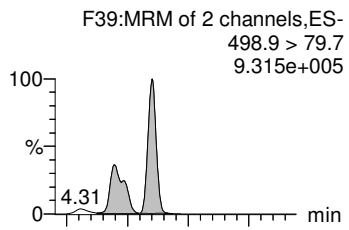
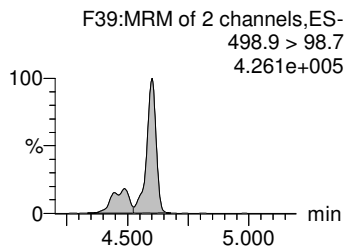
L-PFOS





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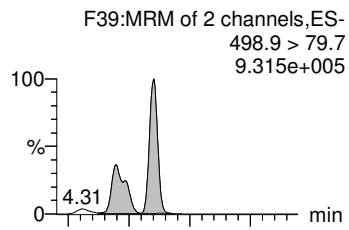

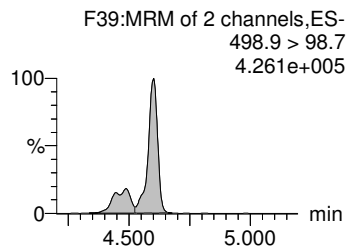

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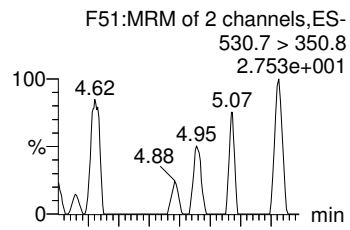

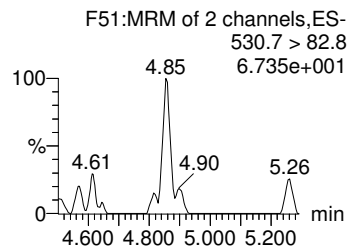

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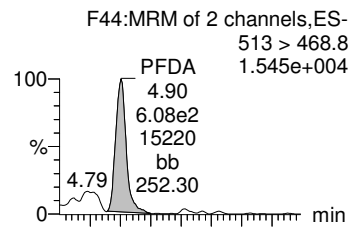

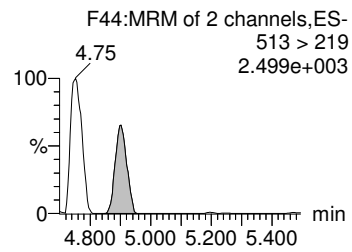

PFUdA

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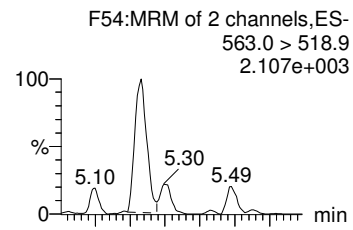

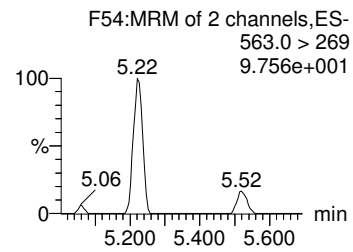

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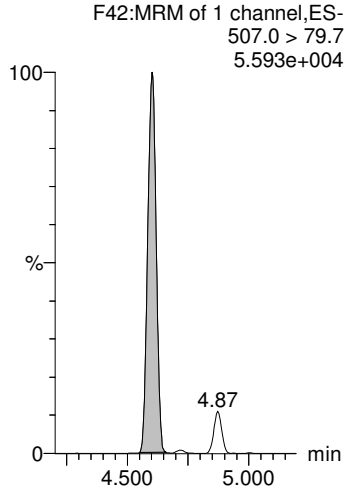

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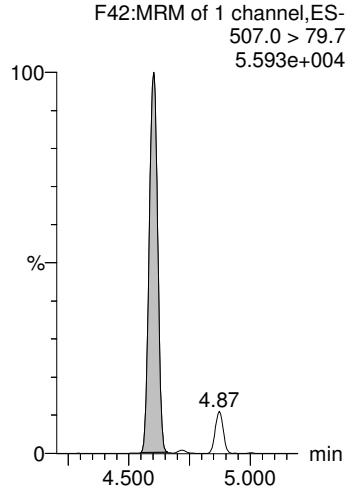

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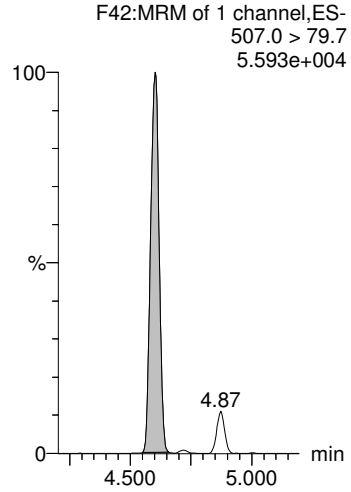

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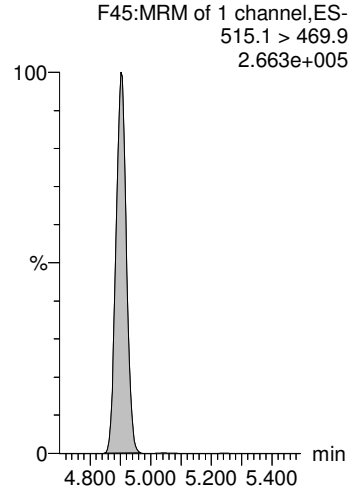

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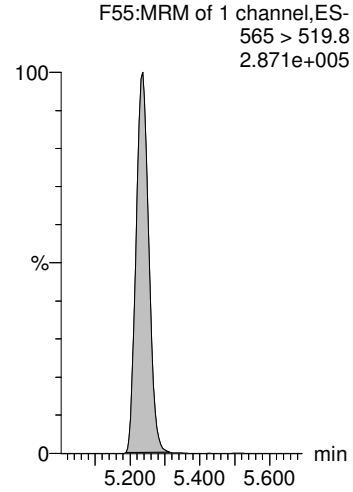

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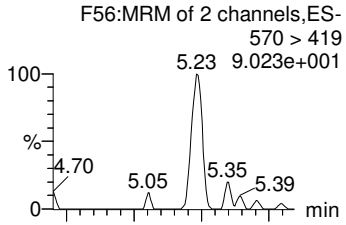
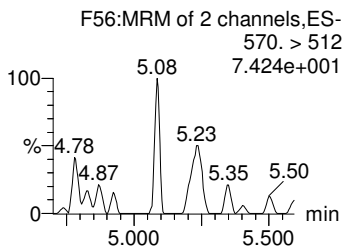
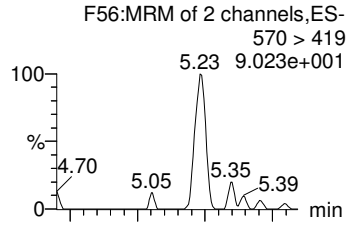
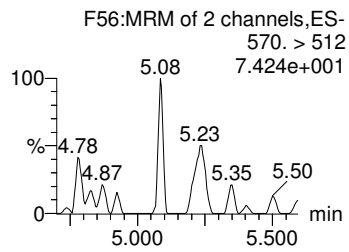
L-MeFOSAA



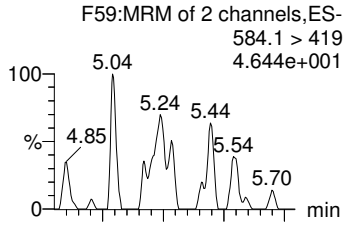


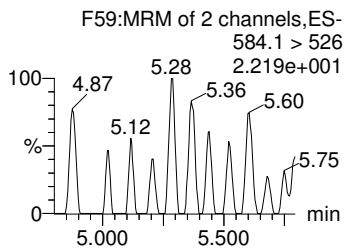
Total N-MeFOSAA





L-EtFOSAA





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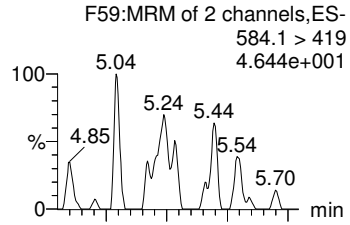
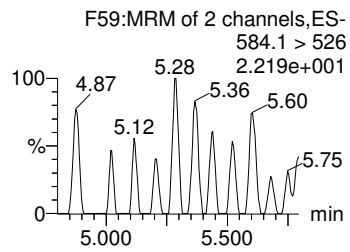
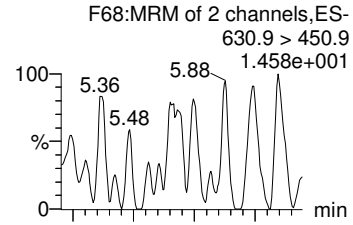
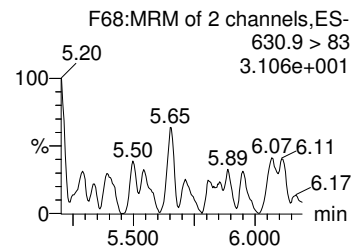


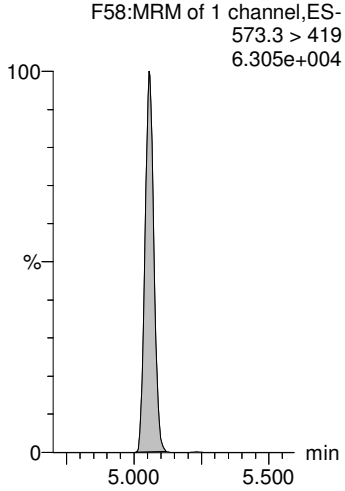


11Cl-PF30UdS





d3-N-MeFOSAA-EIS



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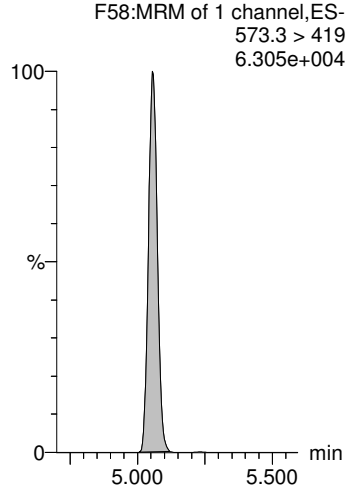

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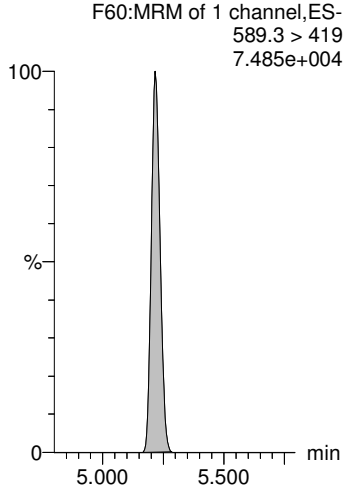
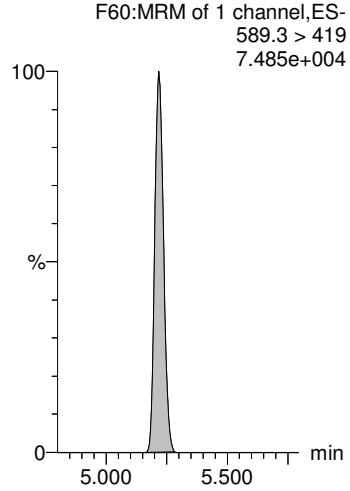
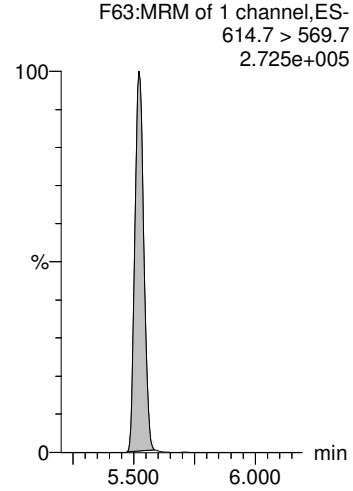


d5-N-EtFOSAA-EIS



13C2-PFDoA-EIS



QPV 3/6/2020

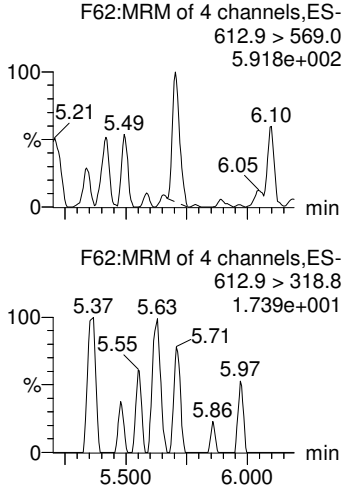
Review: AMR 3/7/2020

Dataset: Untitled

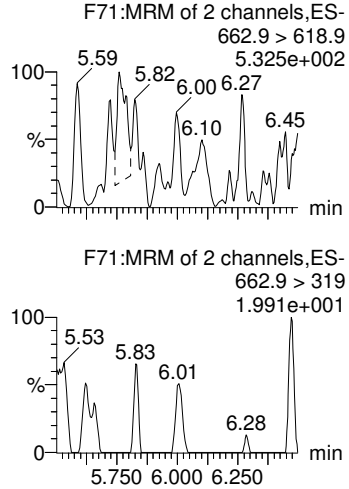
Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
Printed: Friday, March 06, 2020 16:02:15 Pacific Standard Time

Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

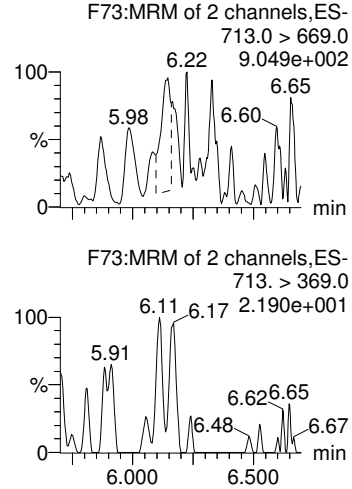
PFDoA



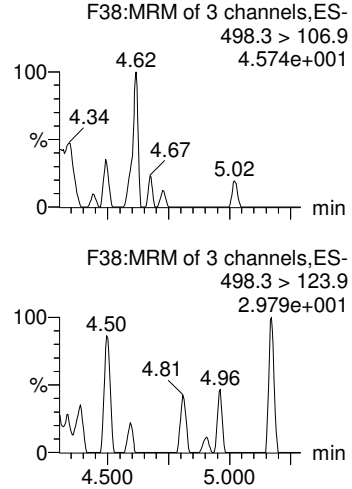
PFTrDA



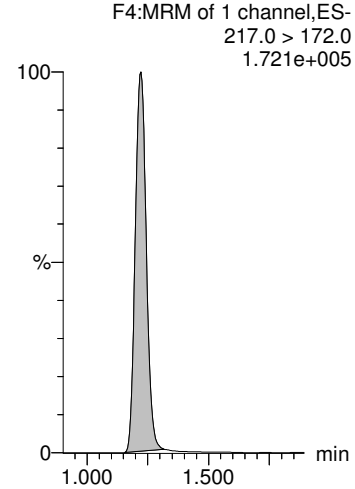
PFTeDA



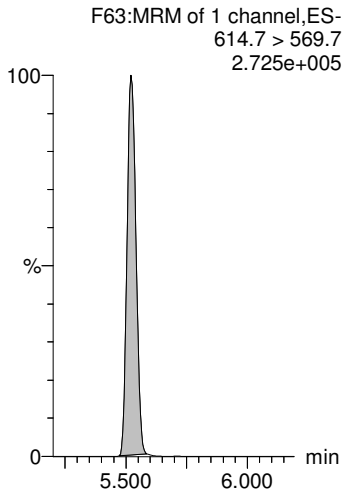
TDCA



13C4-PFBA



13C2-PFDoA-EIS



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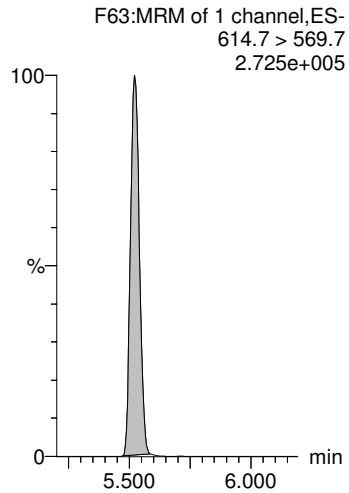
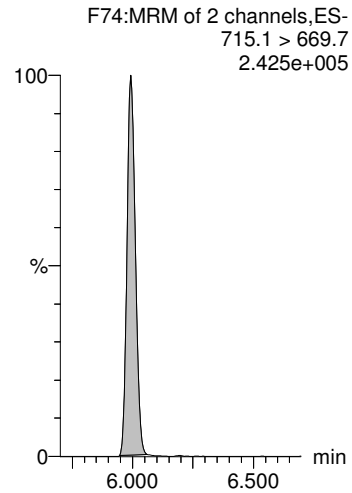
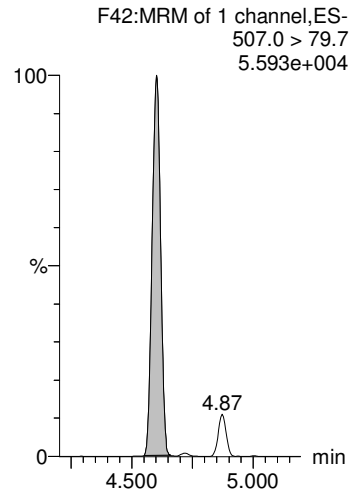


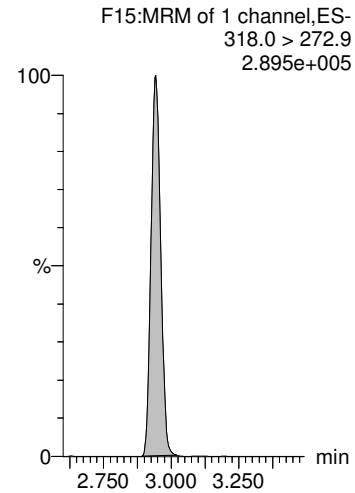
13C2-PFTeDA-EIS



13C8-PFOS-EIS



13C5-PFHxA



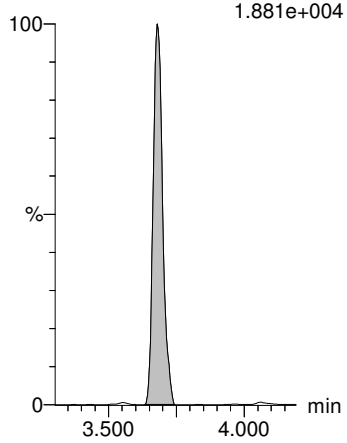
Review: AMR 3/7/2020

Dataset: Untitled

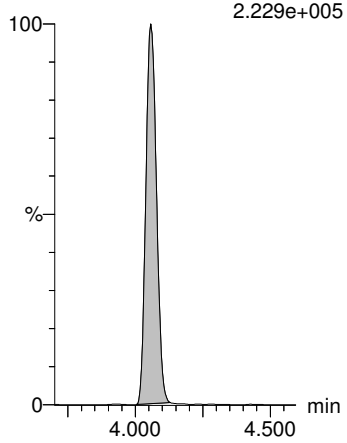
Last Altered: Friday, March 06, 2020 15:57:03 Pacific Standard Time
Printed: Friday, March 06, 2020 16:02:15 Pacific Standard Time

Name: 200304P2-35, Date: 05-Mar-2020, Time: 01:08:00, ID: 2000390-03 TW17S-20200221 0.25253, Description: TW17S-20200221

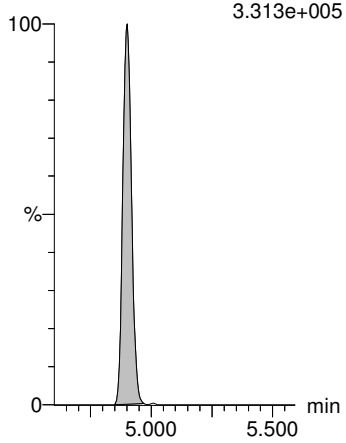
18O2-PFHxS



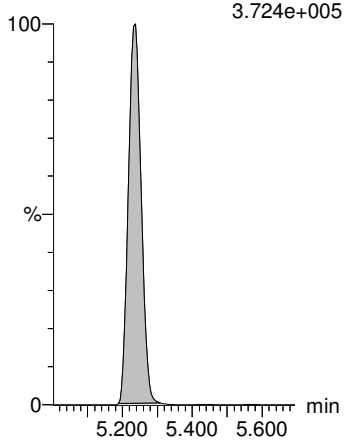
13C8-PFOA



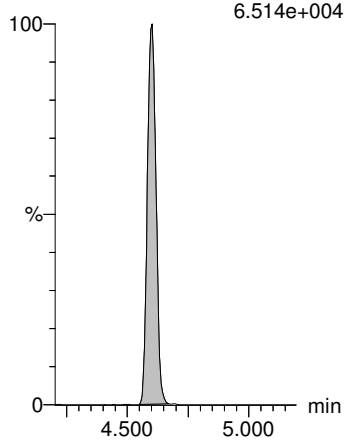
13C6-PFDA



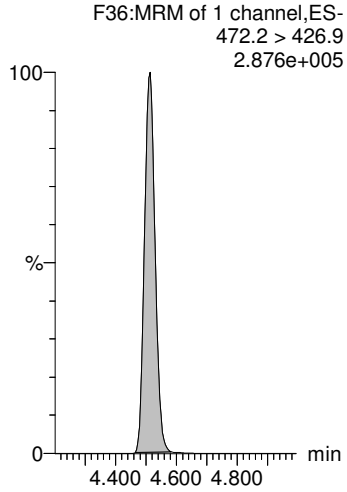
13C7-PFUdA



13C4-PFOS



13C9-PFNA



QPV 3/6/2020

Vista Analytical Laboratory

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:26:14 Pacific Standard Time
Printed: Friday, March 06, 2020 16:27:03 Pacific Standard Time

Name: 200305P1-19, Date: 05-Mar-2020, Time: 20:23:43, ID: 2000390-03@15 TW17S-20200221 0.25253, Description: TW17S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	7	PFHxA	313.0 > 269.0	92235.727	1733.375	0.253		2.94	665.146	3089.1		NO	18.500	NO
2	13	L-PFHxS	398.9 > 79.7	19936.266	285.541	0.253		3.68	872.741	3416.0		NO	2.478	NO
3	1...	Total PFHxS	398.9 > 79.7	19936.266	285.541	0.253			872.741	3416.0		NO		
4	57	13C2-PFHxA-EIS	315.0 > 270.0	1733.375		0.253	1439.913	2.94	1733.375	4.8	9.6	YES		
5	61	13C3-PFHxS-EIS	401.8 > 79.7	285.541		0.253	228.993	3.68	285.541	4.9	10.0	YES		
6	61	13C3-PFHxS-EIS	401.8 > 79.7	285.541		0.253	228.993	3.68	285.541	4.9	10.0	YES		
7	-1													
8	1...	13C5-PFHxA	318.0 > 272.9	1802.396	1802.396	0.253	1.000	2.94	12.500	49.5	100.0	NO		
9	1...	18O2-PFHxS	403.0 > 102.6	102.508	102.508	0.253	1.000	3.68	12.500	49.5	100.0	NO		
10	1...	13C8-PFOA	420.9 > 376.0	1705.667	1705.667	0.253	1.000	4.06	12.500	49.5	100.0	NO		
11	-1													

Vista Analytical Laboratory

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:26:14 Pacific Standard Time
Printed: Friday, March 06, 2020 16:27:03 Pacific Standard Time

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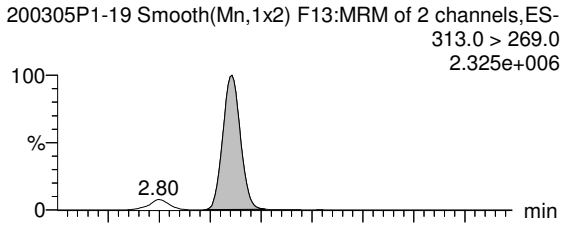
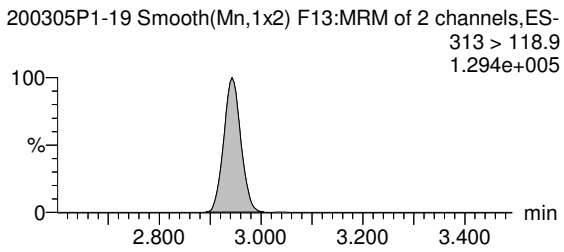
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

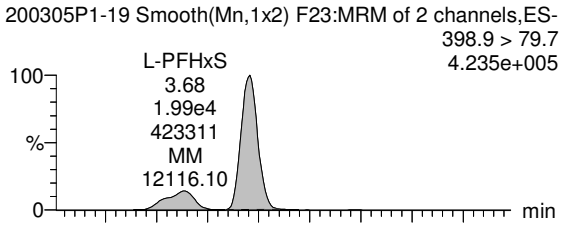
Name: 200305P1-19, Date: 05-Mar-2020, Time: 20:23:43, ID: 2000390-03@15 TW17S-20200221 0.25253, Description: TW17S-20200221

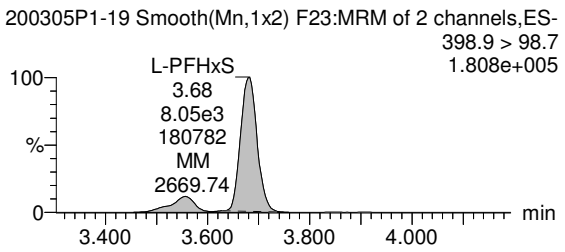
PFHxA



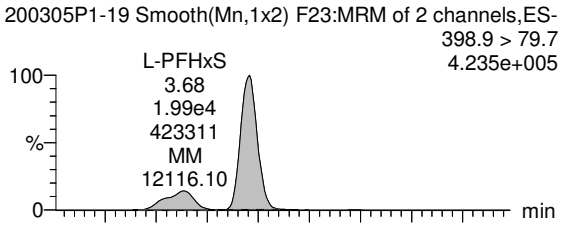


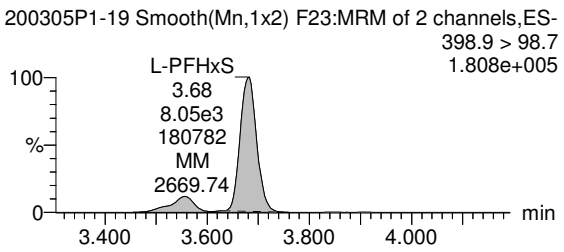
L-PFHxS



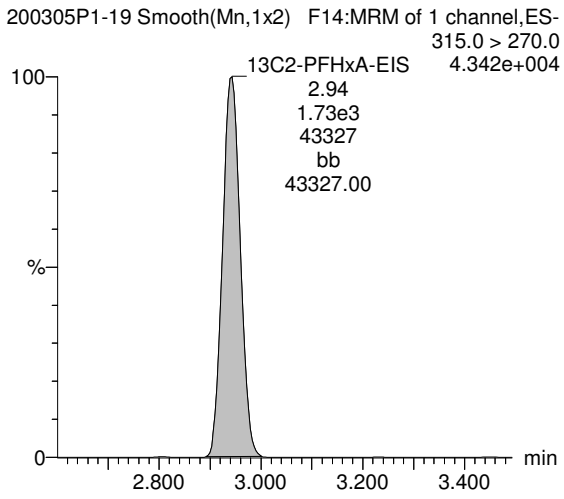


Total PFHxS

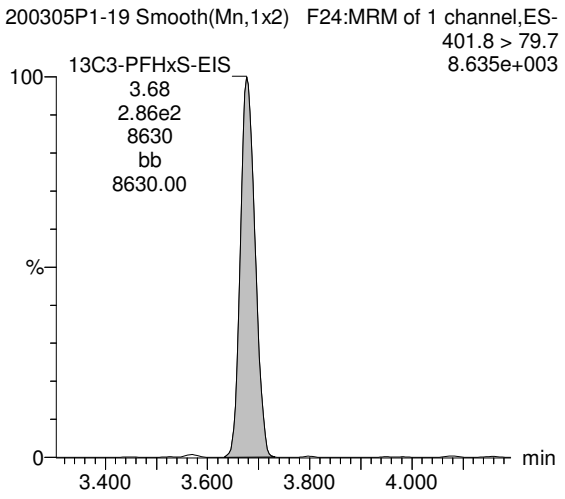




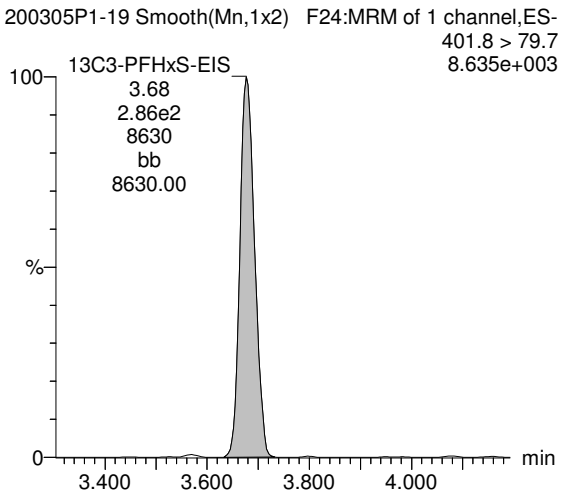
13C2-PFHxA-EIS



13C3-PFHxS-EIS



13C3-PFHxS-EIS



Vista Analytical Laboratory

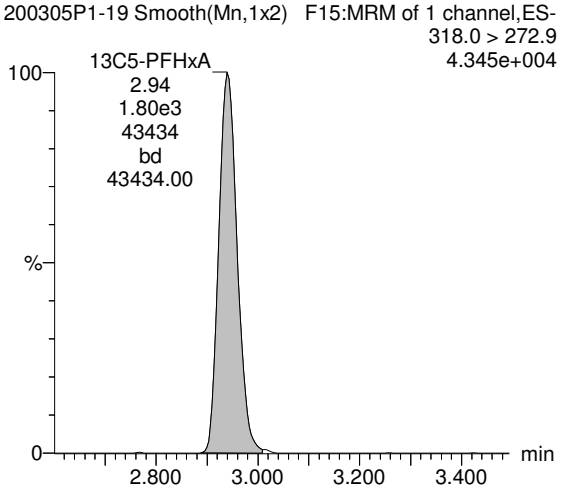
Review: AMR 3/7/2020

Dataset: Untitled

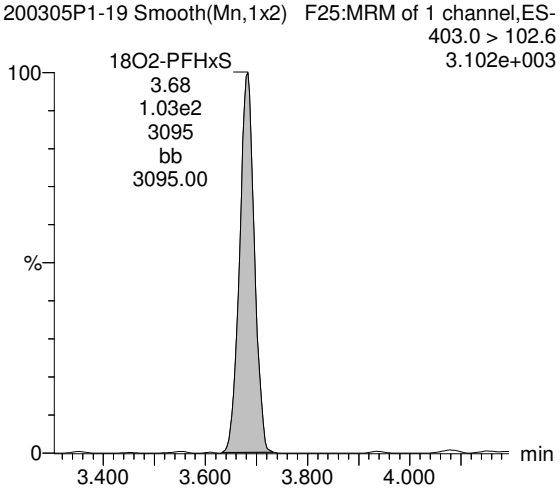
Last Altered: Friday, March 06, 2020 16:26:14 Pacific Standard Time
Printed: Friday, March 06, 2020 16:27:03 Pacific Standard Time

Name: 200305P1-19, Date: 05-Mar-2020, Time: 20:23:43, ID: 2000390-03@15 TW17S-20200221 0.25253, Description: TW17S-20200221

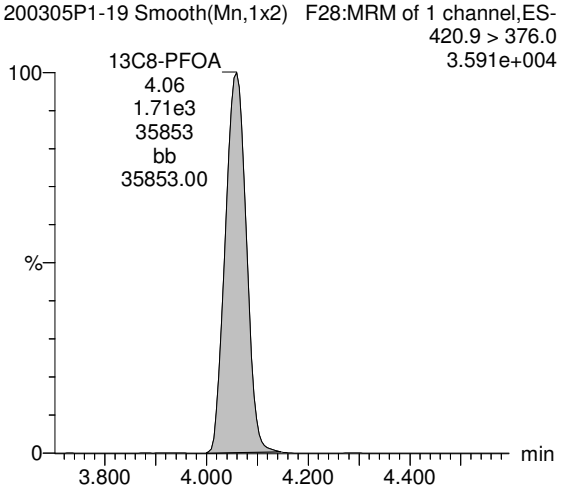
13C5-PFHxA



18O2-PFHxS



13C8-PFOA



Vista Analytical Laboratory

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:31:16 Pacific Standard Time
Printed: Friday, March 06, 2020 16:31:45 Pacific Standard Time

Name: 200305P1-19, Date: 05-Mar-2020, Time: 20:23:43, ID: 2000390-03@15 TW17S-20200221 0.25253, Description: TW17S-20200221

*ug/L

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	16	L-PFOA	412.8 > 368.9	404273.844	1782.418	0.253		4.06	2.835	8.92		NO	2.913	NO
2	1...	Total PFOA	412.8 > 368.9	404273.844	1782.418	0.253			2.835	8.92		NO		
3	1...	13C8-PFOA	420.9 > 376.0	1705.667	1705.667	0.253	1.000	4.06	0.013	0.0495	100.0	NO		
4	69	13C2-PFOA-EIS	414.9 > 369.7	1782.418		0.253	1335.572	4.05	1782.418	5.28	10676.6	YES		
5	69	13C2-PFOA-EIS	414.9 > 369.7	1782.418		0.253	1335.572	4.05	1782.418	5.28	10676.6	YES		

Vista Analytical Laboratory

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:31:16 Pacific Standard Time
Printed: Friday, March 06, 2020 16:31:45 Pacific Standard Time

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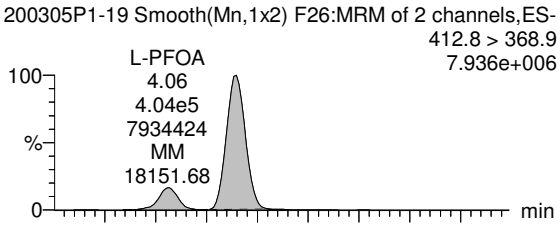
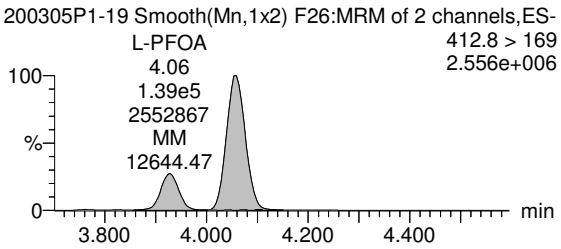
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-19, Date: 05-Mar-2020, Time: 20:23:43, ID: 2000390-03@15 TW17S-20200221 0.25253, Description: TW17S-20200221

L-PFOA





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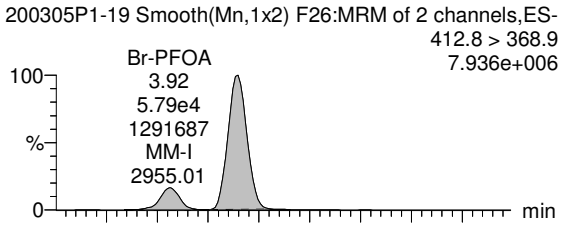
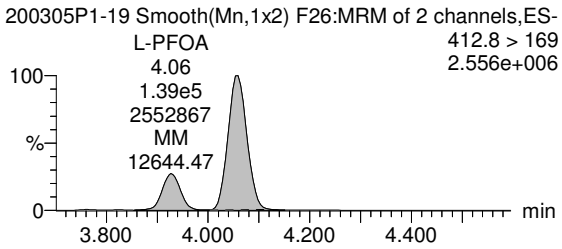
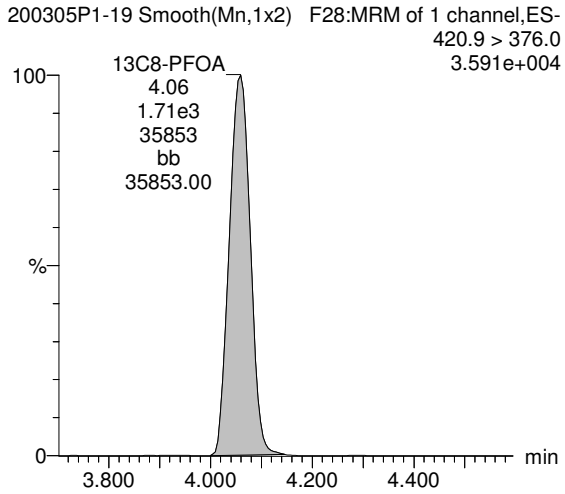




13C8-PFOA



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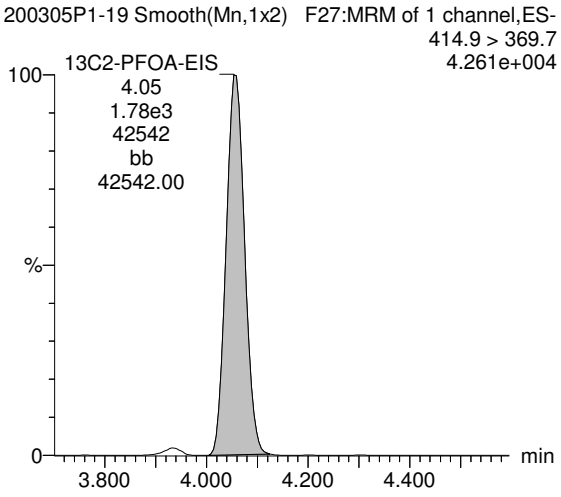

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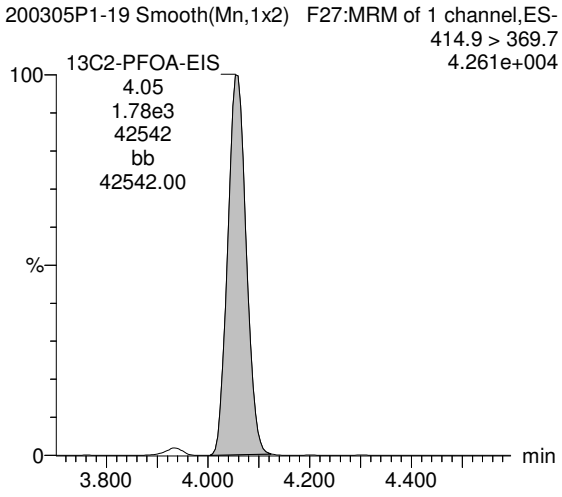

Vista Analytical Laboratory L18

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
Printed: Friday, March 06, 2020 16:23:52 Pacific Standard Time

Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7	3.15e3	1.17e3	0.251		2.41	2.42	33.7	53.6353		3.165	NO
2	7	PFHxA	313.0 > 269.0	4.42e4	1.50e4	0.251		2.95	2.95	36.9	172.3429		16.767	NO
3	9	HFPO-DA	285.1 > 168.9		2.81e3	0.251		3.15						YES
4	11	PFHpA	363.0 > 318.9	1.51e4	9.78e3	0.251		3.54	3.54	19.4	65.5386		23.211	NO
5	12	ADONA	376.8 > 250.9		9.78e3	0.251		3.63						YES
6	51	13C3-PFBS-EIS	302.0 > 98.8	1.17e3		0.251	95.239	2.53	2.41	1170	48.8304	98.0		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.50e4		0.251	1439.913	2.94	2.95	15000	41.4343	83.1		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2.81e3		0.251	285.855	3.24	3.15	2810	39.1323	78.5		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	9.78e3		0.251	917.711	3.58	3.54	9780	42.4868	85.2		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	9.78e3		0.251	917.711	3.58	3.54	9780	42.4868	85.2		
11	-1													
12	13	L-PFHxS	398.9 > 79.7	1.76e4	2.55e3	0.251		3.68	3.68	86.5	341.0707		2.338	NO
13	1...	Total PFHxS	398.9 > 79.7	1.76e4	2.55e3	0.251		3.93		86.5	341.0707			
14	16	L-PFOA	412.8 > 368.9	1.10e5	1.43e4	0.251		4.05	4.06	96.1	319.0137		2.766	NO
15	1...	Total PFOA	412.8 > 368.9	1.10e5	1.43e4	0.251		4.60		96.1	319.0137			
16	21	PFNA	463.0 > 418.8	1.68e3	1.23e4	0.251		4.51	4.51	1.71	5.7817		7.911	NO
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.55e3		0.251	228.993	3.68	3.68	2550	44.3521	89.0		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.55e3		0.251	228.993	3.68	3.68	2550	44.3521	89.0		
19	69	13C2-PFOA-EIS	414.9 > 369.7	1.43e4		0.251	1335.572	4.05	4.05	14300	42.6133	85.5		
20	69	13C2-PFOA-EIS	414.9 > 369.7	1.43e4		0.251	1335.572	4.05	4.05	14300	42.6133	85.5		
21	65	13C5-PFNA-EIS	468.2 > 422.9	1.23e4		0.251	1218.484	4.51	4.51	12300	40.2242	80.7		
22	-1													
23	23	L-PFOS	498.9 > 79.7	9.67e3	2.89e3	0.251		4.60	4.60	41.8	171.8002		2.367	NO
24	1...	Total PFOS	498.9 > 79.7	9.67e3	2.89e3	0.251		5.13		41.8	171.8002			
25	25	9Cl-PF30NS	530.7 > 350.8		2.89e3	0.251		4.80						YES
26	26	PFDA	513 > 468.8	3.45e2	1.54e4	0.251		4.90	4.90	0.279	0.7581		8.684	NO
27	33	PFUdA	563.0 > 518.9		1.45e4	0.251		5.23						YES
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.89e3		0.251	251.762	4.60	4.60	2890	45.8242	91.9		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.89e3		0.251	251.762	4.60	4.60	2890	45.8242	91.9		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.89e3		0.251	251.762	4.60	4.60	2890	45.8242	91.9		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.54e4		0.251	1355.269	4.90	4.90	15400	45.4546	91.2		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.45e4		0.251	1562.583	5.23	5.23	14500	37.0648	74.4		
33	-1													
34	29	L-MeFOSAA	570 > 419		3.26e3	0.251		5.05						YES
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	3.26e3	0.251		5.19		0.000				
36	31	L-EtFOSAA	584.1 > 419		3.67e3	0.251		5.21						YES

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Review: AMR 3/7/2020

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Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	0.00e0	3.67e3	0.251		5.37		0.000				
38	35	11Cl-PF30UdS	630.9 > 450.9		1.20e4	0.251		5.45						YES
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	3.26e3		0.251	274.881	5.06	5.05	3260	47.2855	94.9		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	3.26e3		0.251	274.881	5.06	5.05	3260	47.2855	94.9		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.67e3		0.251	360.797	5.20	5.21	3670	40.5727	81.4		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.67e3		0.251	360.797	5.20	5.21	3670	40.5727	81.4		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.20e4		0.251	1396.243	5.49	5.52	12000	34.3297	68.9		
44	-1													
45	37	PFDoA	612.9 > 569.0		1.20e4	0.251		5.52						YES
46	39	PFTrDA	662.9 > 618.9		1.20e4	0.251		5.77						YES
47	41	PFTeDA	713.0 > 669.0		1.17e4	0.251		5.99						YES
48	1...	TDCA	498.3>106.9			0.251		4.59						YES
49	99	13C4-PFBA	217.0 > 172.0	9.94e3	9.94e3	0.251	1.000	1.24	1.23	12.5	49.8465	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.20e4		0.251	1396.243	5.49	5.52	12000	34.3297	68.9		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.20e4		0.251	1396.243	5.49	5.52	12000	34.3297	68.9		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	1.17e4		0.251	1417.747	5.92	5.99	11700	33.0245	66.3		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.89e3		0.251	251.762	4.60	4.60	2890	45.8242	91.9		
54	1...	13C5-PFHxA	318.0 > 272.9	1.73e4	1.73e4	0.251	1.000	2.94	2.94	12.5	49.8465	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.16e3	1.16e3	0.251	1.000	3.68	3.68	12.5	49.8465	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.73e4	1.73e4	0.251	1.000	4.05	4.05	12.5	49.8465	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.59e4	1.59e4	0.251	1.000	4.90	4.90	12.5	49.8465	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.77e4	1.77e4	0.251	1.000	5.23	5.23	12.5	49.8465	100.0		
60	1...	13C4-PFOS	503 > 79.7	3.69e3	3.69e3	0.251	1.000	4.60	4.60	12.5	49.8465	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.53e4	1.53e4	0.251	1.000	4.51	4.51	12.5	49.8465	100.0		

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Review: AMR 3/7/2020

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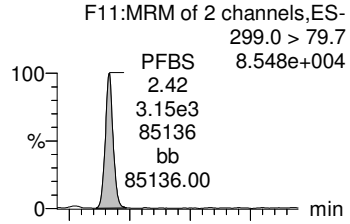
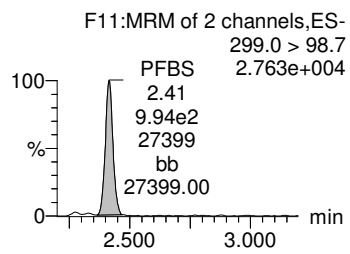
Calibration: Z:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

PFBS





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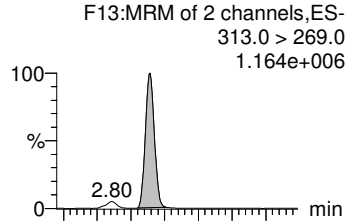

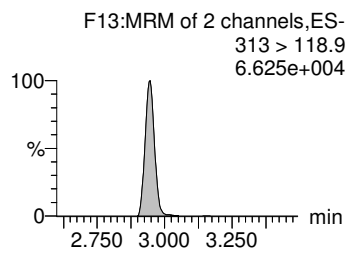

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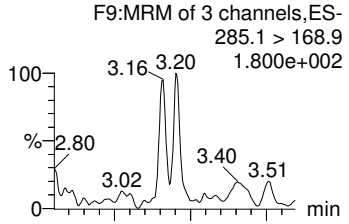

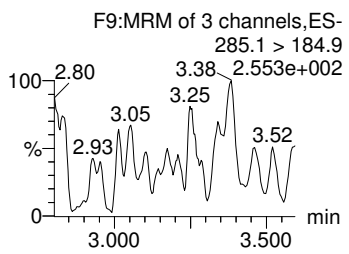

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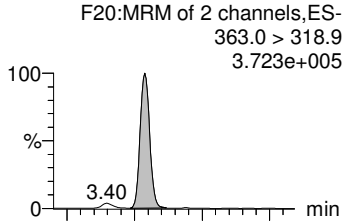

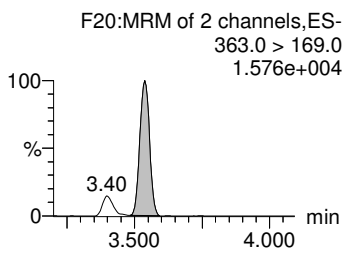

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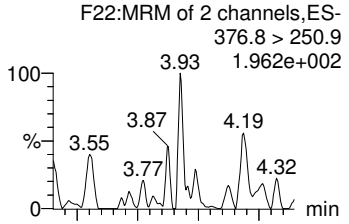

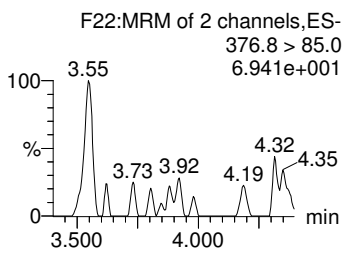

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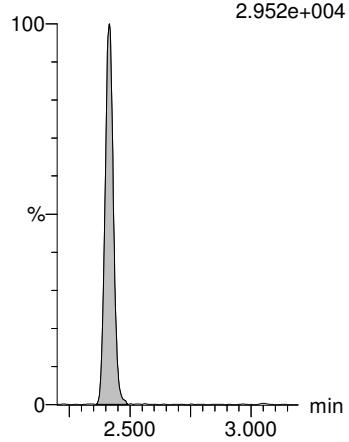

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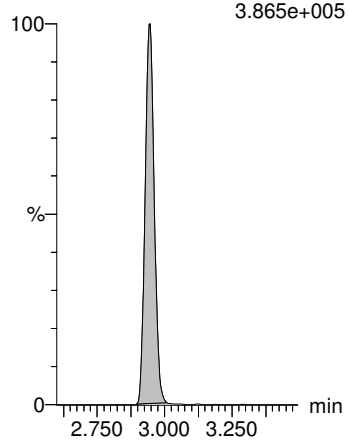
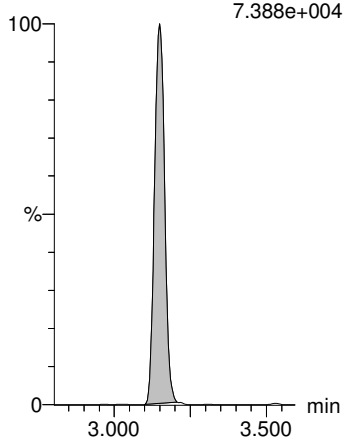


13C3-HFPO-DA-EIS



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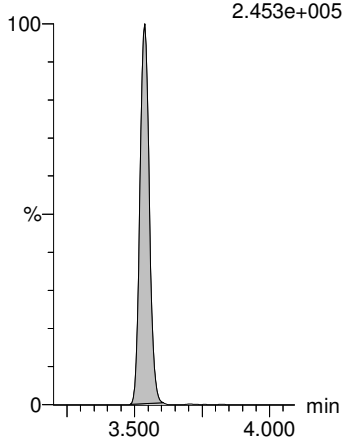

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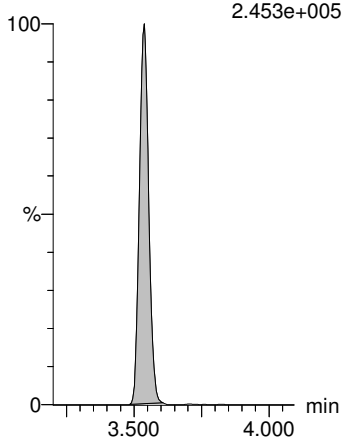

 QPV 3/6/2020

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Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
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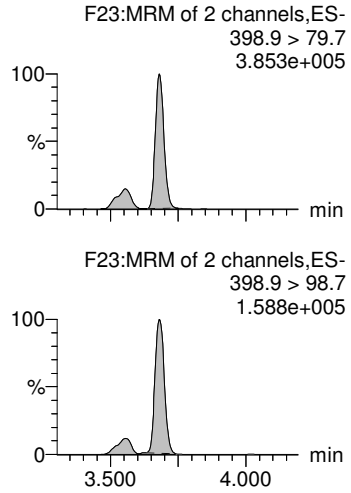
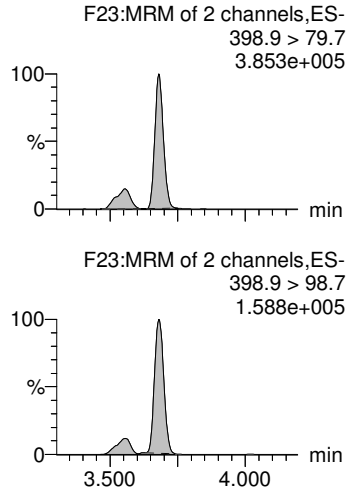
Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

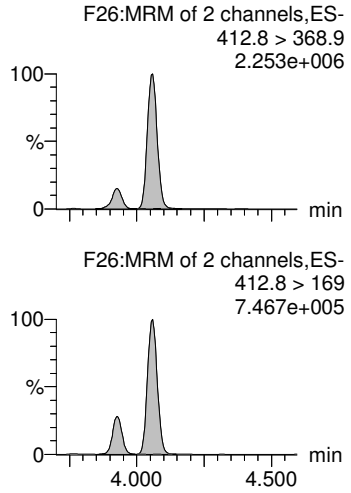
L-PFHxS



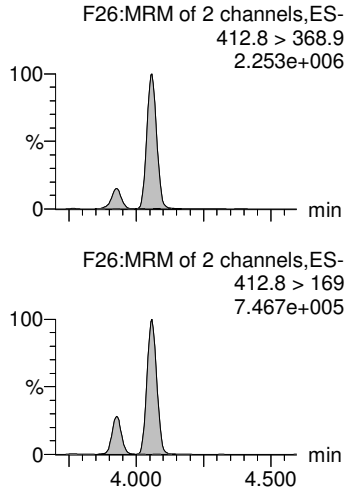
Total PFHxS



L-PFOA



Total PFOA



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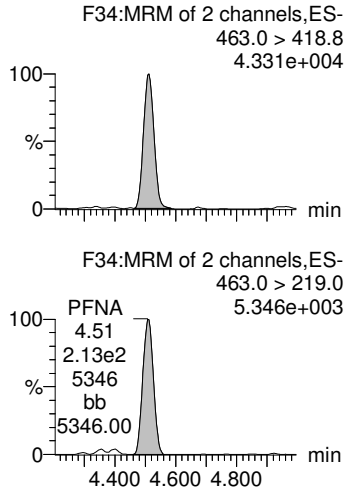

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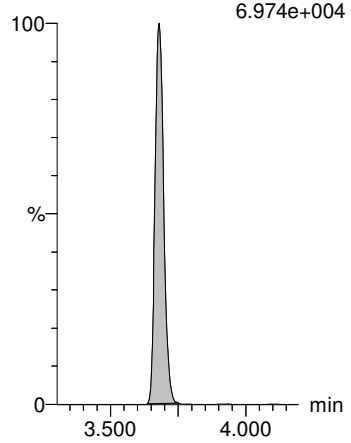

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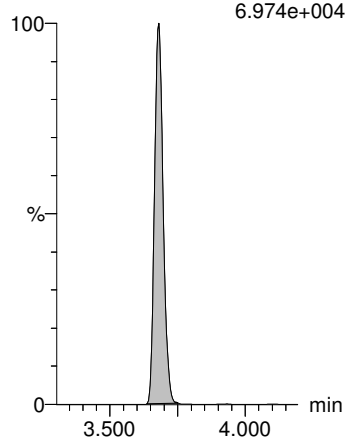

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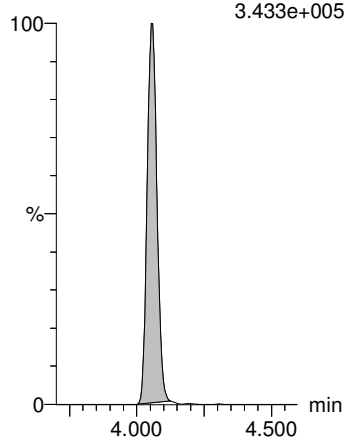
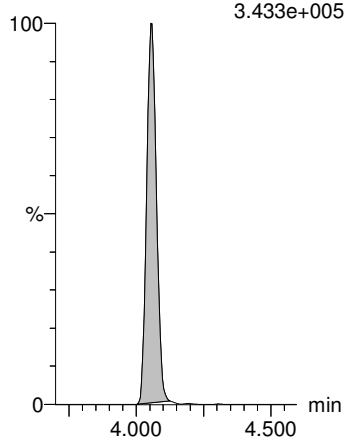
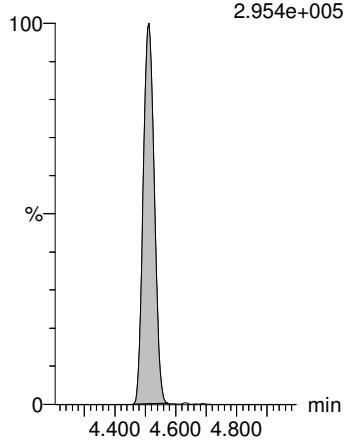


13C2-PFOA-EIS



13C5-PFNA-EIS



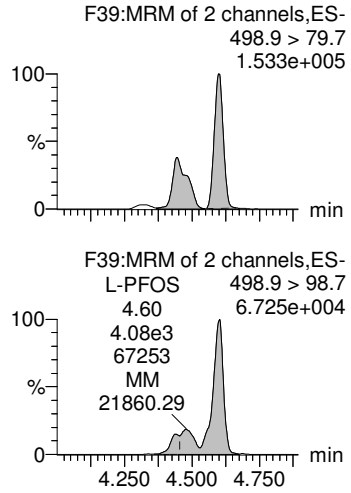
Review: AMR 3/7/2020

Dataset: Untitled

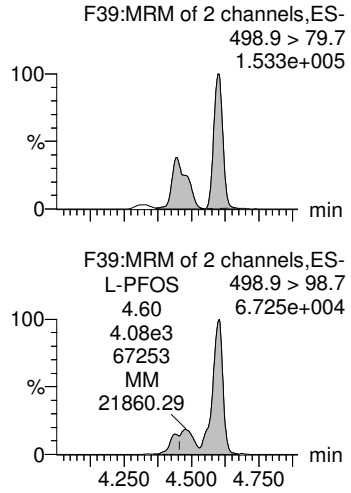
Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
Printed: Friday, March 06, 2020 16:23:52 Pacific Standard Time

Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

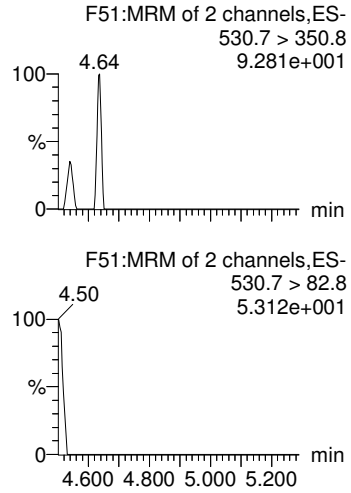
L-PFOS



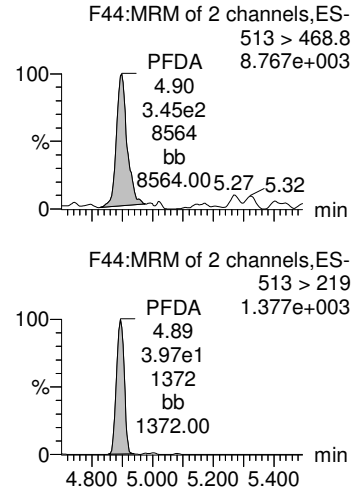
Total PFOS



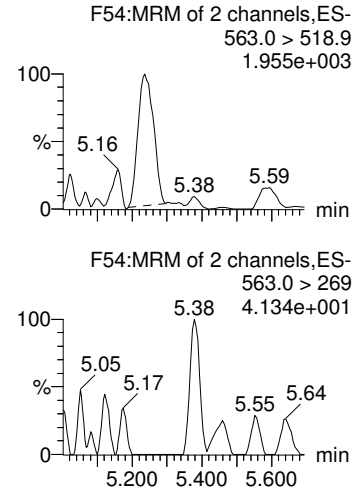
9Cl-PF30NS



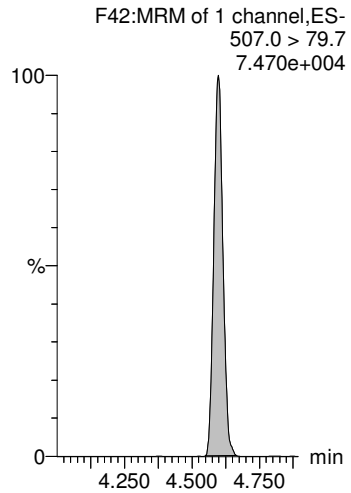
PFDA



PFUdA



13C8-PFOS-EIS



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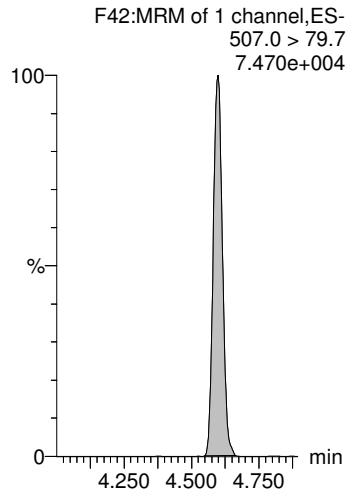
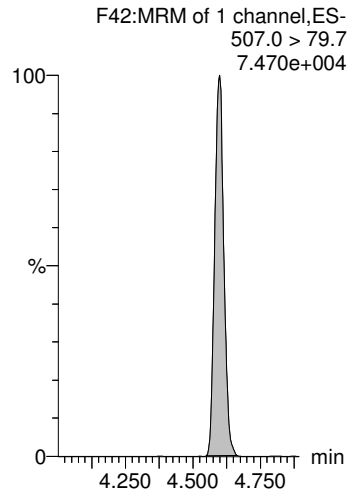
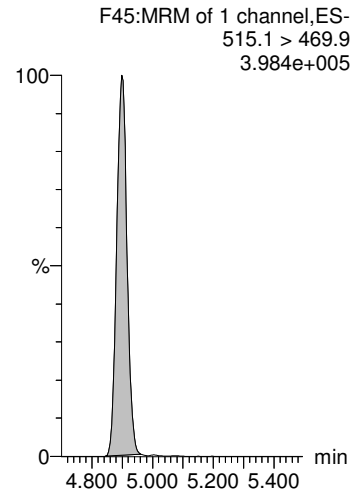


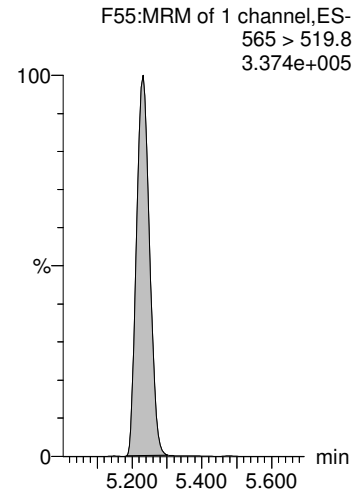
13C8-PFOS-EIS



13C2-PFDA-EIS



13C2-PFUdA-EIS



QPV 3/6/2020

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
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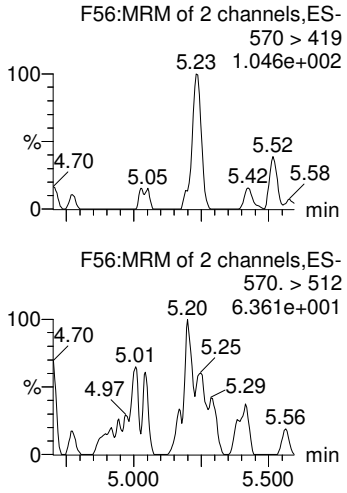
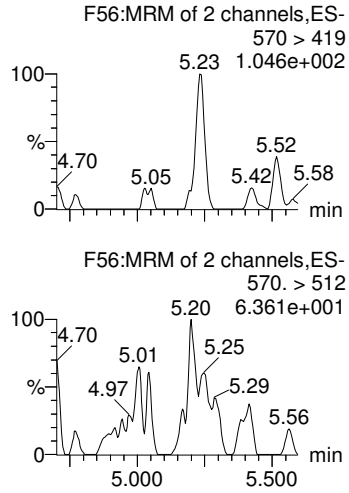
Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

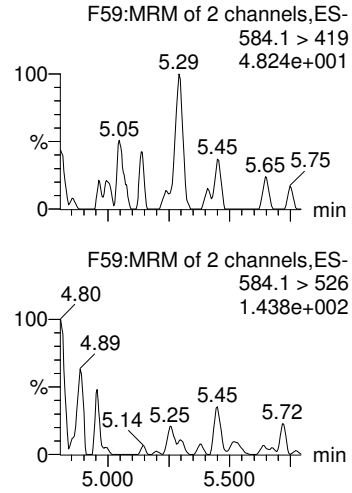
L-MeFOSAA



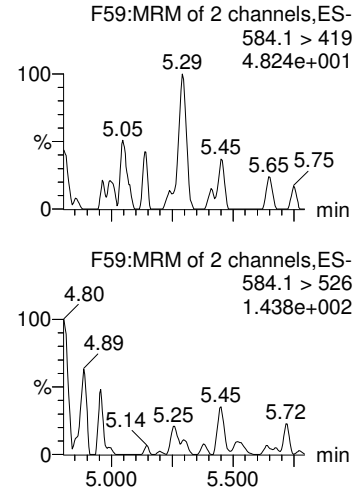
Total N-MeFOSAA



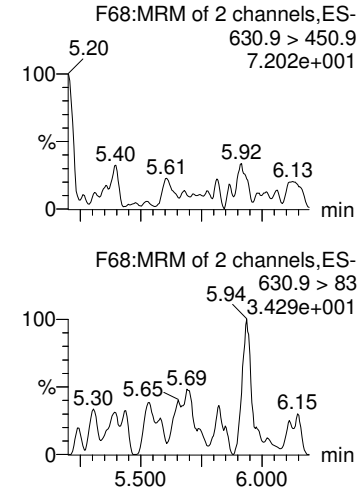
L-EtFOSAA



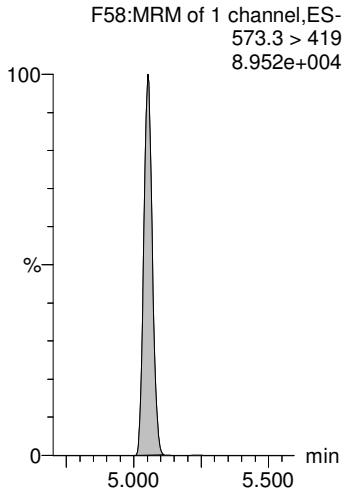
Total N-EtFOSAA



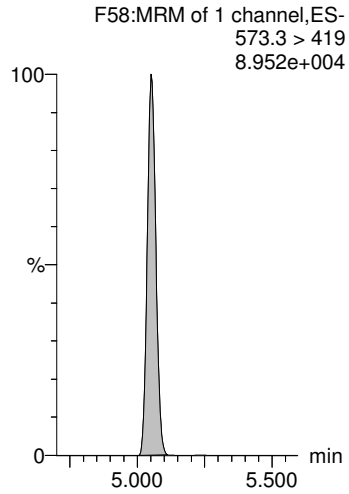
11Cl-PF30UdS



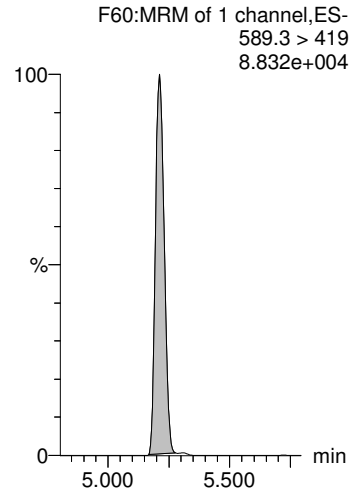
d3-N-MeFOSAA-EIS



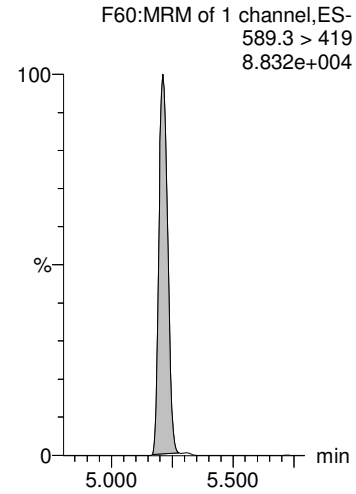
d3-N-MeFOSAA-EIS



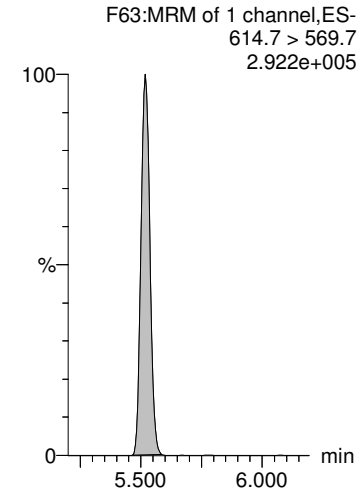
d5-N-EtFOSAA-EIS



d5-N-EtFOSAA-EIS



13C2-PFDoA-EIS



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Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
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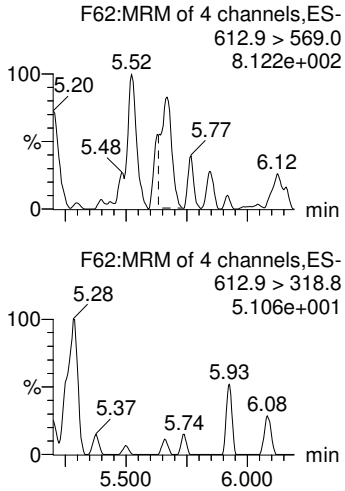
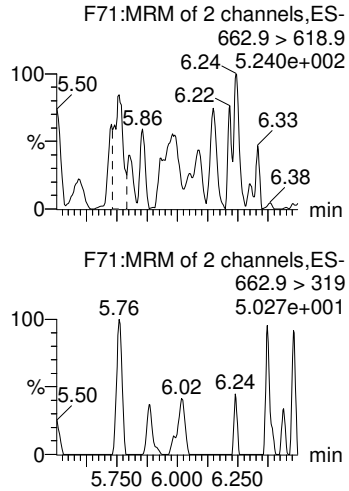
Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

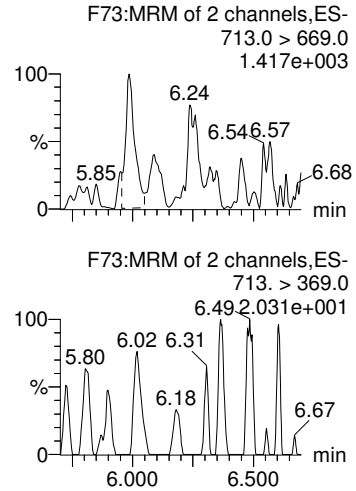
PFDoA



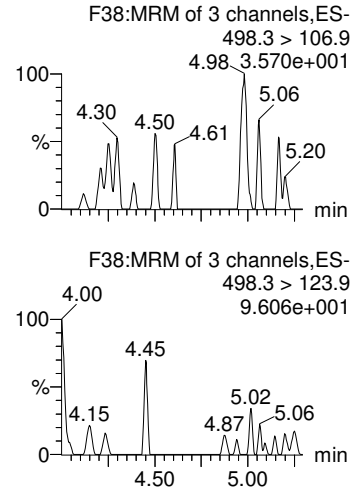
PFTrDA



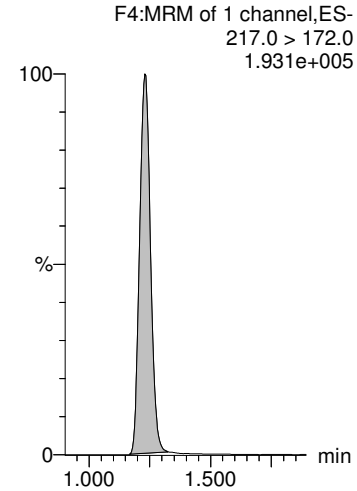
PFTeDA



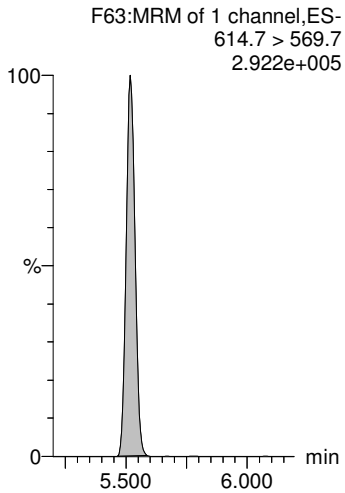
TDCA



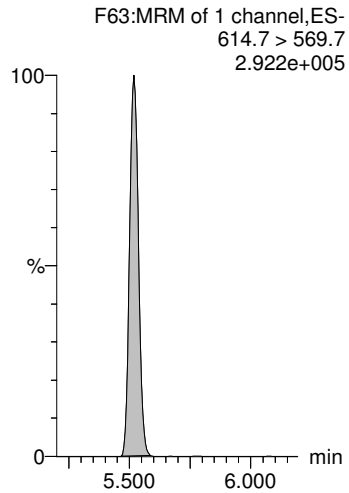
13C4-PFBA



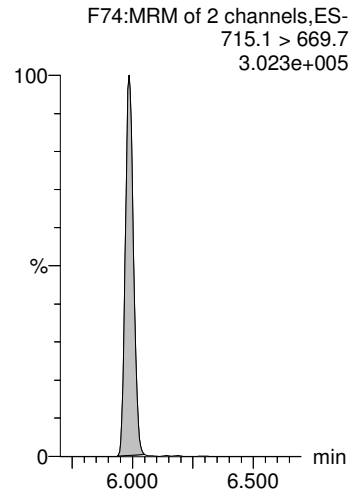
13C2-PFDoA-EIS



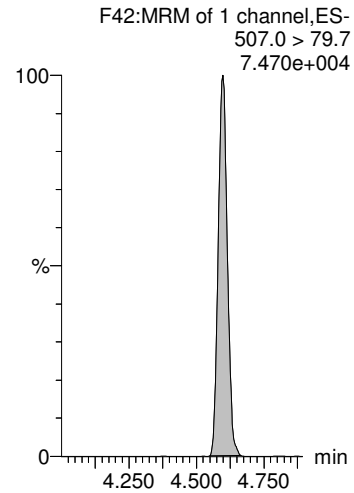
13C2-PFDoA-EIS



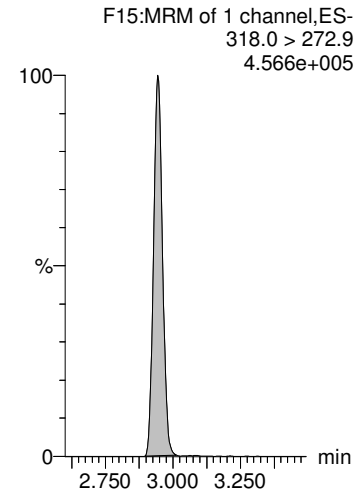
13C2-PFTeDA-EIS



13C8-PFOS-EIS



13C5-PFHxA



Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:23:44 Pacific Standard Time
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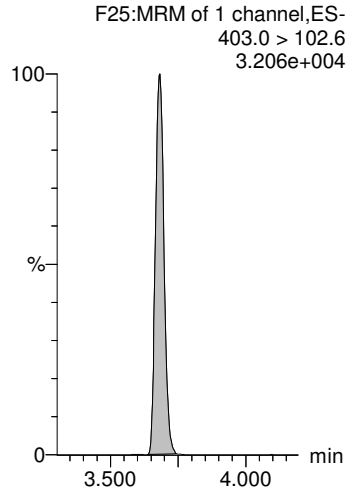
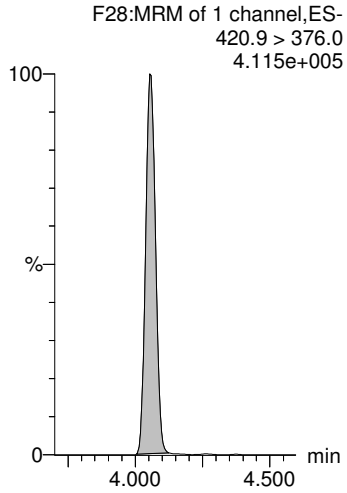
Name: 200305P1-18, Date: 05-Mar-2020, Time: 20:13:12, ID: 2000390-04 TW16S-20200221 0.25077, Description: TW16S-20200221

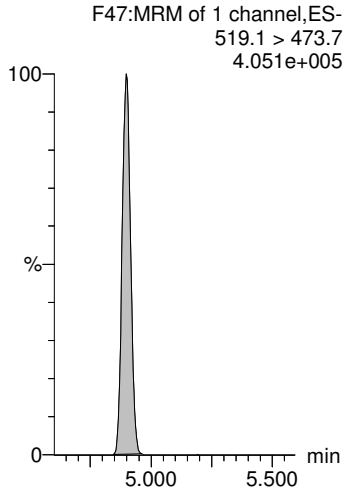
18O2-PFHxS



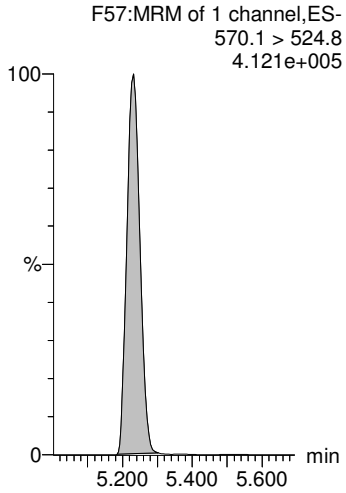
13C8-PFOA



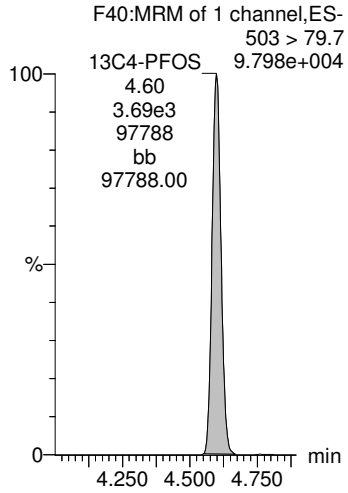
13C6-PFDA



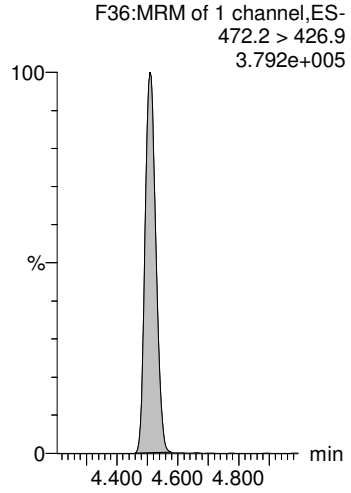
13C7-PFUdA



13C4-PFOS



13C9-PFNA



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Vista Analytical Laboratory L18

Review: AMR 3/7/2020

Dataset: Untitled

Last Altered: Friday, March 06, 2020 16:14:08 Pacific Standard Time
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Name: 200304P2-37, Date: 05-Mar-2020, Time: 01:29:02, ID: 2000390-05 TW15S-20200221 0.25188, Description: TW15S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	5	PFBS	299.0 > 79.7	5.59e3	9.35e2	0.252		2.41	2.41	74.7	114.6573		3.183	NO
2	7	PFHxA	313.0 > 269.0	1.26e5	1.29e4	0.252		2.94	2.94	122	554.0283		18.026	NO
3	9	HFPO-DA	285.1 > 168.9	4.16e0	2.99e3	0.252		3.14	3.14	0.0174	0.0778		0.428	YES
4	11	PFHpA	363.0 > 318.9	3.37e4	7.58e3	0.252		3.54	3.54	55.6	184.1794		14.836	NO
5	12	ADONA	376.8 > 250.9		7.58e3	0.252		3.62						YES
6	51	13C3-PFBS-EIS	302.0 > 98.8	9.35e2		0.252	82.647	2.53	2.41	935	44.9170	90.5		
7	57	13C2-PFHxA-EIS	315.0 > 270.0	1.29e4		0.252	1213.080	2.94	2.94	12900	42.0659	84.8		
8	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2.99e3		0.252	280.215	3.25	3.14	2990	42.4001	85.4		
9	59	13C4-PFHpA-EIS	367.2 > 321.8	7.58e3		0.252	676.004	3.58	3.54	7580	44.5046	89.7		
10	59	13C4-PFHpA-EIS	367.2 > 321.8	7.58e3		0.252	676.004	3.58	3.54	7580	44.5046	89.7		
11	-1													
12	13	L-PFHxS	398.9 > 79.7	2.05e4	2.11e3	0.252		3.68	3.68	121	467.7114		2.332	NO
13	1...	Total PFHxS	398.9 > 79.7	2.05e4	2.11e3	0.252		3.93		121	467.7114			
14	16	L-PFOA	412.8 > 368.9	1.79e5	9.84e3	0.252		4.06	4.06	228	721.0878		2.874	NO
15	1...	Total PFOA	412.8 > 368.9	1.79e5	9.84e3	0.252		4.60		228	721.0878			
16	21	PFNA	463.0 > 418.8	8.05e2	9.11e3	0.252		4.51	4.51	1.10	3.4105		8.257	YES
17	61	13C3-PFHxS-EIS	401.8 > 79.7	2.11e3		0.252	190.058	3.68	3.68	2110	44.1644	89.0		
18	61	13C3-PFHxS-EIS	401.8 > 79.7	2.11e3		0.252	190.058	3.68	3.68	2110	44.1644	89.0		
19	69	13C2-PFOA-EIS	414.9 > 369.7	9.84e3		0.252	1016.548	4.06	4.06	9840	38.4447	77.5		
20	69	13C2-PFOA-EIS	414.9 > 369.7	9.84e3		0.252	1016.548	4.06	4.06	9840	38.4447	77.5		
21	65	13C5-PFNA-EIS	468.2 > 422.9	9.11e3		0.252	867.408	4.51	4.51	9110	41.6951	84.0		
22	-1													
23	23	L-PFOS	498.9 > 79.7	7.50e3	2.55e3	0.252		4.60	4.60	36.7	154.9900		2.437	NO
24	1...	Total PFOS	498.9 > 79.7	7.50e3	2.55e3	0.252		5.13		36.7	154.9900			
25	25	9Cl-PF30NS	530.7 > 350.8		2.55e3	0.252		4.80						YES
26	26	PFDA	513 > 468.8	1.28e2	1.00e4	0.252		4.90	4.90	0.160	0.2839		17.348	YES
27	33	PFUdA	563.0 > 518.9		1.26e4	0.252		5.23						YES
28	71	13C8-PFOS-EIS	507.0 > 79.7	2.55e3		0.252	207.944	4.60	4.60	2550	48.7714	98.3		
29	71	13C8-PFOS-EIS	507.0 > 79.7	2.55e3		0.252	207.944	4.60	4.60	2550	48.7714	98.3		
30	71	13C8-PFOS-EIS	507.0 > 79.7	2.55e3		0.252	207.944	4.60	4.60	2550	48.7714	98.3		
31	73	13C2-PFDA-EIS	515.1 > 469.9	1.00e4		0.252	944.999	4.90	4.90	10000	42.0097	84.7		
32	79	13C2-PFUdA-EIS	565 > 519.8	1.26e4		0.252	1226.695	5.23	5.23	12600	40.7657	82.1		
33	-1													
34	29	L-MeFOSAA	570 > 419		2.56e3	0.252		5.06						YES
35	1...	Total N-MeFOSAA	570. > 419	0.00e0	2.56e3	0.252		5.19		0.000				
36	31	L-EtFOSAA	584.1 > 419	2.08e0	3.17e3	0.252		5.22	5.06	0.00819	0.2362		1.867	NO

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Name: 200304P2-37, Date: 05-Mar-2020, Time: 01:29:02, ID: 2000390-05 TW15S-20200221 0.25188, Description: TW15S-20200221

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	1...	Total N-EtFOSAA	584.1 > 419	2.08e0	3.17e3	0.252		5.37		0.00819	0.2362			
38	35	11Cl-PF30UdS	630.9 > 450.9		1.13e4	0.252		5.46						YES
39	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.56e3		0.252	195.067	5.06	5.06	2560	52.1408	105.1		
40	77	d3-N-MeFOSAA-EIS	573.3 > 419	2.56e3		0.252	195.067	5.06	5.06	2560	52.1408	105.1		
41	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.17e3		0.252	288.034	5.20	5.22	3170	43.6537	88.0		
42	81	d5-N-EtFOSAA-EIS	589.3 > 419	3.17e3		0.252	288.034	5.20	5.22	3170	43.6537	88.0		
43	83	13C2-PFDoA-EIS	614.7 > 569.7	1.13e4		0.252	1212.024	5.50	5.52	11300	36.9296	74.4		
44	-1													
45	37	PFDoA	612.9 > 569.0		1.13e4	0.252		5.52						YES
46	39	PFTrDA	662.9 > 618.9		1.13e4	0.252		5.77						YES
47	41	PFTeDA	713.0 > 669.0		8.70e3	0.252		5.99						YES
48	1...	TDCA	498.3>106.9			0.252		4.59						YES
49	99	13C4-PFBA	217.0 > 172.0	8.91e3	8.91e3	0.252	1.000	1.23	1.22	12.5	49.6268	100.0		
50	83	13C2-PFDoA-EIS	614.7 > 569.7	1.13e4		0.252	1212.024	5.50	5.52	11300	36.9296	74.4		
51	83	13C2-PFDoA-EIS	614.7 > 569.7	1.13e4		0.252	1212.024	5.50	5.52	11300	36.9296	74.4		
52	89	13C2-PFTeDA-EIS	715.1 > 669.7	8.70e3		0.252	1069.279	5.92	5.99	8700	32.3031	65.1		
53	71	13C8-PFOS-EIS	507.0 > 79.7	2.55e3		0.252	207.944	4.60	4.60	2550	48.7714	98.3		
54	1...	13C5-PFHxA	318.0 > 272.9	1.34e4	1.34e4	0.252	1.000	2.94	2.94	12.5	49.6268	100.0		
55	-1													
56	1...	18O2-PFHxS	403.0 > 102.6	1.06e3	1.06e3	0.252	1.000	3.67	3.68	12.5	49.6268	100.0		
57	1...	13C8-PFOA	420.9 > 376.0	1.45e4	1.45e4	0.252	1.000	4.05	4.06	12.5	49.6268	100.0		
58	1...	13C6-PFDA	519.1 > 473.7	1.33e4	1.33e4	0.252	1.000	4.90	4.90	12.5	49.6268	100.0		
59	1...	13C7-PFUdA	570.1 > 524.8	1.59e4	1.59e4	0.252	1.000	5.23	5.23	12.5	49.6268	100.0		
60	1...	13C4-PFOS	503 > 79.7	3.05e3	3.05e3	0.252	1.000	4.60	4.60	12.5	49.6268	100.0		
61	1...	13C9-PFNA	472.2 > 426.9	1.16e4	1.16e4	0.252	1.000	4.51	4.51	12.5	49.6268	100.0		

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Name: 200304P2-37, Date: 05-Mar-2020, Time: 01:29:02, ID: 2000390-05 TW15S-20200221 0.25188, Description: TW15S-20200221

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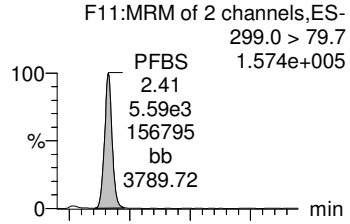

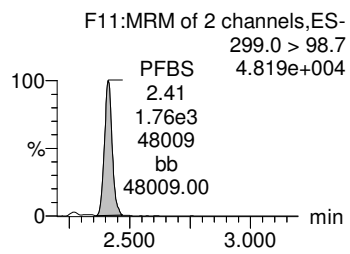

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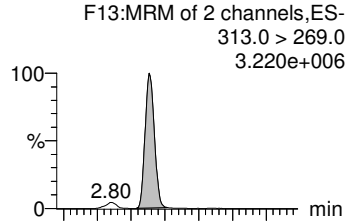

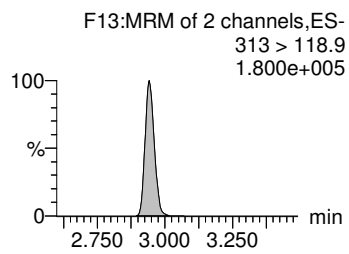

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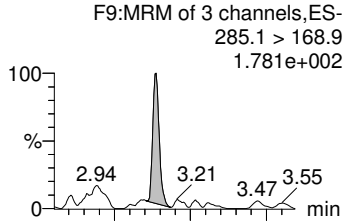

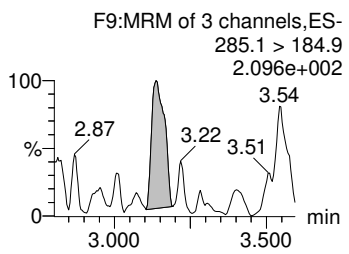

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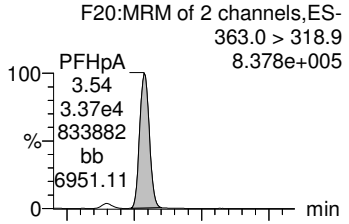

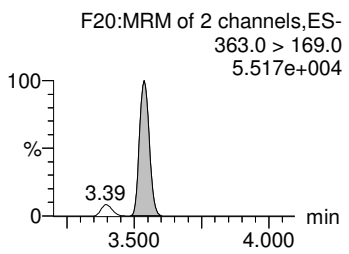

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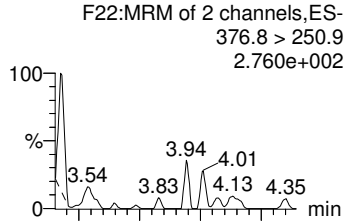

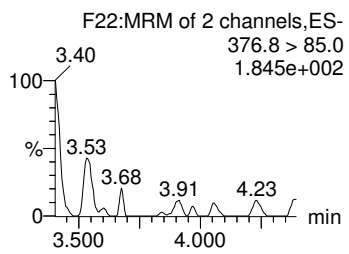

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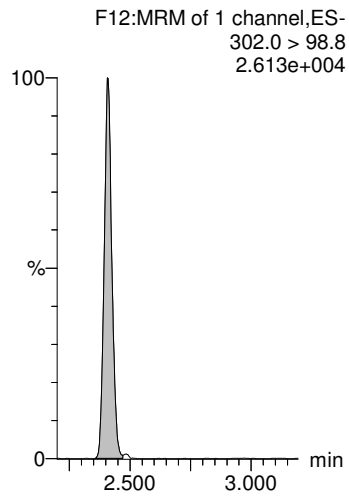

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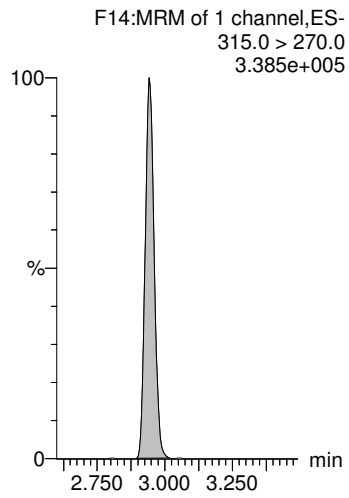

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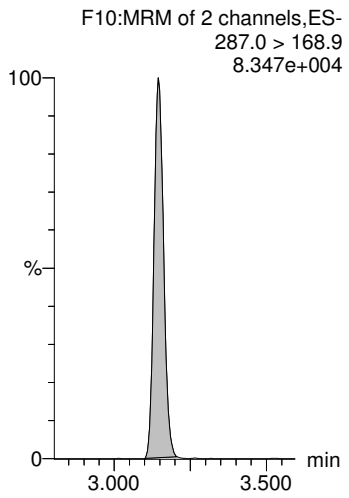

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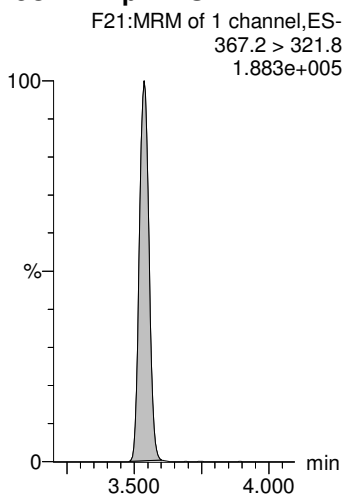

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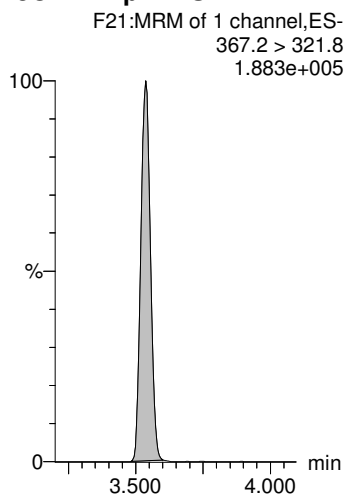

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Review: AMR 3/7/2020

Dataset: Untitled

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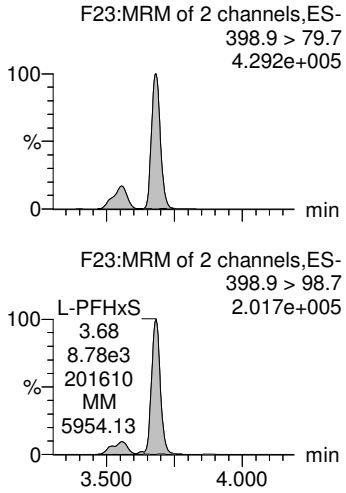
Name: 200304P2-37, Date: 05-Mar-2020, Time: 01:29:02, ID: 2000390-05 TW15S-20200221 0.25188, Description: TW15S-20200221

L-PFHxS



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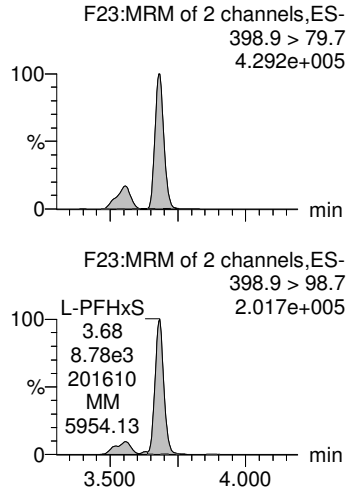

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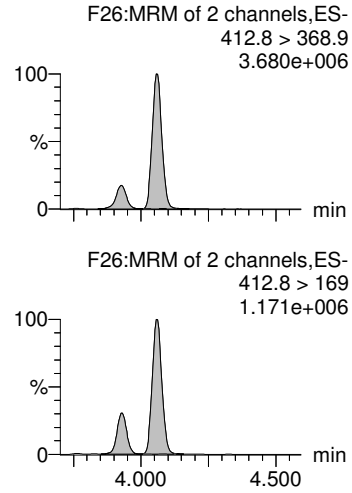

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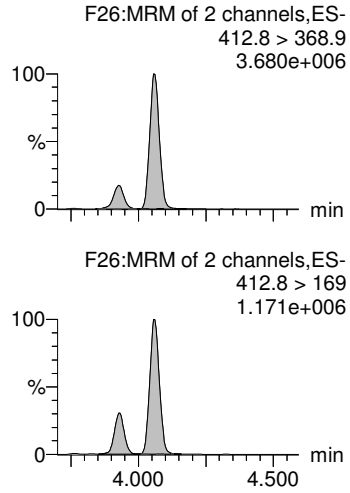

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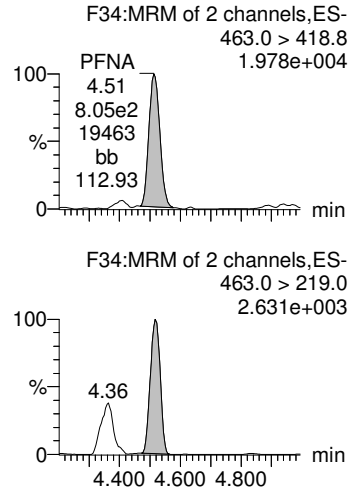

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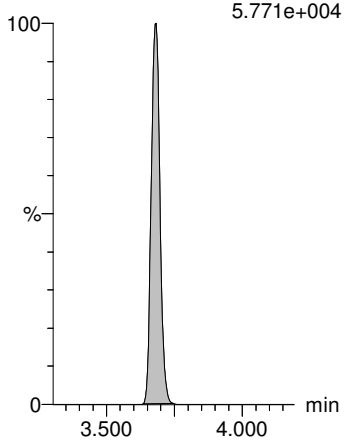

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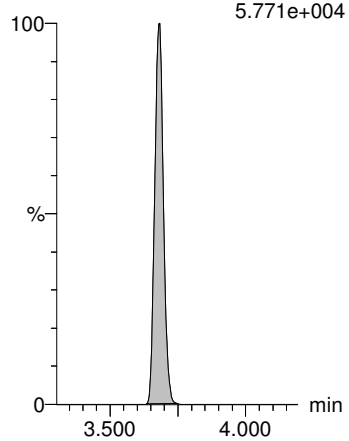

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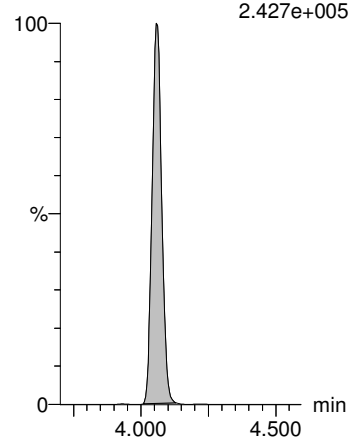

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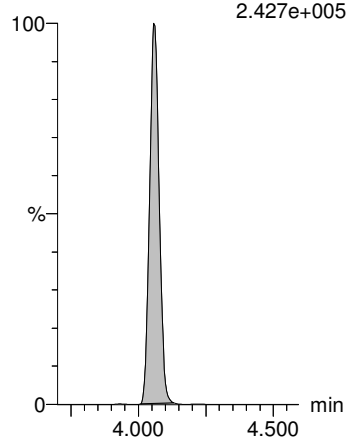

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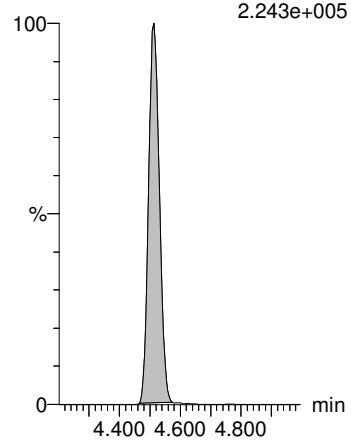

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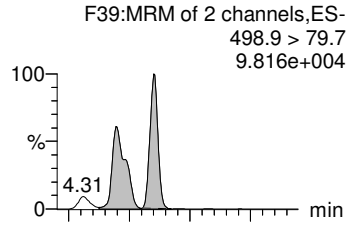
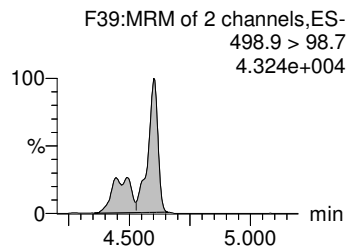
L-PFOS





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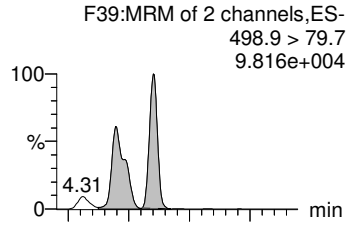

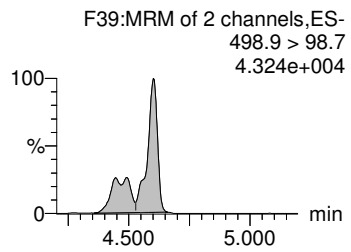

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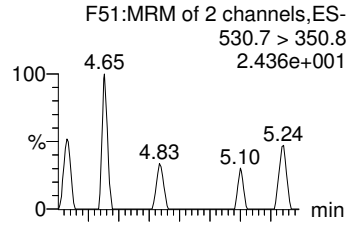

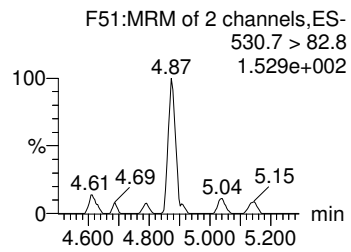

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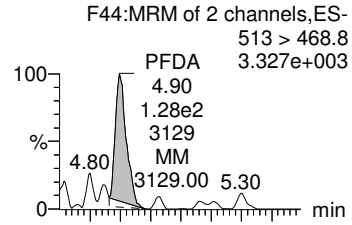

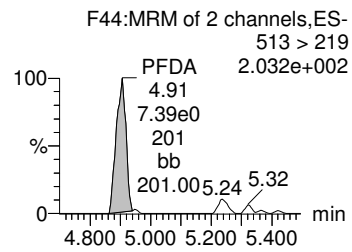

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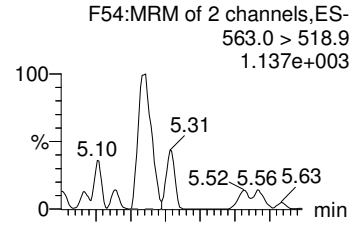

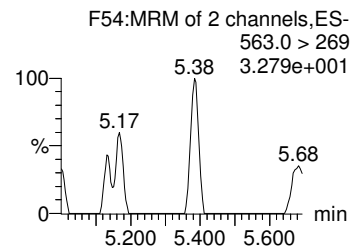

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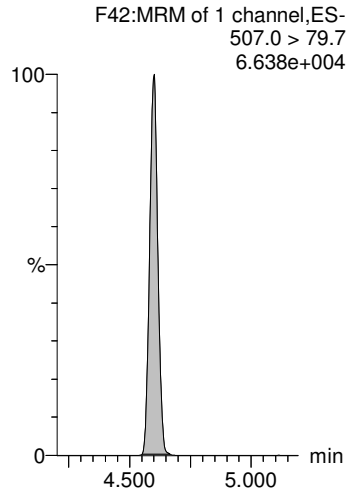

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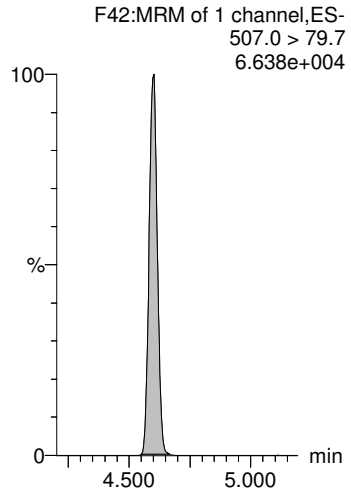

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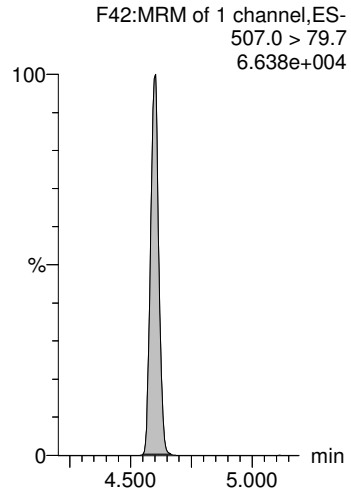

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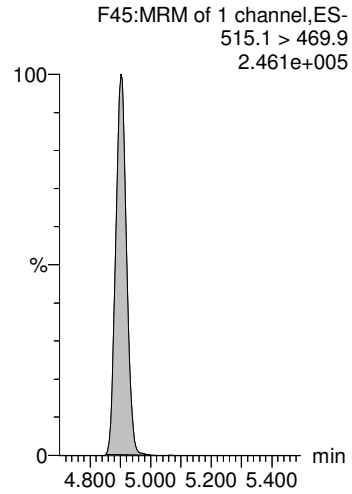

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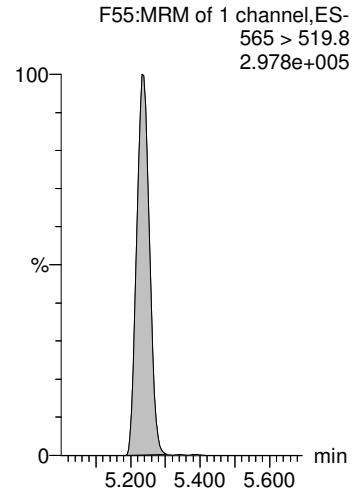

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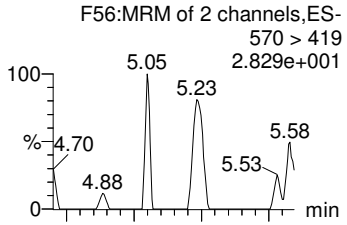

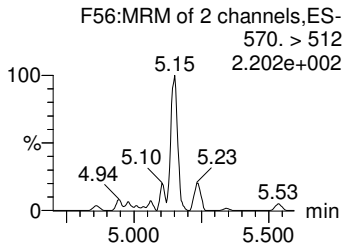

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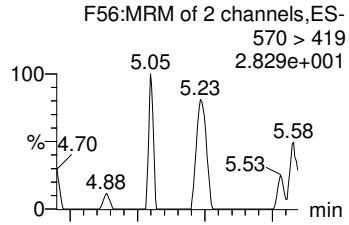

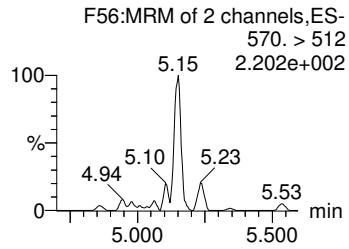

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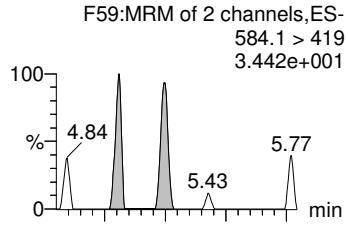

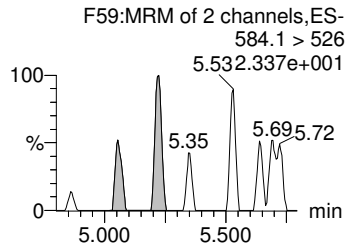

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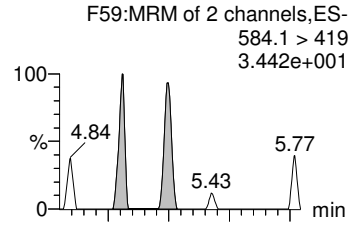

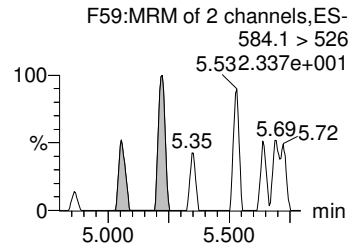

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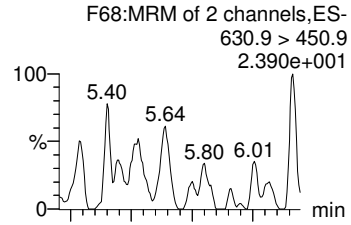

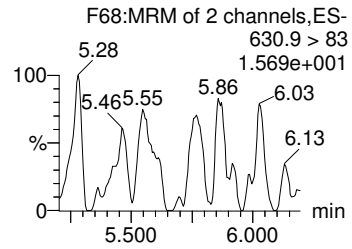

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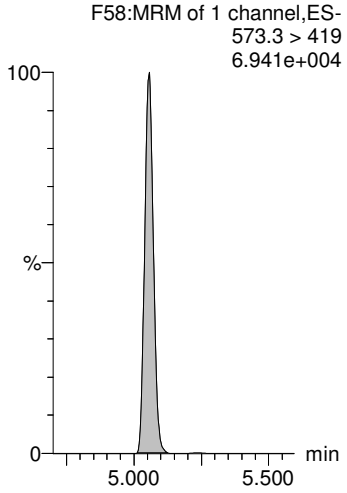

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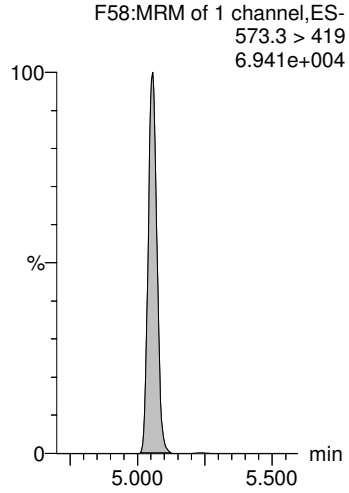

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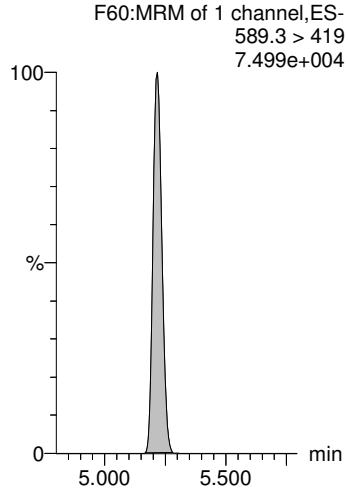

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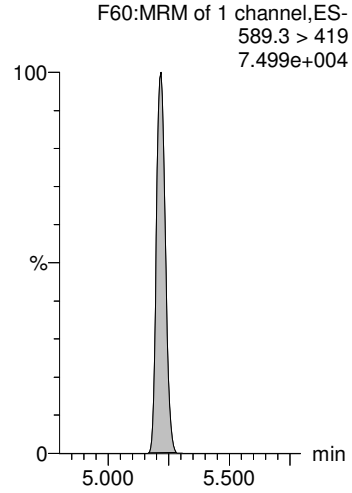

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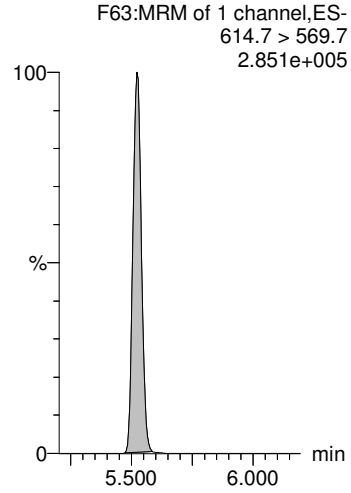

 QPV 3/6/2020

Review: AMR 3/7/2020

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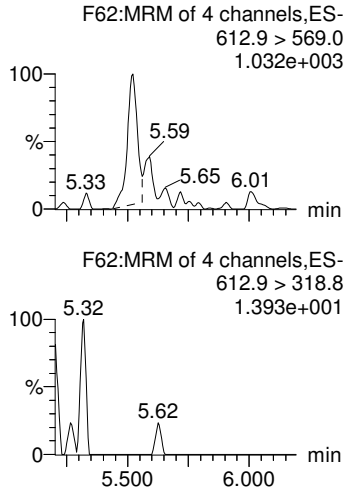

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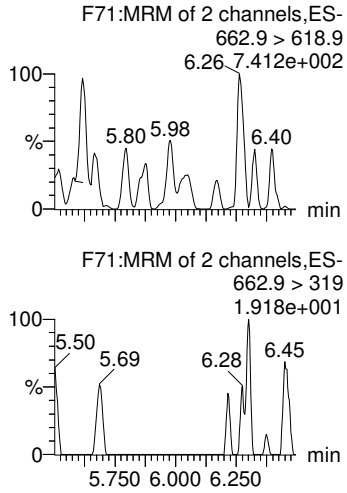

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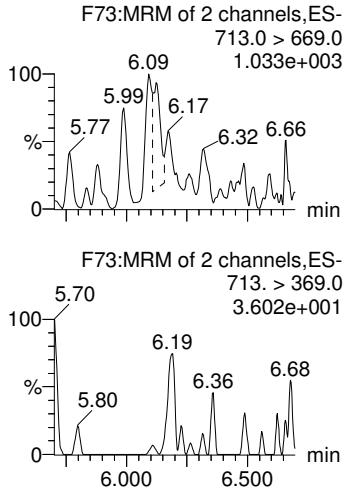

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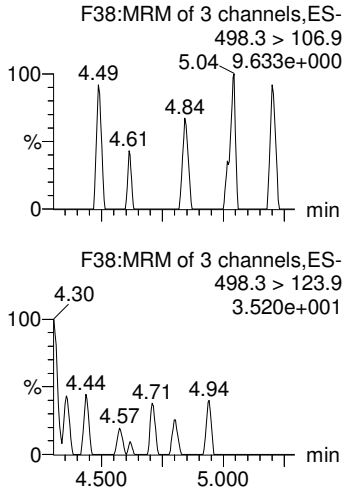

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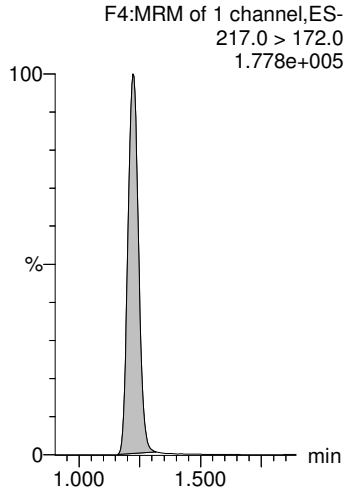

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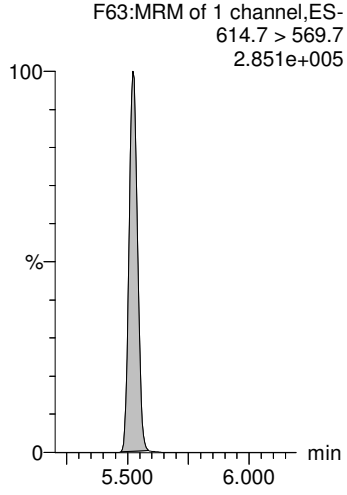

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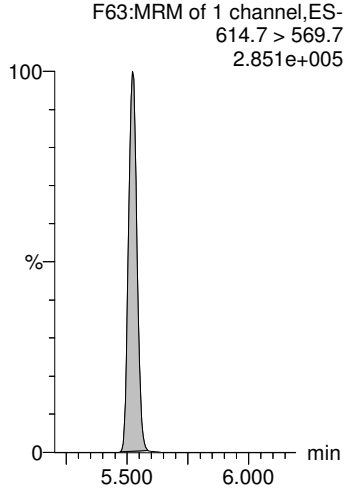

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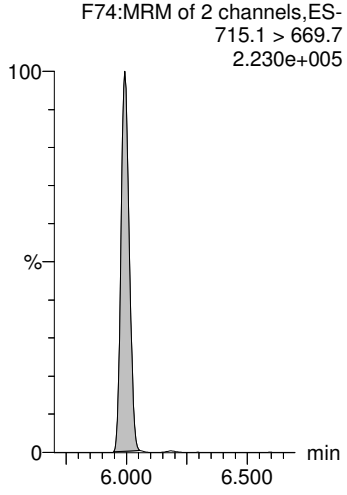

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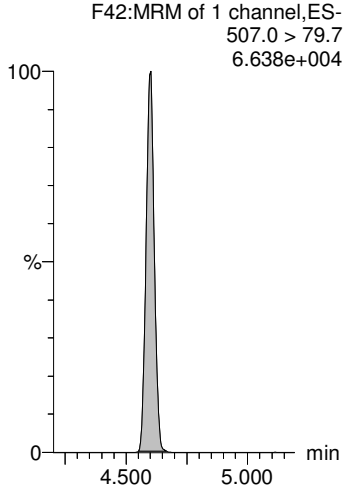

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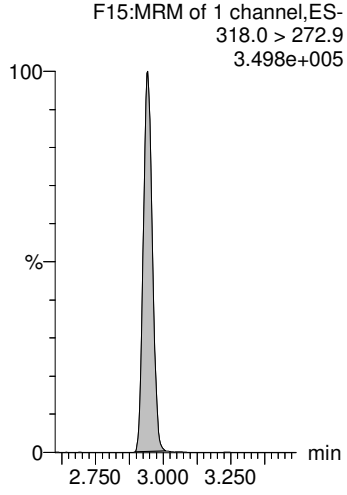

QPV 3/6/2020

Review: AMR 3/7/2020

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Printed: Friday, March 06, 2020 16:14:11 Pacific Standard Time

Name: 200304P2-37, Date: 05-Mar-2020, Time: 01:29:02, ID: 2000390-05 TW15S-20200221 0.25188, Description: TW15S-20200221

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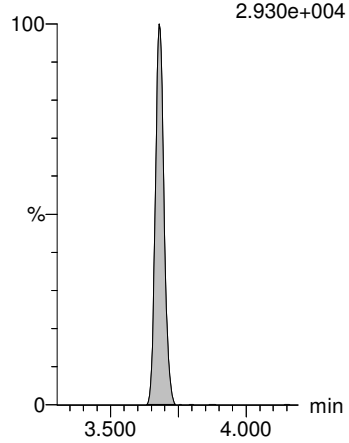

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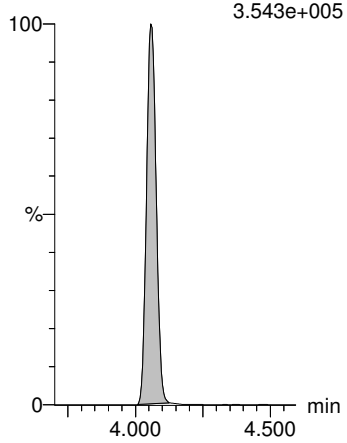

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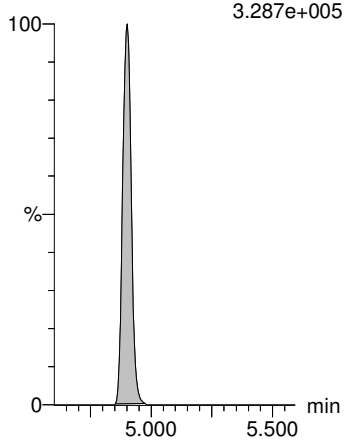

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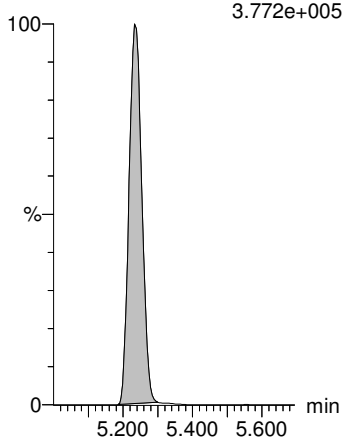

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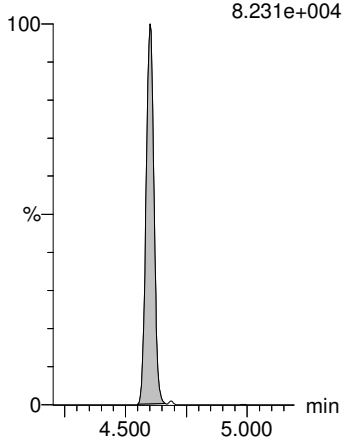

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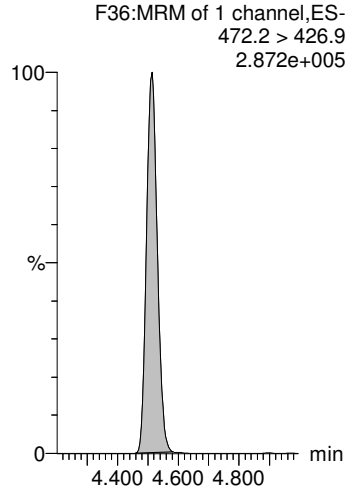

 QPV 3/6/2020

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS (CCV)

Vista Analytical Laboratory

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Printed: Thursday, March 05, 2020 10:35:03 Pacific Standard Time

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Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

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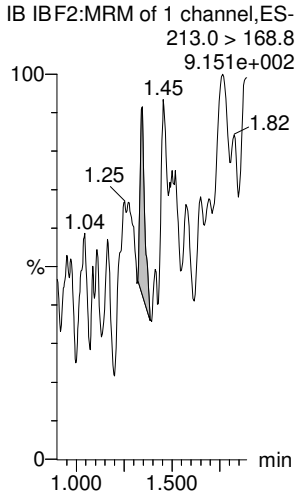

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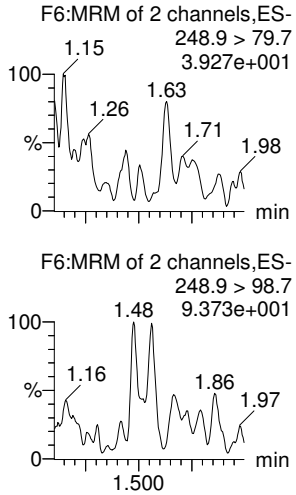
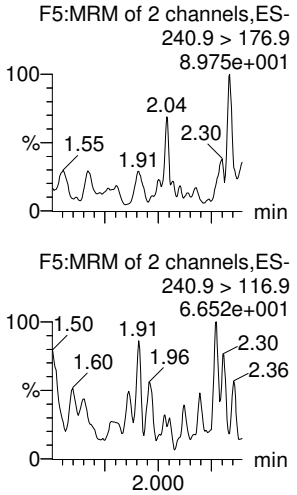


3:3 FTCA



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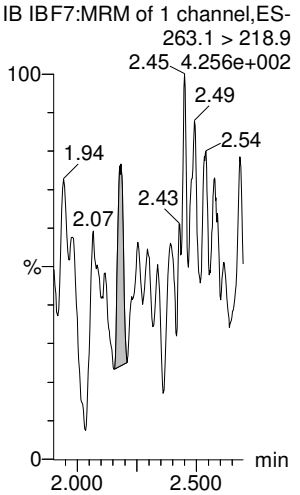

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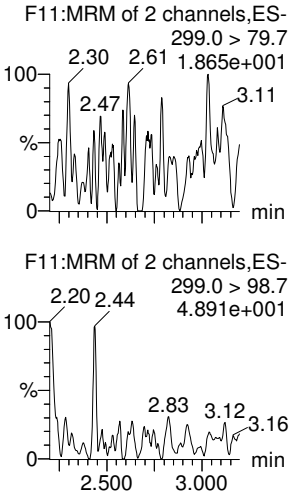

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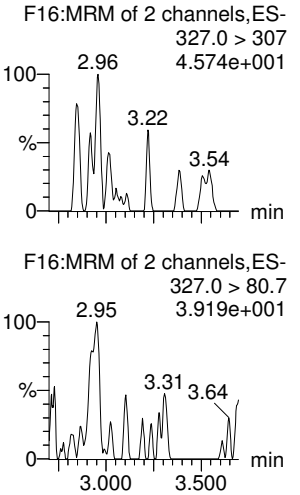

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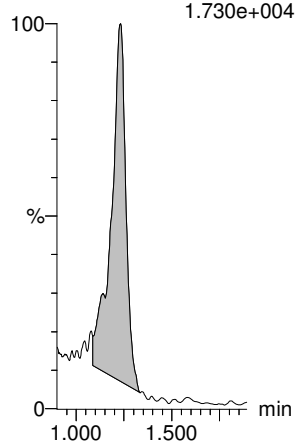

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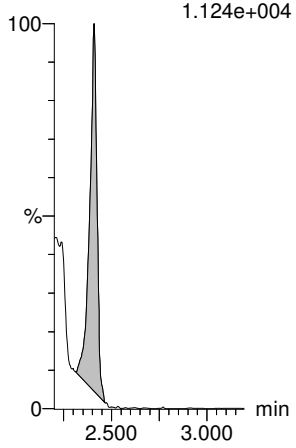

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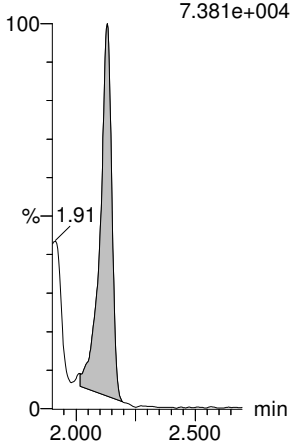

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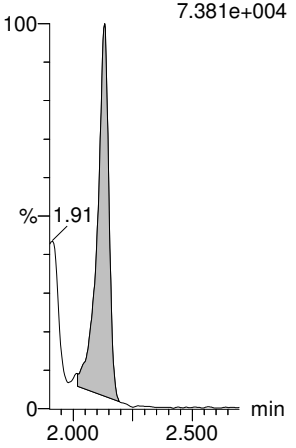

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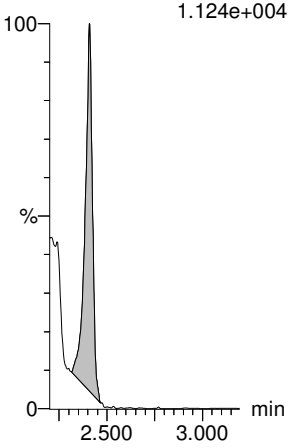

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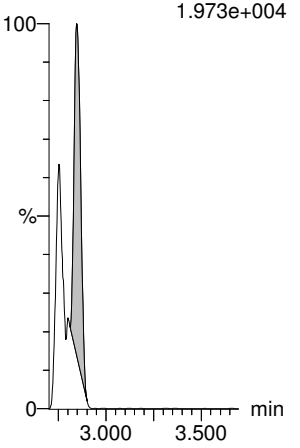

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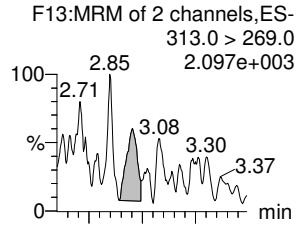
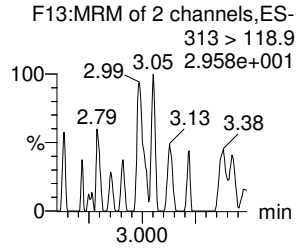
PFHxA





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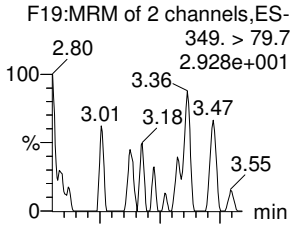

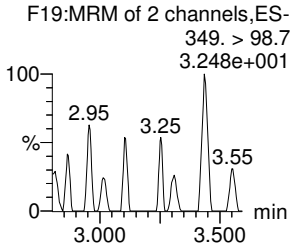

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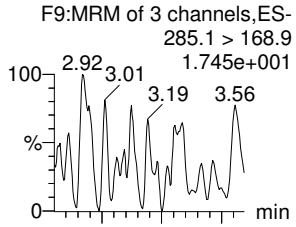

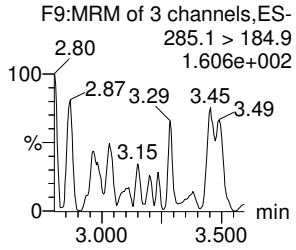

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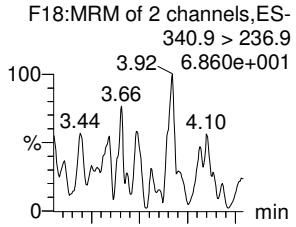

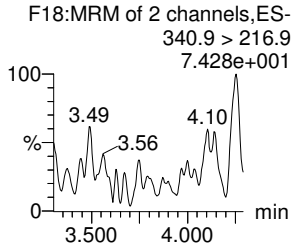

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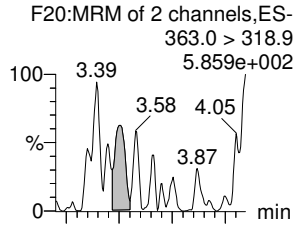

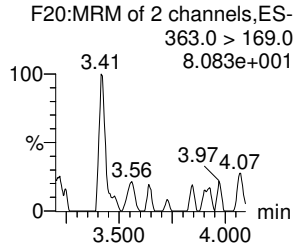

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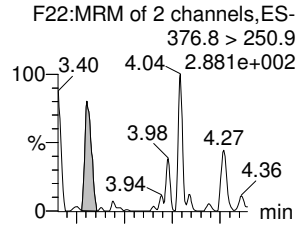
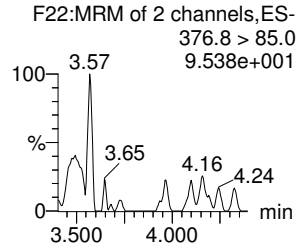
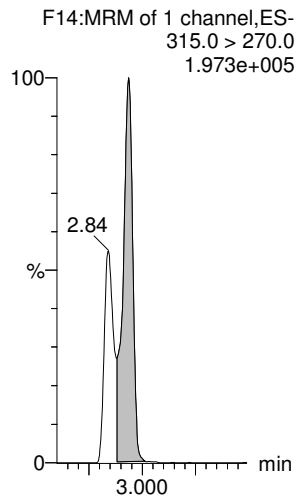




13C2-PFHxA-EIS



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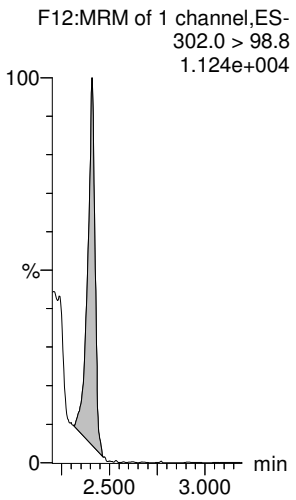

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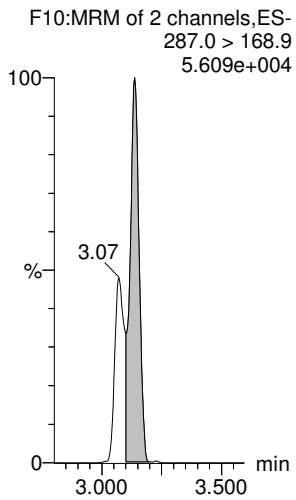

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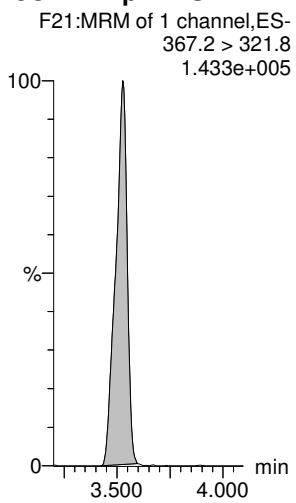

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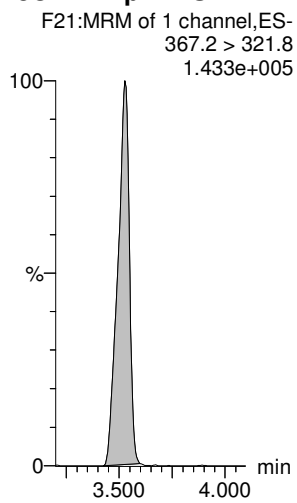

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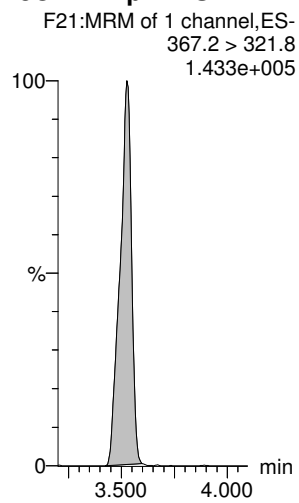

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Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

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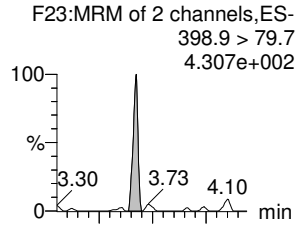
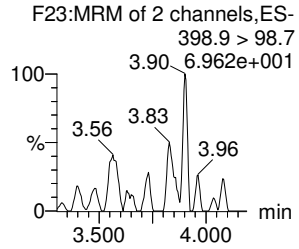
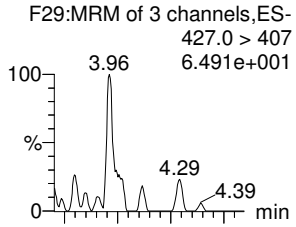
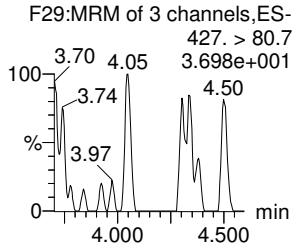




6:2 FTS





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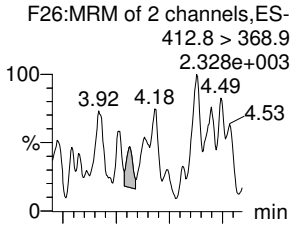

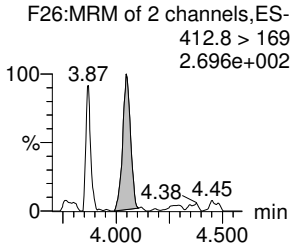

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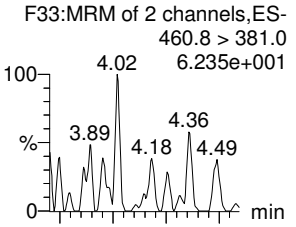

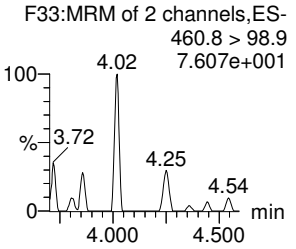

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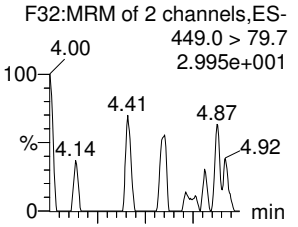
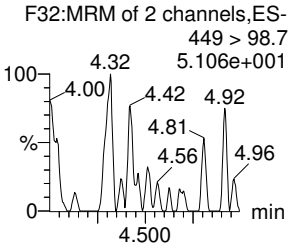
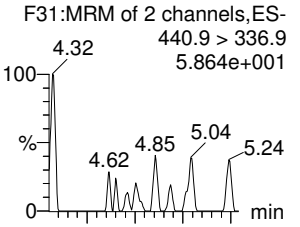
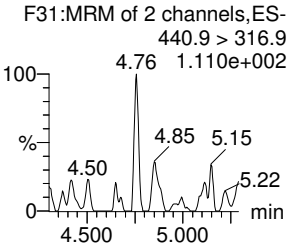




7:3 FTCA





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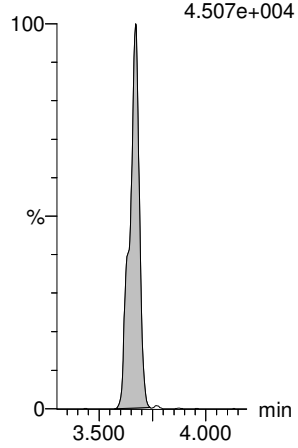
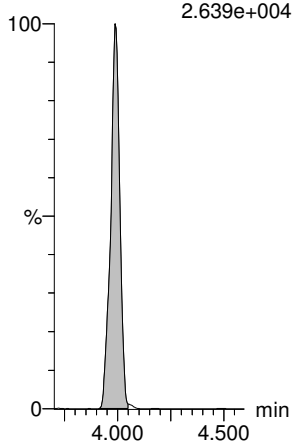


13C2-6:2 FTS-EIS



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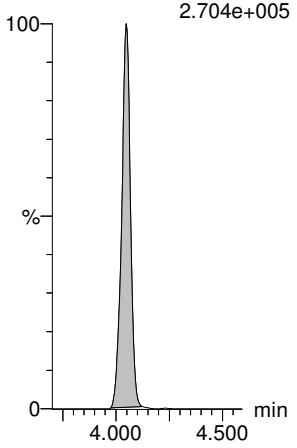

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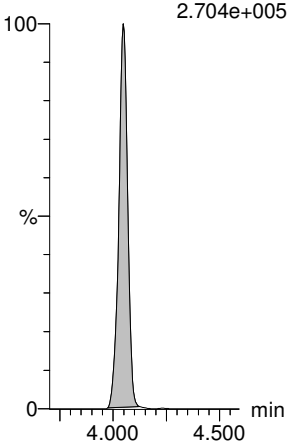

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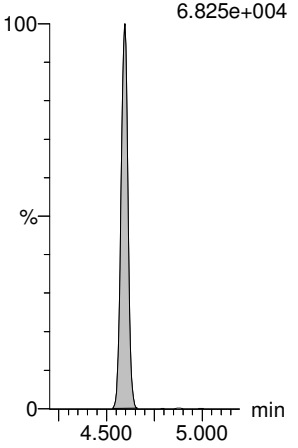

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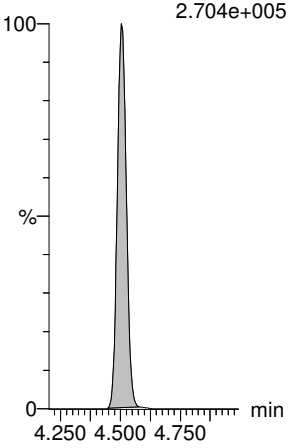

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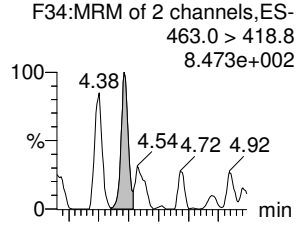

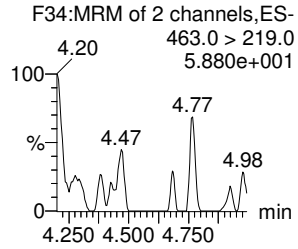

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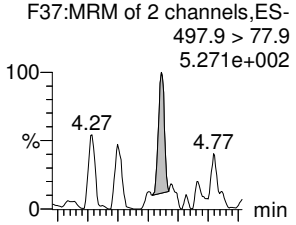

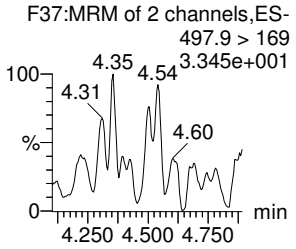

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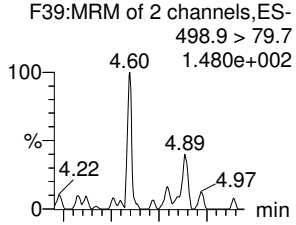

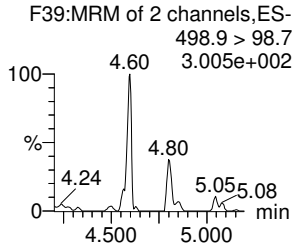

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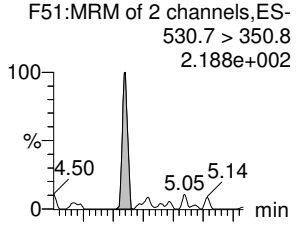

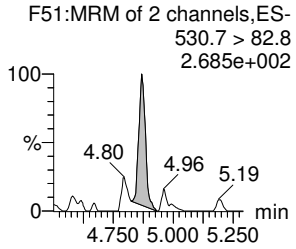

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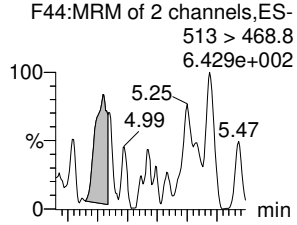

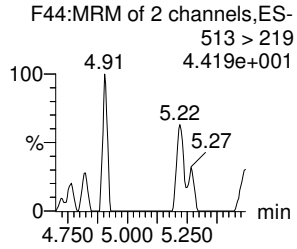

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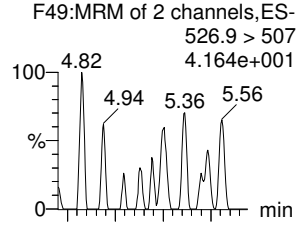

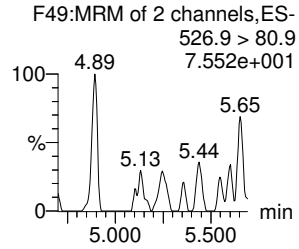

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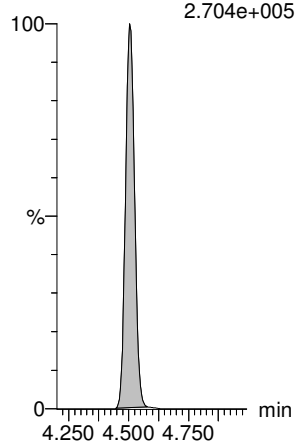

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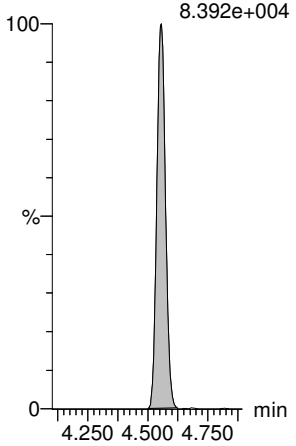

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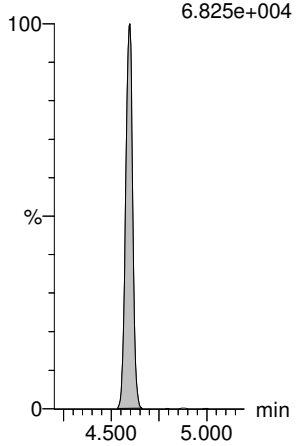

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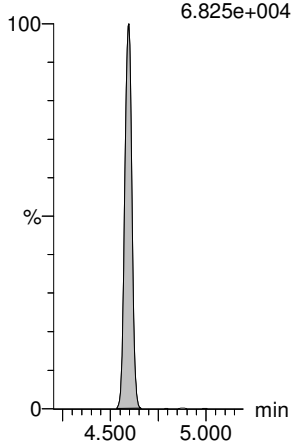

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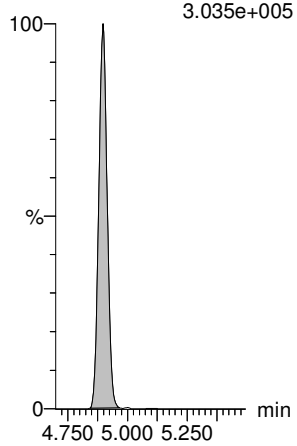

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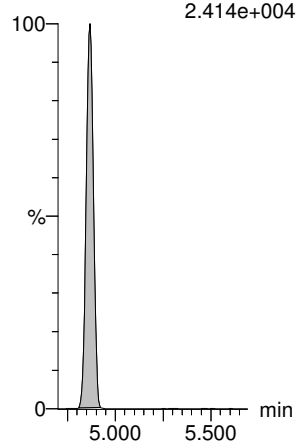

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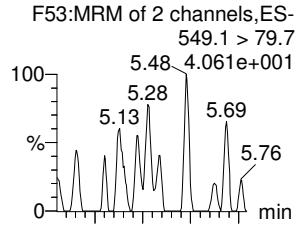

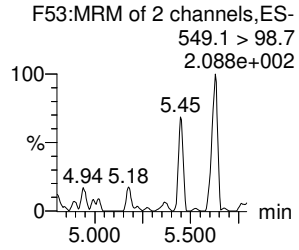

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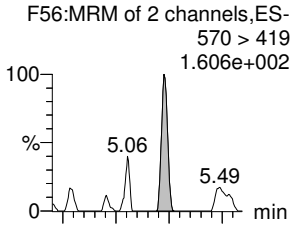

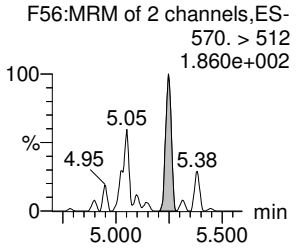

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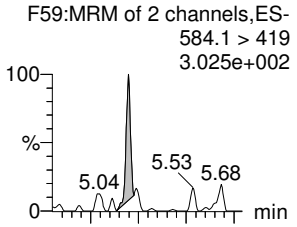

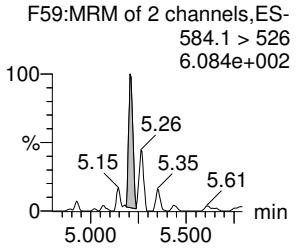

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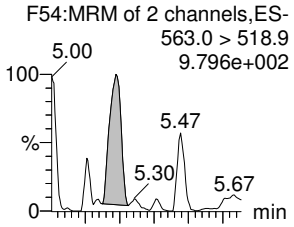

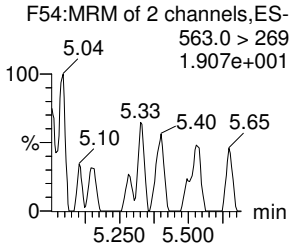

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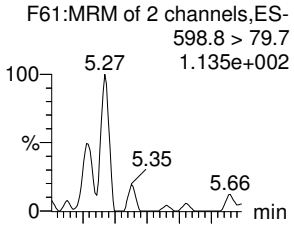
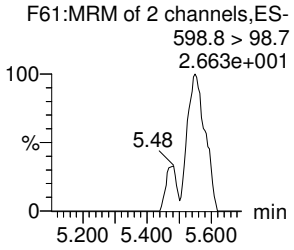
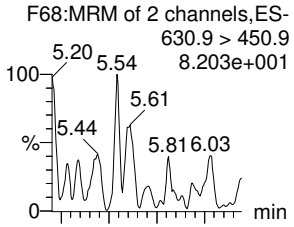
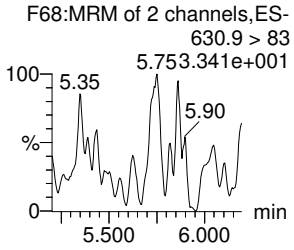


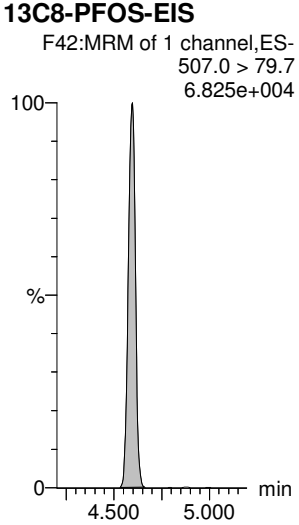


11Cl-PF30UdS

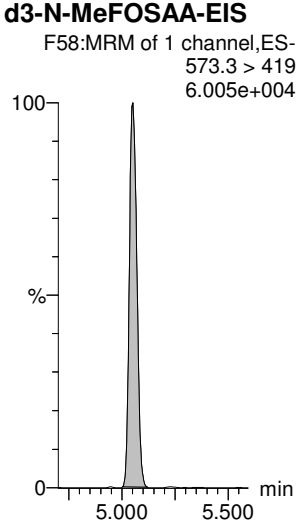




13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



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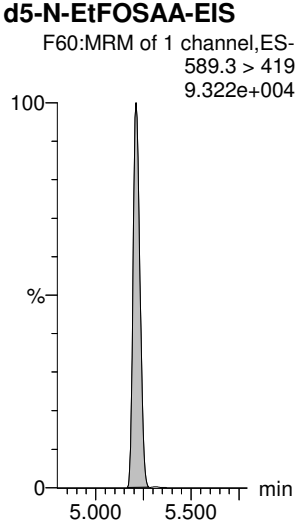

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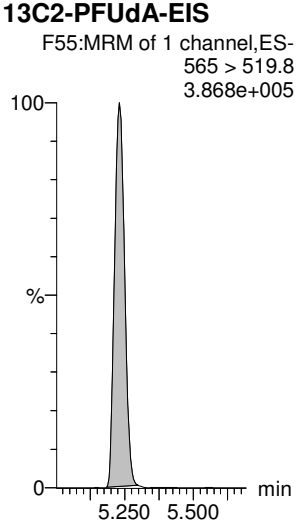

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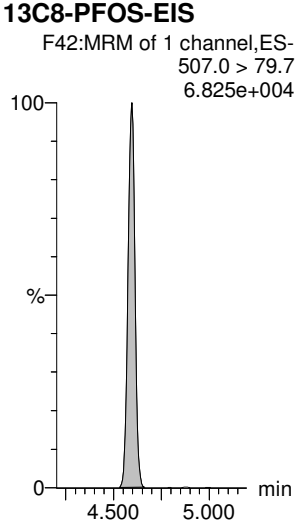

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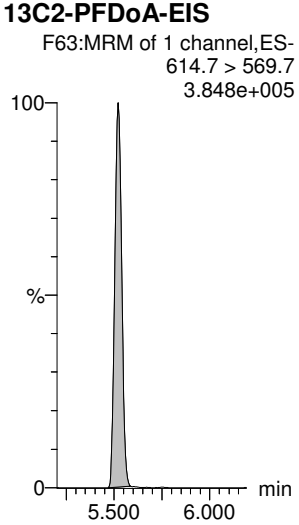

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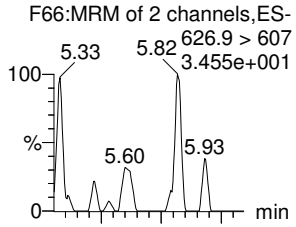
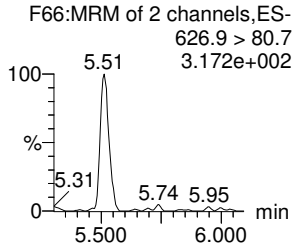
Printed: Thursday, March 05, 2020 10:35:03 Pacific Standard Time

Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

10:2 FTS





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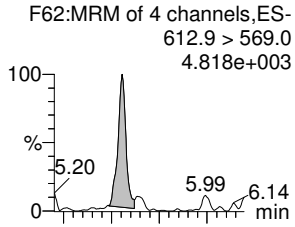
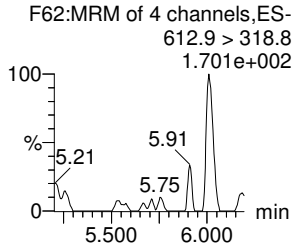
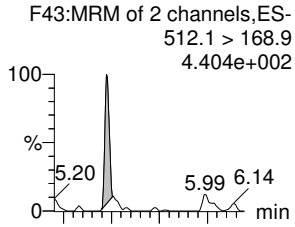
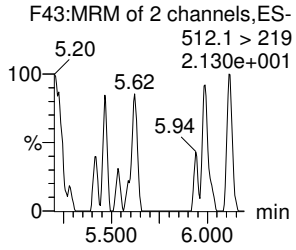


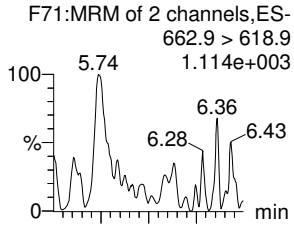


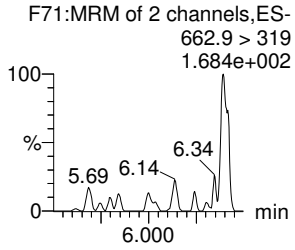
N-MeFOSA



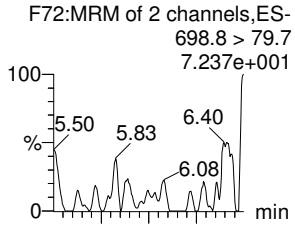


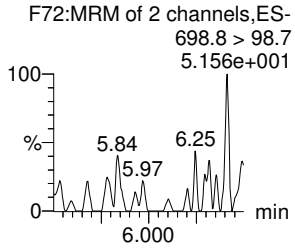
PFTrDA





PFDoS





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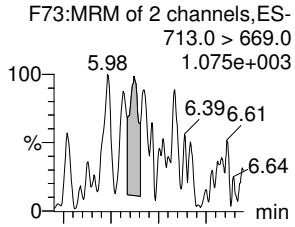
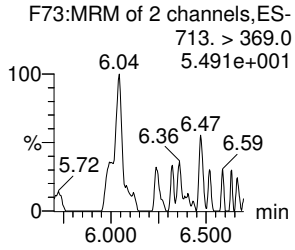
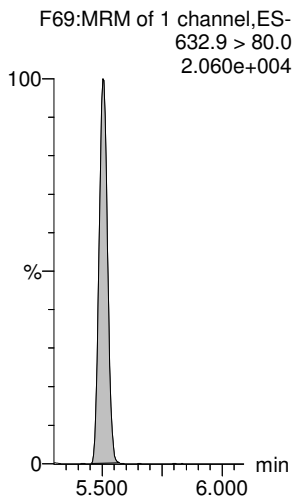
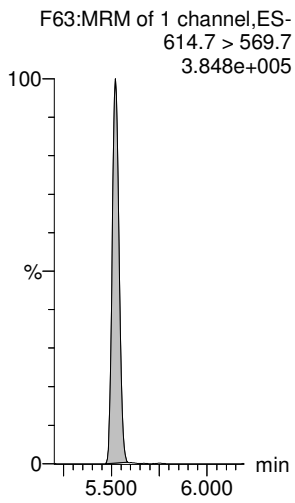




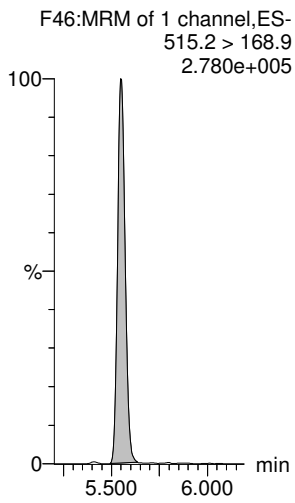
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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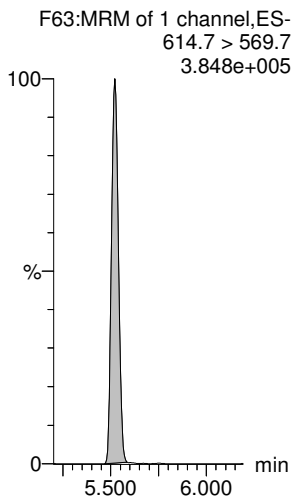

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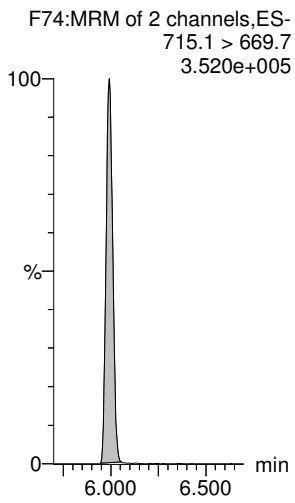

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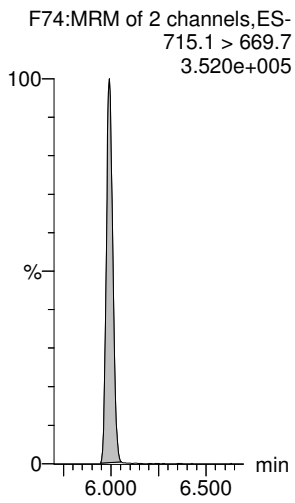

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Last Altered: Thursday, March 05, 2020 10:34:45 Pacific Standard Time
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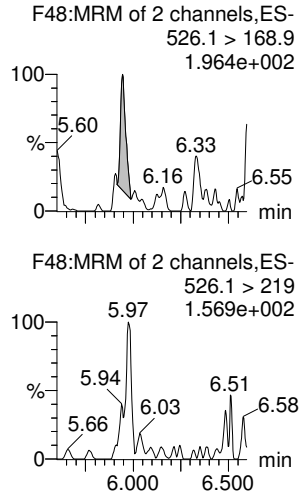
Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

N-EtFOSA



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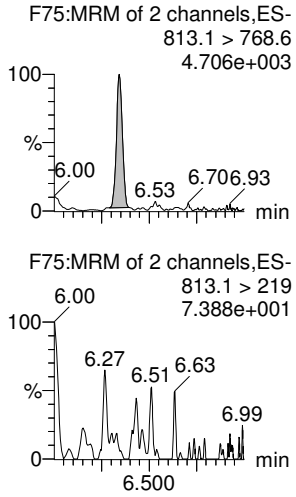

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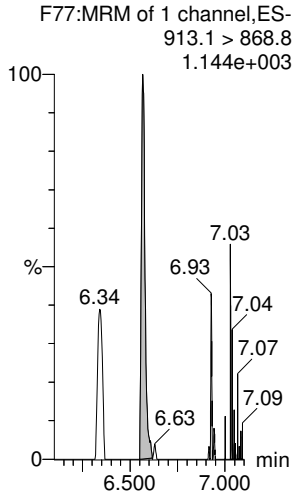

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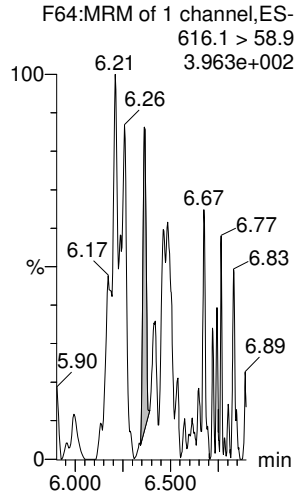

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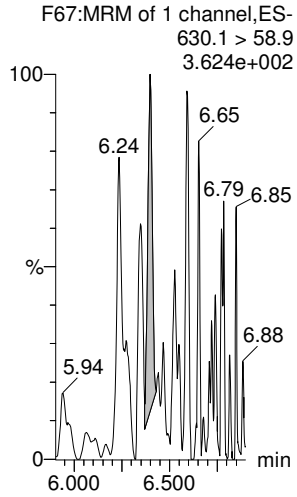
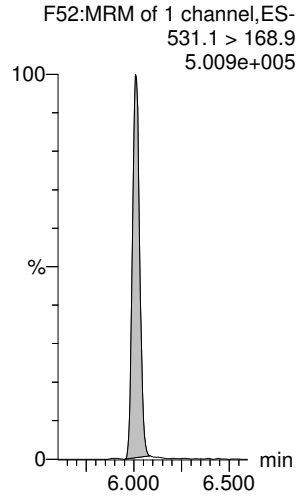


d5-N-ETFOSA-EIS



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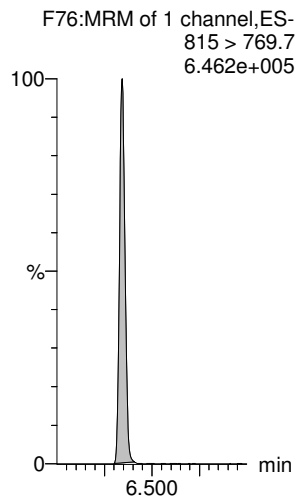

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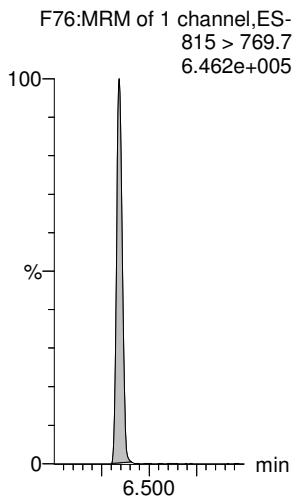
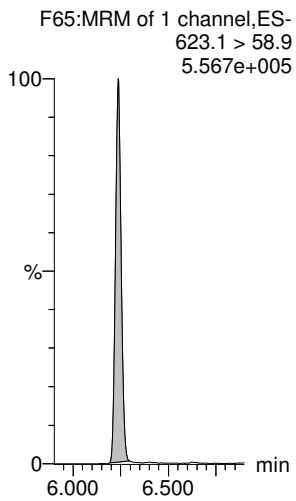


d7-N-MeFOSE-EIS



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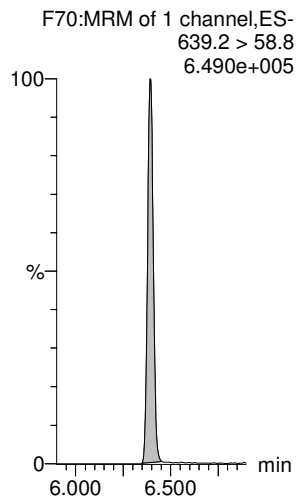
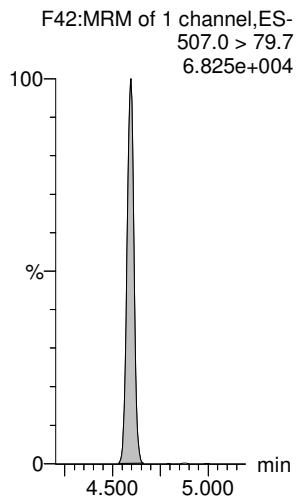


13C8-PFOS-EIS



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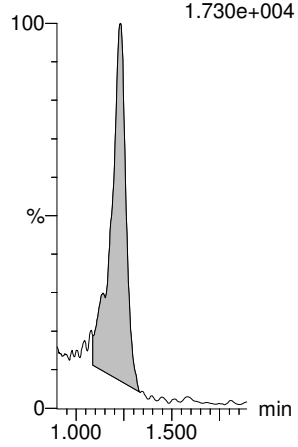
13C3-PFBA-RSD



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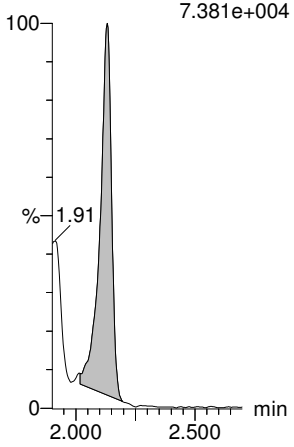

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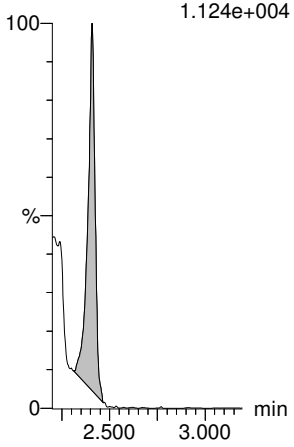

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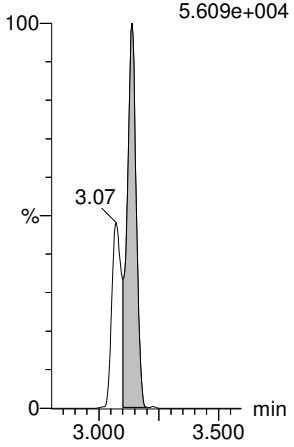
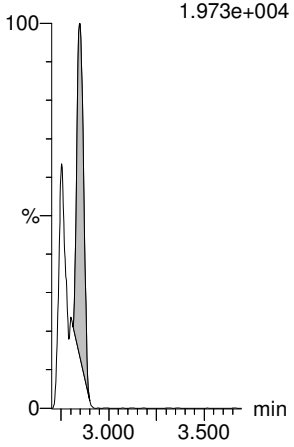


13C2-4:2 FTS-RSD



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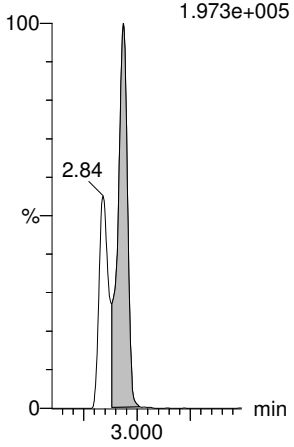

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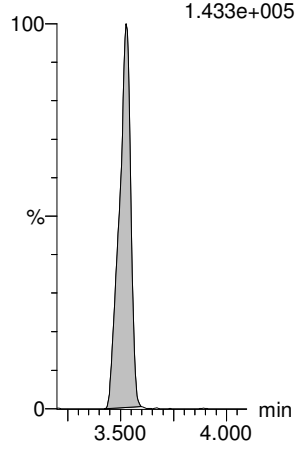
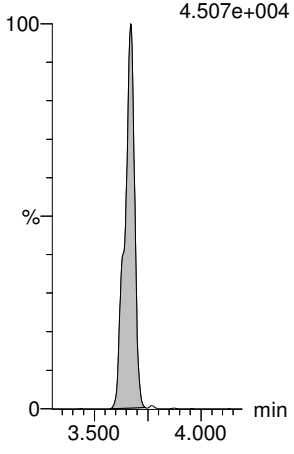
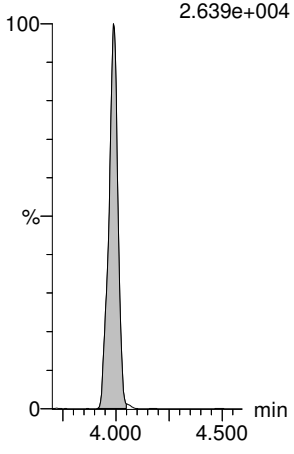


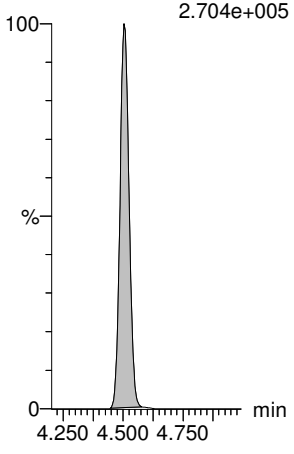
13C3-PFHxS-RSD



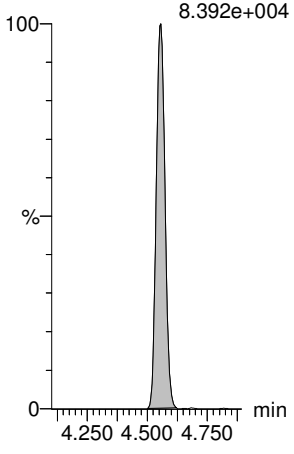
13C2-6:2 FTS-RSD



13C5-PFNA-RSD



13C8-PFOSA-RSD



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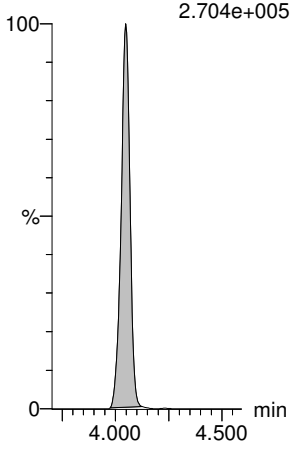

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Last Altered: Thursday, March 05, 2020 10:34:45 Pacific Standard Time
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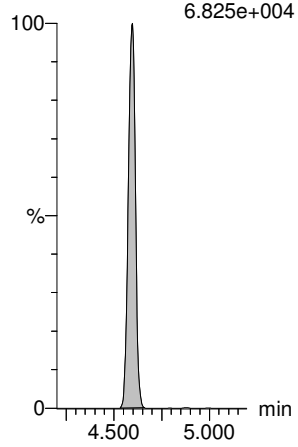
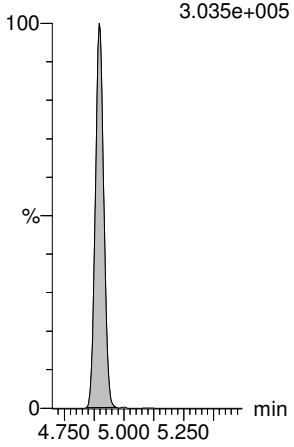
Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

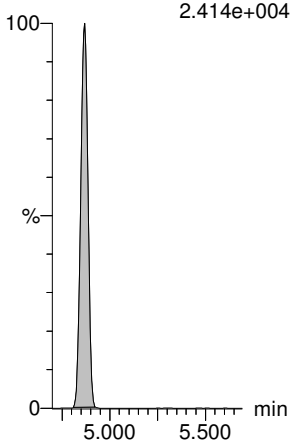
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.825e+004



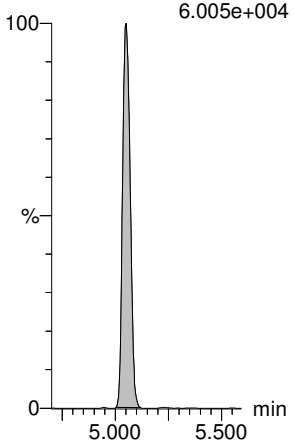
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.035e+005



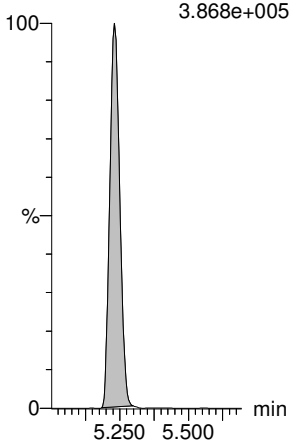
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.414e+004



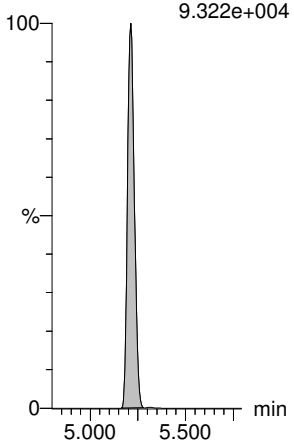
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.005e+004



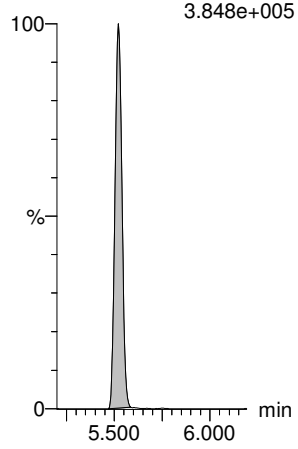
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.868e+005



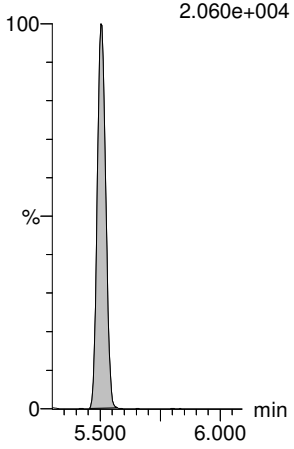
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.322e+004



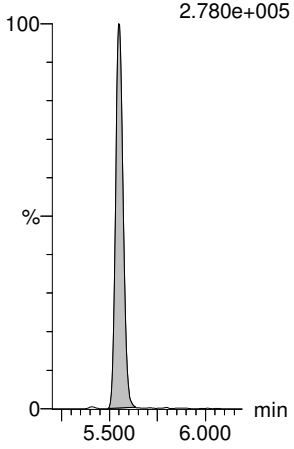
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.848e+005



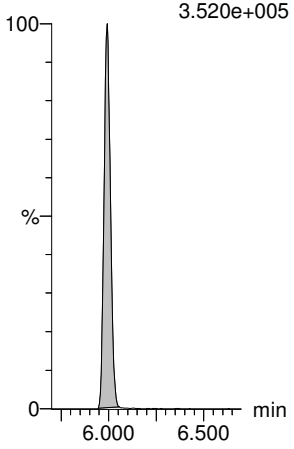
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.060e+004



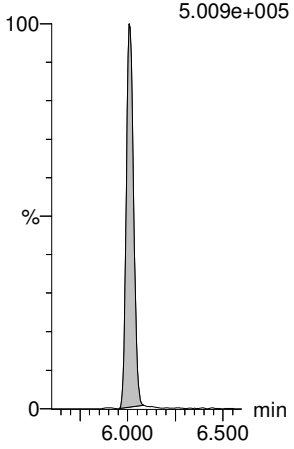
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.780e+005



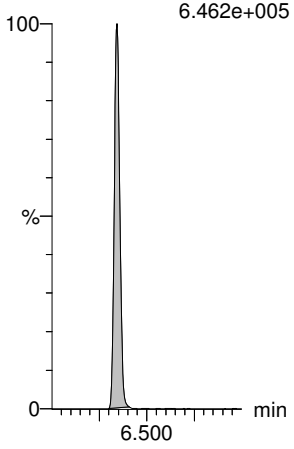
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.520e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.009e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.462e+005



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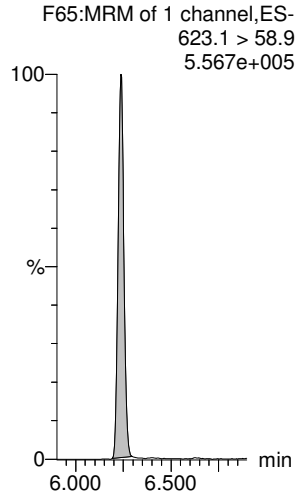
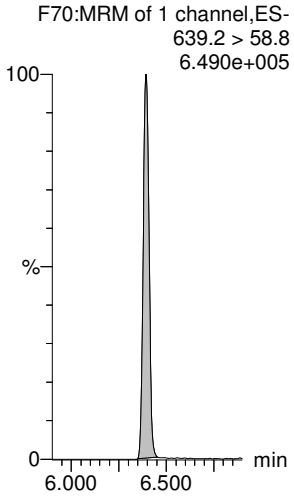
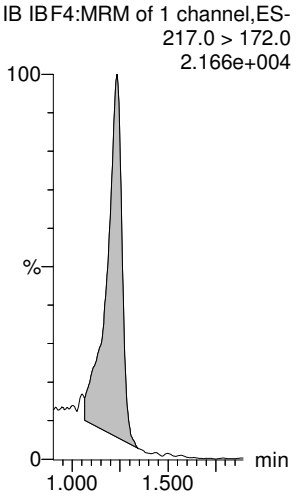
d7-N-MeFOSE-RSD



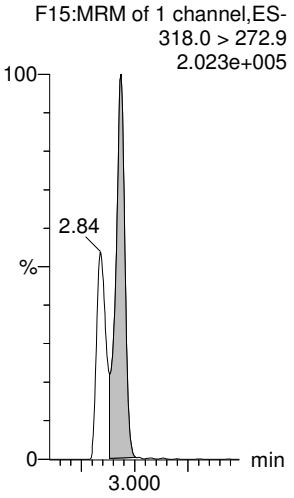
d9-N-EtFOSE-RSD



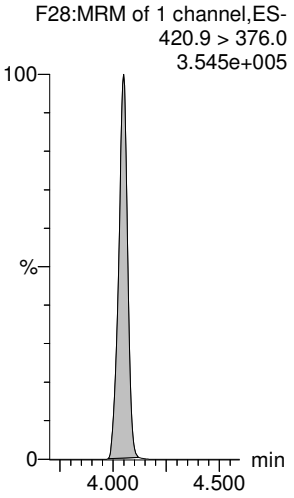
13C4-PFBA



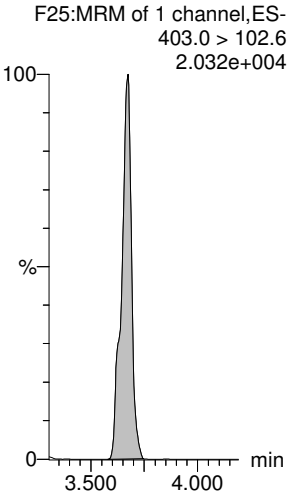
13C5-PFHxA



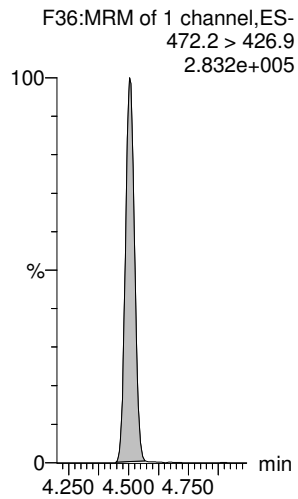
13C8-PFOA



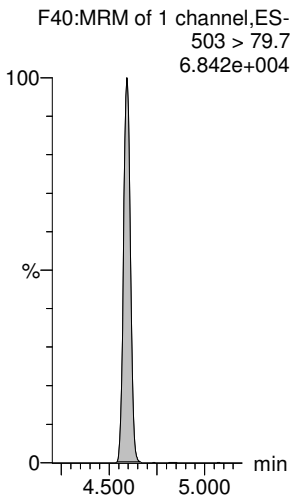
18O2-PFHxS



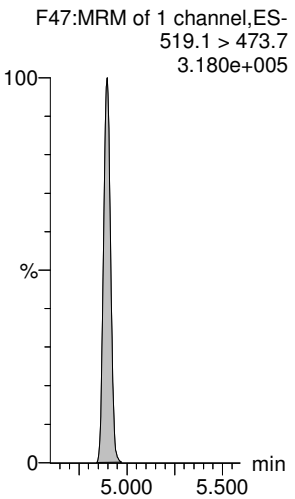
13C9-PFNA



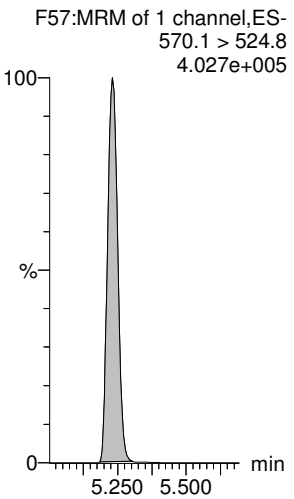
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	12.159	1425.392	1.00	1.34	0.107		0.126		NO		
2	2	PFPrS	248.9 > 79.7		468.345	1.00						NO		YES
3	3	3:3 FTCA	240.9 > 176.9		4005.253	1.00						NO		YES
4	4	PFPeA	263.1 > 218.9	6.192	4005.253	1.00	2.18	0.019		0.0144		NO		
5	5	PFBS	299.0 > 79.7		468.345	1.00						NO		YES
6	6	4:2 FTS	327.0 > 307		687.112	1.00						NO		YES
7	47	13C3-PFBA-EIS	216.1 > 171.8	1425.392		1.00	1.23	1425.392	12.500	3.84	30.7	YES		
8	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	4005.253		1.00	2.13	4005.253	12.500	5.88	47.0	YES		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	4005.253		1.00	2.13	4005.253	12.500	5.88	47.0	YES		
11	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	687.112		1.00	2.85	687.112	12.500	5.69	45.5	YES		
13	-1													
14	7	PFHxA	313.0 > 269.0	64.647	10086.920	1.00	2.95	0.080		0.0245		NO		YES
15	8	PFPeS	349.>79.7		468.345	1.00						NO		YES
16	9	HFPO-DA	285.1 > 168.9		2419.228	1.00						NO		YES
17	10	5:3 FTCA	340.9 > 236.9		8859.708	1.00						NO		YES
18	11	PFHpA	363.0 > 318.9	20.703	8859.708	1.00	3.50	0.029				NO		YES
19	12	ADONA	376.8 > 250.9	9.118	8859.708	1.00	3.56	0.013				NO		YES
20	57	13C2-PFHxA-EIS	315.0 > 270.0	10086.920		1.00	2.94	10086.920	12.500	8.32	66.5	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2419.228		1.00	3.14	2419.228	12.500	8.63	69.1	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	11.526	2366.117	1.00	3.67	0.061		0.130		NO		YES
28	15	6:2 FTS	427.0 > 407		1286.210	1.00						NO		YES
29	16	L-PFOA	412.8 > 368.9	24.111	12880.134	1.00	4.07	0.023				NO	2.116	NO
30	18	PFecHS	460.8 > 381.0		12880.134	1.00						NO		YES
31	19	PFHpS	449.0 > 79.7		2877.657	1.00						NO		YES
32	20	7:3 FTCA	440.9 > 336.9		11555.749	1.00						NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2366.117		1.00	3.67	2366.117	12.500	12.4	99.6	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1286.210		1.00	3.99	1286.210	12.500	14.3	114.2	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	12880.134		1.00	4.05	12880.134	12.500	12.7	101.4	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	12880.134		1.00	4.05	12880.134	12.500	12.7	101.4	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	11555.749		1.00	4.50	11555.749	12.500	13.3	106.6	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	28.700	11555.749	1.00	4.48	0.031				NO		YES
41	22	PFOSA	497.9 > 77.9	13.301	3483.541	1.00	4.55	0.048				NO		YES
42	23	L-PFOS	498.9 > 79.7		2877.657	1.00						NO		YES
43	25	9Cl-PF30NS	530.7 > 350.8	5.586	2877.657	1.00	4.80	0.024		0.00565		NO	0.706	YES
44	26	PFDA	513 > 468.8	28.565	12344.313	1.00	4.90	0.029				NO		YES
45	27	8:2 FTS	526.9 > 507		1030.673	1.00						NO		YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	11555.749		1.00	4.50	11555.749	12.500	13.3	106.6	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3483.541		1.00	4.56	3483.541	12.500	13.6	109.2	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	12344.313		1.00	4.90	12344.313	12.500	13.1	104.5	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1030.673		1.00	4.87	1030.673	12.500	11.8	94.5	NO		
52	-1													
53	28	PFNS	549.1 > 79.7		2877.657	1.00						NO		YES
54	29	L-MeFOSAA	570 > 419	5.340	2439.694	1.00	5.23	0.027		0.0476		NO	0.951	YES
55	31	L-EtFOSAA	584.1 > 419	7.322	3890.859	1.00	5.20	0.024		0.0711		NO	0.466	YES
56	33	PFUdA	563.0 > 518.9	44.895	16051.350	1.00	5.24	0.035				NO		YES
57	34	PFDS	598.8 > 79.7		2877.657	1.00						NO		YES
58	35	11Cl-PF30UdS	630.9 > 450.9		15742.117	1.00						NO		YES
59	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	2439.694		1.00	5.05	2439.694	12.500	12.5	100.1	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	3890.859		1.00	5.21	3890.859	12.500	13.5	108.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	16051.350		1.00	5.23	16051.350	12.500	13.1	104.7	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		831.490	1.00						NO		YES
67	37	PFDoA	612.9 > 569.0	223.817	15742.117	1.00	5.56	0.178				NO		YES
68	38	N-MeFOSA	512.1 > 168.9	10.727	12577.316	1.00	5.47	0.127				NO		YES
69	39	PFTrDA	662.9 > 618.9		15742.117	1.00						NO		YES
70	40	PFDoS	698.8 > 79.7		13690.438	1.00						NO		YES
71	41	PFTeDA	713.0 > 669.0	51.518	13690.438	1.00	6.12	0.047		0.0555		NO		YES
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	831.490		1.00	5.50	831.490	12.500	14.5	116.3	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	12577.316		1.00	5.55	12577.316	149.200	150	100.3	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	13690.438		1.00	5.99	13690.438	12.500	12.8	102.4	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	13690.438		1.00	5.99	13690.438	12.500	12.8	102.4	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	5.406	21915.990	1.00	5.94	0.037				NO		YES
80	43	PFHxDA	813.1 > 768.6	160.668	21672.244	1.00	6.34	0.093		0.0102		NO		YES
81	44	PFODA	913.1 > 868.8	25.492	21672.244	1.00	6.57	0.015		0.0394		NO		
82	45	N-MeFOSE	616.1 > 58.9	5.858	19399.535	1.00	6.36	0.045		0.114		NO		
83	46	N-EtFOSE	630.1 > 58.9	8.164	22549.330	1.00	6.40	0.054		0.106		NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	21915.990		1.00	6.01	21915.990	149.200	151	101.0	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	21672.244		1.00	6.34	21672.244	12.500	12.9	103.0	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	21672.244		1.00	6.34	21672.244	12.500	12.9	103.0	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	19399.535		1.00	6.24	19399.535	149.200	145	96.9	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	22549.330		1.00	6.39	22549.330	149.200	149	99.6	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	1425.392	1862.473	1.00	1.23	9.567	12.500	12.0	96.0	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	3983.000	9902.850	1.00	2.13	5.028	12.500	8.84	70.7	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	468.345	1086.782	1.00	2.41	5.387	12.500	5.36	42.8	YES		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	2419.228	9902.850	1.00	3.14	3.054	12.500	12.5	99.6	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	687.112	1086.782	1.00	2.85	7.903	12.500	5.21	41.6	YES		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	10086.920	9902.850	1.00	2.94	12.732	12.500	12.4	98.9	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	8859.708	9902.850	1.00	3.53	11.183	12.500	19.8	158.3	YES		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2366.117	1086.782	1.00	3.67	27.215	12.500	11.4	90.9	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1286.210	2801.486	1.00	3.99	5.739	12.500	12.0	95.6	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	11555.749	12146.396	1.00	4.50	11.892	12.500	12.7	101.8	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3483.541	16926.570	1.00	4.56	2.573	12.500	12.2	97.6	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	12880.134	17218.184	1.00	4.05	9.351	12.500	11.4	91.0	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	2877.657	2801.486	1.00	4.60	12.840	12.500	13.0	103.8	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	12344.313	13326.403	1.00	4.90	11.579	12.500	11.8	94.3	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1030.673	2801.486	1.00	4.87	4.599	12.500	11.2	89.9	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	2439.694	16926.570	1.00	5.05	1.802	12.500	11.2	89.3	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	16051.350	16926.570	1.00	5.23	11.854	12.500	12.3	98.3	NO		

Dataset: Untitled

Last Altered: Thursday, March 05, 2020 10:34:45 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:35:03 Pacific Standard Time

Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	3890.859	16926.570	1.00	5.21	2.873	12.500	12.6	100.8	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	15742.117	13326.403	1.00	5.52	14.766	12.500	11.8	94.6	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	831.490	2801.486	1.00	5.50	3.710	12.500	13.0	103.9	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	12577.316	16926.570	1.00	5.55	9.288	149.200	130	87.4	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	13690.438	16926.570	1.00	5.99	10.110	12.500	12.0	96.2	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	21915.990	16926.570	1.00	6.01	16.185	149.200	142	94.9	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	21672.244	16926.570	1.00	6.34	16.005	12.500	12.1	97.1	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	19399.535	16926.570	1.00	6.24	14.326	149.200	137	92.0	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	22549.330	16926.570	1.00	6.39	16.652	149.200	139	93.3	NO		
119	99	13C4-PFBA	217.0 > 172.0	1862.473	1862.473	1.00	1.23	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	9902.850	9902.850	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	17218.184	17218.184	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1086.782	1086.782	1.00	3.67	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	12146.396	12146.396	1.00	4.50	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	2801.486	2801.486	1.00	4.59	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	13326.403	13326.403	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	16926.570	16926.570	1.00	5.23	12.500	12.500	12.5	100.0	NO		

LC Calibration Standards Review Checklist Q5

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
Calibration ID:	ST2003048₂-11	L M H	☑	☑	☑	☐	☑	☑	☐
Calibration ID:	-12	L M H	☑	☑	☑	☐	☑	☑	☐
Calibration ID:	-13	L M H	☑	☑	☑	☑	☑	☐	☐
Calibration ID:	-14	L M H	☑	☑	☑	☑	☑	☑	☐
Calibration ID:	-15	L M H	☑	☑ (A), (B)	☑	☑	☑	☑	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: _____

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Instrument Blank Saved ☑

All Branches in Acquisition Window ☑

IIS Area Saved ☑

Reviewed By: Qm 3/5/2020
Initials/Date

Comments:

(A): L-MeFOSAA : High criteria limit
(B): PFODA : Low criteria limit

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-29.qld

Last Altered: Thursday, March 05, 2020 10:53:11 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:57:45 Pacific Standard Time

JM 3/5/2020

Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4280.729	4554.027	1.00	1.23	11.750	10.000	9.60	96.0	NO		
2	2	PFPrS	248.9 > 79.7	1012.805	928.975	1.00	1.53	13.628	10.000	11.1	111.(	NO	2.652	NO
3	3	3:3 FTCA	240.9 > 176.9	1018.237	8387.930	1.00	2.00	1.517	10.000	10.2	102.0	NO	4.073	NO
4	4	PFPeA	263.1 > 218.9	6308.629	8387.930	1.00	2.13	9.401	10.000	9.91	99.1	NO		
5	5	PFBS	299.0 > 79.7	1863.991	928.975	1.00	2.41	25.081	10.000	9.73	97.3	NO	3.150	NO
6	6	4:2 FTS	327.0 > 307	1792.077	1450.623	1.00	2.85	15.442	10.000	9.95	99.5	NO	1.127	NO
7	47	13C3-PFBA-EIS	216.1 > 171.8	4554.027		1.00	1.23	4554.027	12.500	12.3	98.0	NO		
8	51	13C3-PFBS-EIS	302.0 > 98.8	928.975		1.00	2.41	928.975	12.500	11.2	89.9	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	8387.930		1.00	2.13	8387.930	12.500	12.3	98.5	NO		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	8387.930		1.00	2.13	8387.930	12.500	12.3	98.5	NO		
11	51	13C3-PFBS-EIS	302.0 > 98.8	928.975		1.00	2.41	928.975	12.500	11.2	89.9	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1450.623		1.00	2.85	1450.623	12.500	12.0	96.1	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	10841.203	15468.618	1.00	2.94	8.761	10.000	9.92	99.2	NO	18.239	NO
15	8	PFPeS	349.>79.7	1845.639	928.975	1.00	3.13	24.834	10.000	10.7	107.0	NO	2.108	NO
16	9	HFPO-DA	285.1 > 168.9	3026.301	3645.017	1.00	3.14	10.378	10.000	9.37	93.7	NO	2.678	NO
17	10	5:3 FTCA	340.9 > 236.9	2410.157	8555.658	1.00	3.47	3.521	10.000	9.20	92.0	NO	1.854	NO
18	11	PFHpA	363.0 > 318.9	8242.373	8555.658	1.00	3.54	12.042	10.000	9.97	99.7	NO	17.545	NO
19	12	ADONA	376.8 > 250.9	21933.531	8555.658	1.00	3.64	32.045	10.000	9.38	93.8	NO	3.983	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	15468.618		1.00	2.94	15468.618	12.500	12.8	102.0	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	928.975		1.00	2.41	928.975	12.500	11.2	89.9	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3645.017		1.00	3.14	3645.017	12.500	13.0	104.1	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	8555.658		1.00	3.54	8555.658	12.500	12.7	101.2	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	8555.658		1.00	3.54	8555.658	12.500	12.7	101.2	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	8555.658		1.00	3.54	8555.658	12.500	12.7	101.2	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	1765.112	2291.784	1.00	3.68	9.627	10.000	9.44	94.4	NO	2.389	NO
28	15	6:2 FTS	427.0 > 407	2114.316	1250.632	1.00	4.00	21.132	10.000	11.1	110.6	NO	1.481	NO
29	16	L-PFOA	412.8 > 368.9	11940.016	11789.447	1.00	4.06	12.660	10.000	9.89	98.9	NO	3.159	NO
30	18	PFecHS	460.8 > 381.0	1913.742	11789.447	1.00	4.07	2.029	10.000	10.3	103.2	NO	0.553	NO
31	19	PFHpS	449.0 > 79.7	1926.151	2728.932	1.00	4.17	8.823	10.000	9.69	96.9	NO	2.034	NO
32	20	7:3 FTCA	440.9 > 336.9	2438.822	10666.264	1.00	4.50	2.858	10.000	9.90	99.0	NO	1.607	NO
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2291.784		1.00	3.68	2291.784	12.500	12.1	96.5	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1250.632		1.00	4.00	1250.632	12.500	13.9	111.(	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	11789.447		1.00	4.06	11789.447	12.500	11.6	92.8	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	11789.447		1.00	4.06	11789.447	12.500	11.6	92.8	NO		

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Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	10666.264		1.00	4.51	10666.264	12.500	12.3	98.4	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	10438.759	10666.264	1.00	4.51	12.233	10.000	9.78	97.8	NO	5.624	NO
41	22	PFOSA	497.9 > 77.9	2506.490	3389.926	1.00	4.56	9.242	10.000	9.78	97.8	NO	26.425	NO
42	23	L-PFOS	498.9 > 79.7	2001.738	2728.932	1.00	4.60	9.169	10.000	9.82	98.2	NO	2.468	NO
43	25	9Cl-PF30NS	530.7 > 350.8	3235.419	2728.932	1.00	4.82	14.820	10.000	9.47	94.7	NO	19.748	NO
44	26	PFDA	513 > 468.8	13091.802	12328.765	1.00	4.91	13.274	10.000	9.89	98.9	NO	8.524	NO
45	27	8:2 FTS	526.9 > 507	1223.657	1120.927	1.00	4.87	13.646	10.000	8.35	83.5	NO	2.479	NO
46	65	13C5-PFNA-EIS	468.2 > 422.9	10666.264		1.00	4.51	10666.264	12.500	12.3	98.4	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3389.926		1.00	4.56	3389.926	12.500	13.3	106.2	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	12328.765		1.00	4.90	12328.765	12.500	13.0	104.4	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1120.927		1.00	4.87	1120.927	12.500	12.8	102.8	NO		
52	-1													
53	28	PFNS	549.1 > 79.7	1928.716	2728.932	1.00	4.97	8.835	10.000	10.0	100.2	NO	2.111	NO
54	29	L-MeFOSAA	570 > 419	4347.066	2664.444	1.00	5.06	20.394	10.000	9.78	97.8	NO	2.184	NO
55	31	L-EtFOSAA	584.1 > 419	4070.493	3367.930	1.00	5.22	15.108	10.000	11.5	114.6	NO	1.374	NO
56	33	PFUdA	563.0 > 518.9	11347.929	15944.427	1.00	5.24	8.896	10.000	9.44	94.4	NO	17.584	NO
57	34	PFDS	598.8 > 79.7	1886.393	2728.932	1.00	5.28	8.641	10.000	9.72	97.2	NO	1.705	NO
58	35	11Cl-PF30UdS	630.9 > 450.9	5474.497	15897.676	1.00	5.45	4.304	10.000	9.53	95.3	NO	23.740	NO
59	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	2664.444		1.00	5.06	2664.444	12.500	13.7	109.3	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	3367.930		1.00	5.22	3367.930	12.500	11.7	93.5	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	15944.427		1.00	5.24	15944.427	12.500	13.0	104.0	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	15897.676		1.00	5.53	15897.676	12.500	13.1	104.9	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607	1425.303	789.082	1.00	5.51	22.578	10.000	9.92	99.2	NO	1.048	NO
67	37	PFDoA	612.9 > 569.0	13907.237	15897.676	1.00	5.52	10.935	10.000	10.9	109.2	NO	10.237	NO
68	38	N-MeFOSA	512.1 > 168.9	4812.816	12726.507	1.00	5.53	56.423	50.000	55.1	110.1	NO	1.630	NO
69	39	PFTrDA	662.9 > 618.9	14361.248	15897.676	1.00	5.77	11.292	10.000	10.7	107.3	NO	34.117	NO
70	40	PFDoS	698.8 > 79.7	2152.157	12644.690	1.00	5.80	2.128	10.000	11.0	110.5	NO	3.113	NO
71	41	PFTeDA	713.0 > 669.0	15005.024	12644.690	1.00	5.99	14.833	10.000	10.4	104.1	NO	18.040	NO
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	789.082		1.00	5.51	789.082	12.500	13.8	110.3	NO		

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Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	15897.676		1.00	5.53	15897.676	12.500	13.1	104.9	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	12726.507		1.00	5.55	12726.507	149.200	151	101.5	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	15897.676		1.00	5.53	15897.676	12.500	13.1	104.9	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	12644.690		1.00	5.99	12644.690	12.500	11.8	94.6	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	12644.690		1.00	5.99	12644.690	12.500	11.8	94.6	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	6379.706	21009.100	1.00	5.99	45.307	50.000	51.6	103.1	NO	1.814	NO
80	43	PFHxDA	813.1 > 768.6	10418.798	19536.863	1.00	6.34	6.666	10.000	9.81	98.1	NO	76.186	NO
81	44	PFODA	913.1 > 868.8	13995.993	19536.863	1.00	6.59	8.955	10.000	9.71	97.1	NO		
82	45	N-MeFOSE	616.1 > 58.9	6363.901	18586.096	1.00	6.25	51.086	50.000	50.6	101.1	NO		
83	46	N-EtFOSE	630.1 > 58.9	6952.946	22151.291	1.00	6.40	46.832	50.000	48.5	96.9	NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	21009.100		1.00	6.01	21009.100	149.200	144	96.8	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	19536.863		1.00	6.34	19536.863	12.500	11.6	92.9	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	19536.863		1.00	6.34	19536.863	12.500	11.6	92.9	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	18586.096		1.00	6.24	18586.096	149.200	139	92.9	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	22151.291		1.00	6.39	22151.291	149.200	146	97.8	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	2728.932		1.00	4.60	2728.932	12.500	13.1	105.0	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	4545.624	5731.675	1.00	1.23	9.913	12.500	12.4	99.4	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	8387.930	14639.236	1.00	2.13	7.162	12.500	12.6	100.7	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	928.975	932.104	1.00	2.41	12.458	12.500	12.4	99.1	NO		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	3645.017	14639.236	1.00	3.14	3.112	12.500	12.7	101.5	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1450.623	932.104	1.00	2.85	19.454	12.500	12.8	102.5	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	15468.618	14639.236	1.00	2.94	13.208	12.500	12.8	102.6	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	8555.658	14639.236	1.00	3.54	7.305	12.500	12.9	103.4	NO		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2291.784	932.104	1.00	3.68	30.734	12.500	12.8	102.7	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1250.632	2716.932	1.00	4.00	5.754	12.500	12.0	95.9	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	10666.264	11315.355	1.00	4.51	11.783	12.500	12.6	100.9	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3384.364	16126.673	1.00	4.56	2.623	12.500	12.4	99.5	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	11789.447	14266.442	1.00	4.06	10.330	12.500	12.6	100.6	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	2728.932	2716.932	1.00	4.60	12.555	12.500	12.7	101.5	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	12328.765	13381.457	1.00	4.90	11.517	12.500	11.7	93.8	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1120.927	2716.932	1.00	4.87	5.157	12.500	12.6	100.8	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	2664.444	16126.673	1.00	5.06	2.065	12.500	12.8	102.4	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	15944.427	16126.673	1.00	5.24	12.359	12.500	12.8	102.5	NO		

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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-29.qld

Last Altered: Thursday, March 05, 2020 10:53:11 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:57:45 Pacific Standard Time

Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	3367.930	16126.673	1.00	5.22	2.611	12.500	11.4	91.6	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	15897.676	13381.457	1.00	5.53	14.850	12.500	11.9	95.1	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	789.082	2716.932	1.00	5.51	3.630	12.500	12.7	101.7	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	12726.507	16126.673	1.00	5.55	9.864	149.200	139	92.9	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	12644.690	16126.673	1.00	5.99	9.801	12.500	11.7	93.3	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	21009.100	16126.673	1.00	6.01	16.284	149.200	142	95.5	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	19536.863	16126.673	1.00	6.34	15.143	12.500	11.5	91.9	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	18586.096	16126.673	1.00	6.24	14.406	149.200	138	92.5	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	22151.291	16126.673	1.00	6.39	17.170	149.200	144	96.2	NO		
119	99	13C4-PFBA	217.0 > 172.0	5731.675	5731.675	1.00	1.23	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	14639.236	14639.236	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	14266.442	14266.442	1.00	4.06	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	932.104	932.104	1.00	3.68	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	11315.355	11315.355	1.00	4.51	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	2716.932	2716.932	1.00	4.60	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	13381.457	13381.457	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	16126.673	16126.673	1.00	5.24	12.500	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Thursday, March 05, 2020 12:29:39 Pacific Standard Time
Printed: Thursday, March 05, 2020 12:30:31 Pacific Standard Time

Method: P:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: PFBA

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1	1	200304P2-1	IPA	04-Mar-20	19:10:51
2	2	200304P2-2	IPA	04-Mar-20	19:21:20
3	3	200304P2-3	ST200304P2-1 PFC CS-2 20C0304	04-Mar-20	19:31:52
4	4	200304P2-4	ST200304P2-2 PFC CS-1 20C0305	04-Mar-20	19:42:23
5	5	200304P2-5	ST200304P2-3 PFC CS0 20C0306	04-Mar-20	19:52:51
6	6	200304P2-6	ST200304P2-4 PFC CS1 20C0307	04-Mar-20	20:03:23
7	7	200304P2-7	ST200304P2-5 PFC CS2 20C0308	04-Mar-20	20:13:54
8	8	200304P2-8	ST200304P2-6 PFC CS3 20C0309	04-Mar-20	20:24:22
9	9	200304P2-9	ST200304P2-7 PFC CS4 20C0310	04-Mar-20	20:34:54
10	10	200304P2-10	ST200304P2-8 PFC CS5 20C0311	04-Mar-20	20:45:22
11	11	200304P2-11	ST200304P2-9 PFC CS6 20C0312	04-Mar-20	20:55:55
12	12	200304P2-12	ST200304P2-10 PFC CS7 20C0313	04-Mar-20	21:06:25
13	13	200304P2-13	IB	04-Mar-20	21:16:56
14	14	200304P2-14	ICV200304P2-1 PFC ICV 20C0314	04-Mar-20	21:27:24
15	15	200304P2-15	IB	04-Mar-20	21:37:55
16	16	200304P2-16	B0B0213-BLK1 Method Blank 0.25	04-Mar-20	21:48:26
17	17	200304P2-17	B0B0213-BS1 OPR 0.25	04-Mar-20	21:58:57
18	18	200304P2-18	B0B0213-BSD1 LCSD 0.25	04-Mar-20	22:09:25
19	19	200304P2-19	2000372-01 EB05-20200220 0.25095	04-Mar-20	22:19:57
20	20	200304P2-20	2000372-02 TW07S-20200220 0.25404	04-Mar-20	22:30:26
21	21	200304P2-21	2000372-03 TW05S-20200220 0.24752	04-Mar-20	22:40:57
22	22	200304P2-22	2000372-04 TW06S-20200220 0.24881	04-Mar-20	22:51:28
23	23	200304P2-23	2000372-05 TW21S-20200220 0.24679	04-Mar-20	23:01:56
24	24	200304P2-24	2000372-06 TW20S-20200220 0.24911	04-Mar-20	23:12:29
25	25	200304P2-25	2000372-07 TW19S-20200220 0.24732	04-Mar-20	23:22:57
26	26	200304P2-26	2000372-08 TW18S-20200220 0.25075	04-Mar-20	23:33:29
27	27	200304P2-27	2000373-01 OU3-LW01-20200220 0.24602	04-Mar-20	23:43:57
28	28	200304P2-28	2000373-02 TS-LW01-20200220 0.24944	04-Mar-20	23:54:30
29	29	200304P2-29	ST200304P2-11 PFC CS3 20C0309	05-Mar-20	00:04:58
30	30	200304P2-30	IB	05-Mar-20	00:15:30
31	31	200304P2-31	2000373-03 TN-LW01-20200220 0.25058	05-Mar-20	00:26:01
32	32	200304P2-32	2000373-05 TN-LW02-20200220 0.25407	05-Mar-20	00:36:31

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Dataset: Untitled

Last Altered: Thursday, March 05, 2020 12:29:39 Pacific Standard Time
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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	200304P2-33	2000390-01 EB06-20200221 0.25473	05-Mar-20	00:46:59
34	34	200304P2-34	2000390-02 TW14S-20200221 0.25234	05-Mar-20	00:57:32
35	35	200304P2-35	2000390-03 TW17S-20200221 0.25253	05-Mar-20	01:08:00
36	36	200304P2-36	2000390-04 TW16S-20200221 0.25077	05-Mar-20	01:18:32
37	37	200304P2-37	2000390-05 TW15S-20200221 0.25188	05-Mar-20	01:29:02
38	38	200304P2-38	B0B0279-BLK1 Method Blank 0.25	05-Mar-20	01:39:31
39	39	200304P2-39	B0B0279-BS1 OPR 0.25	05-Mar-20	01:50:03
40	40	200304P2-40	B0B0279-MS1 Matrix Spike 0.24487	05-Mar-20	02:00:34
41	41	200304P2-41	B0B0279-MSD1 Matrix Spike Dup 0.24851	05-Mar-20	02:11:02
42	42	200304P2-42	B0B0279-MSD2 Matrix Spike Dup 0.25981	05-Mar-20	02:21:34
43	43	200304P2-43	B0B0279-MS2 Matrix Spike 0.25235	05-Mar-20	02:32:02
44	44	200304P2-44	2000405-01 S9MW41-20Q1 0.2563	05-Mar-20	02:42:35
45	45	200304P2-45	2000405-02 S9MW14-20Q1 0.25573	05-Mar-20	02:53:03
46	46	200304P2-46	2000405-03 S9IMW1-20Q1 0.26015	05-Mar-20	03:03:35
47	47	200304P2-47	ST200304P2-12 PFC CS3 20C0309	05-Mar-20	03:14:06
48	48	200304P2-48	IB	05-Mar-20	03:24:35
49	49	200304P2-49	2000405-04 S9DMW1-20Q1 0.25143	05-Mar-20	03:35:06
50	50	200304P2-50	2000405-05 S9MW63L7-20Q1 0.25274	05-Mar-20	03:45:34
51	51	200304P2-51	2000405-06 S9MW63L9-20Q1 0.26389	05-Mar-20	03:56:07
52	52	200304P2-52	2000405-07 S9MW63L1-20Q1 0.25432	05-Mar-20	04:06:37
53	53	200304P2-53	2000405-08 S9MW63L3-20Q1 0.24908	05-Mar-20	04:17:06
54	54	200304P2-54	2000405-09 S9MW35-20Q1 0.24421	05-Mar-20	04:27:38
55	55	200304P2-55	2000405-10 S9MW32-20Q1 0.26062	05-Mar-20	04:38:06
56	56	200304P2-56	2000405-11 S9MW13-20Q1 0.25349	05-Mar-20	04:48:38
57	57	200304P2-57	2000405-12 S9MW12-20Q1 0.26401	05-Mar-20	04:59:09
58	58	200304P2-58	2000405-13 S9MW12-20Q1-D 0.25543	05-Mar-20	05:09:37
59	59	200304P2-59	ST200304P2-13 PFC CS3 20C0309	05-Mar-20	05:20:09
60	60	200304P2-60	IB	05-Mar-20	05:30:38
61	61	200304P2-61	2000405-14 S9MW63L5-20Q1 0.26102	05-Mar-20	05:41:10
62	62	200304P2-62	2000315-02 S-SB05-00-20200210 2.33	05-Mar-20	05:51:39
63	63	200304P2-63	2000388-01 Plant Boiler/Tower Chemicals 0.25431	05-Mar-20	06:02:10
64	64	200304P2-64	2000356-06 TW09S-20200219 0.25359	05-Mar-20	06:12:41
65	65	200304P2-65	2000356-10 TW12S-20200219 0.25542	05-Mar-20	06:23:10
66	66	200304P2-66	IB	05-Mar-20	06:33:41
67	67	200304P2-67	2000356-05@5X TW08S-20200219 0.23703	05-Mar-20	06:44:10
68	68	200304P2-68	2000356-09@10X TW13S-20200219 0.24923	05-Mar-20	06:54:41

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Last Altered: Thursday, March 05, 2020 12:29:39 Pacific Standard Time
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Compound name: PFBA

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69	69	200304P2-69	B0B0238-BLK1 Method Blank 0.25	05-Mar-20	07:05:12
70	70	200304P2-70	B0B0238-BS1 OPR 0.25	05-Mar-20	07:15:41
71	71	200304P2-71	2000395-01 GW043.7048.72002191000JSJ 0.23635	05-Mar-20	07:26:13
72	72	200304P2-72	2000395-02 FB2002191040JSJ 0.23937	05-Mar-20	07:36:43
73	73	200304P2-73	2000395-03 GW042.7047.72002191115JSJ 0.251	05-Mar-20	07:47:12
74	74	200304P2-74	2000395-04 GW0190242002191230JSJ 0.25527	05-Mar-20	07:57:44
75	75	200304P2-75	ST200304P2-14 PFC CS3 20C0309	05-Mar-20	08:08:13
76	76	200304P2-76	IB	05-Mar-20	08:18:45
77	77	200304P2-77	2000395-05 GW028.7033.72002191545JSJ 0.2514	05-Mar-20	08:29:13
78	78	200304P2-78	2000395-06 GW025.3030.32002201000JSJ 0.24266	05-Mar-20	08:39:45
79	79	200304P2-79	2000395-07 GW020.5025.52002201130JSJ 0.25088	05-Mar-20	08:50:16
80	80	200304P2-80	2000395-08 GW021.5026.52002201305JSJ 0.24274	05-Mar-20	09:00:44
81	81	200304P2-81	2000395-09 GW0230282002201415AB 0.24246	05-Mar-20	09:11:16
82	82	200304P2-82	2000395-10 GW0150202002201405JSJ 0.25236	05-Mar-20	09:21:47
83	83	200304P2-83	B0C0012-BLK1 Method Blank 2	05-Mar-20	09:32:15
84	84	200304P2-84	B0C0012-BS1 OPR 2	05-Mar-20	09:42:47
85	85	200304P2-85	B0C0012-BS2 OPR 2	05-Mar-20	09:53:16
86	86	200304P2-86	B0C0012-BS3 OPR 2	05-Mar-20	10:03:48
87	87	200304P2-87	B0C0012-BS4 OPR 2	05-Mar-20	10:14:17
88	88	200304P2-88	PFC NS SUP	05-Mar-20	10:24:48
89	89	200304P2-89	ST200304P2-15 PFC CS3 20C0309	05-Mar-20	10:35:17
90	90	200304P2-90	IB	05-Mar-20	10:45:49

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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-29.qld

Last Altered: Thursday, March 05, 2020 10:53:11 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:57:45 Pacific Standard Time

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Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

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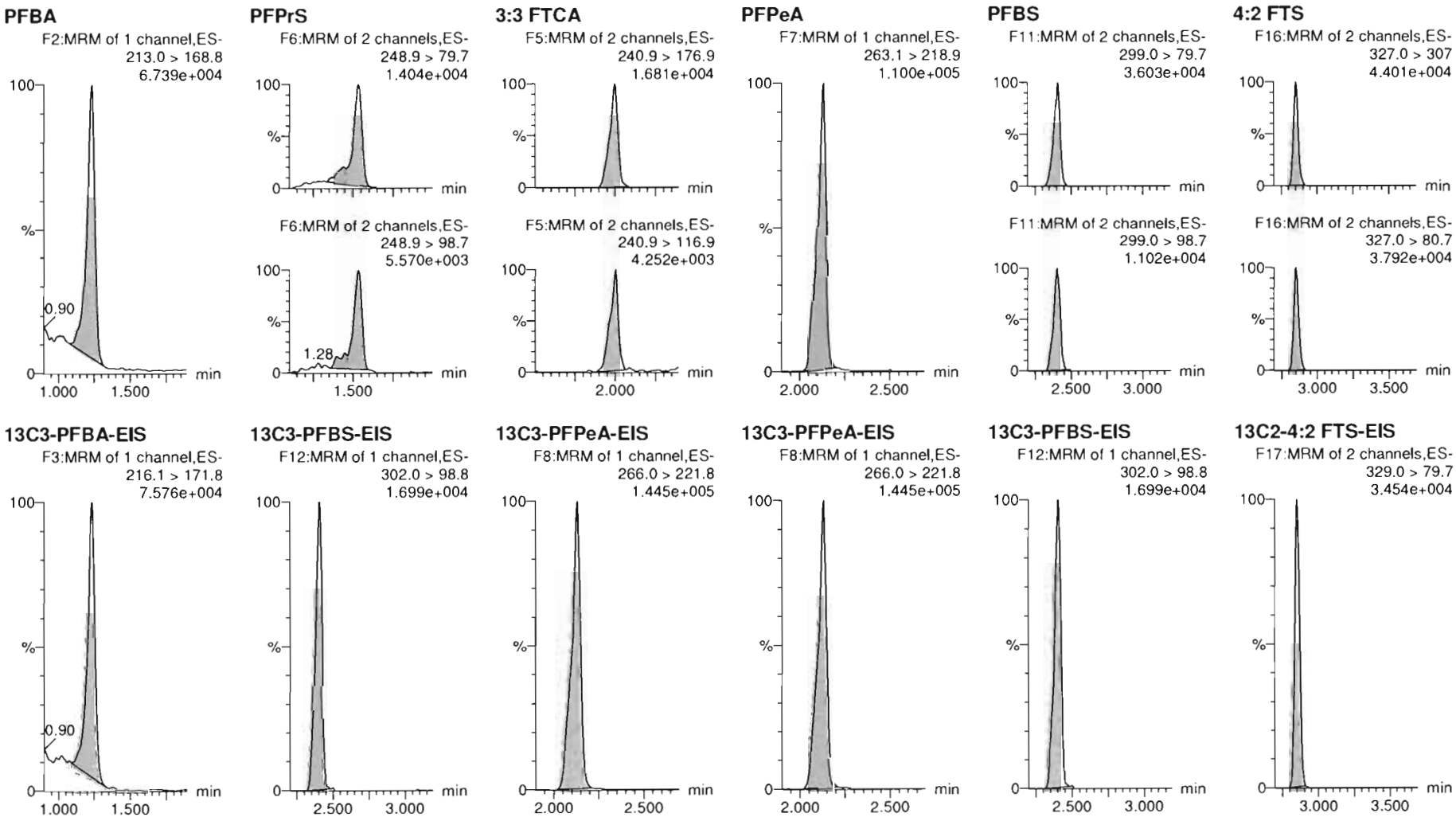

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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-29.qld

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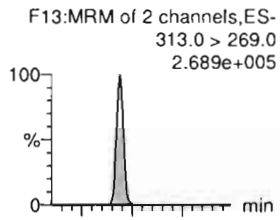
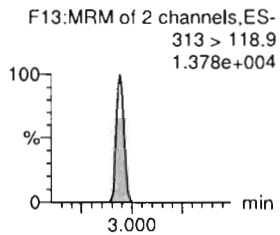
PFHxA





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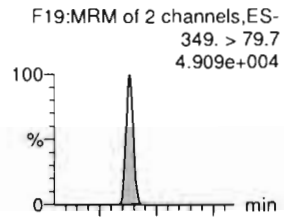
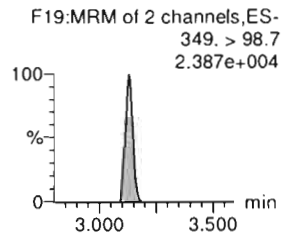
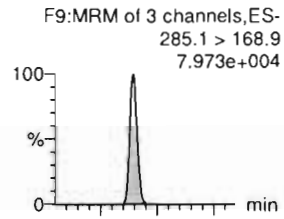
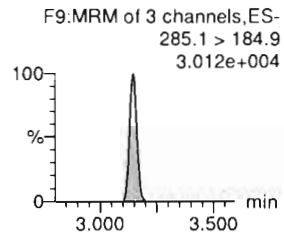


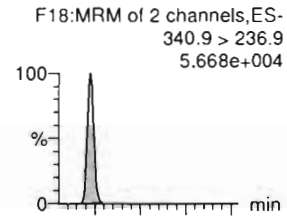


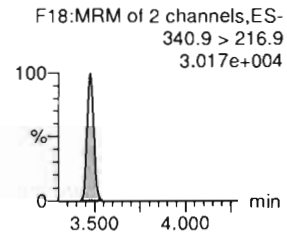
HFPO-DA





5:3 FTCA





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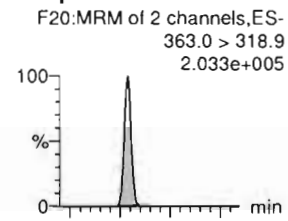

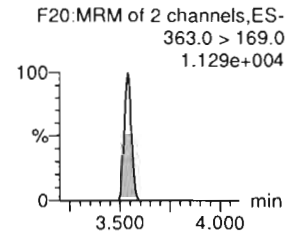

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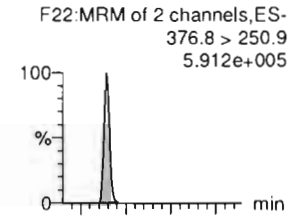
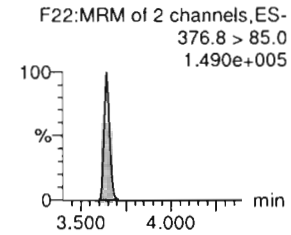
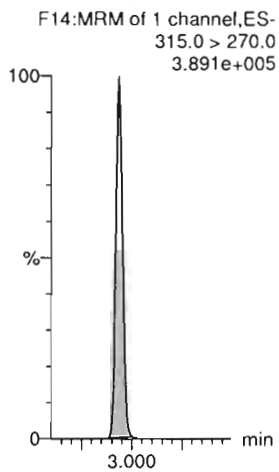




13C2-PFHxA-EIS



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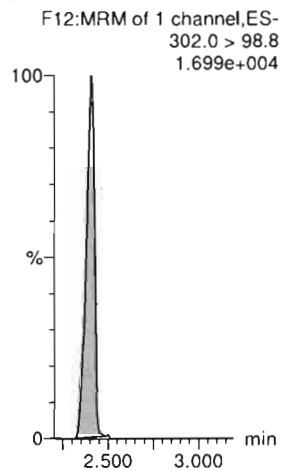

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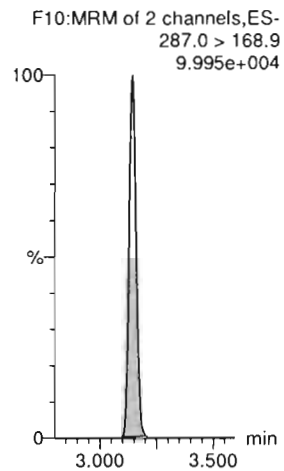

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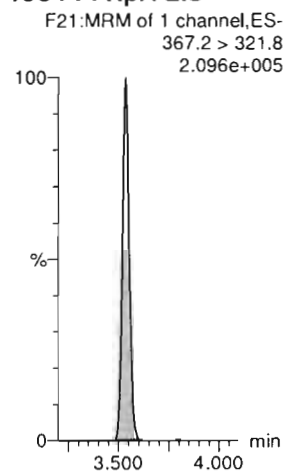

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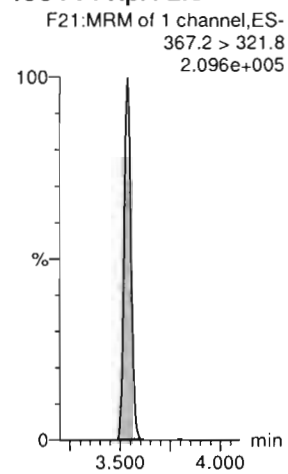

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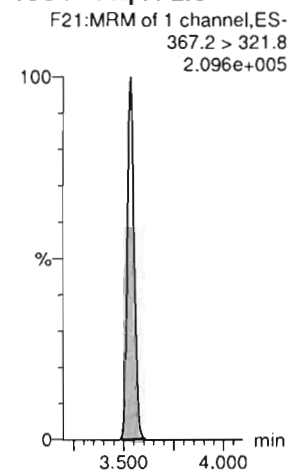

RK 3/5/2020

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Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

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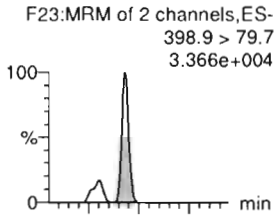

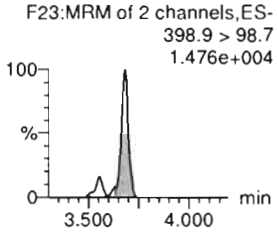

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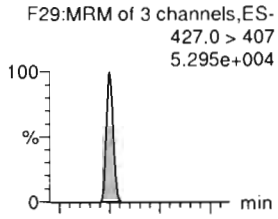

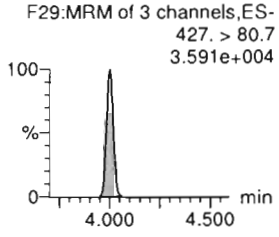

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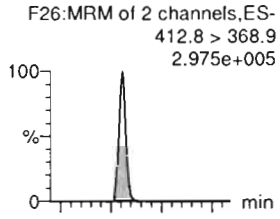

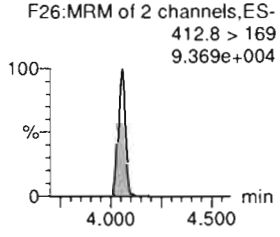

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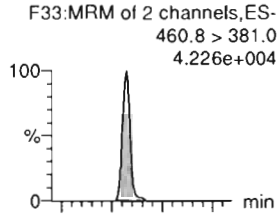

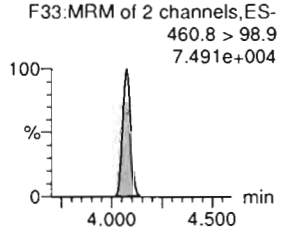

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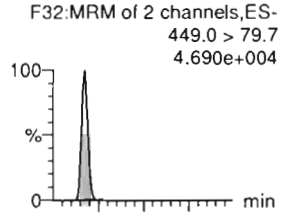

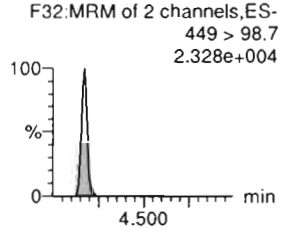

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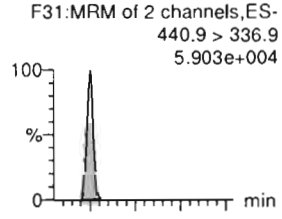

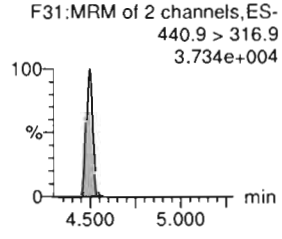

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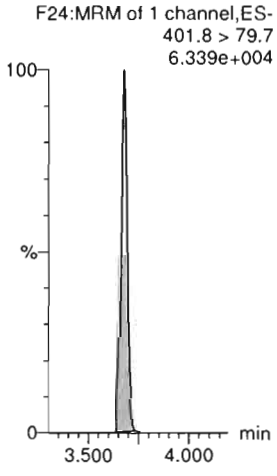

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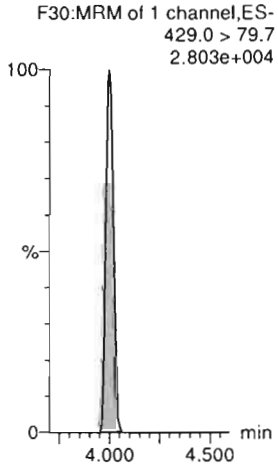

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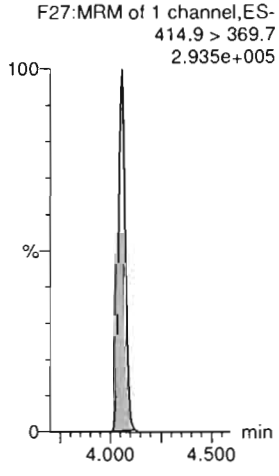

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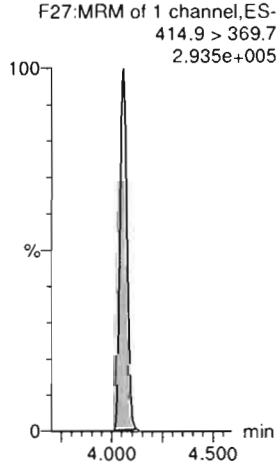

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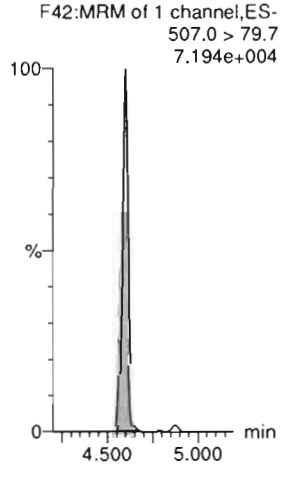

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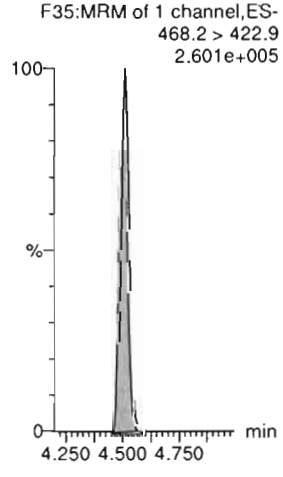

RK 3/5/2020

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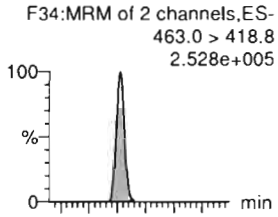

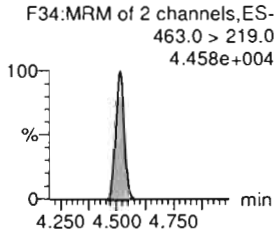

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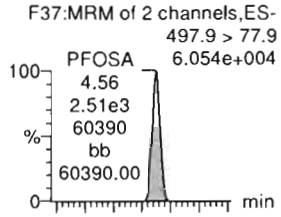

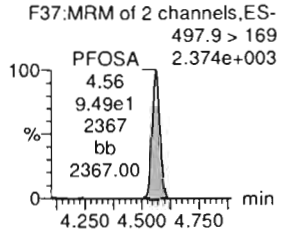

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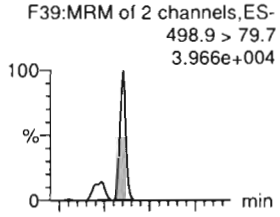

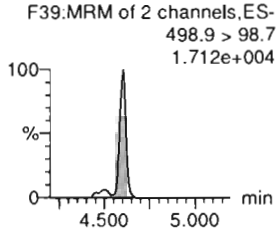

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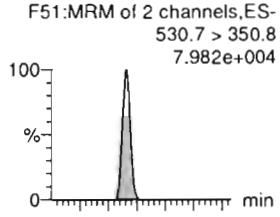

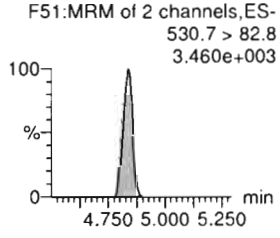

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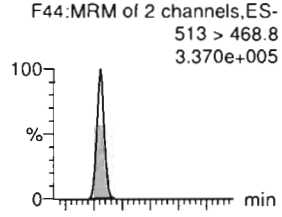

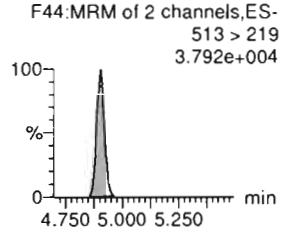

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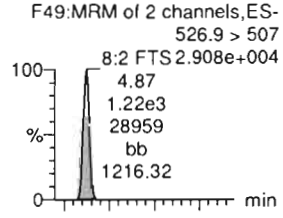

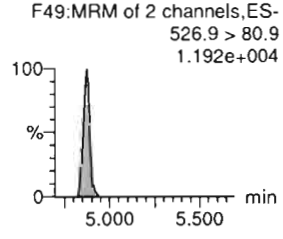

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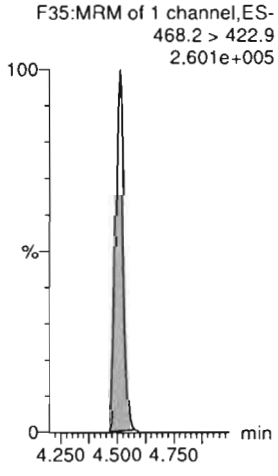

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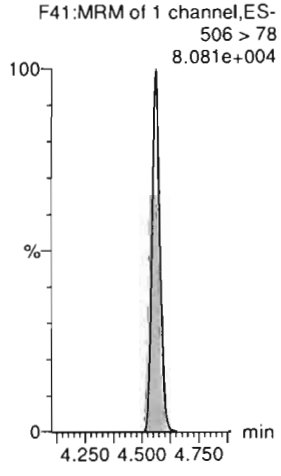

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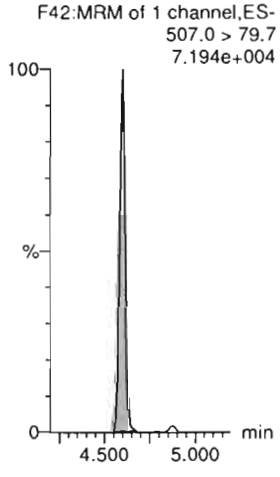

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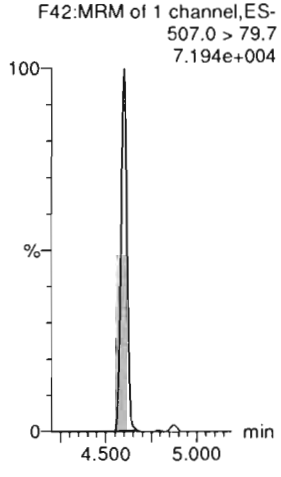

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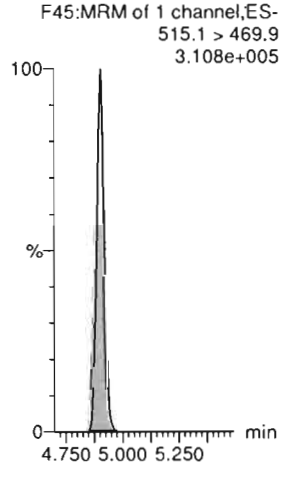

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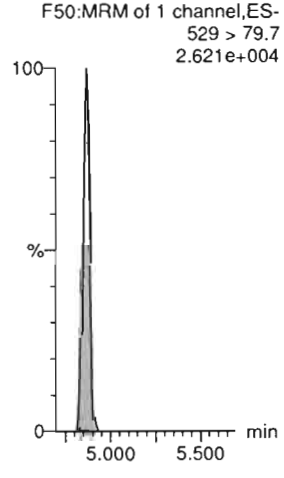

RK 3/5/2020

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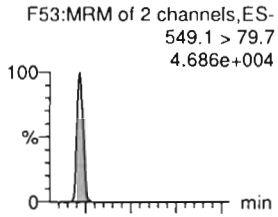

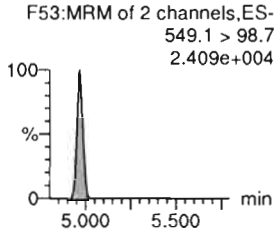

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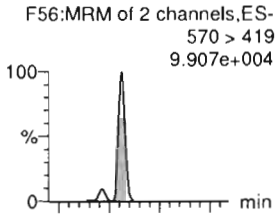

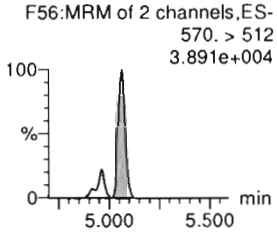

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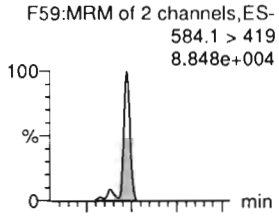

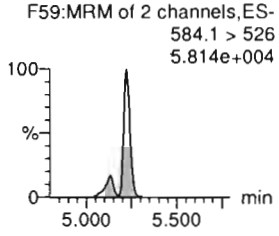

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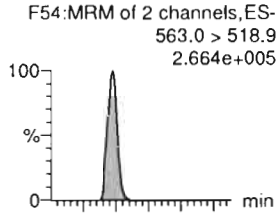

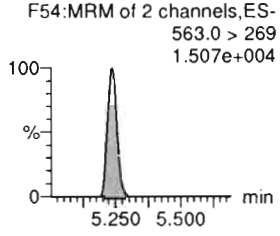

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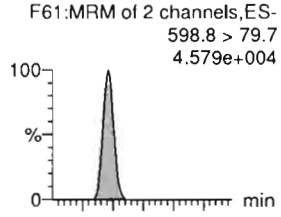
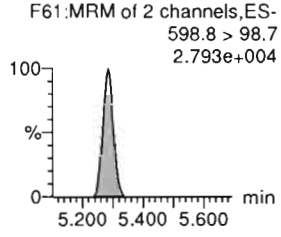
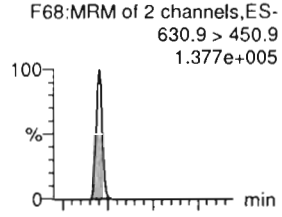
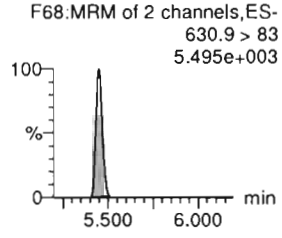


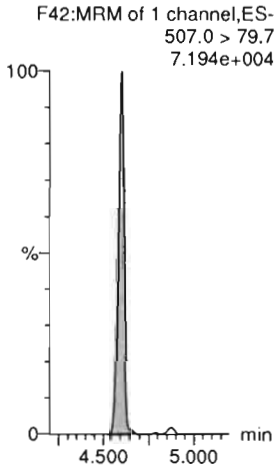


11Cl-PF30UdS

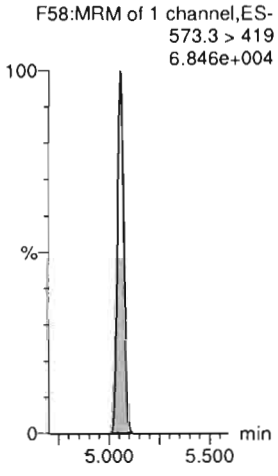




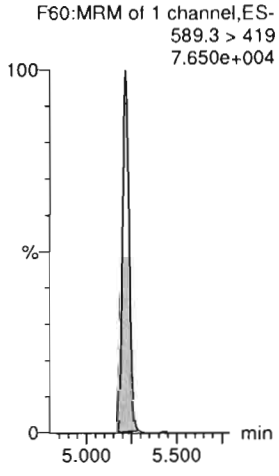
13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



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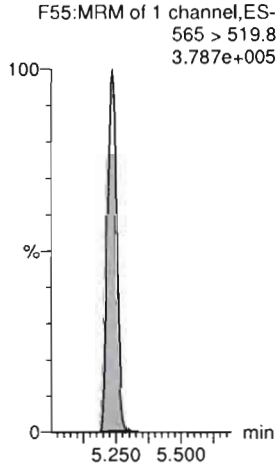
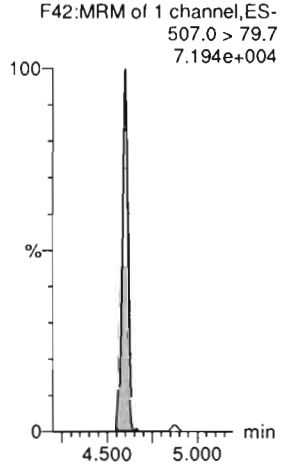
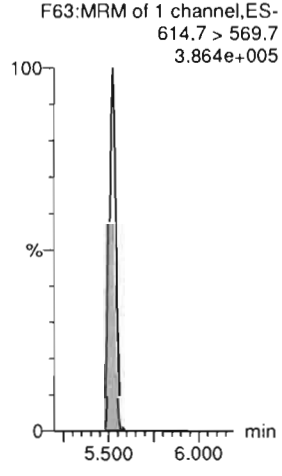


13C8-PFOS-EIS



13C2-PFDoA-EIS



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Last Altered: Thursday, March 05, 2020 10:53:11 Pacific Standard Time
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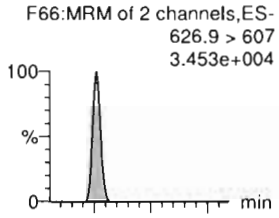
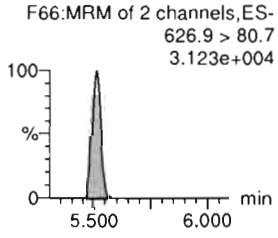
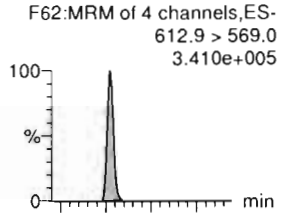
Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

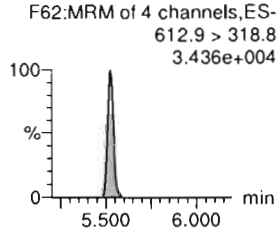
10:2 FTS



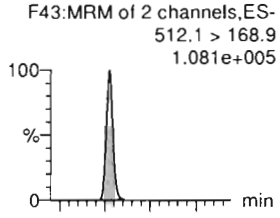


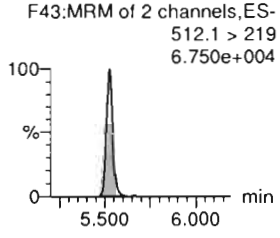
PFDoA



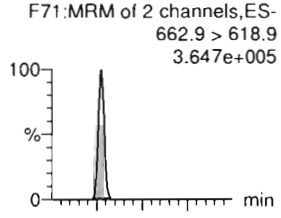


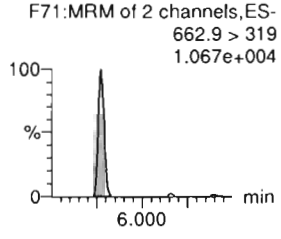
N-MeFOSA



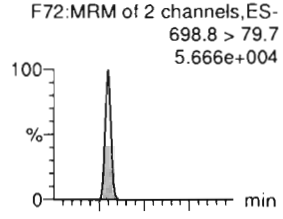


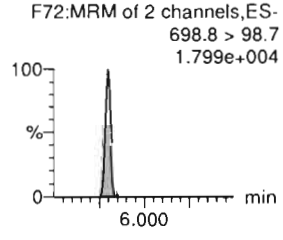
PFTrDA





PFDoS





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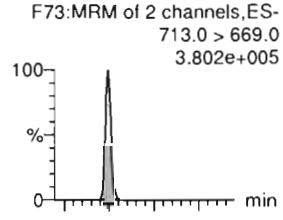
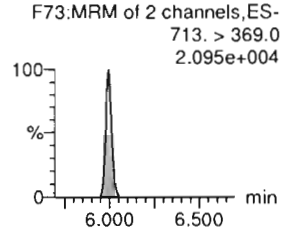
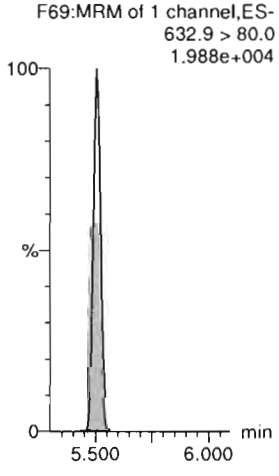
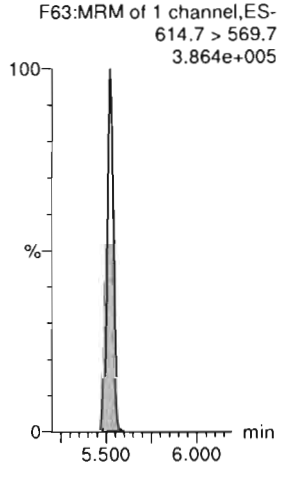




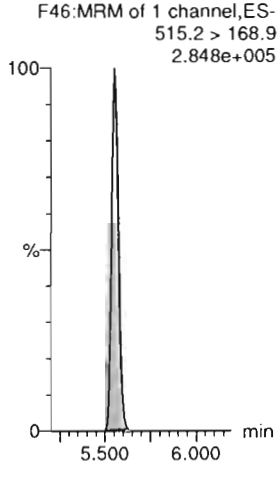
13C2-10:2 FTS-EIS



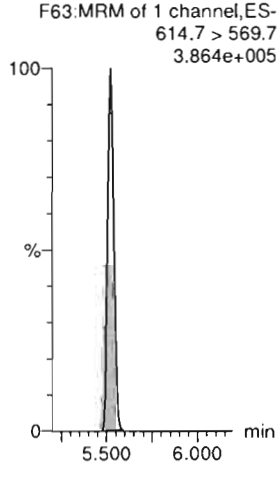
13C2-PFDoA-EIS



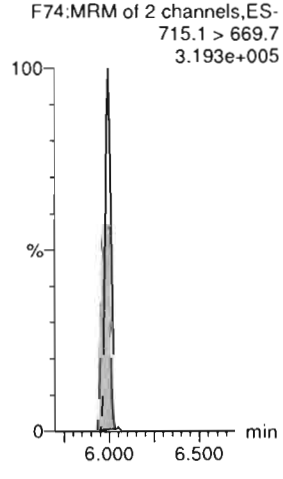
d3-N-MeFOSA-EIS



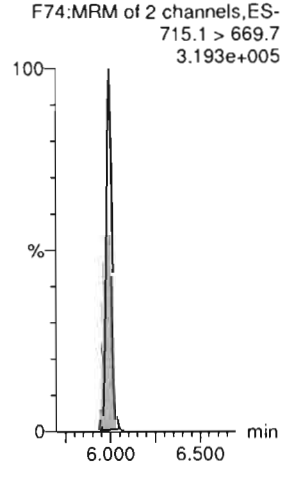
13C2-PFDoA-EIS



13C2-PFTeDA-EIS



13C2-PFTeDA-EIS



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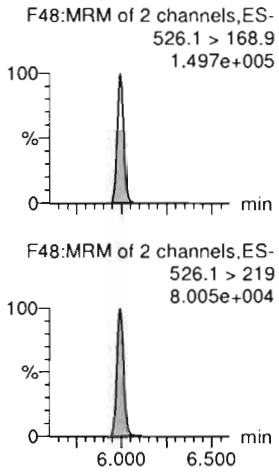
Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

N-EtFOSA



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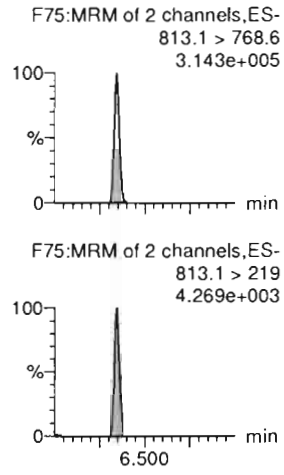
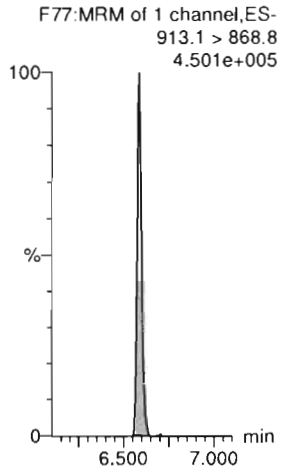
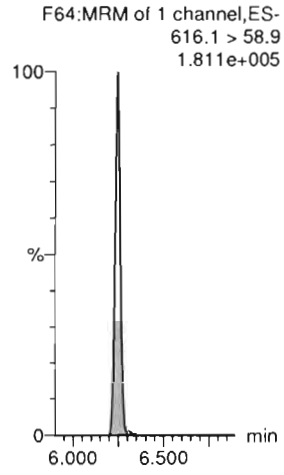


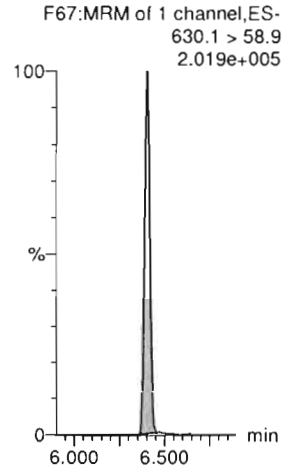
PFODA



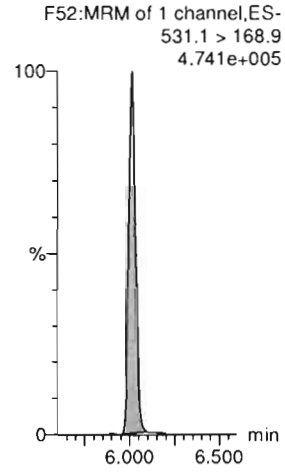
N-MeFOSE



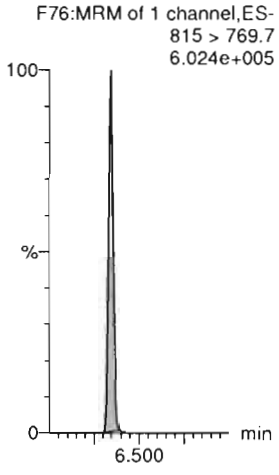
N-EtFOSE



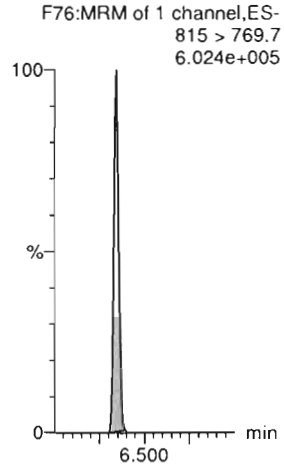
d5-N-ETFOSA-EIS



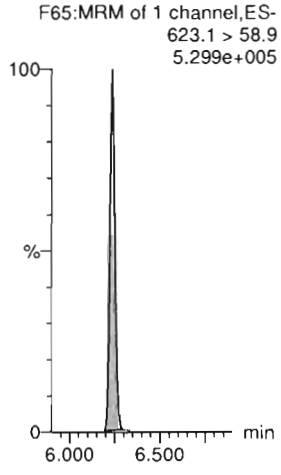
13C2-PFHxDA-EIS



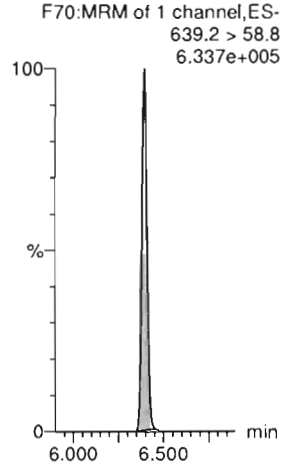
13C2-PFHxDA-EIS



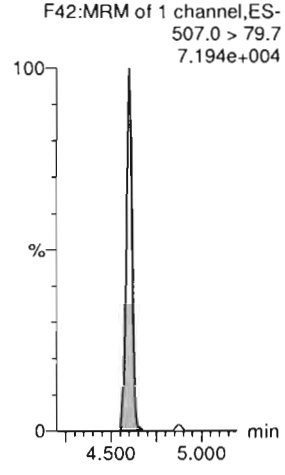
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



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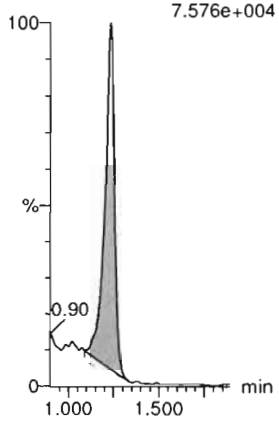
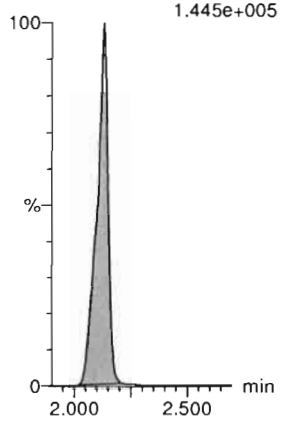
Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

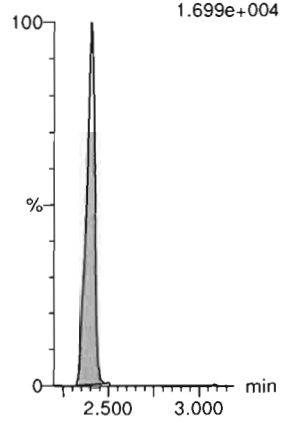
13C3-PFBA-RSD
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.576e+004



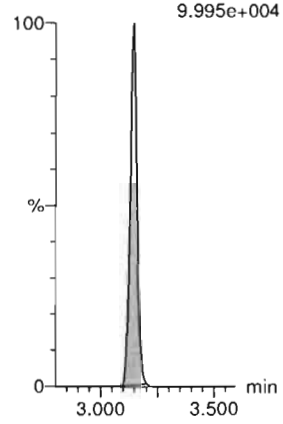
13C3-PFPeA-RSD
F8:MRM of 1 channel,ES-
266.0 > 221.8
1.445e+005



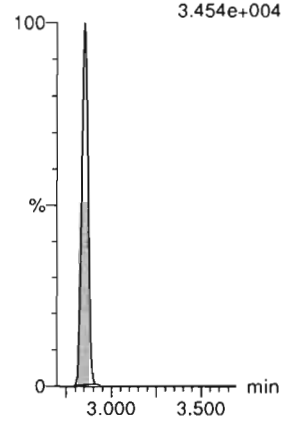
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.699e+004



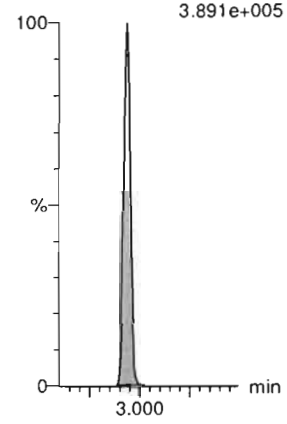
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.995e+004



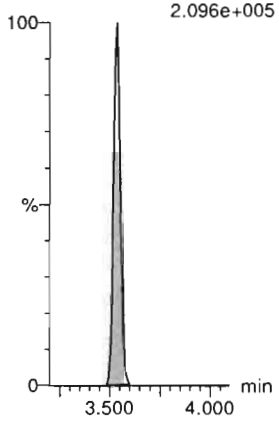
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.454e+004



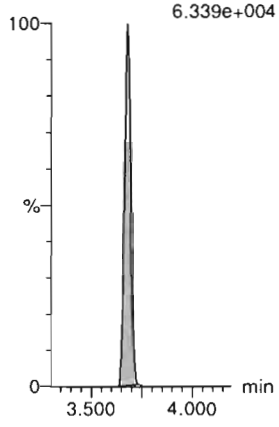
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.891e+005



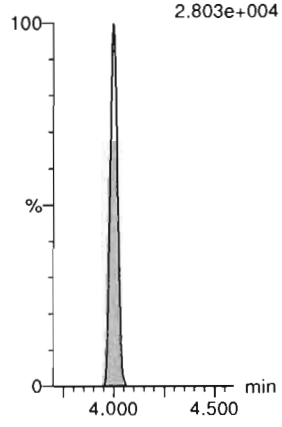
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.096e+005



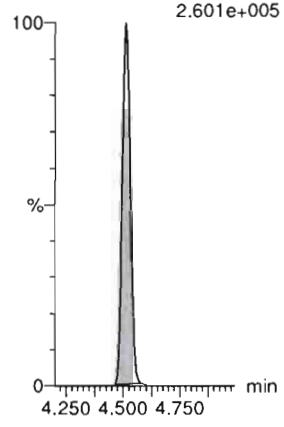
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.339e+004



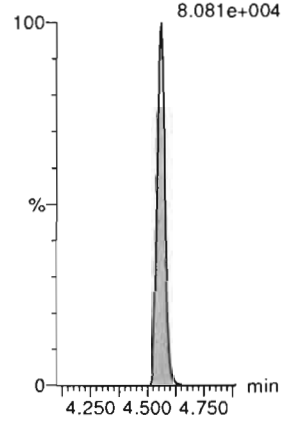
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
2.803e+004



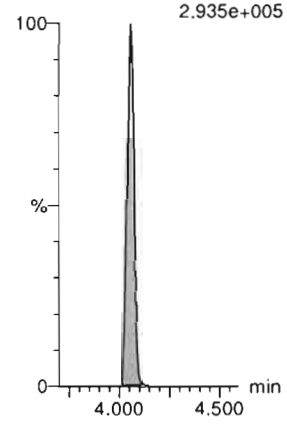
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.601e+005



13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.081e+004



13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
2.935e+005



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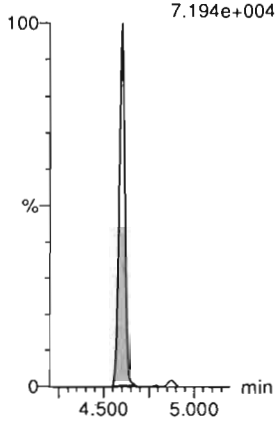
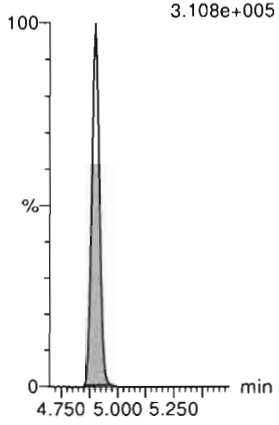
Last Altered: Thursday, March 05, 2020 10:53:11 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:57:45 Pacific Standard Time

Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

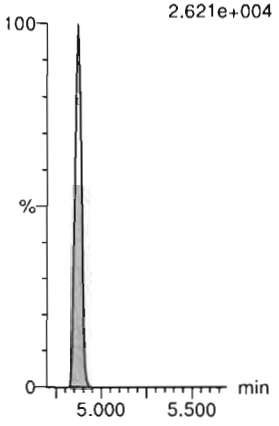
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.194e+004



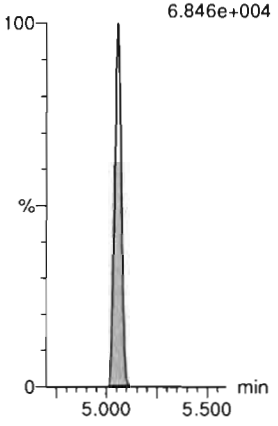
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.108e+005



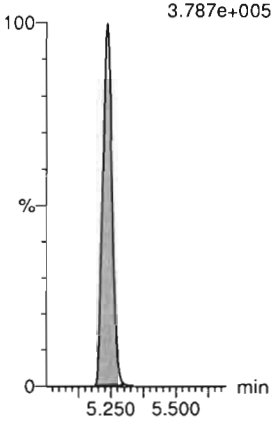
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.621e+004



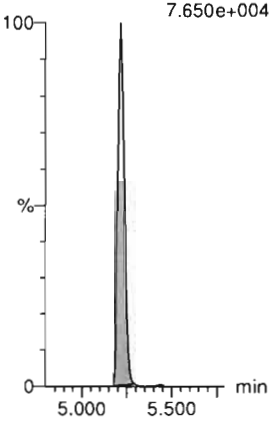
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.846e+004



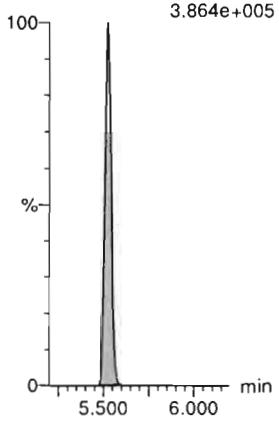
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.787e+005



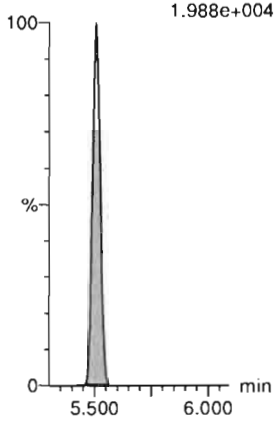
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
7.650e+004



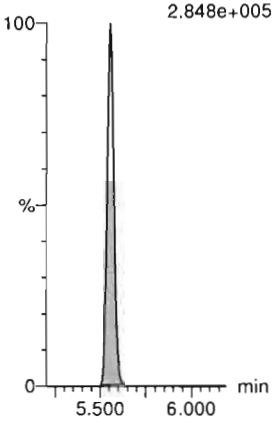
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.864e+005



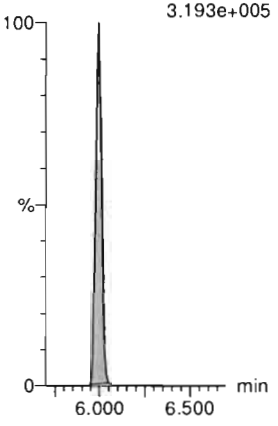
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.988e+004



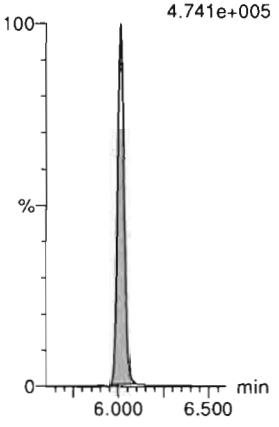
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.848e+005



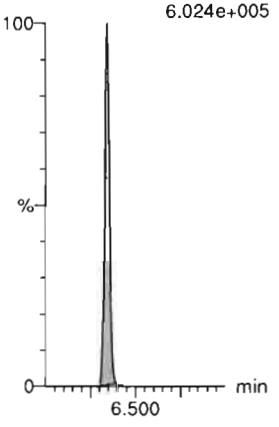
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.193e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.741e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.024e+005



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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-29.qld

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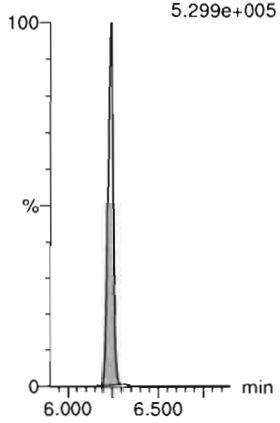
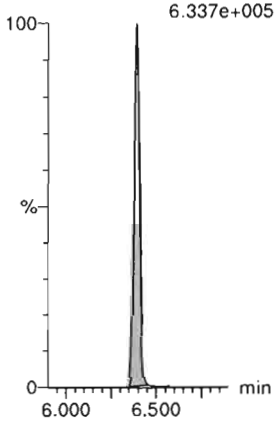
Name: 200304P2-29, Date: 05-Mar-2020, Time: 00:04:58, ID: ST200304P2-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

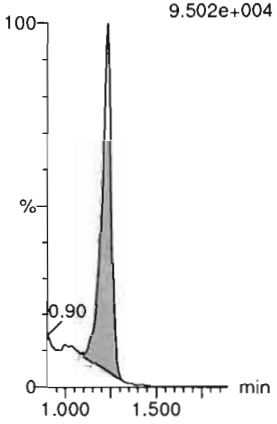
d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.299e+005



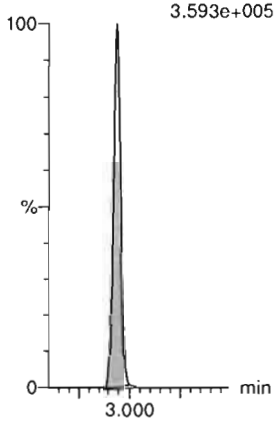
d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.337e+005



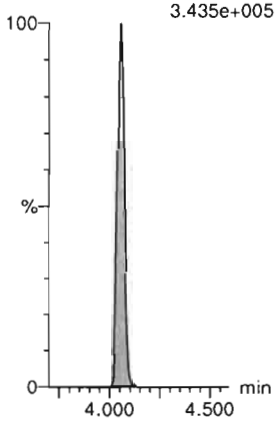
13C4-PFBA
F4:MRM of 1 channel,ES-
217.0 > 172.0
9.502e+004



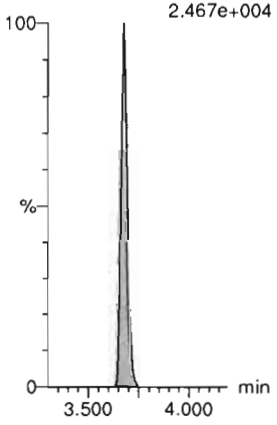
13C5-PFHxA
F15:MRM of 1 channel,ES-
318.0 > 272.9
3.593e+005



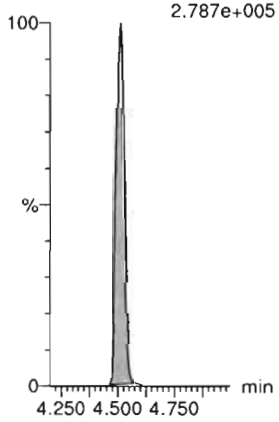
13C8-PFOA
F28:MRM of 1 channel,ES-
420.9 > 376.0
3.435e+005



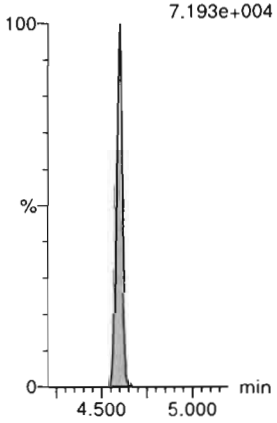
18O2-PFHxS
F25:MRM of 1 channel,ES-
403.0 > 102.6
2.467e+004



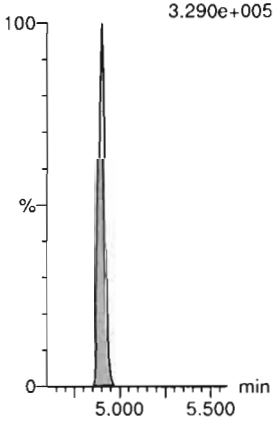
13C9-PFNA
F36:MRM of 1 channel,ES-
472.2 > 426.9
2.787e+005



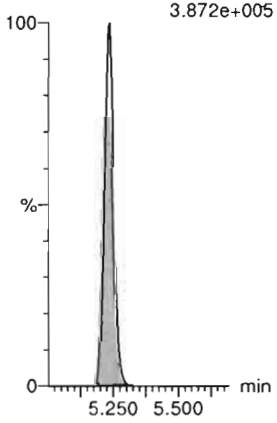
13C4-PFOS
F40:MRM of 1 channel,ES-
503 > 79.7
7.193e+004



13C6-PFDA
F47:MRM of 1 channel,ES-
519.1 > 473.7
3.290e+005



13C7-PFUdA
F57:MRM of 1 channel,ES-
570.1 > 524.8
3.872e+005



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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

Last Altered: Thursday, March 05, 2020 11:08:08 Pacific Standard Time
Printed: Thursday, March 05, 2020 11:35:57 Pacific Standard Time

3/5/2020

Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4323.006	4522.935	1.00	1.23	11.947	10.000	9.76	97.6	NO		
2	2	PFPrS	248.9 > 79.7	1021.096	984.613	1.00	1.54	12.963	10.000	10.6	105.6	NO	2.479	NO
3	3	3:3 FTCA	240.9 > 176.9	1041.058	8838.925	1.00	2.00	1.472	10.000	9.89	98.9	NO	3.616	NO
4	4	PFPeA	263.1 > 218.9	6591.464	8838.925	1.00	2.13	9.322	10.000	9.83	98.3	NO		
5	5	PFBS	299.0 > 79.7	1913.351	984.613	1.00	2.41	24.291	10.000	9.42	94.2	NO	3.146	NO
6	6	4:2 FTS	327.0 > 307	1820.922	1522.835	1.00	2.86	14.947	10.000	9.63	96.3	NO	1.163	NO
7	47	13C3-PFBA-EIS	216.1 > 171.8	4522.935		1.00	1.23	4522.935	12.500	12.2	97.4	NO		
8	51	13C3-PFBS-EIS	302.0 > 98.8	984.613		1.00	2.41	984.613	12.500	11.9	95.3	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	8838.925		1.00	2.14	8838.925	12.500	13.0	103.8	NO		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	8838.925		1.00	2.14	8838.925	12.500	13.0	103.8	NO		
11	51	13C3-PFBS-EIS	302.0 > 98.8	984.613		1.00	2.41	984.613	12.500	11.9	95.3	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1522.835		1.00	2.86	1522.835	12.500	12.6	100.9	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	11193.024	15468.462	1.00	2.94	9.045	10.000	10.2	102.4	NO	18.897	NO
15	8	PFPeS	349.>79.7	2037.716	984.613	1.00	3.13	25.870	10.000	11.1	111.5	NO	2.099	NO
16	9	HFPO-DA	285.1 > 168.9	3024.224	3663.316	1.00	3.14	10.319	10.000	9.31	93.1	NO	2.561	NO
17	10	5:3 FTCA	340.9 > 236.9	2321.649	8856.835	1.00	3.48	3.277	10.000	8.56	85.6	NO	1.693	NO
18	11	PFHpA	363.0 > 318.9	8188.180	8856.835	1.00	3.54	11.556	10.000	9.56	95.6	NO	16.206	NO
19	12	ADONA	376.8 > 250.9	23018.963	8856.835	1.00	3.64	32.488	10.000	9.51	95.1	NO	3.948	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	15468.462		1.00	2.94	15468.462	12.500	12.8	102.0	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	984.613		1.00	2.41	984.613	12.500	11.9	95.3	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3663.316		1.00	3.14	3663.316	12.500	13.1	104.6	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	8856.835		1.00	3.54	8856.835	12.500	13.1	104.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	8856.835		1.00	3.54	8856.835	12.500	13.1	104.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	8856.835		1.00	3.54	8856.835	12.500	13.1	104.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	1929.653	2339.187	1.00	3.68	10.312	10.000	10.1	101.0	NO	2.272	NO
28	15	6:2 FTS	427.0 > 407	1756.258	1322.304	1.00	4.00	16.602	10.000	8.69	86.9	NO	1.219	NO
29	16	L-PFOA	412.8 > 368.9	12629.433	11853.894	1.00	4.06	13.318	10.000	10.4	104.1	NO	3.185	NO
30	18	PFecHS	460.8 > 381.0	1796.198	11853.894	1.00	4.07	1.894	10.000	9.64	96.4	NO	0.504	NO
31	19	PFHpS	449.0 > 79.7	2060.916	2704.337	1.00	4.17	9.526	10.000	10.5	104.7	NO	2.070	NO
32	20	7:3 FTCA	440.9 > 336.9	2441.253	10614.236	1.00	4.50	2.875	10.000	9.96	99.6	NO	1.710	NO
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2339.187		1.00	3.68	2339.187	12.500	12.3	98.5	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1322.304		1.00	4.00	1322.304	12.500	14.7	117.4	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	11853.894		1.00	4.06	11853.894	12.500	11.7	93.3	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	11853.894		1.00	4.06	11853.894	12.500	11.7	93.3	NO		

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Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	10614.236		1.00	4.51	10614.236	12.500	12.2	97.9	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	10773.895	10614.236	1.00	4.51	12.688	10.000	10.1	101.4	NO	5.852	NO
41	22	PFOSA	497.9 > 77.9	2459.814	3379.802	1.00	4.56	9.097	10.000	9.63	96.3	NO	25.579	NO
42	23	L-PFOS	498.9 > 79.7	1971.432	2704.337	1.00	4.60	9.112	10.000	9.76	97.6	NO	2.204	NO
43	25	9Cl-PF30NS	530.7 > 350.8	3213.998	2704.337	1.00	4.83	14.856	10.000	9.50	95.0	NO	15.883	NO
44	26	PFDA	513 > 468.8	12789.885	11508.866	1.00	4.91	13.891	10.000	10.4	103.6	NO	8.275	NO
45	27	8:2 FTS	526.9 > 507	1249.067	1082.269	1.00	4.87	14.426	10.000	8.83	88.3	NO	2.835	NO
46	65	13C5-PFNA-EIS	468.2 > 422.9	10614.236		1.00	4.51	10614.236	12.500	12.2	97.9	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3379.802		1.00	4.56	3379.802	12.500	13.2	105.9	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	11508.866		1.00	4.91	11508.866	12.500	12.2	97.4	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1082.269		1.00	4.87	1082.269	12.500	12.4	99.2	NO		
52	-1													
53	28	PFNS	549.1 > 79.7	2030.410	2704.337	1.00	4.97	9.385	10.000	10.6	106.4	NO	2.271	NO
54	29	L-MeFOSAA	570 > 419	4038.253	2665.946	1.00	5.06	18.934	10.000	9.08	90.8	NO	1.953	NO
55	31	L-EtFOSAA	584.1 > 419	3472.639	3882.421	1.00	5.22	11.181	10.000	8.50	85.0	NO	1.078	NO
56	33	PFUdA	563.0 > 518.9	11469.272	14525.371	1.00	5.24	9.870	10.000	10.5	104.9	NO	17.341	NO
57	34	PFDS	598.8 > 79.7	1875.273	2704.337	1.00	5.28	8.668	10.000	9.75	97.5	NO	2.150	NO
58	35	11Cl-PF30UdS	630.9 > 450.9	5390.549	14467.693	1.00	5.45	4.657	10.000	10.3	103.1	NO	22.066	NO
59	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	2665.946		1.00	5.06	2665.946	12.500	13.7	109.3	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	3882.421		1.00	5.22	3882.421	12.500	13.5	107.8	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	14525.371		1.00	5.24	14525.371	12.500	11.8	94.7	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	14467.693		1.00	5.53	14467.693	12.500	11.9	95.5	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607	1351.663	715.854	1.00	5.51	23.602	10.000	10.4	103.7	NO	1.024	NO
67	37	PFDoA	612.9 > 569.0	12824.971	14467.693	1.00	5.53	11.081	10.000	11.1	110.7	NO	9.737	NO
68	38	N-MeFOSA	512.1 > 168.9	4481.578	13237.769	1.00	5.53	50.511	50.000	49.2	98.5	NO	1.541	NO
69	39	PFTrDA	662.9 > 618.9	13348.635	14467.693	1.00	5.78	11.533	10.000	11.0	109.7	NO	45.090	NO
70	40	PFDoS	698.8 > 79.7	2019.113	12823.491	1.00	5.80	1.968	10.000	10.2	102.2	NO	2.931	NO
71	41	PFTeDA	713.0 > 669.0	15785.046	12823.491	1.00	6.00	15.387	10.000	10.8	107.9	NO	19.058	NO
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	715.854		1.00	5.51	715.854	12.500	12.5	100.1	NO		

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Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

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Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	14467.693		1.00	5.53	14467.693	12.500	11.9	95.5	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	13237.769		1.00	5.56	13237.769	149.200	157	105.6	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	14467.693		1.00	5.53	14467.693	12.500	11.9	95.5	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	12823.491		1.00	6.00	12823.491	12.500	12.0	95.9	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	12823.491		1.00	6.00	12823.491	12.500	12.0	95.9	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	6094.829	21059.074	1.00	5.99	43.181	50.000	49.1	98.3	NO	1.753	NO
80	43	PFHxDA	813.1 > 768.6	9558.808	18810.467	1.00	6.35	6.352	10.000	9.34	93.4	NO	54.885	NO
81	44	PFODA	913.1 > 868.8	13512.245	18810.467	1.00	6.59	8.979	10.000	9.74	97.4	NO		
82	45	N-MeFOSE	616.1 > 58.9	6208.715	19063.051	1.00	6.25	48.593	50.000	48.1	96.2	NO		
83	46	N-EtFOSE	630.1 > 58.9	7125.699	23069.236	1.00	6.40	46.085	50.000	47.7	95.4	NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	21059.074		1.00	6.01	21059.074	149.200	145	97.1	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	18810.467		1.00	6.34	18810.467	12.500	11.2	89.4	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	18810.467		1.00	6.34	18810.467	12.500	11.2	89.4	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	19063.051		1.00	6.24	19063.051	149.200	142	95.2	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	23069.236		1.00	6.39	23069.236	149.200	152	101.9	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	2704.337		1.00	4.60	2704.337	12.500	13.0	104.0	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	4522.935	5830.698	1.00	1.23	9.696	12.500	12.2	97.3	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	8838.925	14808.037	1.00	2.14	7.461	12.500	13.1	104.9	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	984.613	920.644	1.00	2.41	13.369	12.500	13.3	106.3	NO		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	3663.316	14808.037	1.00	3.14	3.092	12.500	12.6	100.9	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1522.835	920.644	1.00	2.86	20.676	12.500	13.6	109.0	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	15468.462	14808.037	1.00	2.94	13.057	12.500	12.7	101.5	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	8856.835	14808.037	1.00	3.54	7.476	12.500	13.2	105.8	NO		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2339.187	920.644	1.00	3.68	31.760	12.500	13.3	106.1	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1322.304	2708.387	1.00	4.00	6.103	12.500	12.7	101.7	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	10614.236	11528.916	1.00	4.51	11.508	12.500	12.3	98.5	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3379.802	15724.421	1.00	4.56	2.687	12.500	12.7	101.9	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	11853.894	15477.293	1.00	4.06	9.574	12.500	11.7	93.2	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	2704.337	2708.387	1.00	4.60	12.481	12.500	12.6	100.9	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	11508.866	12045.021	1.00	4.91	11.944	12.500	12.2	97.3	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1082.269	2708.387	1.00	4.87	4.995	12.500	12.2	97.7	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	2665.946	15724.421	1.00	5.06	2.119	12.500	13.1	105.1	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	14525.371	15724.421	1.00	5.24	11.547	12.500	12.0	95.7	NO		

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Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	3882.421	15724.421	1.00	5.22	3.086	12.500	13.5	108.3	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	14467.693	12045.021	1.00	5.53	15.014	12.500	12.0	96.2	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	715.854	2708.387	1.00	5.51	3.304	12.500	11.6	92.5	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	13237.769	15724.421	1.00	5.56	10.523	149.200	148	99.1	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	12823.491	15724.421	1.00	6.00	10.194	12.500	12.1	97.0	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	21059.074	15724.421	1.00	6.01	16.741	149.200	146	98.2	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	18810.467	15724.421	1.00	6.34	14.953	12.500	11.3	90.7	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	19063.051	15724.421	1.00	6.24	15.154	149.200	145	97.3	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	23069.236	15724.421	1.00	6.39	18.339	149.200	153	102.8	NO		
119	99	13C4-PFBA	217.0 > 172.0	5830.698	5830.698	1.00	1.24	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	14808.037	14808.037	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	15477.293	15477.293	1.00	4.06	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	920.644	920.644	1.00	3.68	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	11528.916	11528.916	1.00	4.51	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	2708.387	2708.387	1.00	4.60	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	12045.021	12045.021	1.00	4.91	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	15724.421	15724.421	1.00	5.24	12.500	12.500	12.5	100.0	NO		

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Dataset: Untitled

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Method: P:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	200304P2-1	IPA	04-Mar-20	19:10:51
2	2	200304P2-2	IPA	04-Mar-20	19:21:20
3	3	200304P2-3	ST200304P2-1 PFC CS-2 20C0304	04-Mar-20	19:31:52
4	4	200304P2-4	ST200304P2-2 PFC CS-1 20C0305	04-Mar-20	19:42:23
5	5	200304P2-5	ST200304P2-3 PFC CS0 20C0306	04-Mar-20	19:52:51
6	6	200304P2-6	ST200304P2-4 PFC CS1 20C0307	04-Mar-20	20:03:23
7	7	200304P2-7	ST200304P2-5 PFC CS2 20C0308	04-Mar-20	20:13:54
8	8	200304P2-8	ST200304P2-6 PFC CS3 20C0309	04-Mar-20	20:24:22
9	9	200304P2-9	ST200304P2-7 PFC CS4 20C0310	04-Mar-20	20:34:54
10	10	200304P2-10	ST200304P2-8 PFC CS5 20C0311	04-Mar-20	20:45:22
11	11	200304P2-11	ST200304P2-9 PFC CS6 20C0312	04-Mar-20	20:55:55
12	12	200304P2-12	ST200304P2-10 PFC CS7 20C0313	04-Mar-20	21:06:25
13	13	200304P2-13	IB	04-Mar-20	21:16:56
14	14	200304P2-14	ICV200304P2-1 PFC ICV 20C0314	04-Mar-20	21:27:24
15	15	200304P2-15	IB	04-Mar-20	21:37:55
16	16	200304P2-16	B0B0213-BLK1 Method Blank 0.25	04-Mar-20	21:48:26
17	17	200304P2-17	B0B0213-BS1 OPR 0.25	04-Mar-20	21:58:57
18	18	200304P2-18	B0B0213-BSD1 LCSD 0.25	04-Mar-20	22:09:25
19	19	200304P2-19	2000372-01 EB05-20200220 0.25095	04-Mar-20	22:19:57
20	20	200304P2-20	2000372-02 TW07S-20200220 0.25404	04-Mar-20	22:30:26
21	21	200304P2-21	2000372-03 TW05S-20200220 0.24752	04-Mar-20	22:40:57
22	22	200304P2-22	2000372-04 TW06S-20200220 0.24881	04-Mar-20	22:51:28
23	23	200304P2-23	2000372-05 TW21S-20200220 0.24679	04-Mar-20	23:01:56
24	24	200304P2-24	2000372-06 TW20S-20200220 0.24911	04-Mar-20	23:12:29
25	25	200304P2-25	2000372-07 TW19S-20200220 0.24732	04-Mar-20	23:22:57
26	26	200304P2-26	2000372-08 TW18S-20200220 0.25075	04-Mar-20	23:33:29
27	27	200304P2-27	2000373-01 OU3-LW01-20200220 0.24602	04-Mar-20	23:43:57
28	28	200304P2-28	2000373-02 TS-LW01-20200220 0.24944	04-Mar-20	23:54:30
29	29	200304P2-29	ST200304P2-11 PFC CS3 20C0309	05-Mar-20	00:04:58
30	30	200304P2-30	IB	05-Mar-20	00:15:30
31	31	200304P2-31	2000373-03 TN-LW01-20200220 0.25058	05-Mar-20	00:26:01
32	32	200304P2-32	2000373-05 TN-LW02-20200220 0.25407	05-Mar-20	00:36:31

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Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
33	33 200304P2-33	2000390-01 EB06-20200221 0.25473	05-Mar-20	00:46:59
34	34 200304P2-34	2000390-02 TW14S-20200221 0.25234	05-Mar-20	00:57:32
35	35 200304P2-35	2000390-03 TW17S-20200221 0.25253	05-Mar-20	01:08:00
36	36 200304P2-36	2000390-04 TW16S-20200221 0.25077	05-Mar-20	01:18:32
37	37 200304P2-37	2000390-05 TW15S-20200221 0.25188	05-Mar-20	01:29:02
38	38 200304P2-38	B0B0279-BLK1 Method Blank 0.25	05-Mar-20	01:39:31
39	39 200304P2-39	B0B0279-BS1 OPR 0.25	05-Mar-20	01:50:03
40	40 200304P2-40	B0B0279-MS1 Matrix Spike 0.24487	05-Mar-20	02:00:34
41	41 200304P2-41	B0B0279-MSD1 Matrix Spike Dup 0.24851	05-Mar-20	02:11:02
42	42 200304P2-42	B0B0279-MSD2 Matrix Spike Dup 0.25981	05-Mar-20	02:21:34
43	43 200304P2-43	B0B0279-MS2 Matrix Spike 0.25235	05-Mar-20	02:32:02
44	44 200304P2-44	2000405-01 S9MW41-20Q1 0.2563	05-Mar-20	02:42:35
45	45 200304P2-45	2000405-02 S9MW14-20Q1 0.25573	05-Mar-20	02:53:03
46	46 200304P2-46	2000405-03 S9IMW1-20Q1 0.26015	05-Mar-20	03:03:35
47	47 200304P2-47	ST200304P2-12 PFC CS3 20C0309	05-Mar-20	03:14:06
48	48 200304P2-48	IB	05-Mar-20	03:24:35
49	49 200304P2-49	2000405-04 S9DMW1-20Q1 0.25143	05-Mar-20	03:35:06
50	50 200304P2-50	2000405-05 S9MW63L7-20Q1 0.25274	05-Mar-20	03:45:34
51	51 200304P2-51	2000405-06 S9MW63L9-20Q1 0.26389	05-Mar-20	03:56:07
52	52 200304P2-52	2000405-07 S9MW63L1-20Q1 0.25432	05-Mar-20	04:06:37
53	53 200304P2-53	2000405-08 S9MW63L3-20Q1 0.24908	05-Mar-20	04:17:06
54	54 200304P2-54	2000405-09 S9MW35-20Q1 0.24421	05-Mar-20	04:27:38
55	55 200304P2-55	2000405-10 S9MW32-20Q1 0.26062	05-Mar-20	04:38:06
56	56 200304P2-56	2000405-11 S9MW13-20Q1 0.25349	05-Mar-20	04:48:38
57	57 200304P2-57	2000405-12 S9MW12-20Q1 0.26401	05-Mar-20	04:59:09
58	58 200304P2-58	2000405-13 S9MW12-20Q1-D 0.25543	05-Mar-20	05:09:37
59	59 200304P2-59	ST200304P2-13 PFC CS3 20C0309	05-Mar-20	05:20:09
60	60 200304P2-60	IB	05-Mar-20	05:30:38
61	61 200304P2-61	2000405-14 S9MW63L5-20Q1 0.26102	05-Mar-20	05:41:10
62	62 200304P2-62	2000315-02 S-SB05-00-20200210 2.33	05-Mar-20	05:51:39
63	63 200304P2-63	2000388-01 Plant Boiler/Tower Chemicals 0.25431	05-Mar-20	06:02:10
64	64 200304P2-64	2000356-06 TW09S-20200219 0.25359	05-Mar-20	06:12:41
65	65 200304P2-65	2000356-10 TW12S-20200219 0.25542	05-Mar-20	06:23:10
66	66 200304P2-66	IB	05-Mar-20	06:33:41
67	67 200304P2-67	2000356-05@5X TW08S-20200219 0.23703	05-Mar-20	06:44:10
68	68 200304P2-68	2000356-09@10X TW13S-20200219 0.24923	05-Mar-20	06:54:41

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
69	69	200304P2-69	B0B0238-BLK1 Method Blank 0.25	05-Mar-20	07:05:12
70	70	200304P2-70	B0B0238-BS1 OPR 0.25	05-Mar-20	07:15:41
71	71	200304P2-71	2000395-01 GW043.7048.72002191000JSJ 0.23635	05-Mar-20	07:26:13
72	72	200304P2-72	2000395-02 FB2002191040JSJ 0.23937	05-Mar-20	07:36:43
73	73	200304P2-73	2000395-03 GW042.7047.72002191115JSJ 0.251	05-Mar-20	07:47:12
74	74	200304P2-74	2000395-04 GW019024200219123OJSJ 0.25527	05-Mar-20	07:57:44
75	75	200304P2-75	ST200304P2-14 PFC CS3 20C0309	05-Mar-20	08:08:13
76	76	200304P2-76	IB	05-Mar-20	08:18:45
77	77	200304P2-77	2000395-05 GW028.7033.72002191545JSJ 0.2514	05-Mar-20	08:29:13
78	78	200304P2-78	2000395-06 GW025.3030.32002201000JSJ 0.24266	05-Mar-20	08:39:45
79	79	200304P2-79	2000395-07 GW020.5025.52002201130JSJ 0.25088	05-Mar-20	08:50:16
80	80	200304P2-80	2000395-08 GW021.5026.52002201305JSJ 0.24274	05-Mar-20	09:00:44
81	81	200304P2-81	2000395-09 GW0230282002201415AB 0.24246	05-Mar-20	09:11:16
82	82	200304P2-82	2000395-10 GW0150202002201405JSJ 0.25236	05-Mar-20	09:21:47
83	83	200304P2-83	B0C0012-BLK1 Method Blank 2	05-Mar-20	09:32:15
84	84	200304P2-84	B0C0012-BS1 OPR 2	05-Mar-20	09:42:47
85	85	200304P2-85	B0C0012-BS2 OPR 2	05-Mar-20	09:53:16
86	86	200304P2-86	B0C0012-BS3 OPR 2	05-Mar-20	10:03:48
87	87	200304P2-87	B0C0012-BS4 OPR 2	05-Mar-20	10:14:17
88	88	200304P2-88	PFC NS SUP	05-Mar-20	10:24:48
89	89	200304P2-89	ST200304P2-15 PFC CS3 20C0309	05-Mar-20	10:35:17
90	90	200304P2-90	IB	05-Mar-20	10:45:49

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

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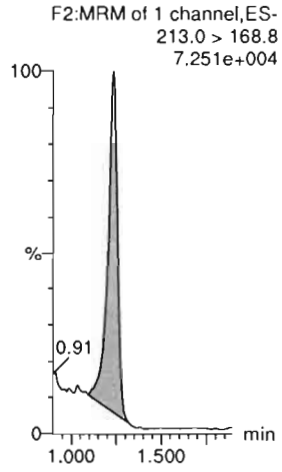
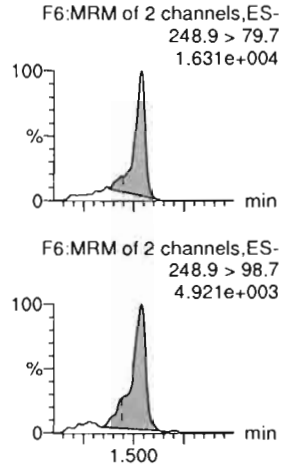
Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

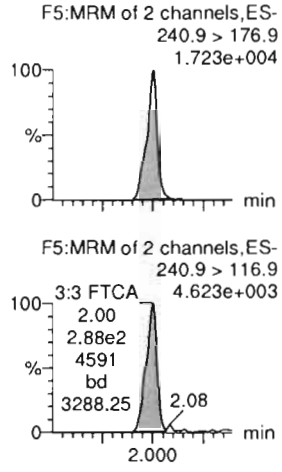
PFBA



PFPrS



3:3 FTCA



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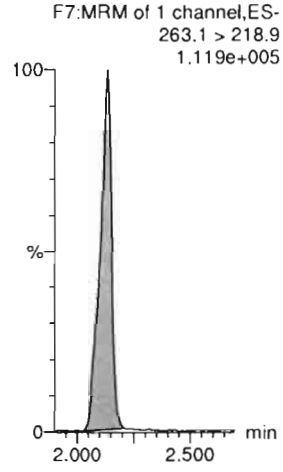

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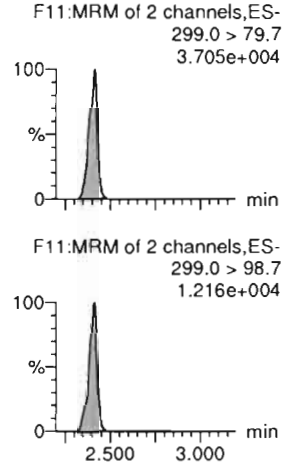

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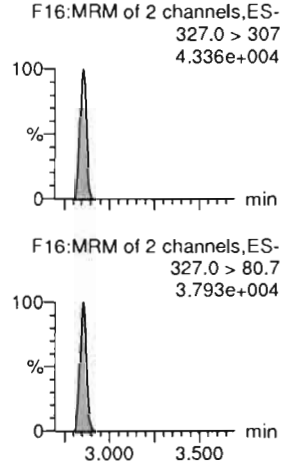
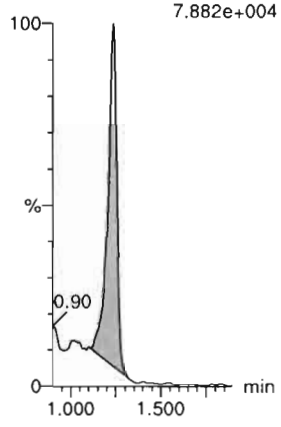


13C3-PFBA-EIS



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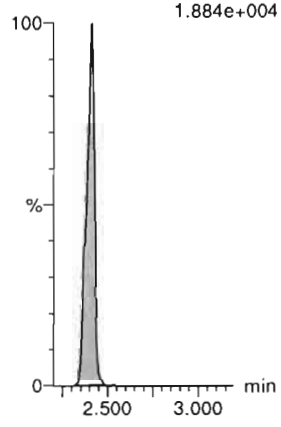

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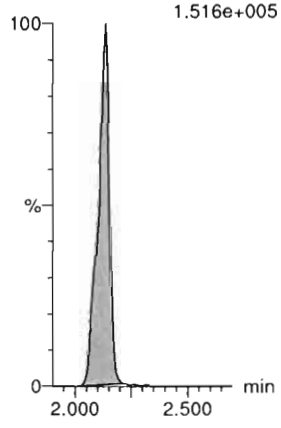

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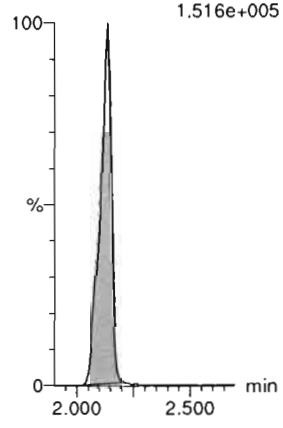

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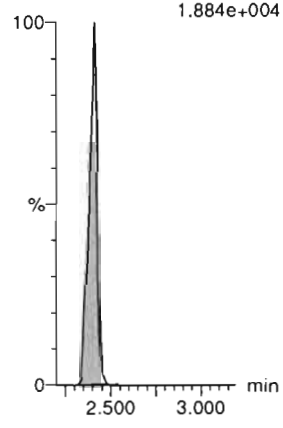

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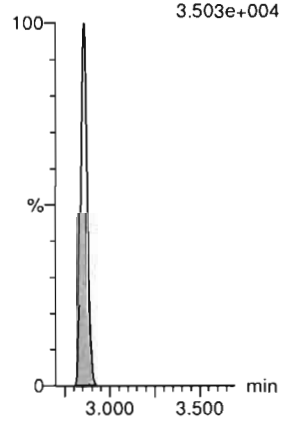

RK 3/5/2020

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Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

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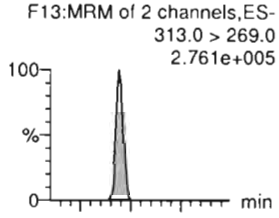

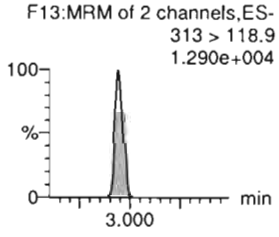

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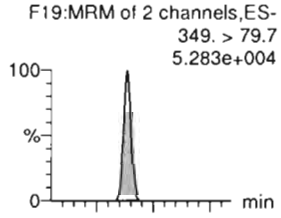
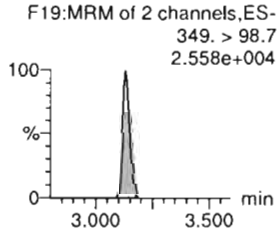
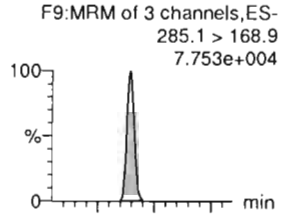
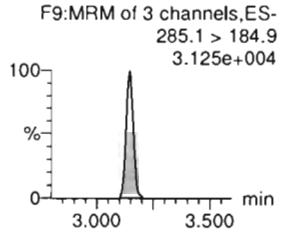




HFPO-DA





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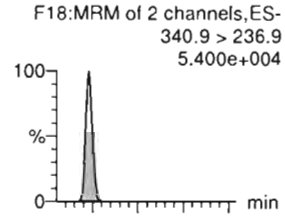

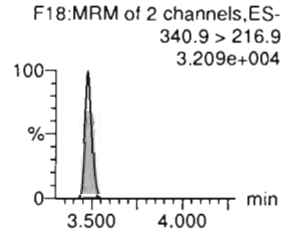

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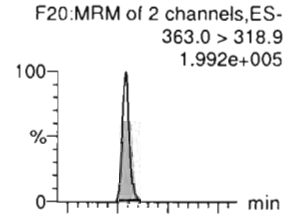

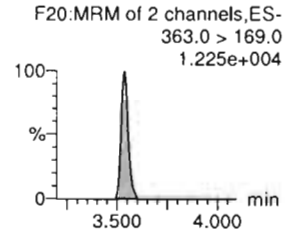

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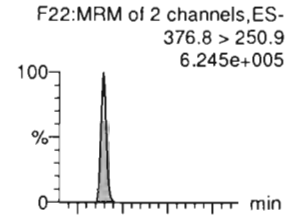

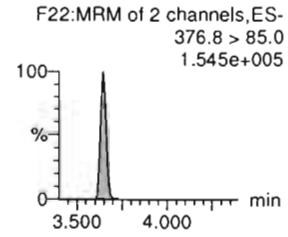

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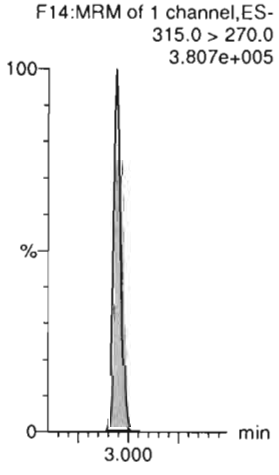

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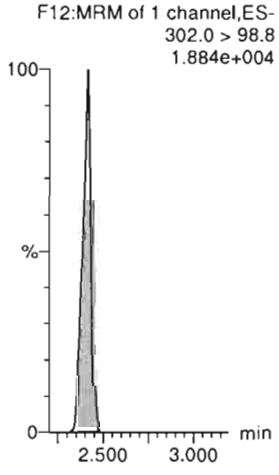

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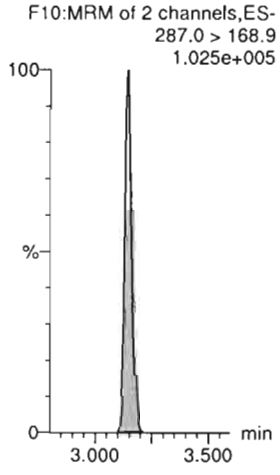

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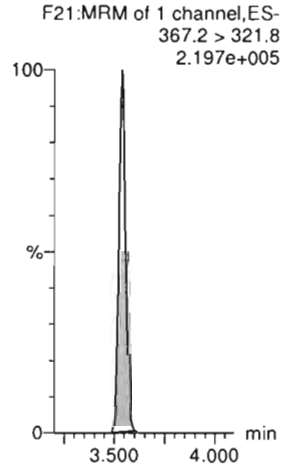

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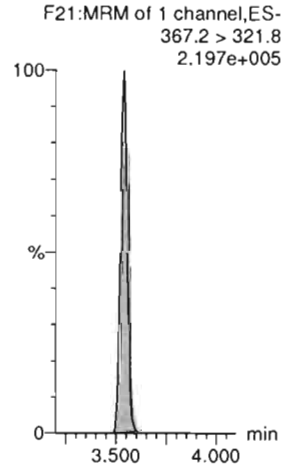

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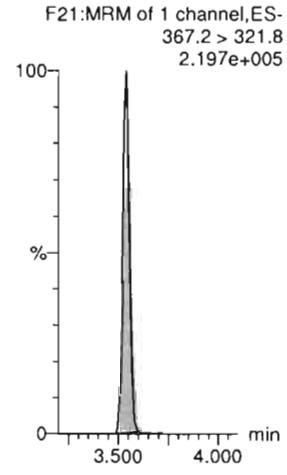

RK 3/5/2020

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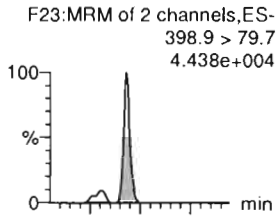
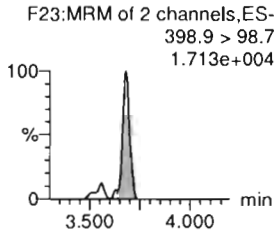
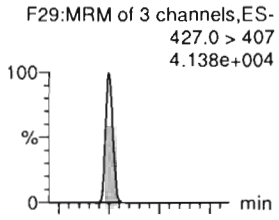
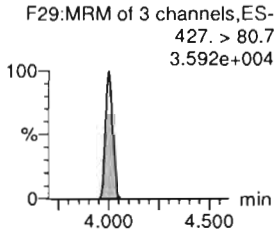


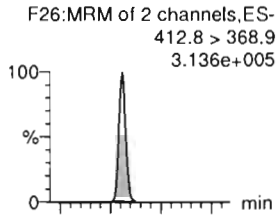


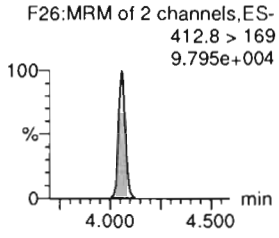
6:2 FTS





L-PFOA





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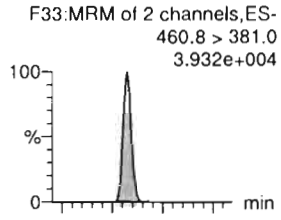

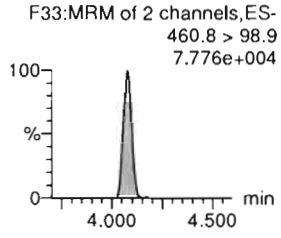

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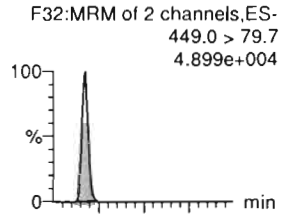

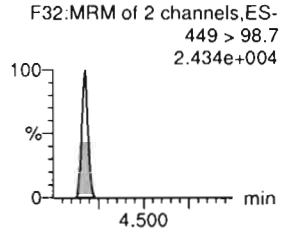

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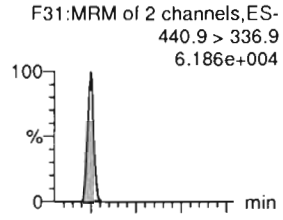

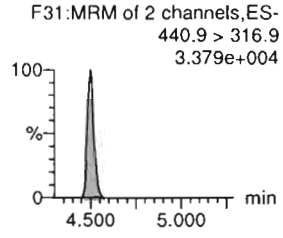

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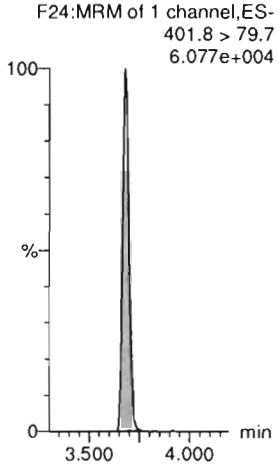

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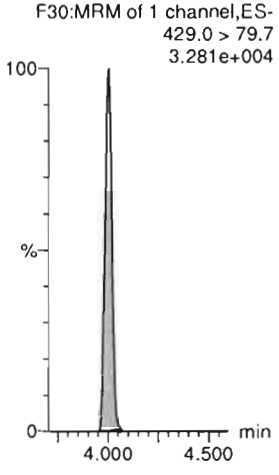

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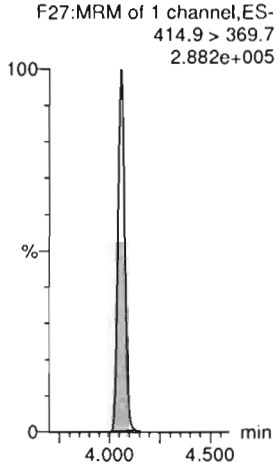

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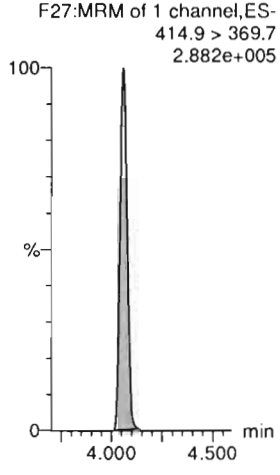

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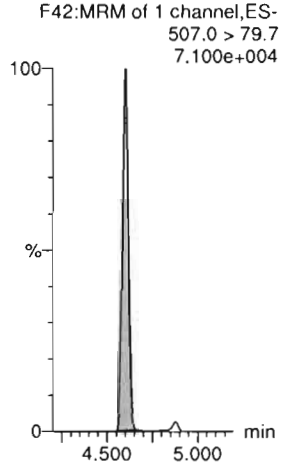

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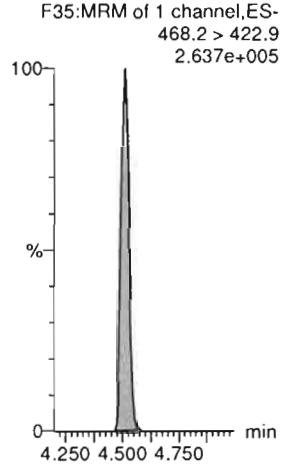

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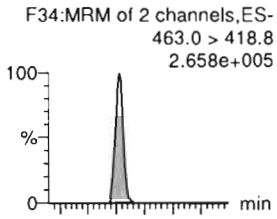

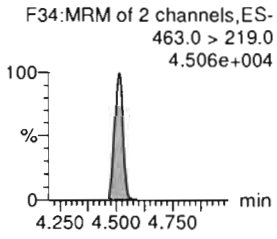

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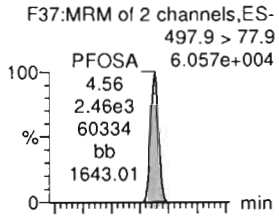
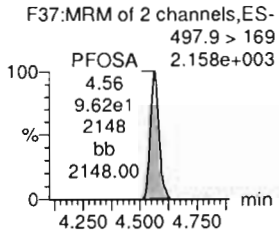
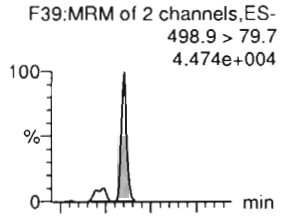
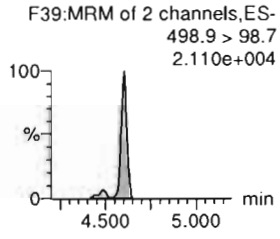


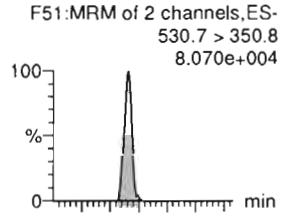


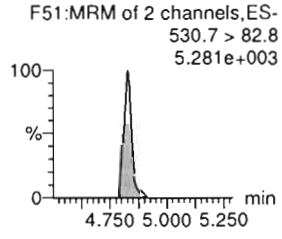
L-PFOS



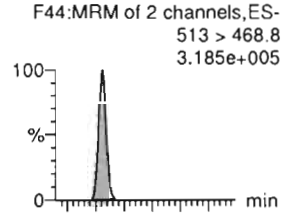


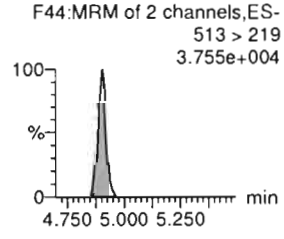
9Cl-PF30NS



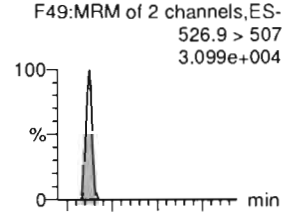


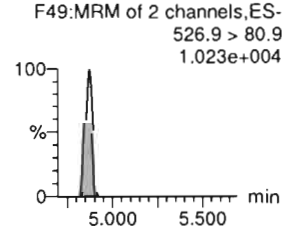
PFDA



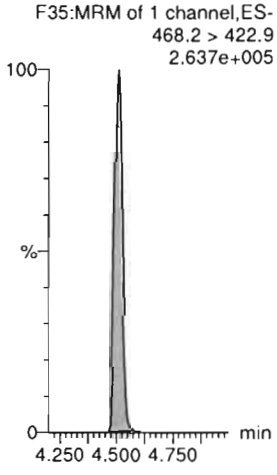


8:2 FTS

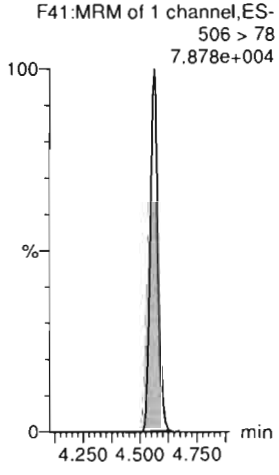




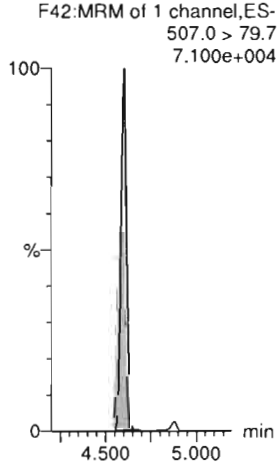
13C5-PFNA-EIS



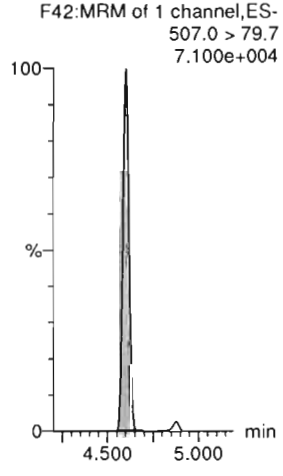
13C8-PFOSA-EIS



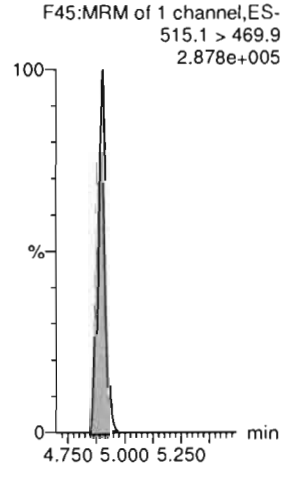
13C8-PFOS-EIS



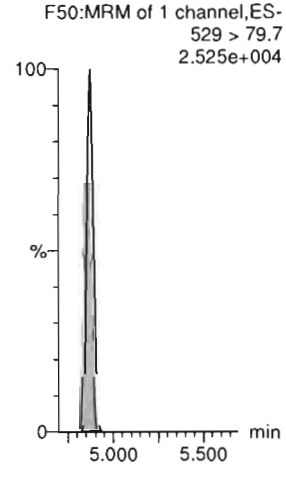
13C8-PFOS-EIS



13C2-PFDA-EIS



13C2-8:2 FTS-EIS



RK 3/5/2020

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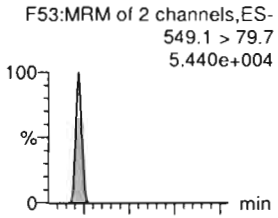
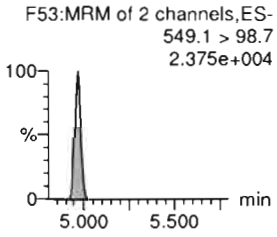
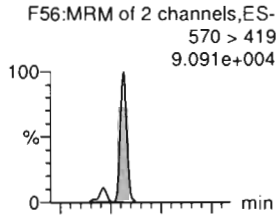
Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

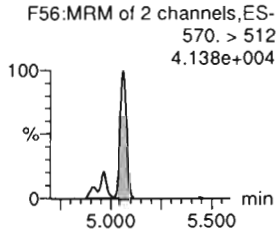
PFNS



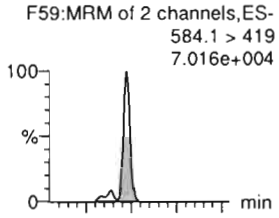


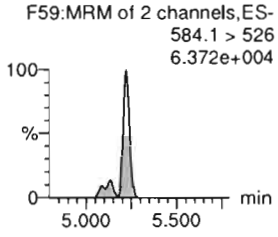
L-MeFOSAA



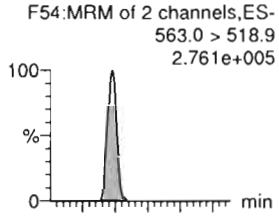


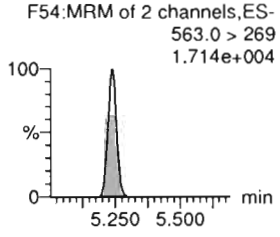
L-EtFOSAA



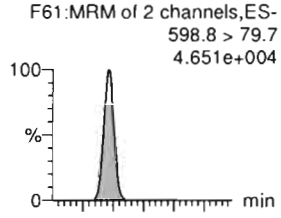


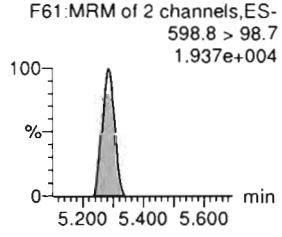
PFUdA



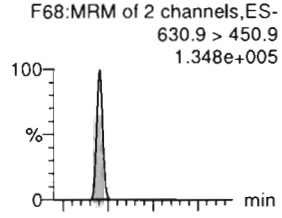


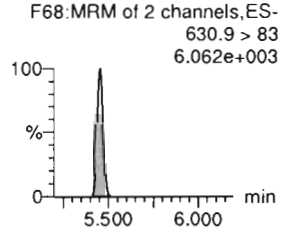
PFDS



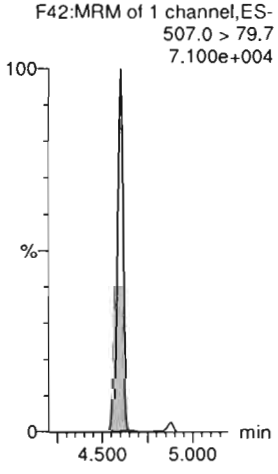


11Cl-PF30UdS

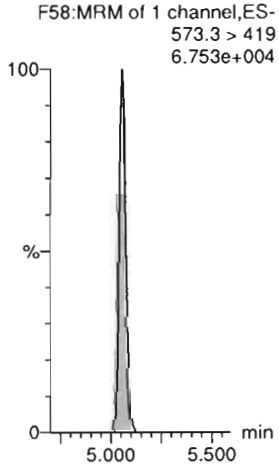




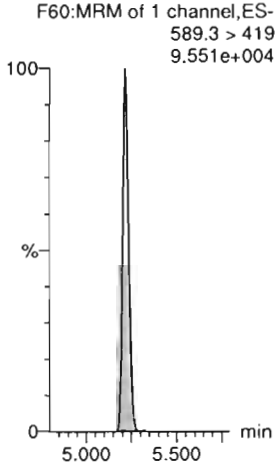
13C8-PFOS-EIS



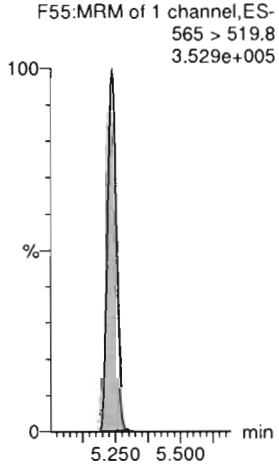
d3-N-MeFOSAA-EIS



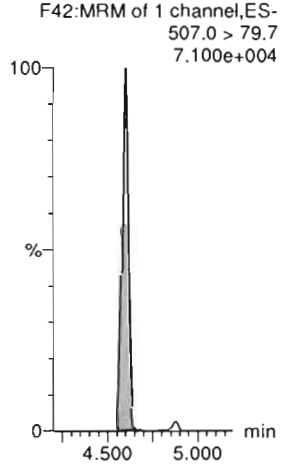
d5-N-EtFOSAA-EIS



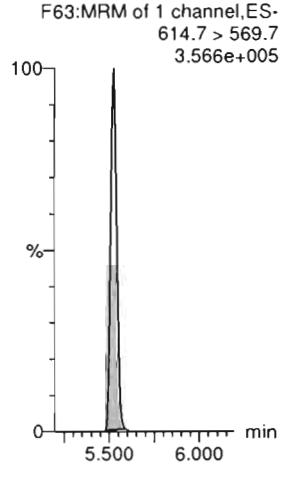
13C2-PFUdA-EIS



13C8-PFOS-EIS



13C2-PFDoA-EIS



RK 3/5/2020

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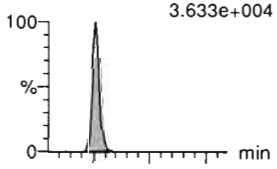
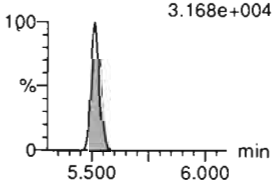
Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

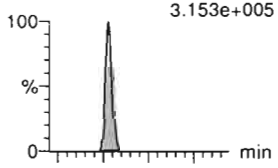
10:2 FTS
F66:MRM of 2 channels,ES-
626.9 > 607
3.633e+004



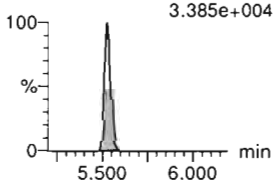
F66:MRM of 2 channels,ES-
626.9 > 80.7
3.168e+004



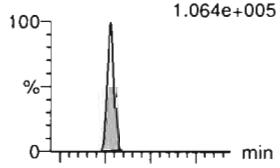
PFDoA
F62:MRM of 4 channels,ES-
612.9 > 569.0
3.153e+005



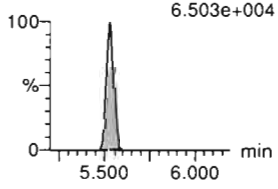
F62:MRM of 4 channels,ES-
612.9 > 318.8
3.385e+004



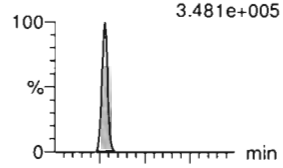
N-MeFOSA
F43:MRM of 2 channels,ES-
512.1 > 168.9
1.064e+005



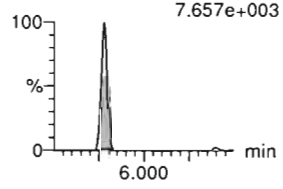
F43:MRM of 2 channels,ES-
512.1 > 219
6.503e+004



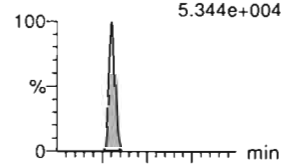
PFTrDA
F71:MRM of 2 channels,ES-
662.9 > 618.9
3.481e+005



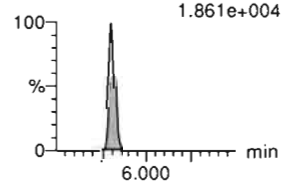
F71:MRM of 2 channels,ES-
662.9 > 319
7.657e+003



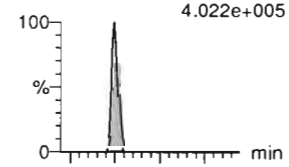
PFDoS
F72:MRM of 2 channels,ES-
698.8 > 79.7
5.344e+004



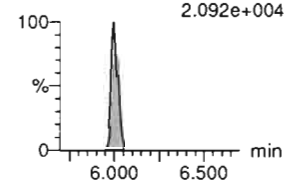
F72:MRM of 2 channels,ES-
698.8 > 98.7
1.861e+004



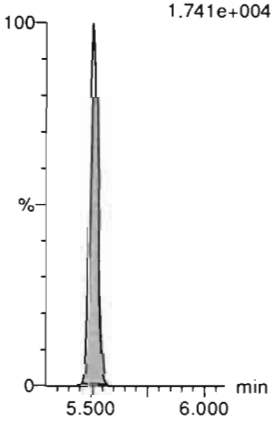
PFTeDA
F73:MRM of 2 channels,ES-
713.0 > 669.0
4.022e+005



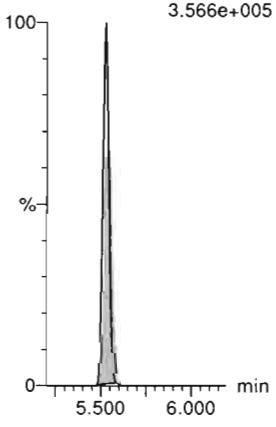
F73:MRM of 2 channels,ES-
713. > 369.0
2.092e+004



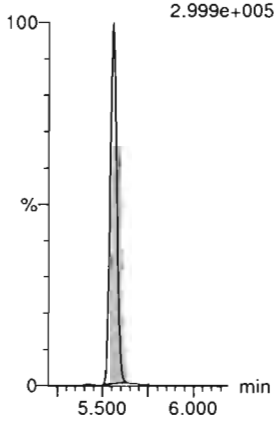
13C2-10:2 FTS-EIS
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.741e+004



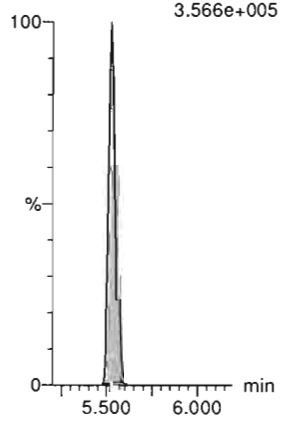
13C2-PFDoA-EIS
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.566e+005



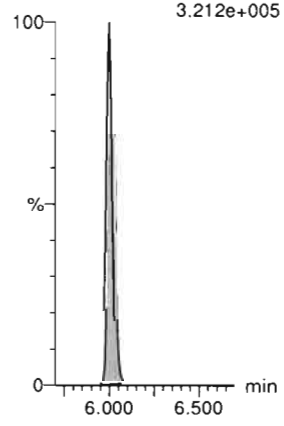
d3-N-MeFOSA-EIS
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.999e+005



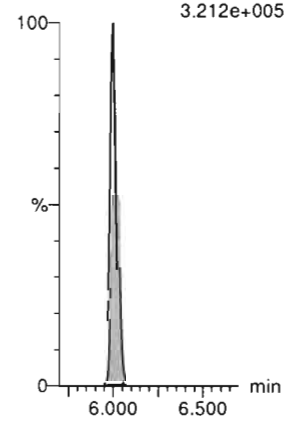
13C2-PFDoA-EIS
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.566e+005



13C2-PFTeDA-EIS
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.212e+005



13C2-PFTeDA-EIS
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.212e+005



RK 3/5/2020

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Last Altered: Thursday, March 05, 2020 11:08:08 Pacific Standard Time
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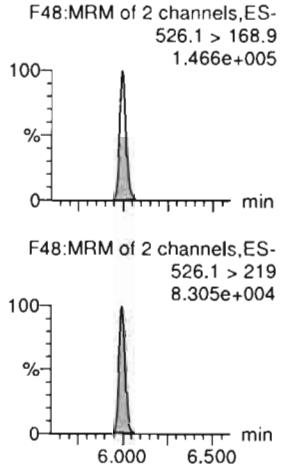
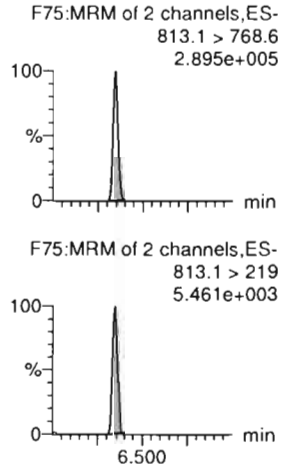
Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

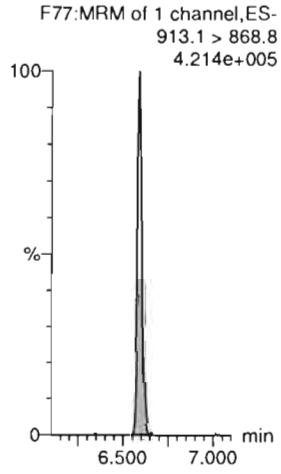
N-EtFOSA



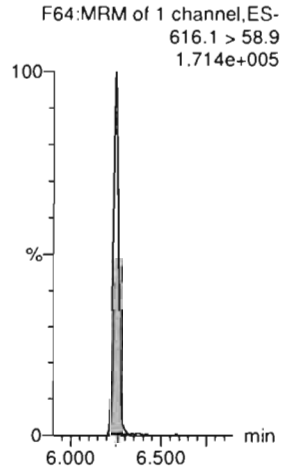
PFHxDA



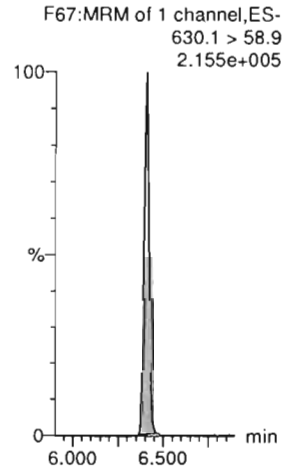
PFODA



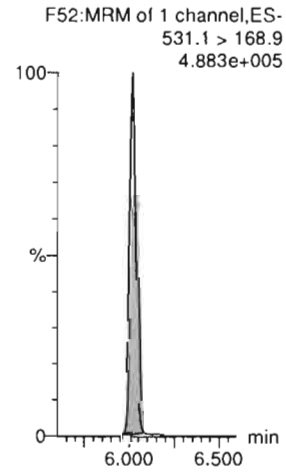
N-MeFOSE



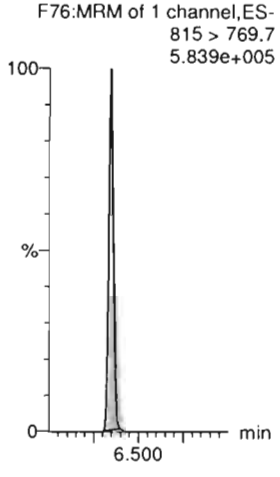
N-EtFOSE



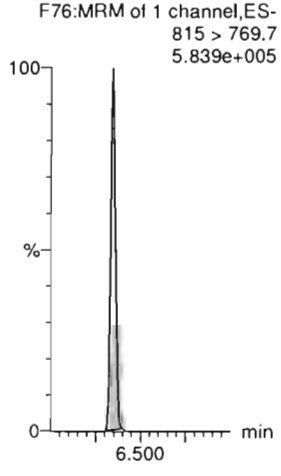
d5-N-ETFOSA-EIS



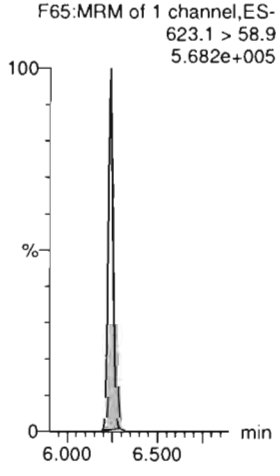
13C2-PFHxDA-EIS



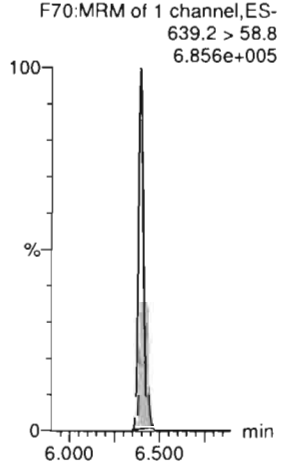
13C2-PFHxDA-EIS



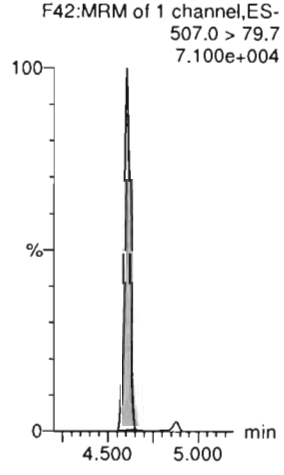
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



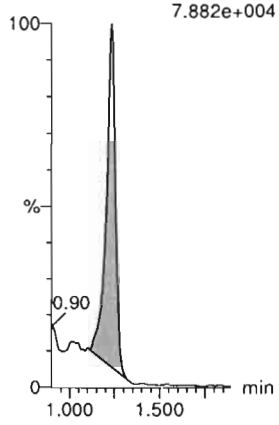
RK 3/5/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

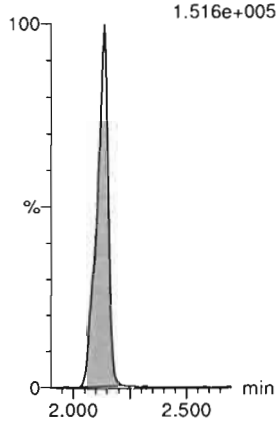
Last Altered: Thursday, March 05, 2020 11:08:08 Pacific Standard Time
Printed: Thursday, March 05, 2020 11:35:57 Pacific Standard Time

Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

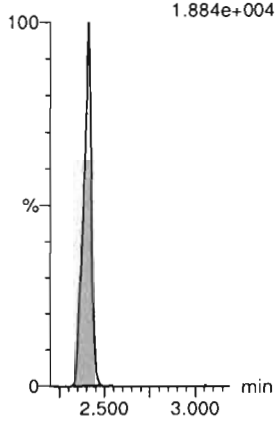
13C3-PFBA-RSD
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.882e+004



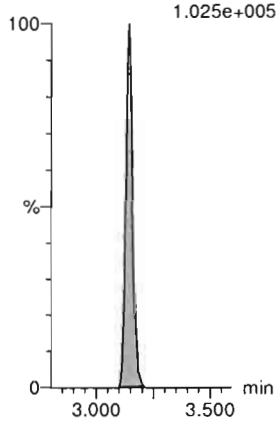
13C3-PFPeA-RSD
F8:MRM of 1 channel,ES-
266.0 > 221.8
1.516e+005



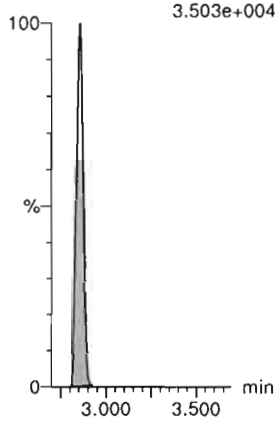
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.884e+004



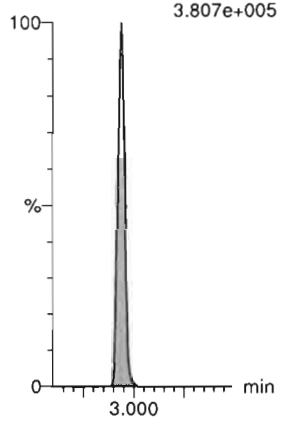
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
1.025e+005



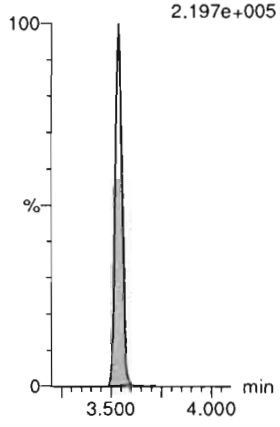
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.503e+004



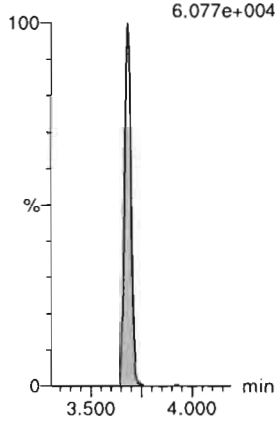
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.807e+005



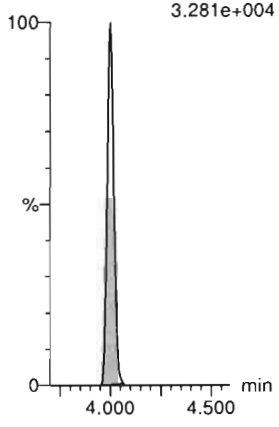
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.197e+005



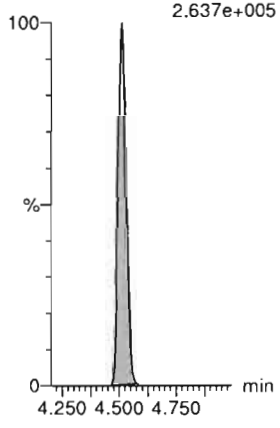
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.077e+004



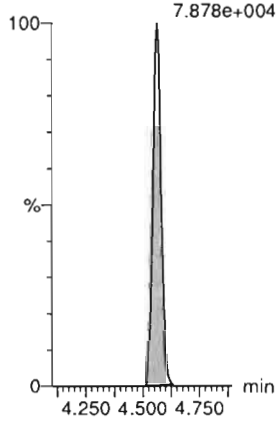
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.281e+004



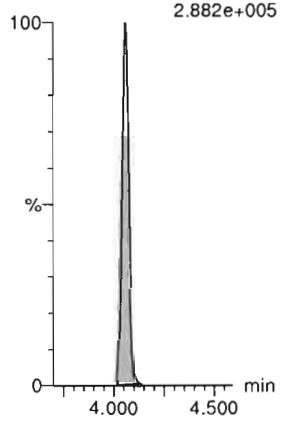
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.637e+005



13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
7.878e+004



13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
2.882e+005



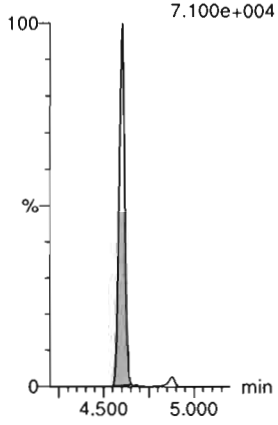
RK 3/5/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

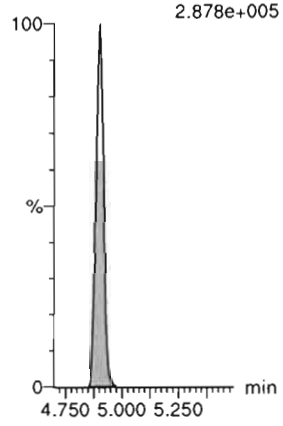
Last Altered: Thursday, March 05, 2020 11:08:08 Pacific Standard Time
Printed: Thursday, March 05, 2020 11:35:57 Pacific Standard Time

Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

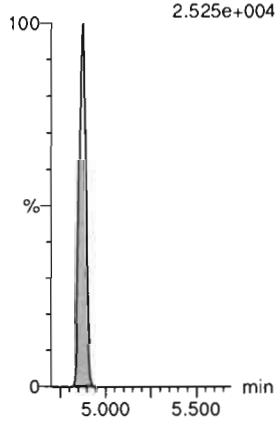
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.100e+004



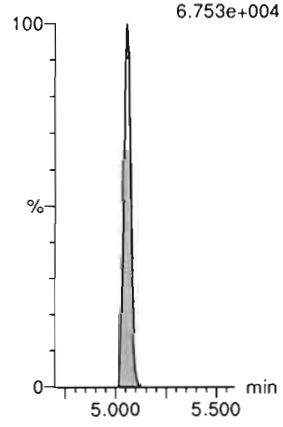
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
2.878e+005



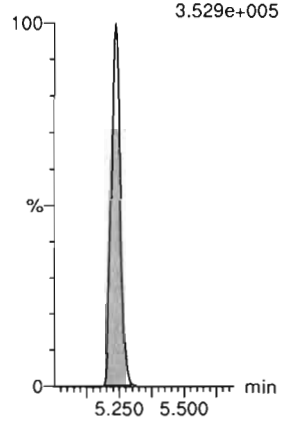
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.525e+004



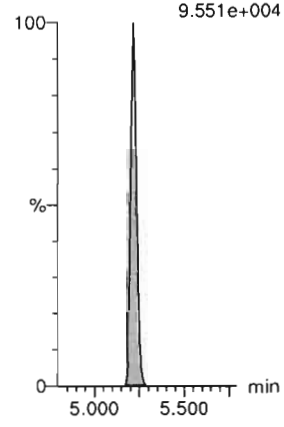
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.753e+004



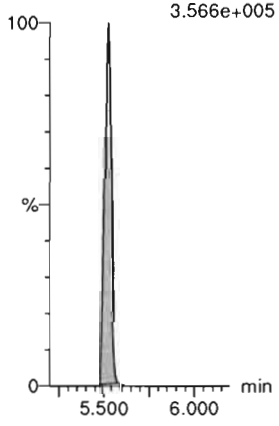
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.529e+005



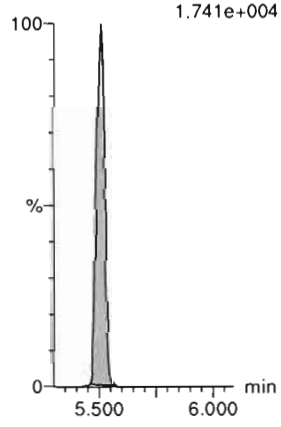
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.551e+004



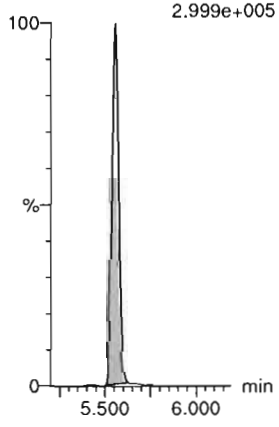
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.566e+005



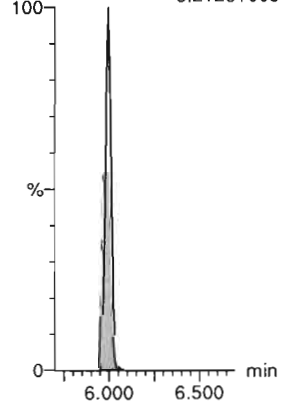
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.741e+004



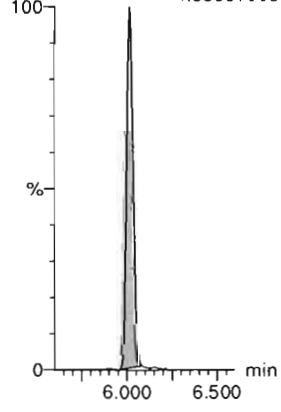
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.999e+005



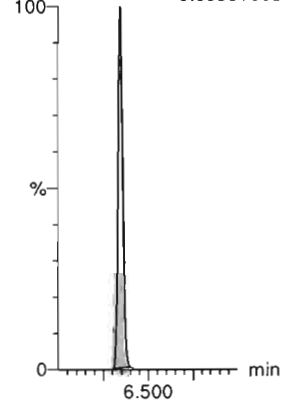
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.212e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.883e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
5.839e+005



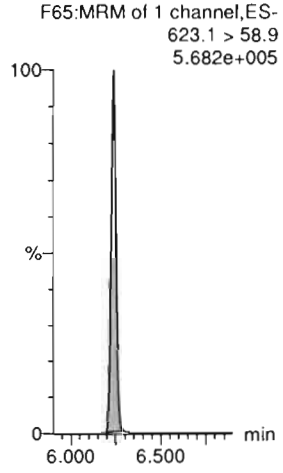
RK 3/5/2020

Dataset: P:\PFAS5.PRO\RESULTS\200304P2\200304P2-47.qld

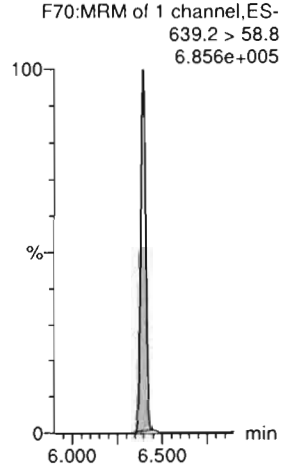
Last Altered: Thursday, March 05, 2020 11:08:08 Pacific Standard Time
Printed: Thursday, March 05, 2020 11:35:57 Pacific Standard Time

Name: 200304P2-47, Date: 05-Mar-2020, Time: 03:14:06, ID: ST200304P2-12 PFC CS3 20C0309, Description: PFC CS3 20C0309

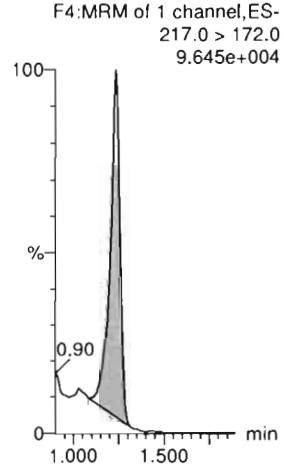
d7-N-MeFOSE-RSD



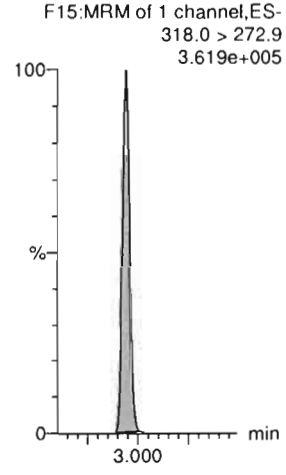
d9-N-EtFOSE-RSD



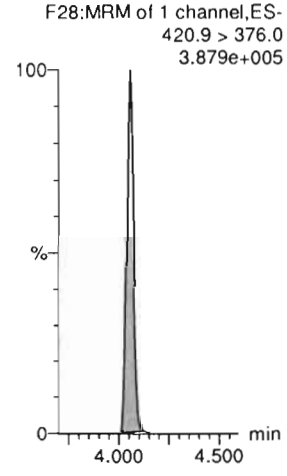
13C4-PFBA



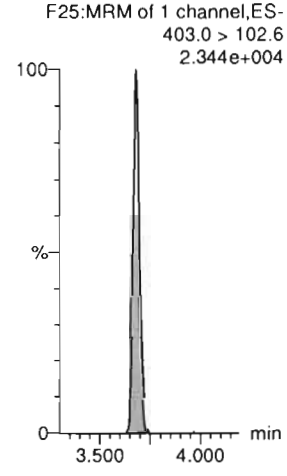
13C5-PFHxA



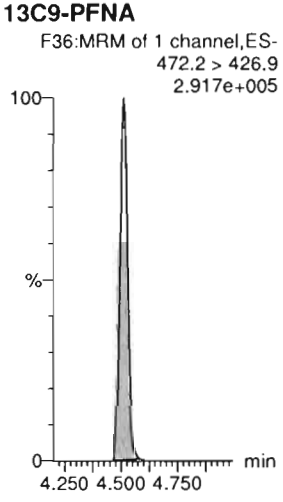
13C8-PFOA



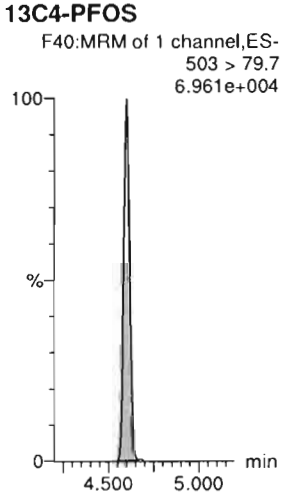
18O2-PFHxS



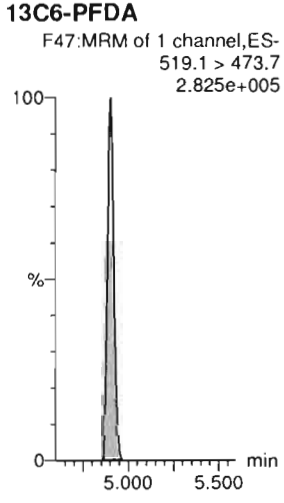
13C9-PFNA



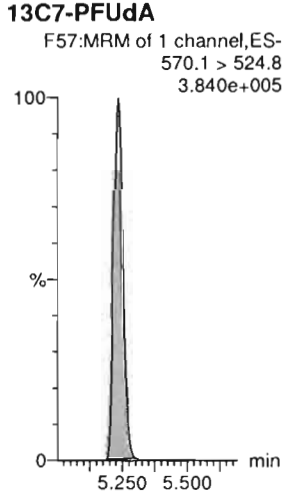
13C4-PFOS



13C6-PFDA



13C7-PFUdA



RK 3/5/2020

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Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
Printed: Friday, March 06, 2020 10:11:16 Pacific Standard Time

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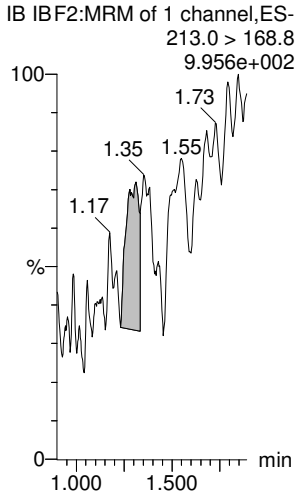
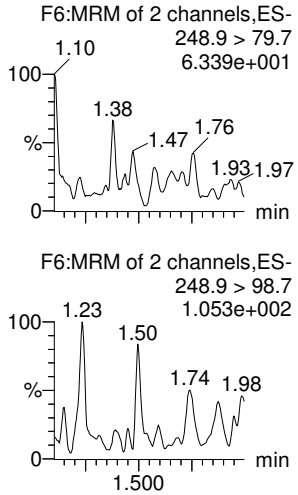
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 09:33:11

Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

PFBA



PFPrS



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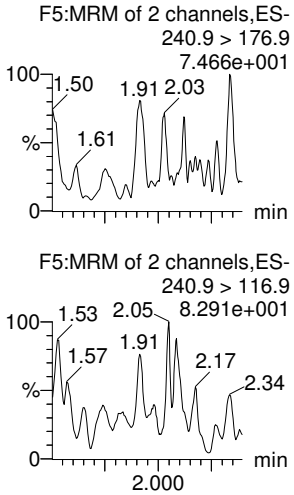

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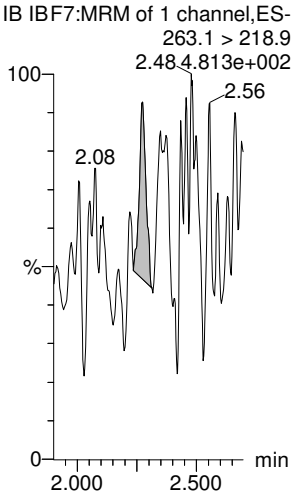

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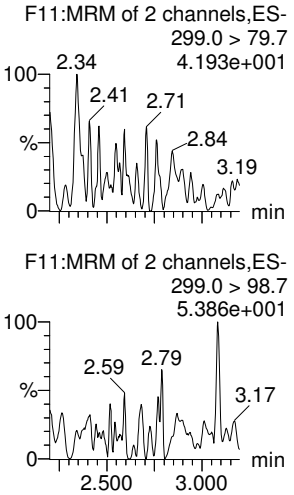
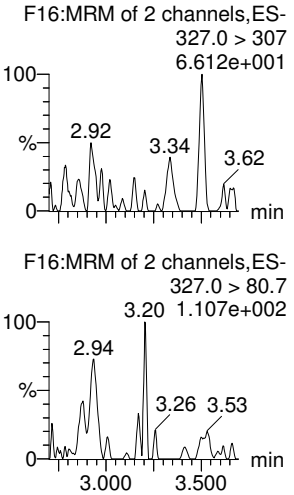
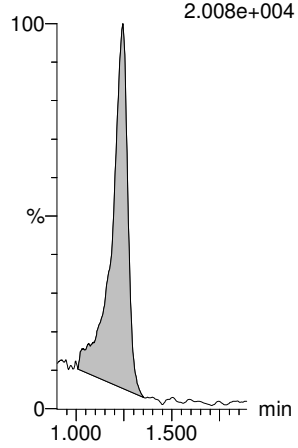


4:2 FTS



13C3-PFBA-EIS



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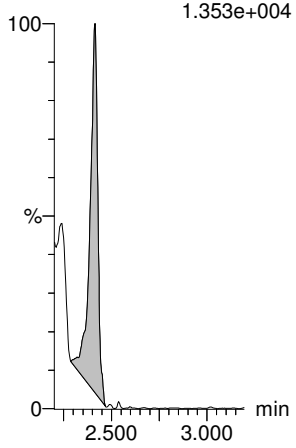

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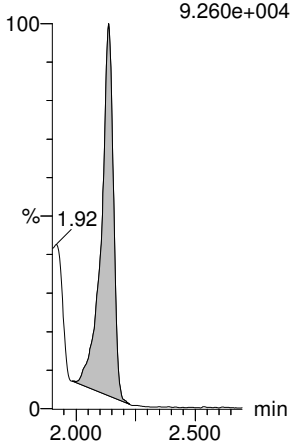

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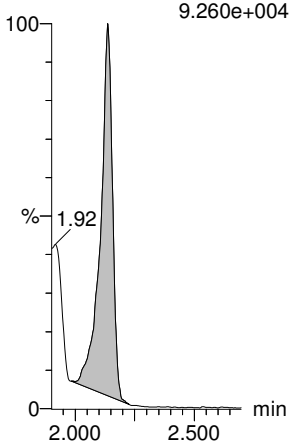

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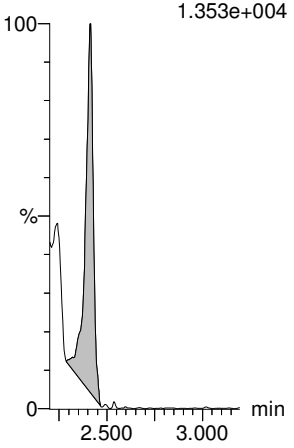
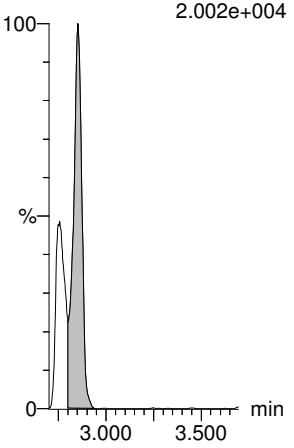


13C2-4:2 FTS-EIS



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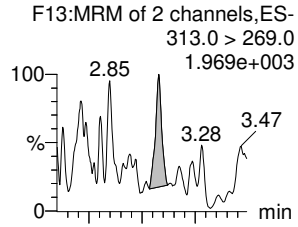
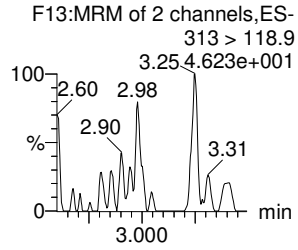
Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

PFHxA





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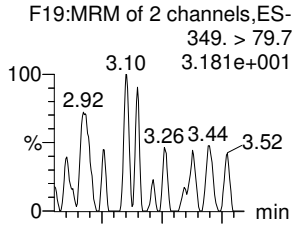
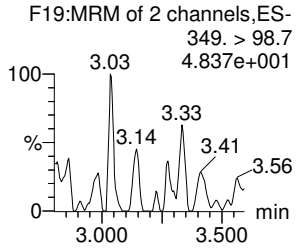
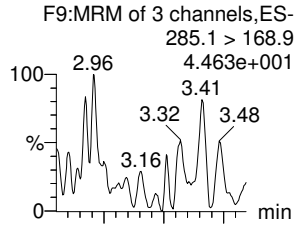
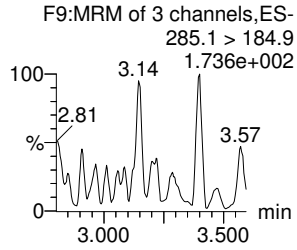




HFPO-DA





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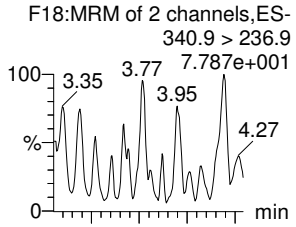

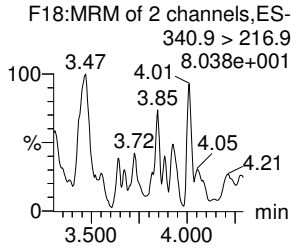

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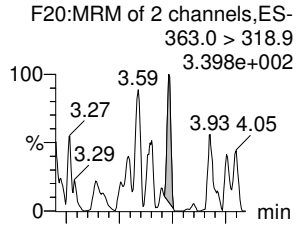

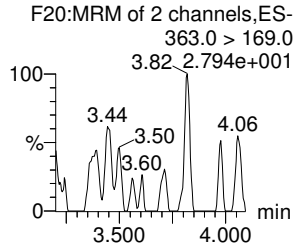

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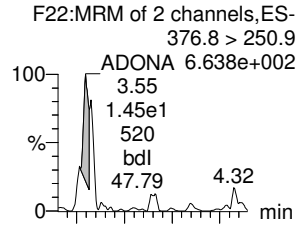

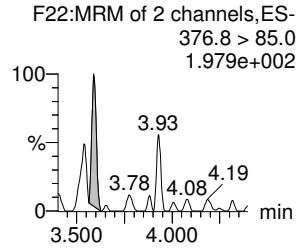

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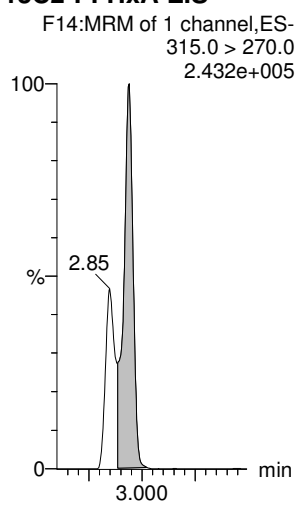
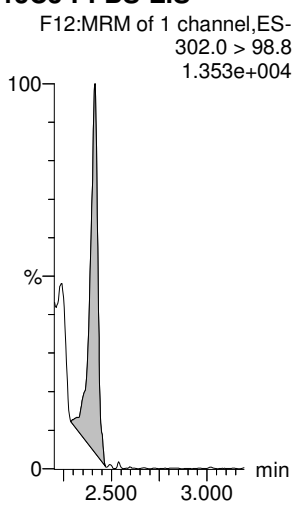


13C3-PFBS-EIS



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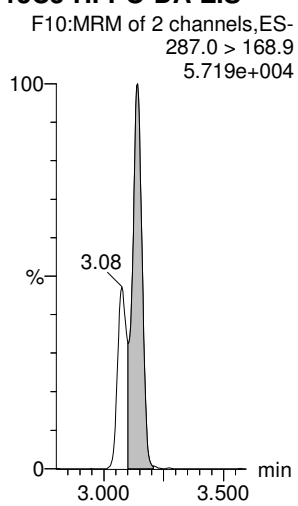

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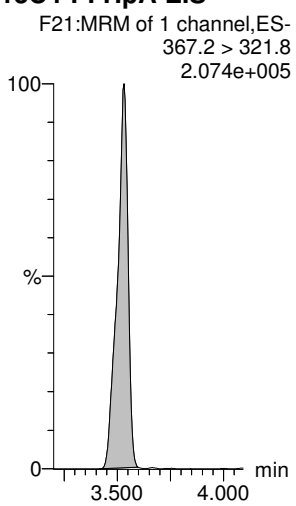

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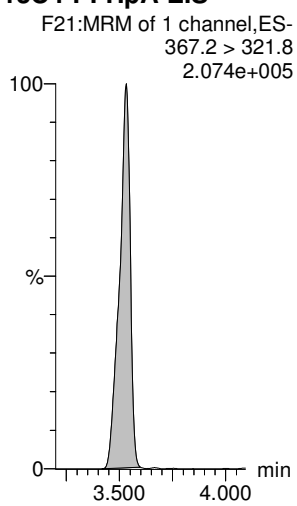

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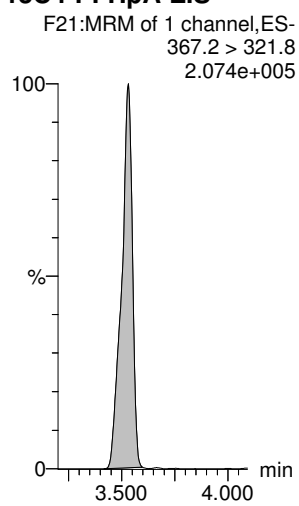

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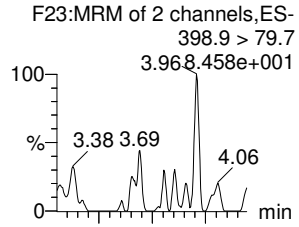
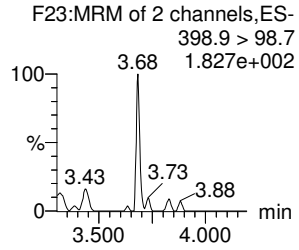
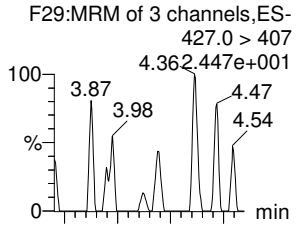
Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

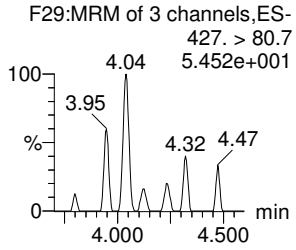
L-PFHxS





6:2 FTS





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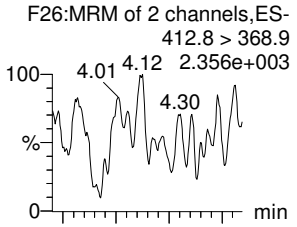

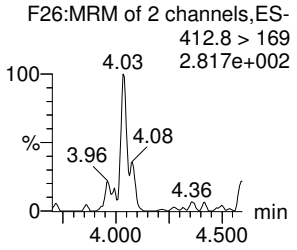

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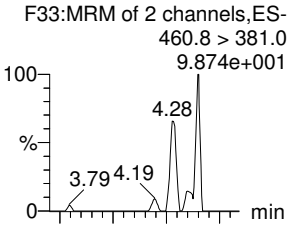

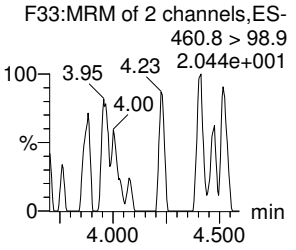

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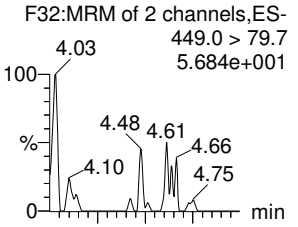

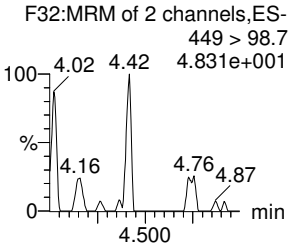

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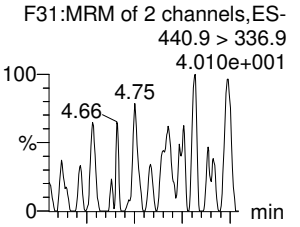

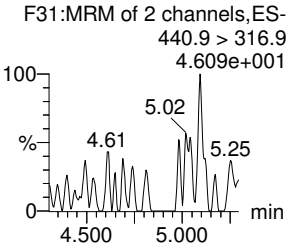

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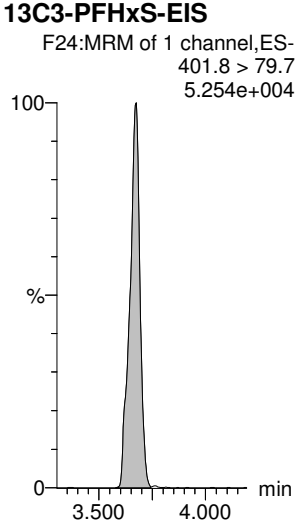

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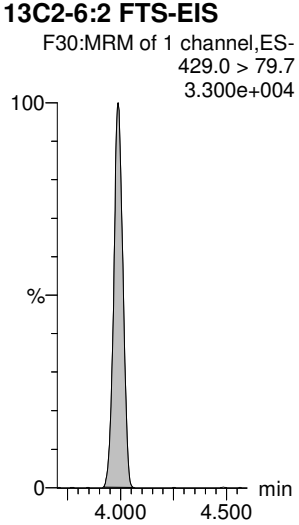

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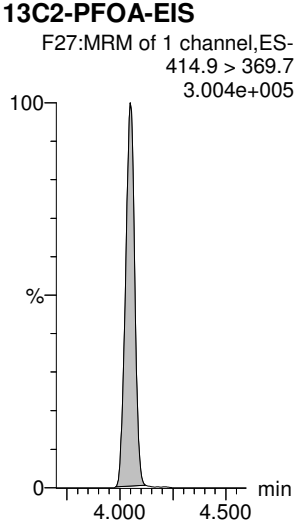

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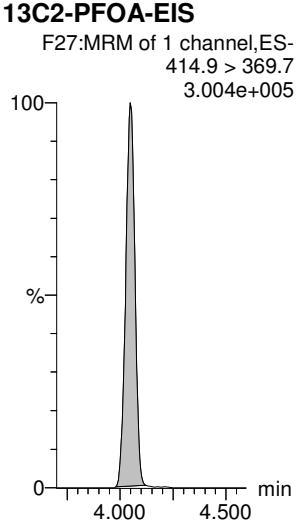

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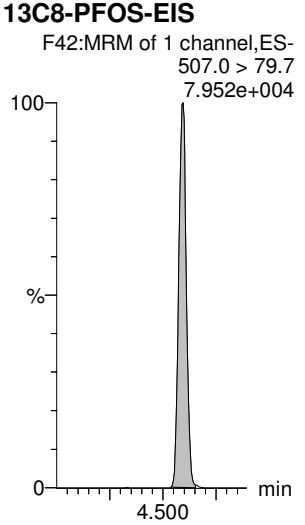

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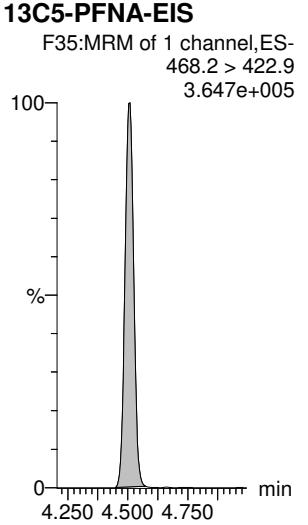

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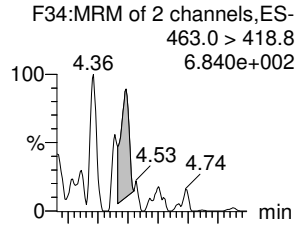
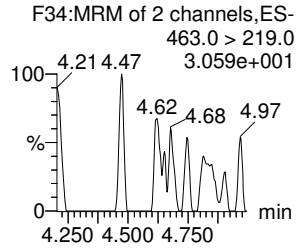
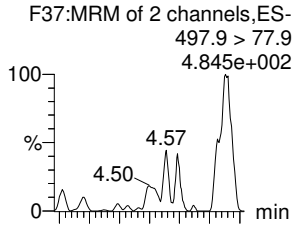
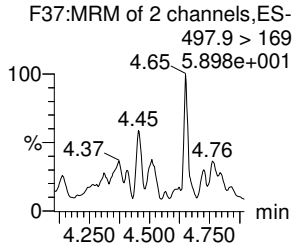


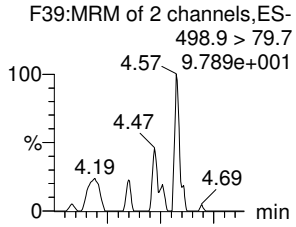


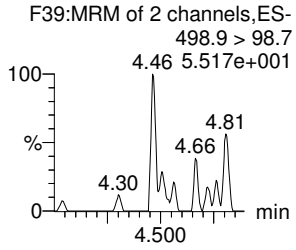
PFOSA





L-PFOS





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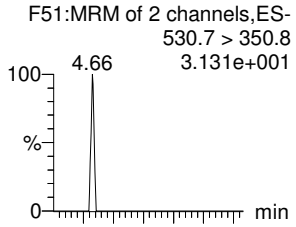

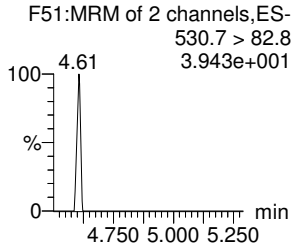

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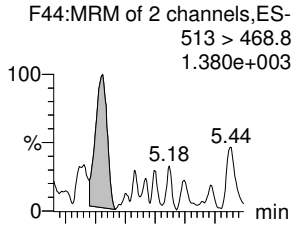

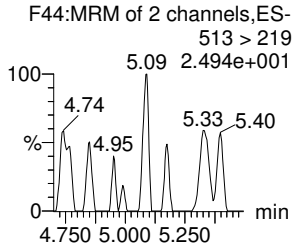

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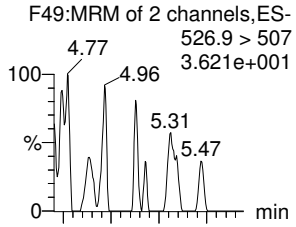
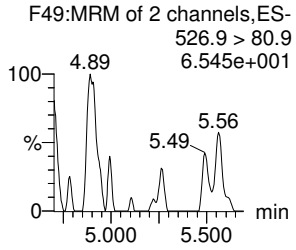
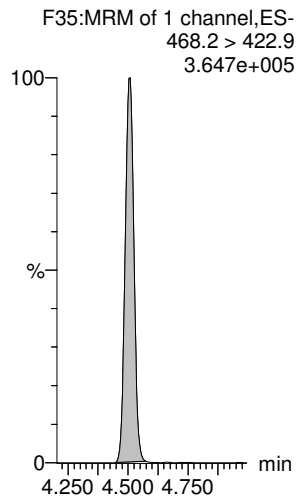
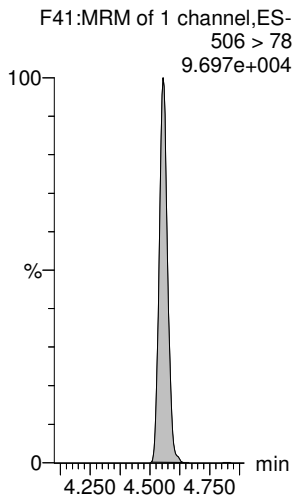




13C5-PFNA-EIS



13C8-PFOSA-EIS



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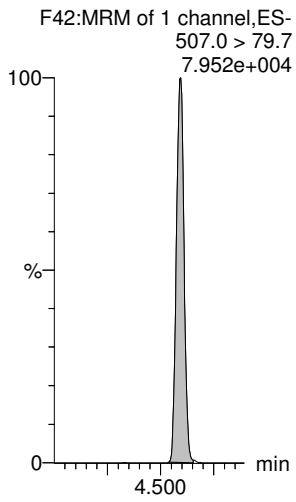

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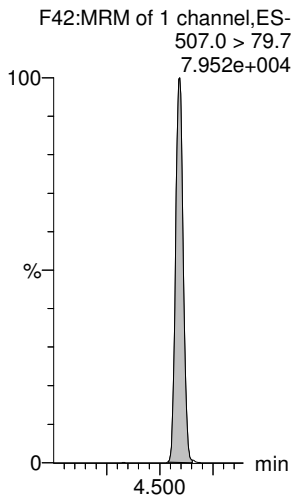

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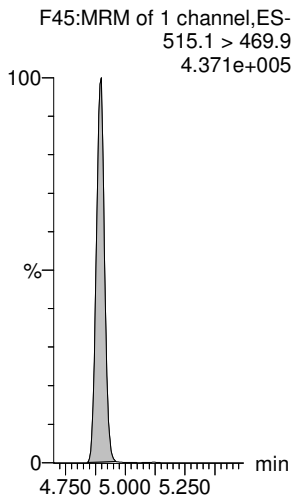

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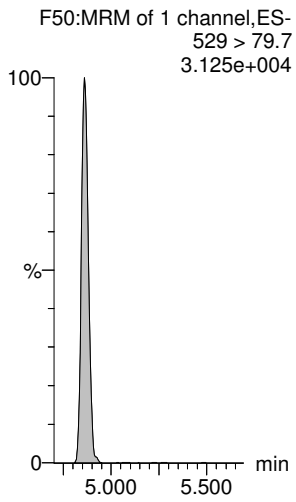

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Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

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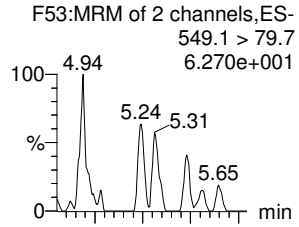

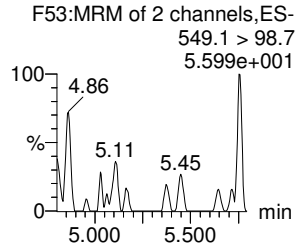

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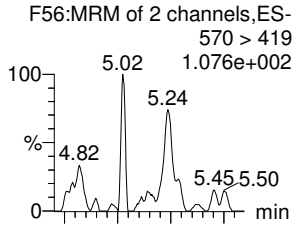

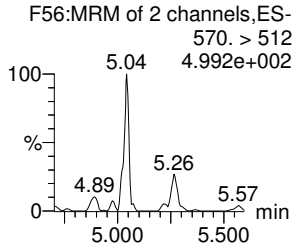

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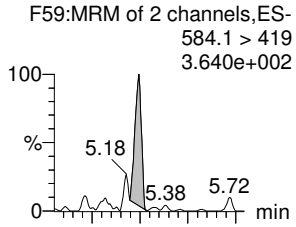

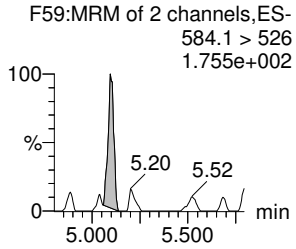

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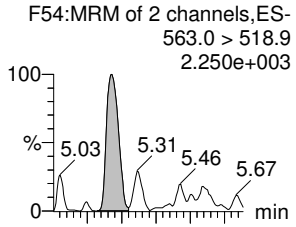

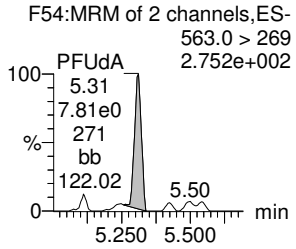

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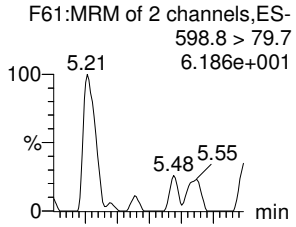

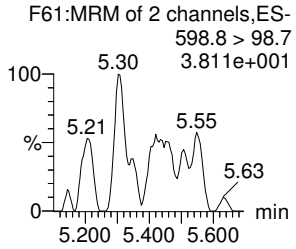

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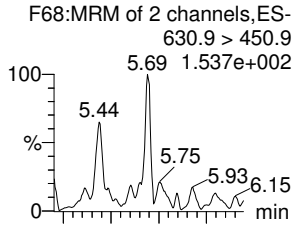

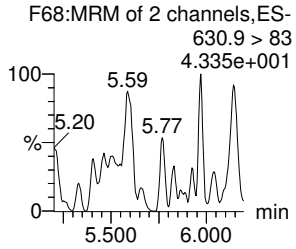

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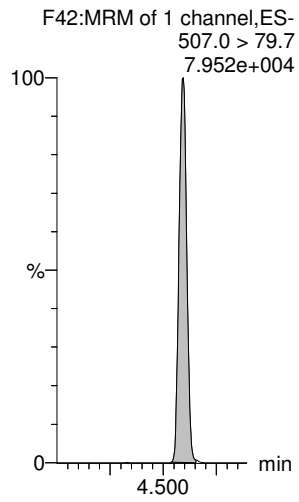

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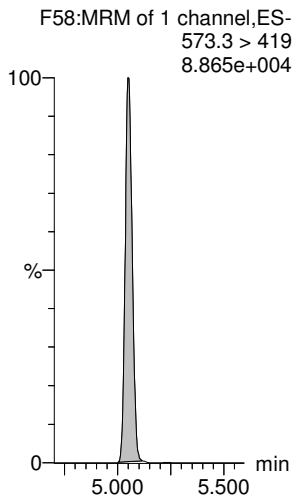

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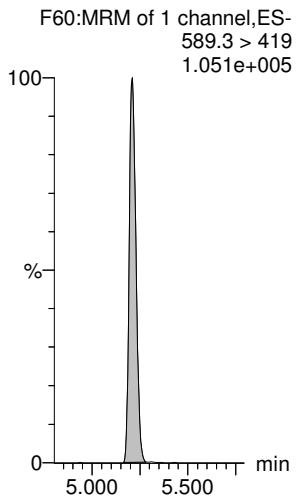

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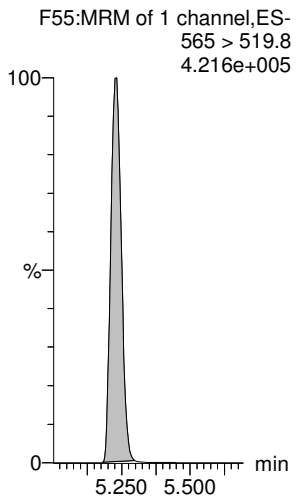

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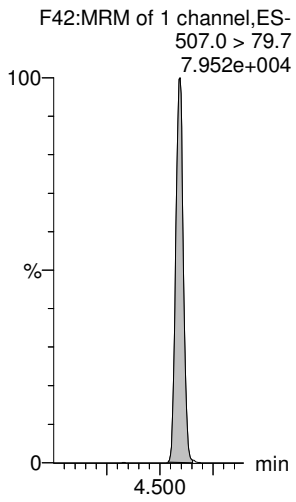

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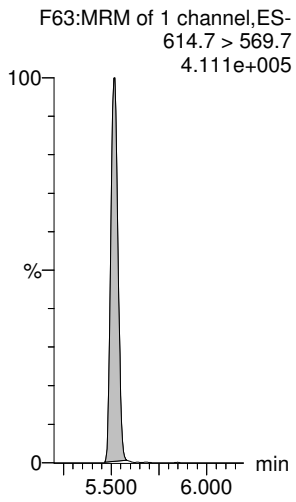

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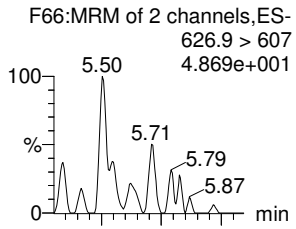
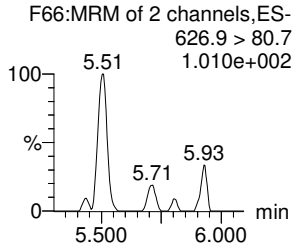
10:2 FTS





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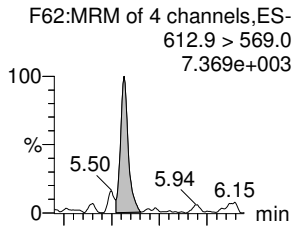

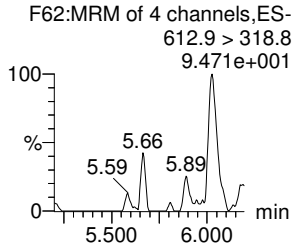

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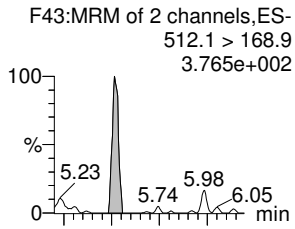

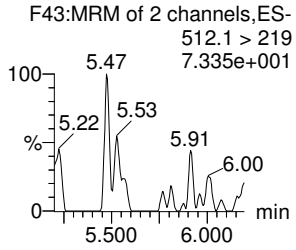

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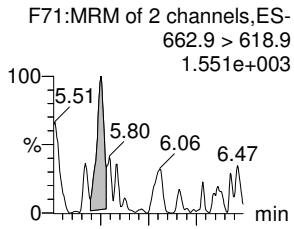

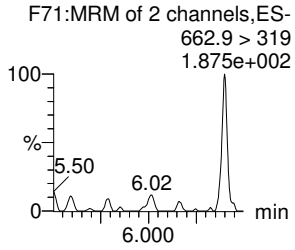

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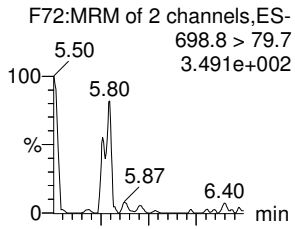

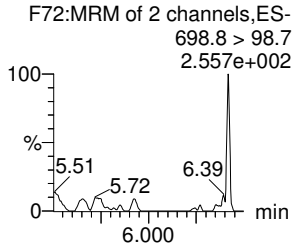

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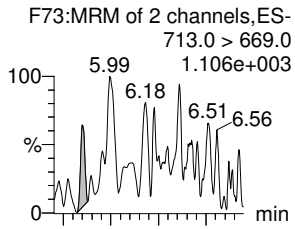

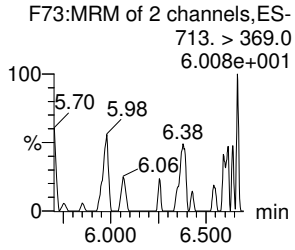

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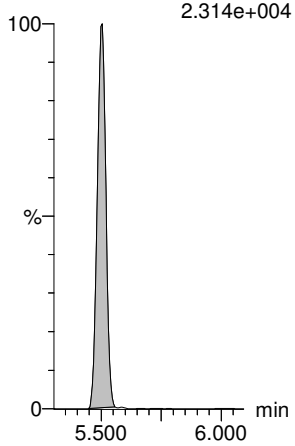
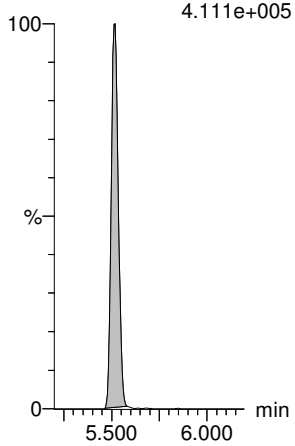
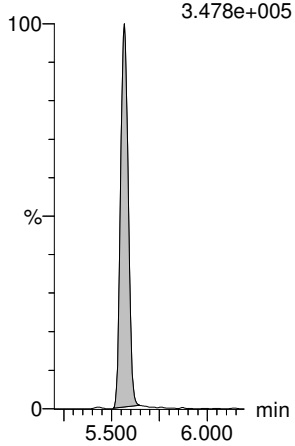


13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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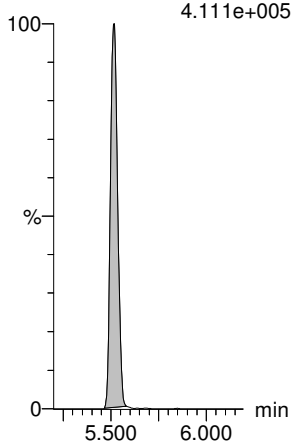

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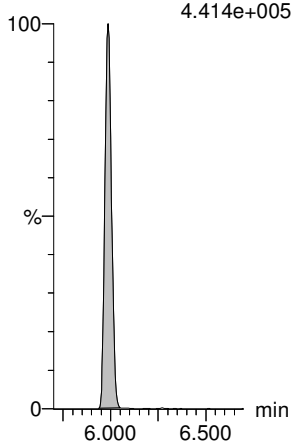

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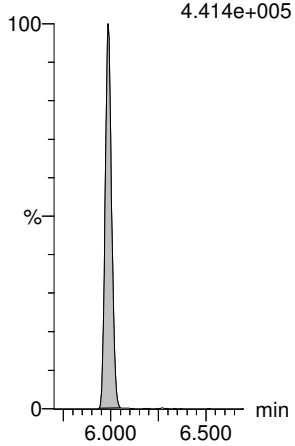

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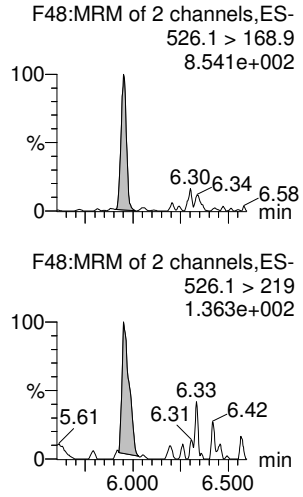
N-EtFOSA



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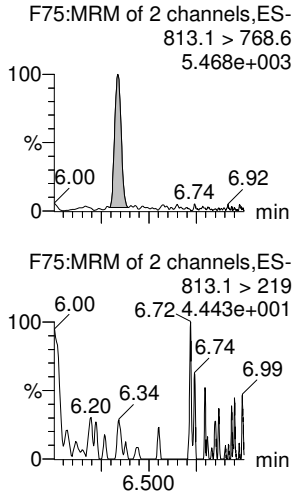

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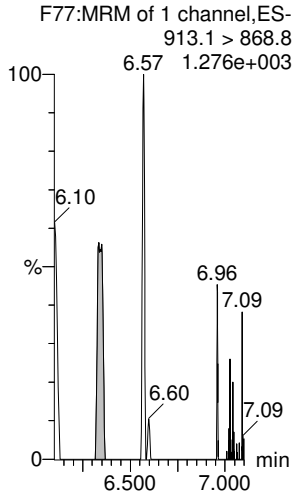

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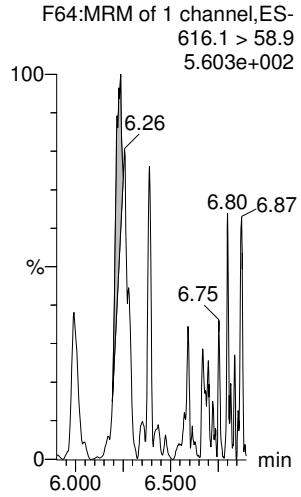

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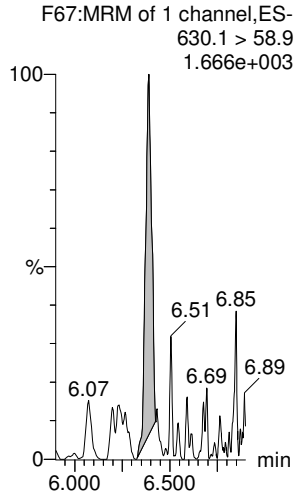
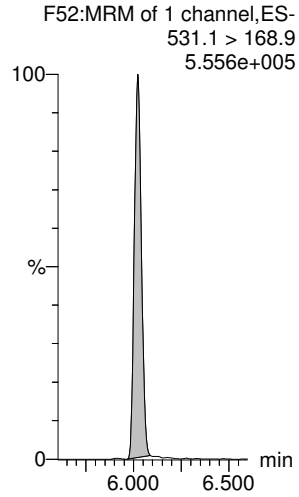
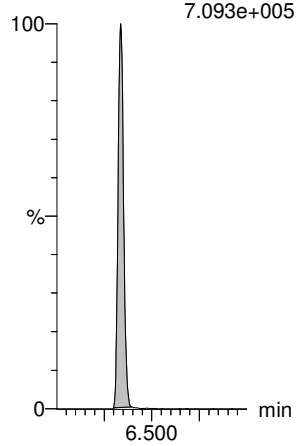


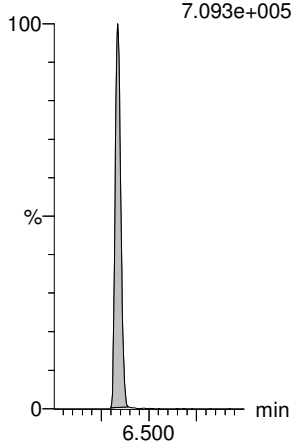
d5-N-ETFOSA-EIS



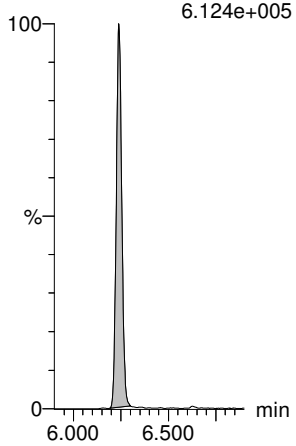
13C2-PFHxDA-EIS



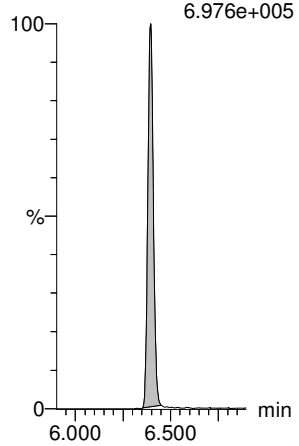
13C2-PFHxDA-EIS



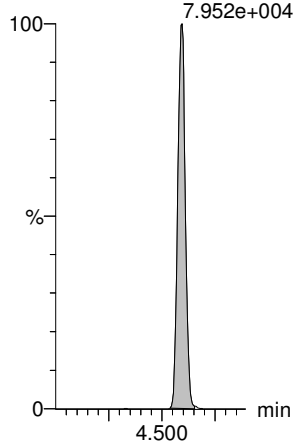
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



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Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
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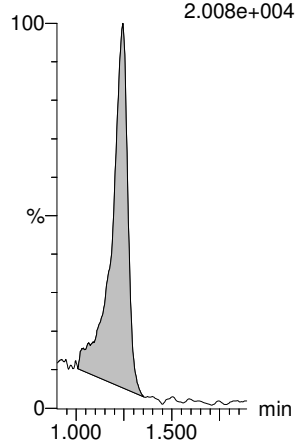
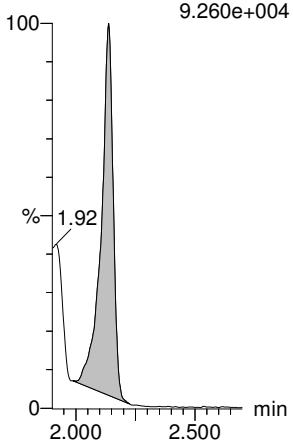
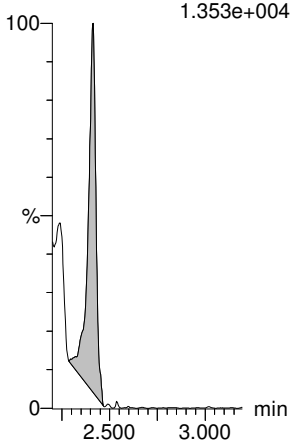
13C3-PFBA-RSD



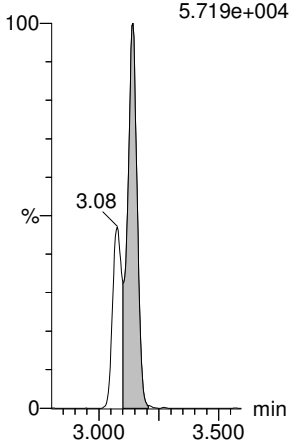
13C3-PFPeA-RSD



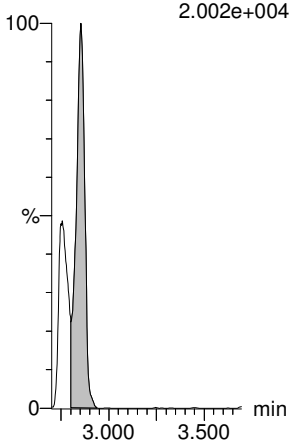
13C3-PFBS-RSD



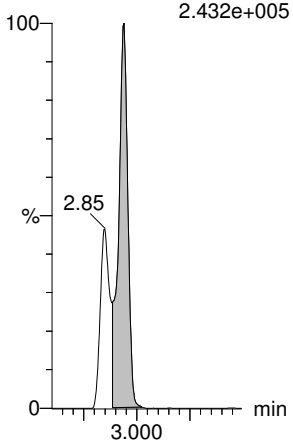
13C3-HFPO-DA-RSD



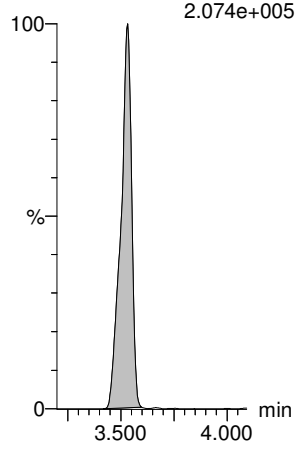
13C2-4:2 FTS-RSD



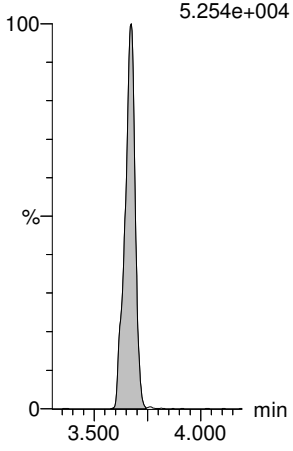
13C2-PFHxA-RSD



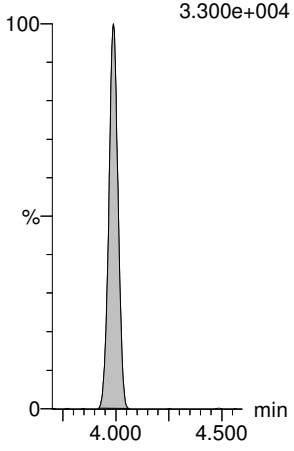
13C4-PFHpA-RSD



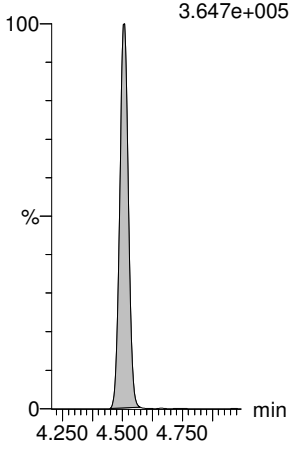
13C3-PFHxS-RSD



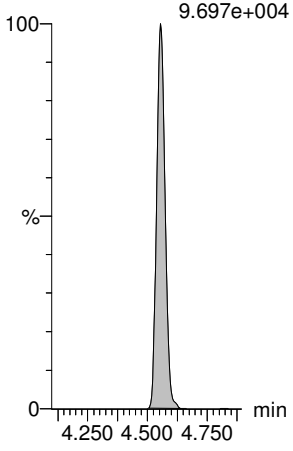
13C2-6:2 FTS-RSD



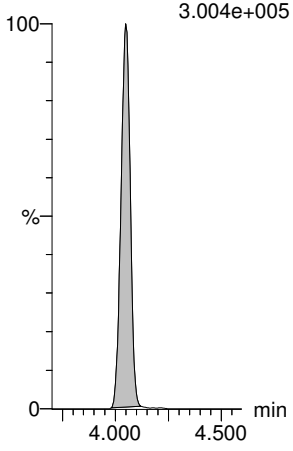
13C5-PFNA-RSD



13C8-PFOSA-RSD



13C2-PFOA-RSD



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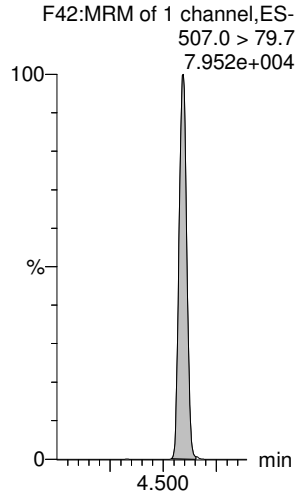
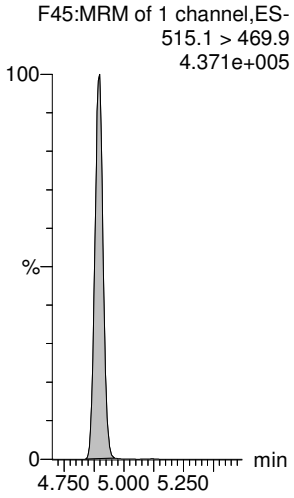
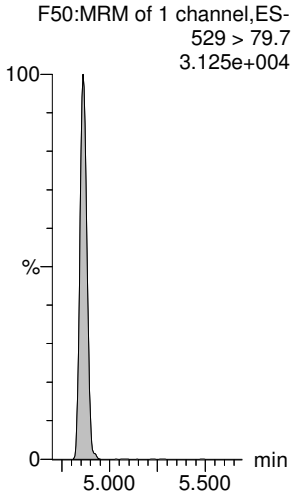
13C8-PFOS-RSD



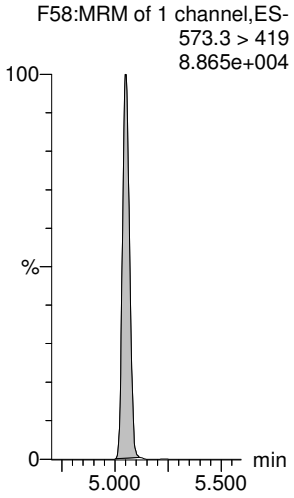
13C2-PFDA-RSD



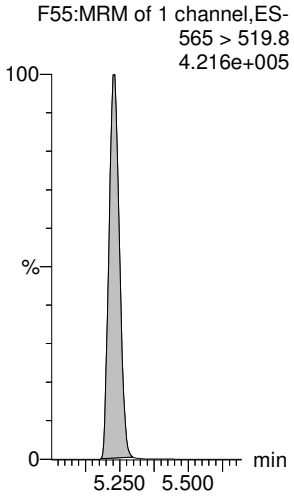
13C2-8:2 FTS-RSD



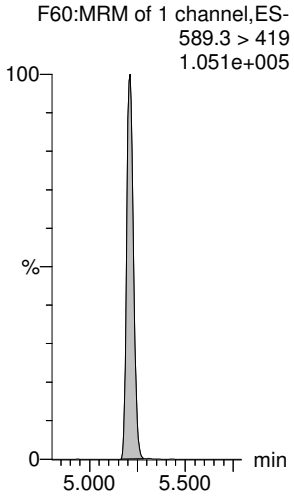
d3-N-MeFOSAA-RSD



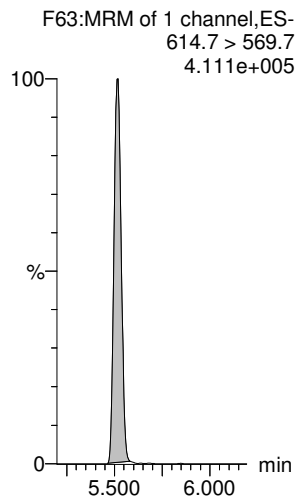
13C2-PFUdA-RSD



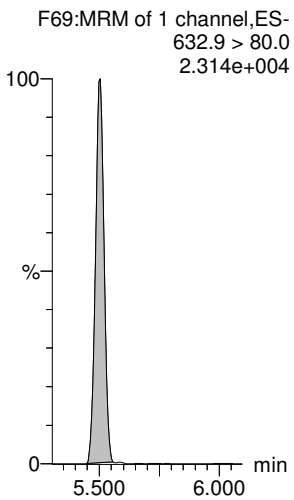
d5-N-EtFOSAA-RSD



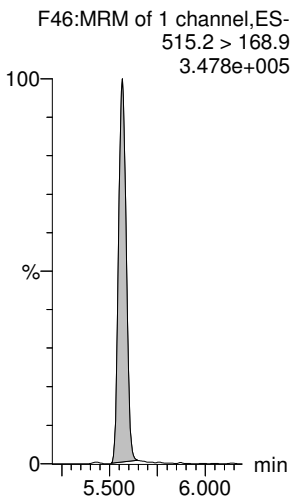
13C2-PFDoA-RSD



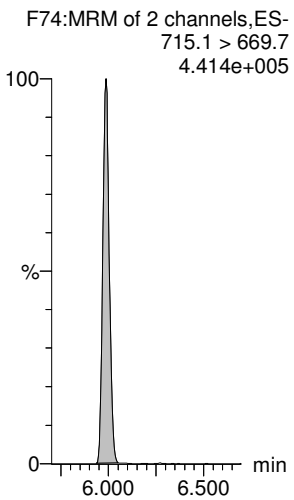
13C2-10:2 FTS-RSD



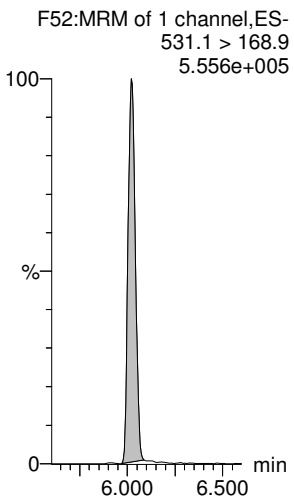
d3-N-MeFOSA-RSD



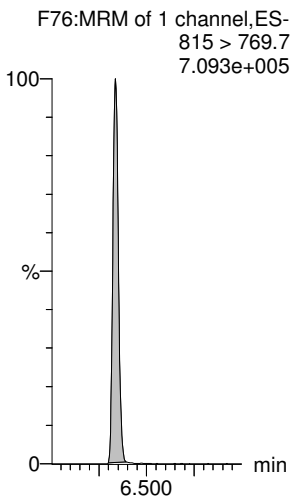
13C2-PFTeDA-RSD



d5-N-ETFOSA-RSD



13C2-PFHxDA-RSD



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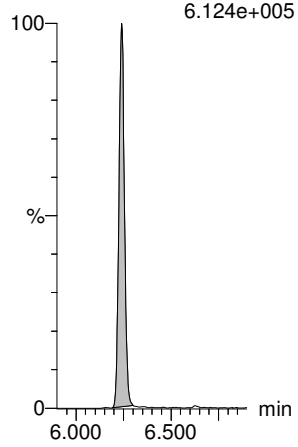
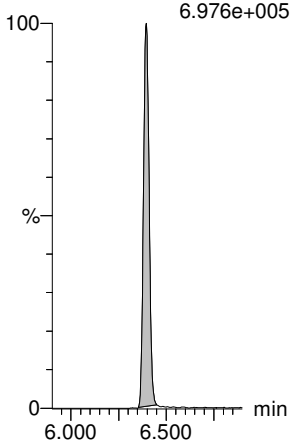
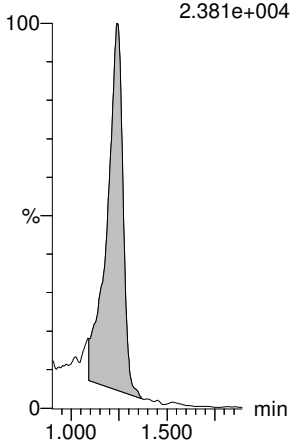
d7-N-MeFOSE-RSD



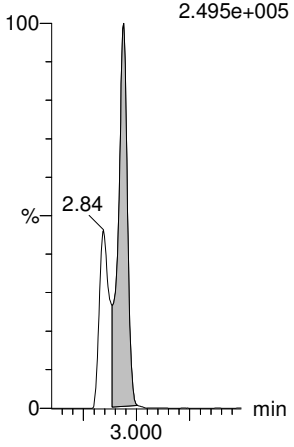
d9-N-EtFOSE-RSD



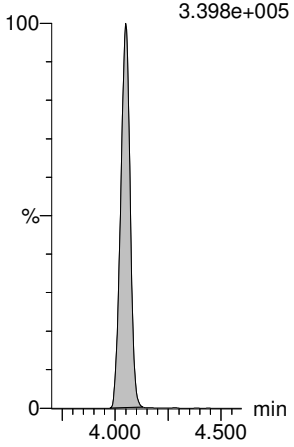
13C4-PFBA



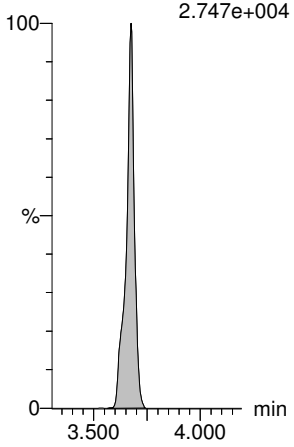
13C5-PFHxA



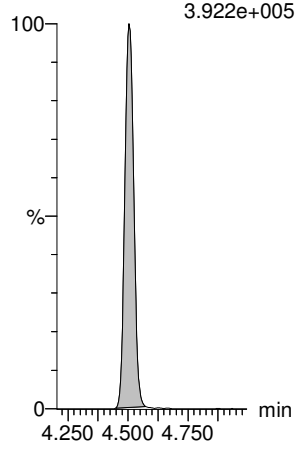
13C8-PFOA



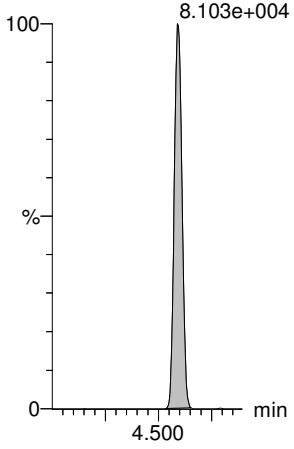
18O2-PFHxS



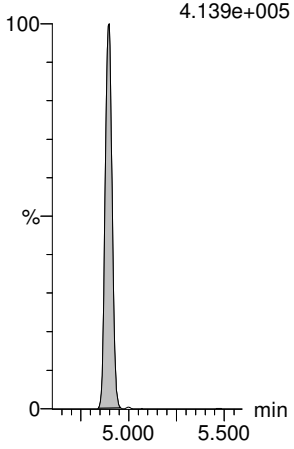
13C9-PFNA



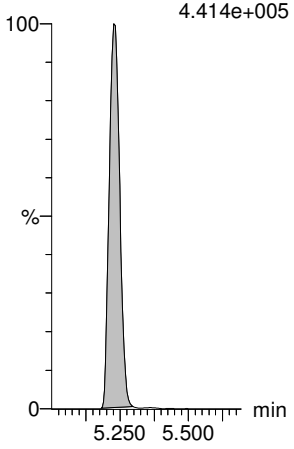
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	29.111	1831.377	1.00	1.31	0.199		0.176		NO		
2	2	PFPrS	248.9 > 79.7		607.640	1.00						NO		YES
3	3	3:3 FTCA	240.9 > 176.9		5217.674	1.00						NO		YES
4	4	PFPeA	263.1 > 218.9	6.990	5217.674	1.00	2.27	0.017		0.0356		NO		
5	5	PFBS	299.0 > 79.7		607.640	1.00						NO		YES
6	6	4:2 FTS	327.0 > 307		1029.634	1.00						NO		YES
7	47	13C3-PFBA-EIS	216.1 > 171.8	1831.377		1.00	1.24	1831.377	12.500	4.35	34.8	YES		
8	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	5217.674		1.00	2.14	5217.674	12.500	6.21	49.7	YES		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	5217.674		1.00	2.14	5217.674	12.500	6.21	49.7	YES		
11	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1029.634		1.00	2.85	1029.634	12.500	7.20	57.6	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	54.757	12045.316	1.00	3.08	0.057				NO		YES
15	8	PFPeS	349.>79.7		607.640	1.00						NO		YES
16	9	HFPO-DA	285.1 > 168.9		2633.404	1.00						NO		YES
17	10	5:3 FTCA	340.9 > 236.9		11906.830	1.00						NO		YES
18	11	PFHpA	363.0 > 318.9	6.708	11906.830	1.00	3.73	0.007				NO		YES
19	12	ADONA	376.8 > 250.9	14.516	11906.830	1.00	3.55	0.015				NO	2.882	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	12045.316		1.00	2.94	12045.316	12.500	8.37	66.9	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2633.404		1.00	3.14	2633.404	12.500	9.21	73.7	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7		2869.090	1.00						NO		YES
28	15	6:2 FTS	427.0 > 407		1633.990	1.00						NO		YES
29	16	L-PFOA	412.8 > 368.9		14846.175	1.00						NO		YES
30	18	PFecHS	460.8 > 381.0		14846.175	1.00						NO		YES
31	19	PFHpS	449.0 > 79.7		3263.038	1.00						NO		YES
32	20	7:3 FTCA	440.9 > 336.9		14884.397	1.00						NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2869.090		1.00	3.67	2869.090	12.500	12.5	100.2	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1633.990		1.00	3.99	1633.990	12.500	13.5	108.1	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	14846.175		1.00	4.05	14846.175	12.500	11.1	88.9	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	14846.175		1.00	4.05	14846.175	12.500	11.1	88.9	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	14884.397		1.00	4.51	14884.397	12.500	12.2	97.7	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	21.571	14884.397	1.00	4.49	0.018				NO		YES
41	22	PFOSA	497.9 > 77.9		3904.180	1.00						NO		YES
42	23	L-PFOS	498.9 > 79.7		3263.038	1.00						NO		YES
43	25	9Cl-PF30NS	530.7 > 350.8		3263.038	1.00						NO		YES
44	26	PFDA	513 > 468.8	75.694	17202.359	1.00	4.91	0.055				NO		YES
45	27	8:2 FTS	526.9 > 507		1292.168	1.00						NO		YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	14884.397		1.00	4.51	14884.397	12.500	12.2	97.7	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3904.180		1.00	4.55	3904.180	12.500	13.1	104.7	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	17202.359		1.00	4.90	17202.359	12.500	12.7	101.5	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1292.168		1.00	4.86	1292.168	12.500	13.9	111.0	NO		
52	-1													
53	28	PFNS	549.1 > 79.7		3263.038	1.00						NO		YES
54	29	L-MeFOSAA	570 > 419		3328.883	1.00						NO		YES
55	31	L-EtFOSAA	584.1 > 419	13.260	4289.195	1.00	5.24	0.039		0.107		NO	2.293	YES
56	33	PFUdA	563.0 > 518.9	113.073	18411.305	1.00	5.22	0.077				NO	14.480	NO
57	34	PFDS	598.8 > 79.7		3263.038	1.00						NO		YES
58	35	11Cl-PF30UdS	630.9 > 450.9		17492.939	1.00						NO		YES
59	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	3328.883		1.00	5.05	3328.883	12.500	12.1	96.9	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	4289.195		1.00	5.21	4289.195	12.500	11.9	95.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	18411.305		1.00	5.23	18411.305	12.500	11.8	94.3	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		932.763	1.00						NO		YES
67	37	PFDoA	612.9 > 569.0	343.334	17492.939	1.00	5.56	0.245		0.134		NO		YES
68	38	N-MeFOSA	512.1 > 168.9	14.066	15696.229	1.00	5.51	0.134		0.197		NO		YES
69	39	PFTrDA	662.9 > 618.9	64.990	17492.939	1.00	5.75	0.046		0.0189		NO		YES
70	40	PFDoS	698.8 > 79.7		17201.430	1.00						NO		YES
71	41	PFTeDA	713.0 > 669.0	17.200	17201.430	1.00	5.85	0.012				NO		YES
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	932.763		1.00	5.50	932.763	12.500	12.9	103.5	NO		

Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
Printed: Friday, March 06, 2020 10:11:16 Pacific Standard Time

Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	15696.229		1.00	5.57	15696.229	149.200	150	100.8	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	17201.430		1.00	5.99	17201.430	12.500	12.1	97.1	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	17201.430		1.00	5.99	17201.430	12.500	12.1	97.1	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	28.134	23800.125	1.00	5.95	0.176		0.300		NO	4.965	YES
80	43	PFHxDA	813.1 > 768.6	202.866	23536.213	1.00	6.34	0.108		0.0280		NO		YES
81	44	PFODA	913.1 > 868.8	23.438	23536.213	1.00	6.33	0.012		0.0503		NO		
82	45	N-MeFOSE	616.1 > 58.9	8.540	20512.158	1.00	6.24	0.062				NO		
83	46	N-EtFOSE	630.1 > 58.9	55.820	23232.611	1.00	6.39	0.358		0.367		NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	23800.125		1.00	6.02	23800.125	149.200	144	96.4	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	23536.213		1.00	6.34	23536.213	12.500	11.7	94.0	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	23536.213		1.00	6.34	23536.213	12.500	11.7	94.0	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	20512.158		1.00	6.24	20512.158	149.200	145	97.4	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	23232.611		1.00	6.40	23232.611	149.200	150	100.6	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	1831.377	2173.353	1.00	1.24	10.533	12.500	12.7	101.8	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	5204.739	12222.181	1.00	2.14	5.323	12.500	8.79	70.3	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	607.640	1204.682	1.00	2.41	6.305	12.500	6.22	49.7	YES		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	2633.404	12222.181	1.00	3.14	2.693	12.500	12.5	100.1	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1029.634	1204.682	1.00	2.85	10.684	12.500	7.55	60.4	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	12045.316	12222.181	1.00	2.94	12.319	12.500	12.0	95.7	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	11906.830	12222.181	1.00	3.53	12.177	12.500	18.8	150.5	YES		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2869.090	1204.682	1.00	3.67	29.770	12.500	12.3	98.4	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1633.990	3431.200	1.00	3.99	5.953	12.500	12.6	100.8	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	14884.397	16425.949	1.00	4.51	11.327	12.500	11.9	95.6	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3904.180	19339.689	1.00	4.55	2.523	12.500	12.5	99.7	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	14846.175	17439.412	1.00	4.05	10.641	12.500	12.0	96.0	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	3263.038	3431.200	1.00	4.59	11.887	12.500	12.4	99.2	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	17202.359	16780.320	1.00	4.90	12.814	12.500	11.6	93.1	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1292.168	3431.200	1.00	4.86	4.707	12.500	12.3	98.6	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	3328.883	19339.689	1.00	5.05	2.152	12.500	12.0	95.8	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	18411.305	19339.689	1.00	5.23	11.900	12.500	11.6	93.2	NO		

Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
Printed: Friday, March 06, 2020 10:11:16 Pacific Standard Time

Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	4289.195	19339.689	1.00	5.21	2.772	12.500	12.3	98.4	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	17492.939	16780.320	1.00	5.52	13.031	12.500	11.2	89.6	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	932.763	3431.200	1.00	5.50	3.398	12.500	11.8	94.6	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	15696.229	19339.689	1.00	5.57	10.145	149.200	140	93.7	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	17201.430	19339.689	1.00	5.99	11.118	12.500	11.5	91.7	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	23800.125	19339.689	1.00	6.02	15.383	149.200	136	91.2	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	23536.213	19339.689	1.00	6.34	15.212	12.500	10.9	87.6	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	20512.158	19339.689	1.00	6.24	13.258	149.200	140	93.9	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	23232.611	19339.689	1.00	6.40	15.016	149.200	136	90.9	NO		
119	99	13C4-PFBA	217.0 > 172.0	2173.353	2173.353	1.00	1.24	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	12222.181	12222.181	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	17439.412	17439.412	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1204.682	1204.682	1.00	3.67	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	16425.949	16425.949	1.00	4.50	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	3431.200	3431.200	1.00	4.59	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	16780.320	16780.320	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	19339.689	19339.689	1.00	5.23	12.500	12.500	12.5	100.0	NO		

LC Calibration Standards Review Checklist Q5

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations
Calibration ID:	ST200305-P1-11	L M H	☐	☐	☐	☐	☐	☐
Calibration ID:	-12	L M H	☐	☐	☐	☐	☐	☐
Calibration ID:	-13	L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 20200303

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Instrument Blank Saved ☑

All Branches in Acquisition Window ☑

IIS Area Saved ☑

Reviewed By: VY 03/06/20
Initials/Date

Comments:

Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

JY 03/06/20

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4956.708	5363.208	1.00	1.25	11.553	10.000	10.3	103.3	NO		
2	2	PFPrS	248.9 > 79.7	990.536	1169.838	1.00	1.54	10.584	10.000	7.61	76.1	NO	2.074	NO
3	3	3:3 FTCA	240.9 > 176.9	932.106	10917.202	1.00	2.01	1.067	10.000	9.25	92.5	NO	3.736	NO
4	4	PFPeA	263.1 > 218.9	8083.593	10917.202	1.00	2.14	9.256	10.000	9.46	94.6	NO		
5	5	PFBS	299.0 > 79.7	2392.087	1169.838	1.00	2.42	25.560	10.000	10.2	102.0	NO	3.072	NO
6	6	4:2 FTS	327.0 > 307	1783.338	1770.632	1.00	2.86	12.590	10.000	9.79	97.9	NO	0.859	NO
7	47	13C3-PFBA-EIS	216.1 > 171.8	5363.208		1.00	1.25	5363.208	12.500	12.7	101.9	NO		
8	51	13C3-PFBS-EIS	302.0 > 98.8	1169.838		1.00	2.42	1169.838	12.500	12.3	98.3	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	10917.202		1.00	2.14	10917.202	12.500	13.0	103.9	NO		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	10917.202		1.00	2.14	10917.202	12.500	13.0	103.9	NO		
11	51	13C3-PFBS-EIS	302.0 > 98.8	1169.838		1.00	2.42	1169.838	12.500	12.3	98.3	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1770.632		1.00	2.86	1770.632	12.500	12.4	99.1	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	13278.993	18805.914	1.00	2.94	8.826	10.000	10.3	102.6	NO	18.705	NO
15	8	PFPeS	349.>79.7	2308.814	1169.838	1.00	3.13	24.670	10.000	11.2	112.2	NO	2.418	NO
16	9	HFPO-DA	285.1 > 168.9	3211.677	3865.550	1.00	3.15	10.386	10.000	10.2	101.9	NO	2.734	NO
17	10	5:3 FTCA	340.9 > 236.9	2295.767	11471.723	1.00	3.48	2.502	10.000	9.78	97.8	NO	1.765	NO
18	11	PFHpA	363.0 > 318.9	10024.203	11471.723	1.00	3.54	10.923	10.000	9.21	92.1	NO	28.707	NO
19	12	ADONA	376.8 > 250.9	27381.711	11471.723	1.00	3.65	29.836	10.000	10.5	105.0	NO	4.282	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	18805.914		1.00	2.94	18805.914	12.500	13.1	104.5	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	1169.838		1.00	2.42	1169.838	12.500	12.3	98.3	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3865.550		1.00	3.15	3865.550	12.500	13.5	108.2	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	11471.723		1.00	3.54	11471.723	12.500	12.5	100.0	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	11471.723		1.00	3.54	11471.723	12.500	12.5	100.0	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	11471.723		1.00	3.54	11471.723	12.500	12.5	100.0	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	2468.958	2842.807	1.00	3.68	10.856	10.000	10.8	107.6	NO	2.259	NO
28	15	6:2 FTS	427.0 > 407	2137.653	1543.137	1.00	4.00	17.316	10.000	10.8	108.0	NO	1.307	NO
29	16	L-PFOA	412.8 > 368.9	13894.966	14859.572	1.00	4.06	11.689	10.000	9.53	95.3	NO	3.147	NO
30	18	PFecHS	460.8 > 381.0	1977.853	14859.572	1.00	4.07	1.664	10.000	9.16	91.6	NO	0.442	NO
31	19	PFHpS	449.0 > 79.7	2483.931	3279.754	1.00	4.17	9.467	10.000	9.50	95.0	NO	1.965	NO
32	20	7:3 FTCA	440.9 > 336.9	2334.509	14467.427	1.00	4.50	2.017	10.000	9.69	96.9	NO	1.523	NO
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2842.807		1.00	3.68	2842.807	12.500	12.4	99.3	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1543.137		1.00	4.00	1543.137	12.500	12.8	102.1	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	14859.572		1.00	4.06	14859.572	12.500	11.1	89.0	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	14859.572		1.00	4.06	14859.572	12.500	11.1	89.0	NO		

RK 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	14467.427		1.00	4.51	14467.427	12.500	11.9	95.0	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	13983.406	14467.427	1.00	4.51	12.082	10.000	10.4	103.9	NO	7.170	NO
41	22	PFOSA	497.9 > 77.9	2582.505	3771.223	1.00	4.56	8.560	10.000	9.77	97.7	NO	28.143	NO
42	23	L-PFOS	498.9 > 79.7	2356.248	3279.754	1.00	4.60	8.980	10.000	9.25	92.5	NO	2.453	NO
43	25	9Cl-PF30NS	530.7 > 350.8	2821.065	3279.754	1.00	4.83	10.752	10.000	10.7	106.8	NO	22.086	NO
44	26	PFDA	513 > 468.8	15960.640	16737.480	1.00	4.90	11.920	10.000	10.1	100.9	NO	9.762	NO
45	27	8:2 FTS	526.9 > 507	1426.920	1194.144	1.00	4.87	14.937	10.000	10.0	100.5	NO	2.774	NO
46	65	13C5-PFNA-EIS	468.2 > 422.9	14467.427		1.00	4.51	14467.427	12.500	11.9	95.0	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3771.223		1.00	4.56	3771.223	12.500	12.6	101.2	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	16737.480		1.00	4.90	16737.480	12.500	12.3	98.8	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1194.144		1.00	4.87	1194.144	12.500	12.8	102.6	NO		
52	-1													
53	28	PFNS	549.1 > 79.7	2418.370	3279.754	1.00	4.97	9.217	10.000	11.0	109.9	NO	2.235	NO
54	29	L-MeFOSAA	570 > 419	4863.029	3393.188	1.00	5.06	17.915	10.000	10.3	103.3	NO	2.187	NO
55	31	L-EtFOSAA	584.1 > 419	4272.528	3975.359	1.00	5.22	13.434	10.000	10.9	109.0	NO	1.242	NO
56	33	PFUdA	563.0 > 518.9	14820.737	17343.123	1.00	5.23	10.682	10.000	11.3	113.1	NO	20.159	NO
57	34	PFDS	598.8 > 79.7	2312.658	3279.754	1.00	5.28	8.814	10.000	9.87	98.7	NO	1.819	NO
58	35	11Cl-PF30UdS	630.9 > 450.9	6425.747	16535.381	1.00	5.45	4.858	10.000	11.3	113.3	NO	20.031	NO
59	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	3393.188		1.00	5.06	3393.188	12.500	12.3	98.8	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	3975.359		1.00	5.22	3975.359	12.500	11.0	88.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	17343.123		1.00	5.23	17343.123	12.500	11.1	88.8	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	16535.381		1.00	5.52	16535.381	12.500	11.8	94.7	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607	1586.106	847.667	1.00	5.51	23.389	10.000	9.78	97.8	NO	1.027	NO
67	37	PFDoA	612.9 > 569.0	16469.492	16535.381	1.00	5.52	12.450	10.000	10.6	106.2	NO	10.690	NO
68	38	N-MeFOSA	512.1 > 168.9	5307.234	15669.694	1.00	5.54	50.533	50.000	47.6	95.3	NO	1.502	NO
69	39	PFTrDA	662.9 > 618.9	16059.423	16535.381	1.00	5.77	12.140	10.000	9.91	99.1	NO	58.789	NO
70	40	PFDoS	698.8 > 79.7	2448.110	16653.105	1.00	5.80	1.838	10.000	10.7	106.6	NO	2.765	NO
71	41	PFTeDA	713.0 > 669.0	15963.156	16653.105	1.00	5.99	11.982	10.000	10.2	102.4	NO	15.514	NO
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	847.667		1.00	5.50	847.667	12.500	11.8	94.0	NO		

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Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	16535.381		1.00	5.52	16535.381	12.500	11.8	94.7	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	15669.694		1.00	5.57	15669.694	149.200	150	100.7	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	16535.381		1.00	5.52	16535.381	12.500	11.8	94.7	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	16653.105		1.00	5.99	16653.105	12.500	11.7	94.0	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	16653.105		1.00	5.99	16653.105	12.500	11.7	94.0	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	7925.776	24474.807	1.00	6.01	48.316	50.000	53.6	107.1	NO	1.749	NO
80	43	PFHxDA	813.1 > 768.6	12621.306	23117.393	1.00	6.34	6.825	10.000	9.95	99.5	NO	127.082	NO
81	44	PFODA	913.1 > 868.8	17341.879	23117.393	1.00	6.58	9.377	10.000	9.83	98.3	NO		
82	45	N-MeFOSE	616.1 > 58.9	7078.663	21158.496	1.00	6.25	49.915	50.000	49.9	99.7	NO		
83	46	N-EtFOSE	630.1 > 58.9	7702.467	24964.768	1.00	6.40	46.033	50.000	49.3	98.6	NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	24474.807		1.00	6.03	24474.807	149.200	148	99.1	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	23117.393		1.00	6.34	23117.393	12.500	11.5	92.3	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	23117.393		1.00	6.34	23117.393	12.500	11.5	92.3	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	21158.496		1.00	6.24	21158.496	149.200	150	100.5	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	24964.768		1.00	6.40	24964.768	149.200	161	108.1	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	3279.754		1.00	4.60	3279.754	12.500	13.0	104.2	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	5363.208	6456.572	1.00	1.25	10.383	12.500	12.5	100.3	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	10917.202	17856.377	1.00	2.14	7.642	12.500	12.6	101.0	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	1169.838	1226.185	1.00	2.42	11.926	12.500	11.8	94.1	NO		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	3865.550	17856.377	1.00	3.15	2.706	12.500	12.6	100.6	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1770.632	1226.185	1.00	2.86	18.050	12.500	12.8	102.0	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	18805.914	17856.377	1.00	2.94	13.165	12.500	12.8	102.2	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	11471.723	17856.377	1.00	3.54	8.031	12.500	12.4	99.2	NO		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2842.807	1226.185	1.00	3.68	28.980	12.500	12.0	95.8	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1543.137	3422.779	1.00	4.00	5.636	12.500	11.9	95.5	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	14467.427	13774.758	1.00	4.51	13.129	12.500	13.8	110.8	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3771.223	18510.594	1.00	4.56	2.547	12.500	12.6	100.6	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	14859.572	16956.129	1.00	4.06	10.954	12.500	12.4	98.9	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	3279.754	3422.779	1.00	4.60	11.978	12.500	12.5	100.0	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	16737.480	14114.377	1.00	4.90	14.823	12.500	13.5	107.7	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1194.144	3422.779	1.00	4.87	4.361	12.500	11.4	91.3	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	3393.188	18510.594	1.00	5.06	2.291	12.500	12.8	102.1	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	17343.123	18510.594	1.00	5.23	11.712	12.500	11.5	91.7	NO		

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Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	3975.359	18510.594	1.00	5.22	2.685	12.500	11.9	95.2	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	16535.381	14114.377	1.00	5.52	14.644	12.500	12.6	100.7	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	847.667	3422.779	1.00	5.50	3.096	12.500	10.8	86.2	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	15669.694	18510.594	1.00	5.57	10.582	149.200	146	97.7	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	16653.105	18510.594	1.00	5.99	11.246	12.500	11.6	92.8	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	24474.807	18510.594	1.00	6.03	16.528	149.200	146	98.0	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	23117.393	18510.594	1.00	6.34	15.611	12.500	11.2	89.9	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	21158.496	18510.594	1.00	6.24	14.288	149.200	151	101.2	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	24964.768	18510.594	1.00	6.40	16.858	149.200	152	102.0	NO		
119	99	13C4-PFBA	217.0 > 172.0	6456.572	6456.572	1.00	1.24	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	17856.377	17856.377	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	16956.129	16956.129	1.00	4.06	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1226.185	1226.185	1.00	3.68	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	13774.758	13774.758	1.00	4.51	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	3422.779	3422.779	1.00	4.60	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	14114.377	14114.377	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	18510.594	18510.594	1.00	5.23	12.500	12.500	12.5	100.0	NO		

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Dataset: Untitled

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Method: P:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
1	1 200305P1-1	IPA	05-Mar-20	17:14:10
2	2 200305P1-2	IPA	05-Mar-20	17:24:53
3	3 200305P1-3	ST200305P1-1 PFC CS-2 20C0304	05-Mar-20	17:35:21
4	4 200305P1-4	ST200305P1-2 PFC CS-1 20C0305	05-Mar-20	17:45:53
5	5 200305P1-5	ST200305P1-3 PFC CS0 20C0306	05-Mar-20	17:56:21
6	6 200305P1-6	ST200305P1-4 PFC CS1 20C0307	05-Mar-20	18:06:53
7	7 200305P1-7	ST200305P1-5 PFC CS2 20C0308	05-Mar-20	18:17:23
8	8 200305P1-8	ST200305P1-6 PFC CS3 20C0309	05-Mar-20	18:27:54
9	9 200305P1-9	ST200305P1-7 PFC CS4 20C0310	05-Mar-20	18:38:35
10	10 200305P1-10	ST200305P1-8 PFC CS5 20C0311	05-Mar-20	18:49:11
11	11 200305P1-11	ST200305P1-9 PFC CS6 20C0312	05-Mar-20	18:59:40
12	12 200305P1-12	ST200305P1-10 PFC CS7 20C0313	05-Mar-20	19:10:11
13	13 200305P1-13	IB	05-Mar-20	19:20:42
14	14 200305P1-14	ICV200305P1-1 PFC ICV 20C0314	05-Mar-20	19:31:12
15	15 200305P1-15	IB	05-Mar-20	19:41:41
16	16 200305P1-16	B0B0279-BS1 OPR 0.25	05-Mar-20	19:52:12
17	17 200305P1-17	2000405-03@5X S9IMW1-20Q1 0.26015	05-Mar-20	20:02:41
18	18 200305P1-18	2000390-04 TW16S-20200221 0.25077	05-Mar-20	20:13:12
19	19 200305P1-19	2000390-03@15 TW17S-20200221 0.25253	05-Mar-20	20:23:43
20	20 200305P1-20	2000373-02@5X TS-LW01-20200220 0.24944	05-Mar-20	20:34:14
21	21 200305P1-21	2000353-10@50X S9MW68L1-20Q1 0.25186	05-Mar-20	20:44:42
22	22 200305P1-22	2000359-01@10X MW-1 0.2424	05-Mar-20	20:55:15
23	23 200305P1-23	2000372-04@10X TW06S-20200220 0.24881	05-Mar-20	21:05:43
24	24 200305P1-24	B0B0278-BLK1 Method Blank 0.25	05-Mar-20	21:16:15
25	25 200305P1-25	B0B0278-BS1 OPR 0.25	05-Mar-20	21:26:46
26	26 200305P1-26	B0B0278-BSD1 LCSD 0.25	05-Mar-20	21:37:16
27	27 200305P1-27	2000404-01 DFSPN_GWTS_Effluent_PFC_02-26-20 0.2571	05-Mar-20	21:47:44
28	28 200305P1-28	2000404-02 DFSPN_FieldBlank_02-26-20 0.2563	05-Mar-20	21:58:15
29	29 200305P1-29	B0C0006-BLK1 Method Blank 0.25	05-Mar-20	22:08:47
30	30 200305P1-30	B0C0006-BS1 OPR 0.25	05-Mar-20	22:19:15
31	31 200305P1-31	B0C0006-BSD1 LCSD 0.25	05-Mar-20	22:29:47
32	32 200305P1-32	IB	05-Mar-20	22:40:16

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Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
33	33 200305P1-33	ST200305P1-11 PFC CS3 20C0309	05-Mar-20	22:50:47
34	34 200305P1-34	IB	05-Mar-20	23:01:16
35	35 200305P1-35	2000425-01 Ellis School 0.26611	05-Mar-20	23:11:49
36	36 200305P1-36	2000426-01 Bldg.161-Mid-Filter Tap 0.2577	05-Mar-20	23:22:17
37	37 200305P1-37	2000427-01 Influent 0.12525	05-Mar-20	23:32:49
38	38 200305P1-38	2000427-02 Effluent 0.12221	05-Mar-20	23:43:17
39	39 200305P1-39	2000427-04 Front Street Landfill 0.11714	05-Mar-20	23:53:50
40	40 200305P1-40	2000427-05 Septic Receiving 0.1189	06-Mar-20	00:04:18
41	41 200305P1-41	B0B0239-BLK1 Method Blank 0.25	06-Mar-20	00:14:50
42	42 200305P1-42	B0B0239-BS1 OPR 0.25	06-Mar-20	00:25:21
43	43 200305P1-43	2000394-01 FB-12:00 0.25934	06-Mar-20	00:35:50
44	44 200305P1-44	2000394-02 EB-11:50 0.25728	06-Mar-20	00:46:21
45	45 200305P1-45	B0B0301-BS1 OPR 2	06-Mar-20	00:56:50
46	46 200305P1-46	B0C0008-BLK1 Method Blank 0.25	06-Mar-20	01:07:22
47	47 200305P1-47	B0C0008-BS1 OPR 0.25	06-Mar-20	01:17:50
48	48 200305P1-48	2000428-01 001 MAIN OFFICE MENS ROOM SINK 0.26247	06-Mar-20	01:28:22
49	49 200305P1-49	2000429-01 506 DEP TAP/UPPER PH/BLD 005 006 007 00	06-Mar-20	01:38:53
50	50 200305P1-50	IB	06-Mar-20	01:49:22
51	51 200305P1-51	ST200305P1-12 PFC CS3 20C0309	06-Mar-20	01:59:53
52	52 200305P1-52	IB	06-Mar-20	02:10:24
53	53 200305P1-53	2000430-01 501 FM/AS/TAP AFTER BLEND/001 002 003 0	06-Mar-20	02:20:52
54	54 200305P1-54	2000431-01 001 UNIT 9 0.24663	06-Mar-20	02:31:24
55	55 200305P1-55	2000432-01 501 DEP TAP /TREATMENT PLANT /001 0.244	06-Mar-20	02:41:53
56	56 200305P1-56	2000433-01 002 FINISHED WATER SAMPLE FROM PLANT 0.	06-Mar-20	02:52:24
57	57 200305P1-57	2000434-01 001 SAMPLING TAP IN PUMPHOUSE 0.25249	06-Mar-20	03:02:55
58	58 200305P1-58	2000435-01 501 COLD SPRING COLLECTOR BOX TAP/SPRIN	06-Mar-20	03:13:26
59	59 200305P1-59	2000436-01 511 TAP IN PH/TRTED FLOW MIX 001 003 0.	06-Mar-20	03:23:54
60	60 200305P1-60	2000436-02 512 TAP IN PH/TRTED FLOW MIX 002 003 0.	06-Mar-20	03:34:27
61	61 200305P1-61	IB	06-Mar-20	03:44:56
62	62 200305P1-62	2000395-06@5X GW025.3030.32002201000JSJ 0.24266	06-Mar-20	03:55:27
63	63 200305P1-63	2000328-04@20X W-SB01-20200213 0.26272	06-Mar-20	04:05:56
64	64 200305P1-64	B0C0012-BLK1 Method Blank 2	06-Mar-20	04:16:27
65	65 200305P1-65	B0C0012-BS1 OPR 2	06-Mar-20	04:26:58
66	66 200305P1-66	B0C0012-BS2 OPR 2	06-Mar-20	04:37:27
67	67 200305P1-67	B0C0012-BS3 OPR 2	06-Mar-20	04:47:58
68	68 200305P1-68	B0C0012-BS4 OPR 2	06-Mar-20	04:58:27

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Compound name: PFBA

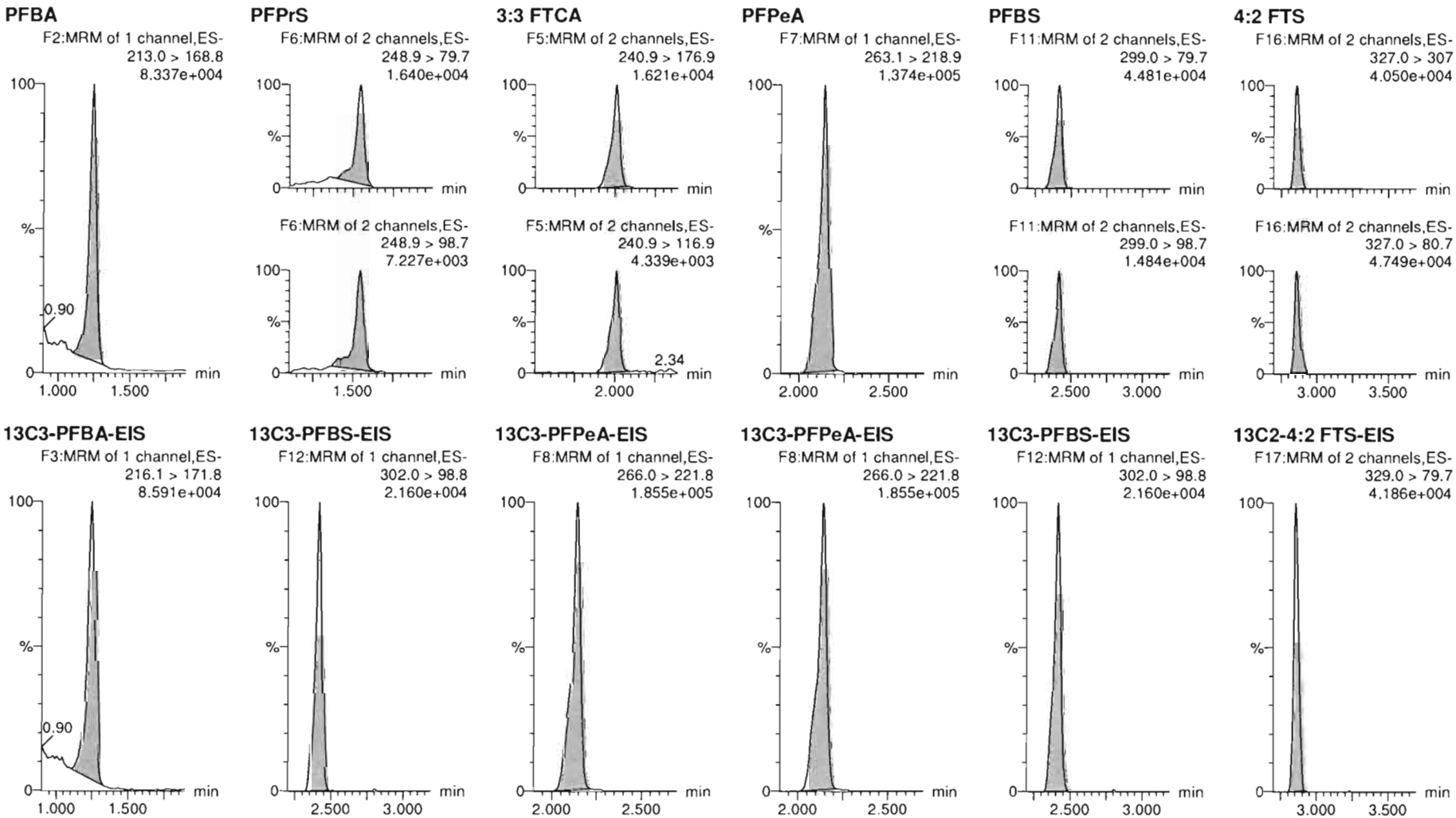
	# Name	ID	Acq.Date	Acq.Time
69	69 200305P1-69	2000372-05 TW21S-20200220 0.24679	06-Mar-20	05:08:59
70	70 200305P1-70	IB	06-Mar-20	05:19:29
71	71 200305P1-71	ST200305P1-13 PFC CS3 20C0309	06-Mar-20	05:29:58
72	72 200305P1-72	IB	06-Mar-20	05:40:29

Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

Method: P:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: P:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309



RK 3/6/2020

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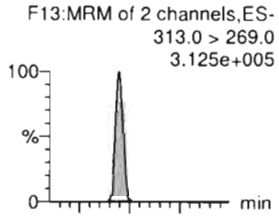

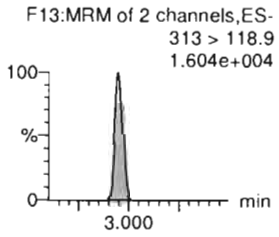

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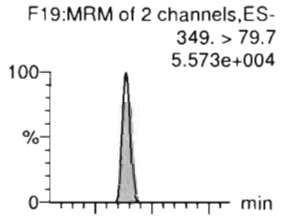

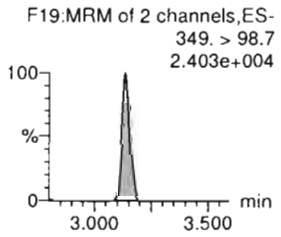

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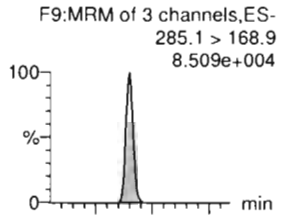

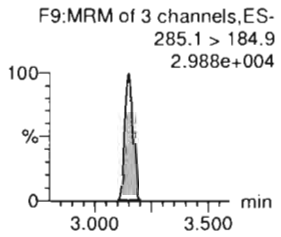

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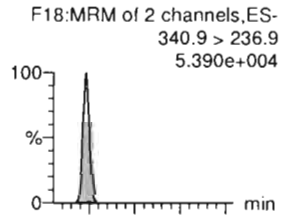

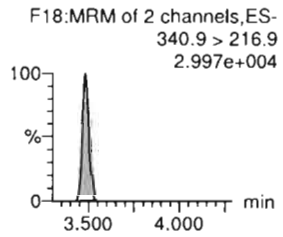

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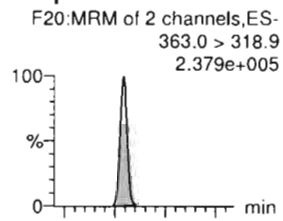

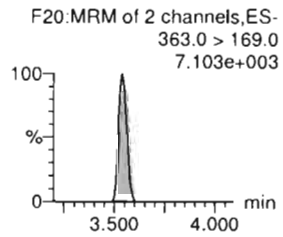

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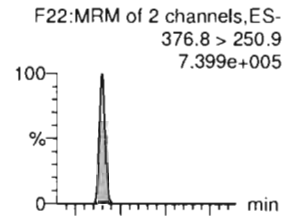

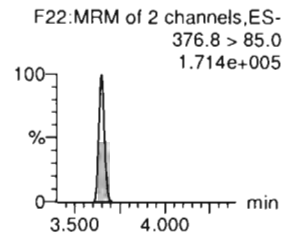

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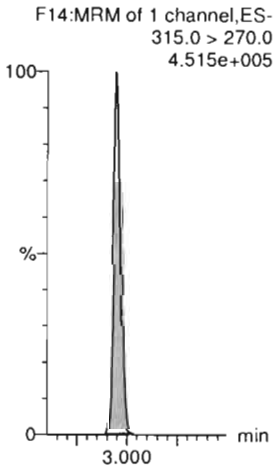

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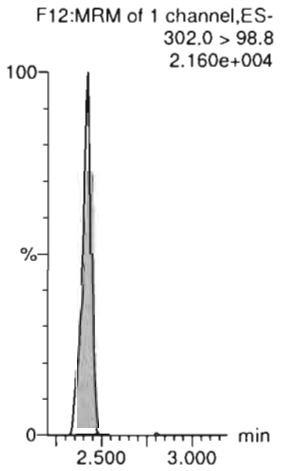

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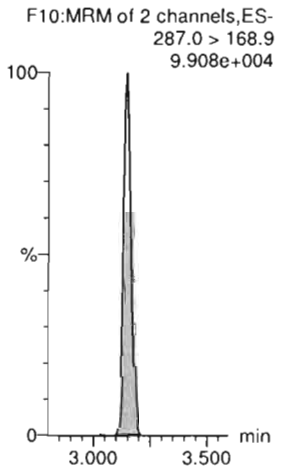

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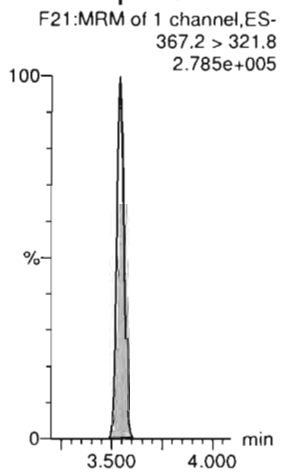

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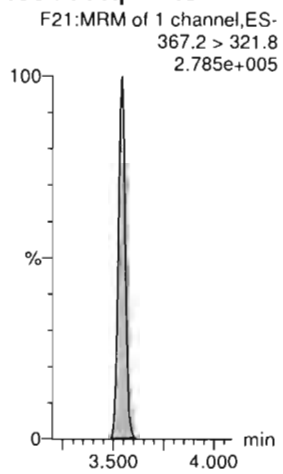

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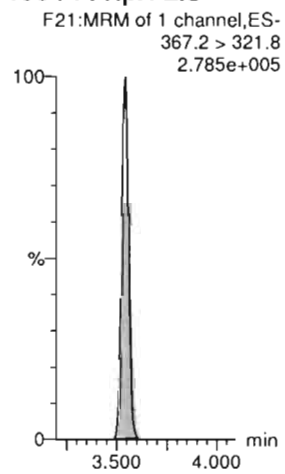

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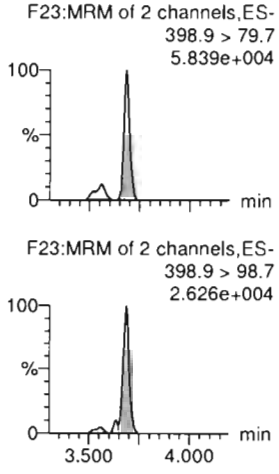
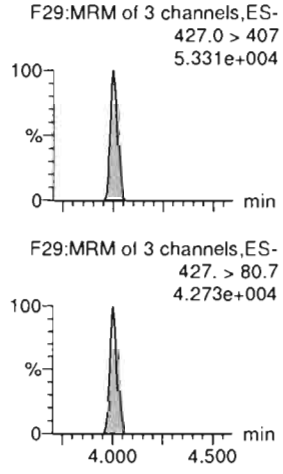


6:2 FTS



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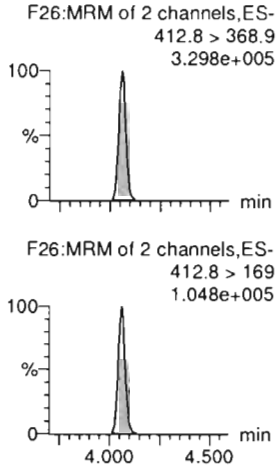

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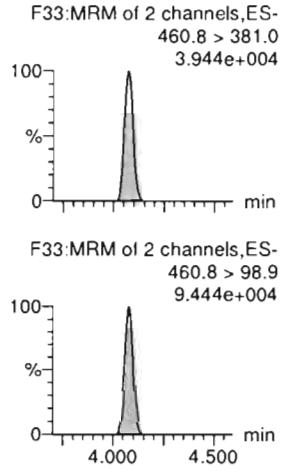

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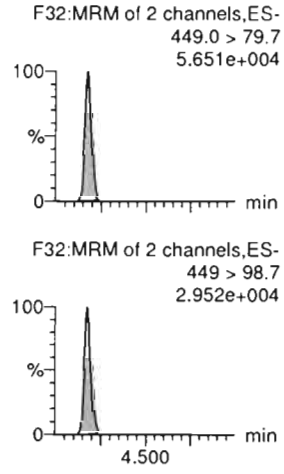

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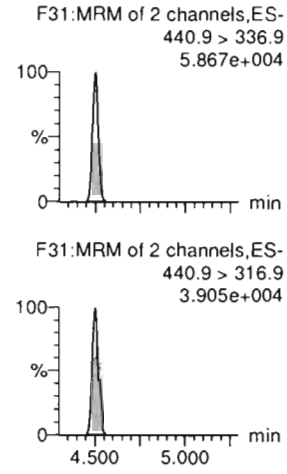

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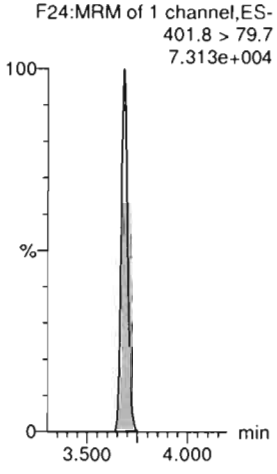

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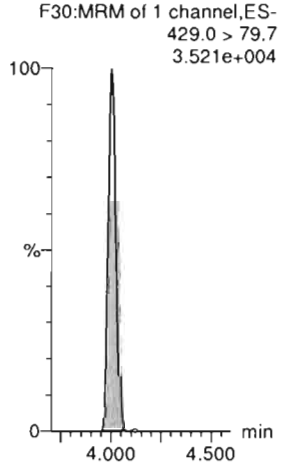

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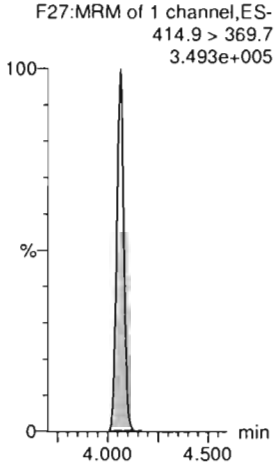

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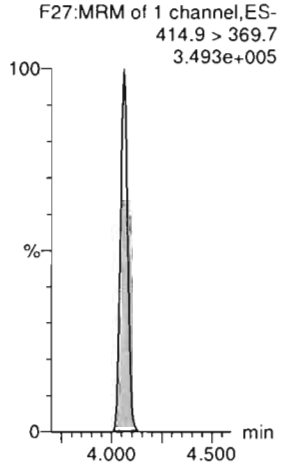

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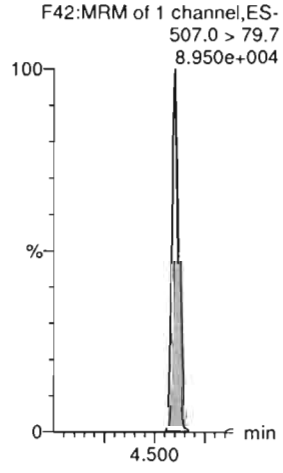
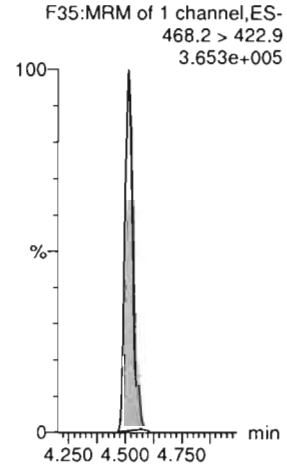


13C5-PFNA-EIS



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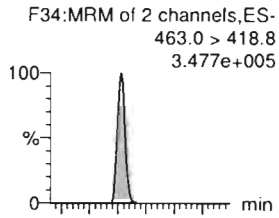
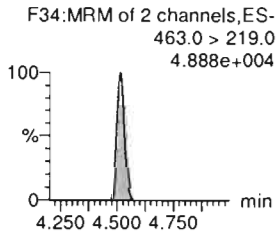
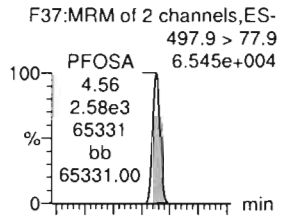
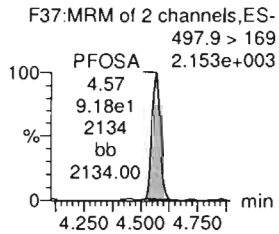


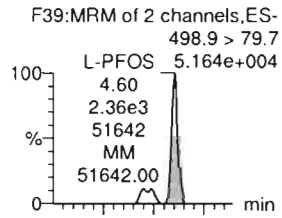


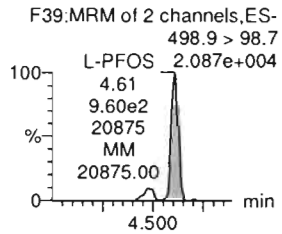
PFOSA





L-PFOS





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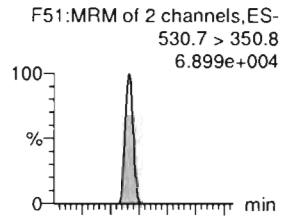

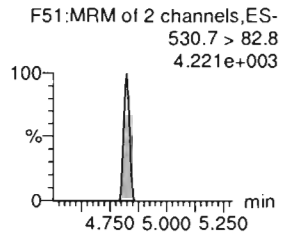

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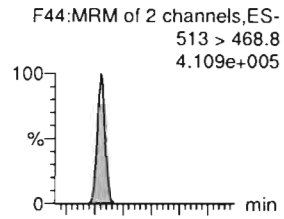
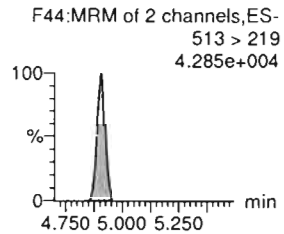
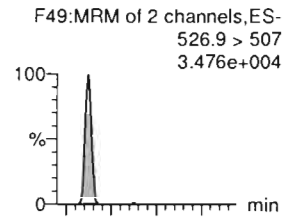
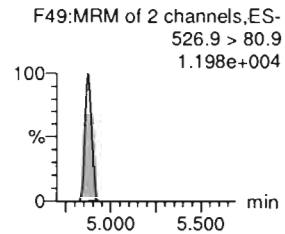


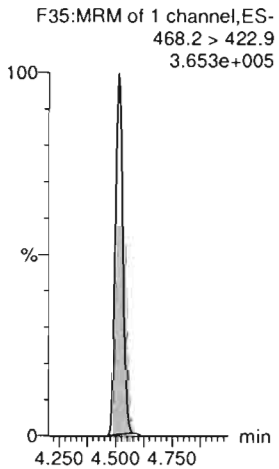


8:2 FTS





13C5-PFNA-EIS



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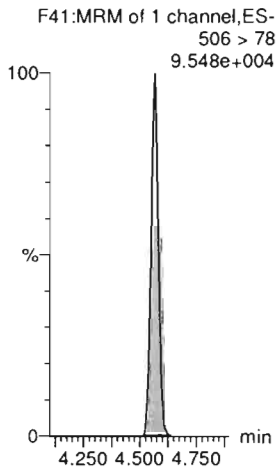

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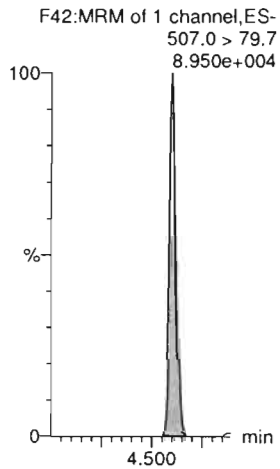

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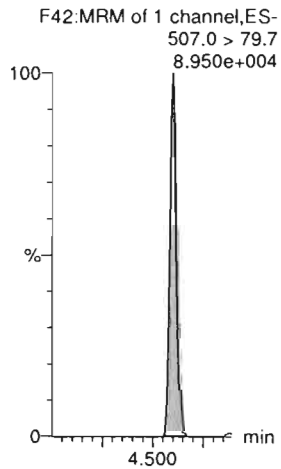

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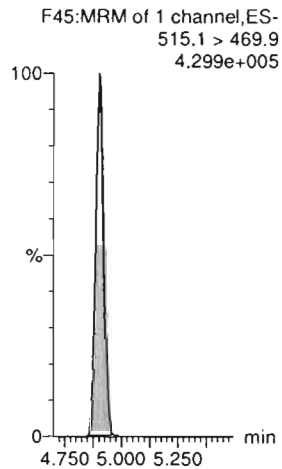

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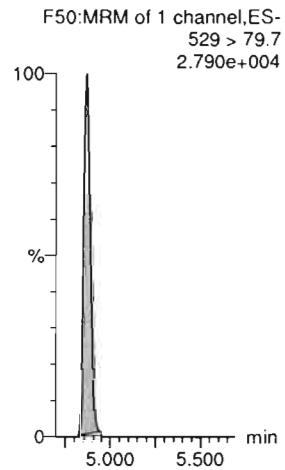

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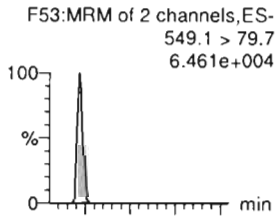
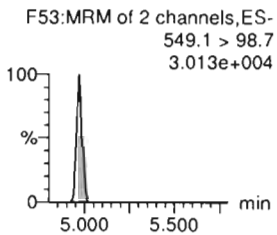
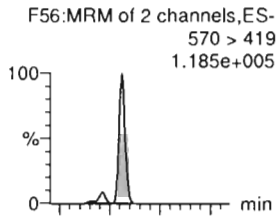
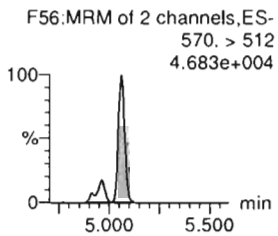


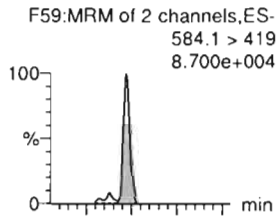


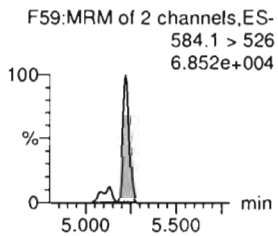
L-MeFOSAA



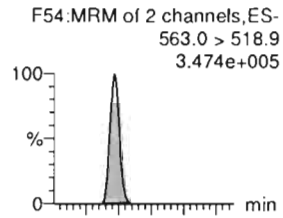


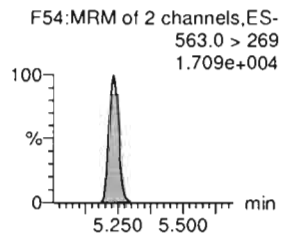
L-EtFOSAA



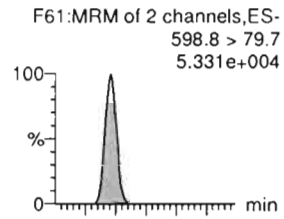


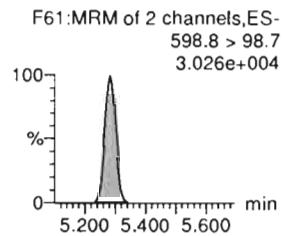
PFUdA



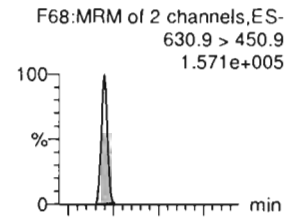


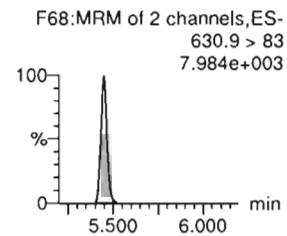
PFDS



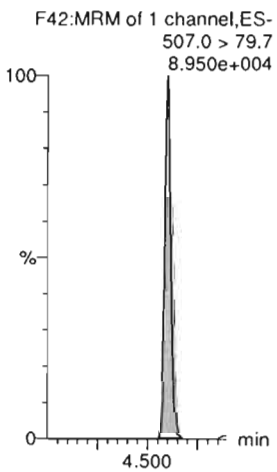


11Cl-PF30UdS

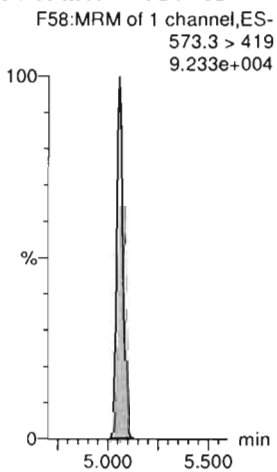




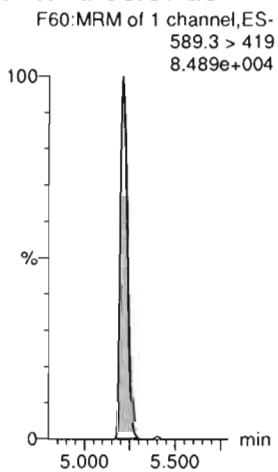
13C8-PFOS-EIS



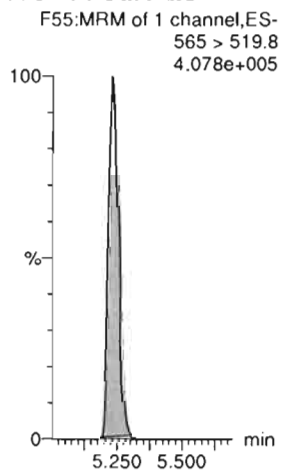
d3-N-MeFOSAA-EIS



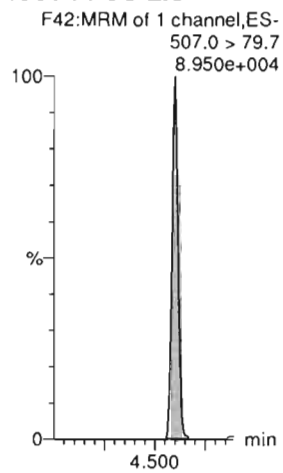
d5-N-EtFOSAA-EIS



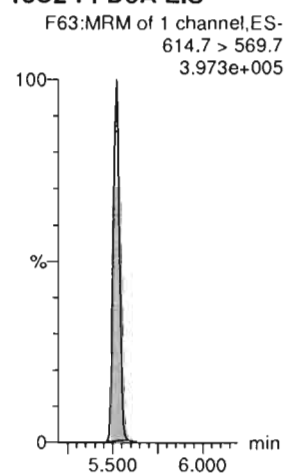
13C2-PFUdA-EIS



13C8-PFOS-EIS



13C2-PFDoA-EIS



RK 3/6/2020

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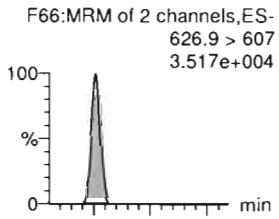
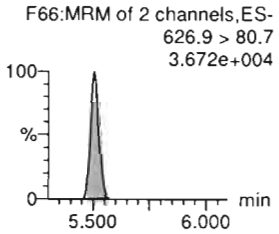
Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

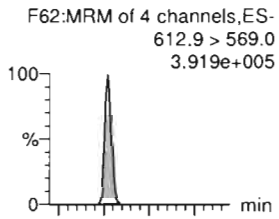
Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

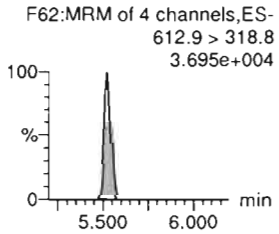
10:2 FTS



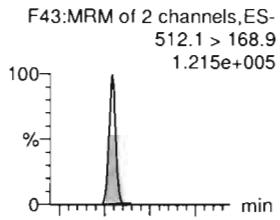


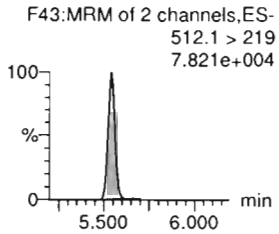
PFDoA



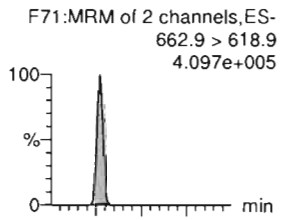


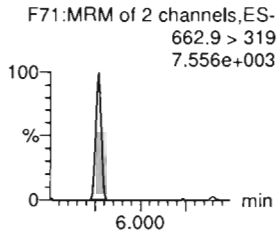
N-MeFOSA



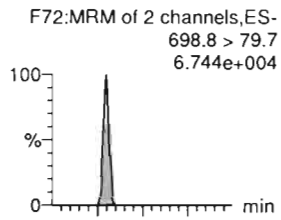


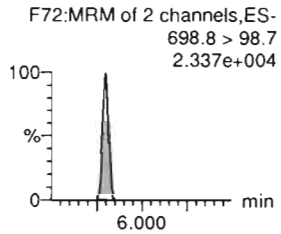
PFTrDA



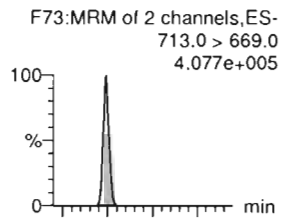


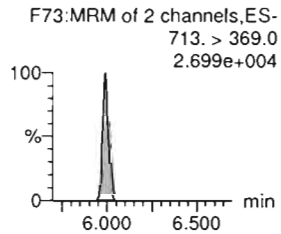
PFDoS



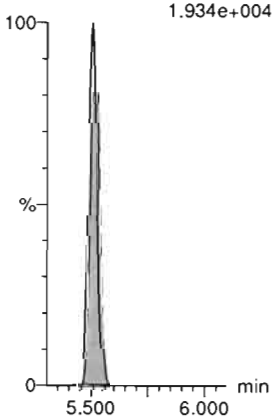


PFTeDA

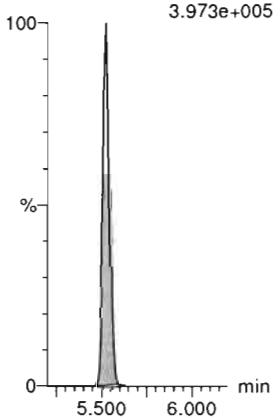




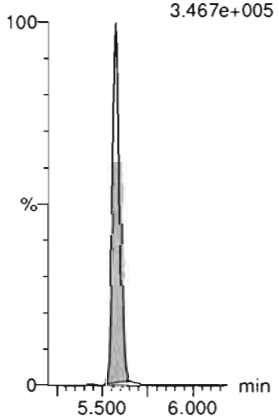
13C2-10:2 FTS-EIS



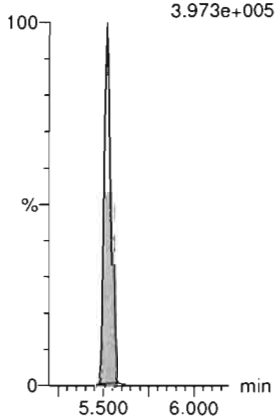
13C2-PFDoA-EIS



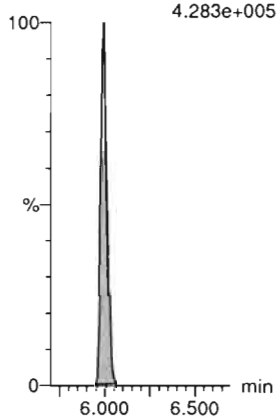
d3-N-MeFOSA-EIS



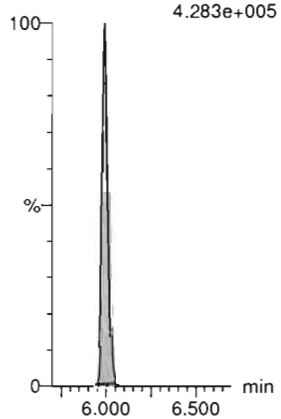
13C2-PFDoA-EIS



13C2-PFTeDA-EIS



13C2-PFTeDA-EIS



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Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

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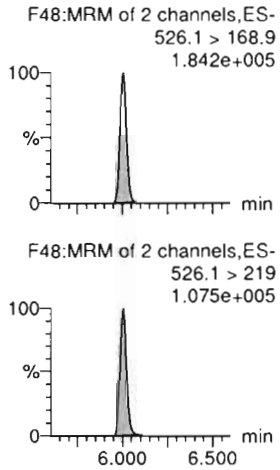
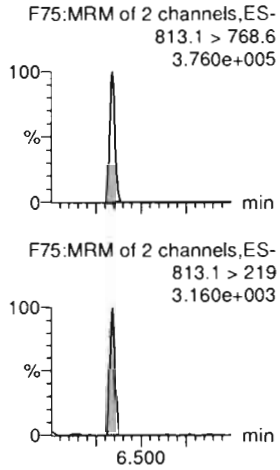
Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

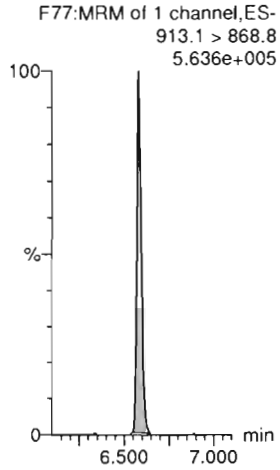
N-EtFOSA



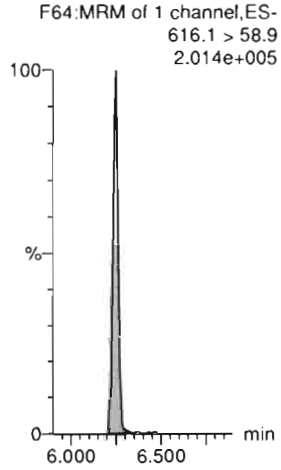
PFHxDA



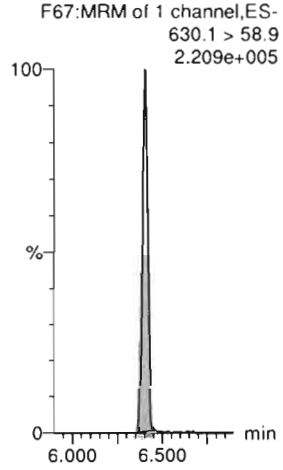
PFODA



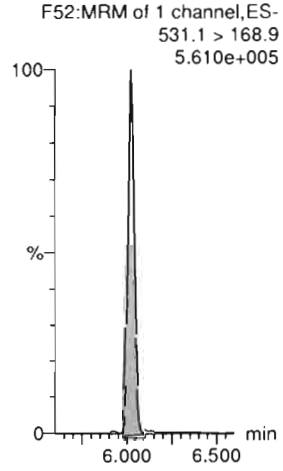
N-MeFOSE



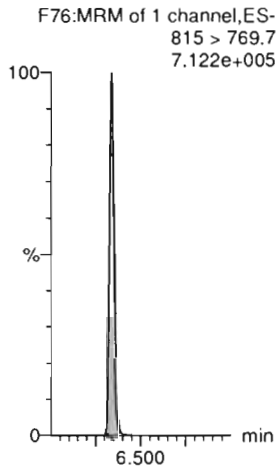
N-EtFOSE



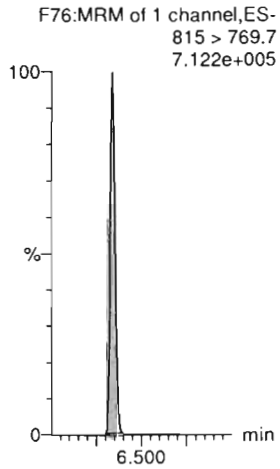
d5-N-ETFOSA-EIS



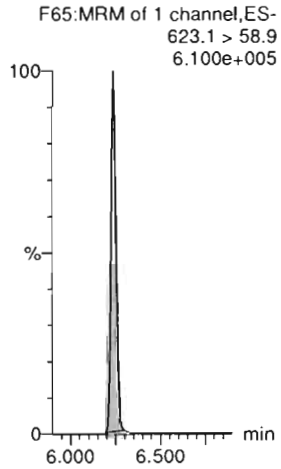
13C2-PFHxDA-EIS



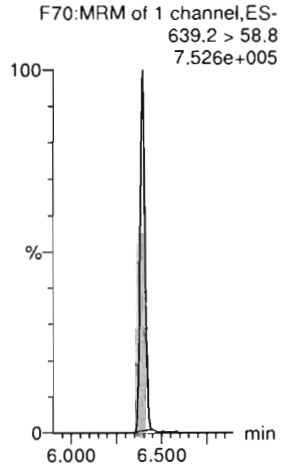
13C2-PFHxDA-EIS



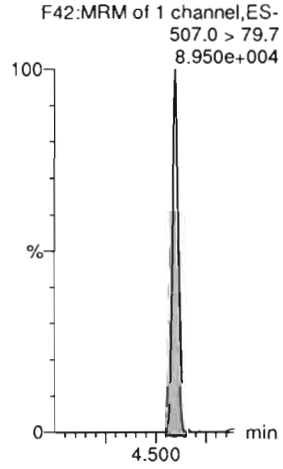
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



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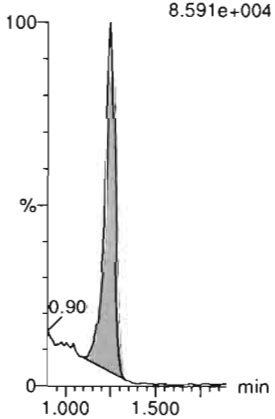
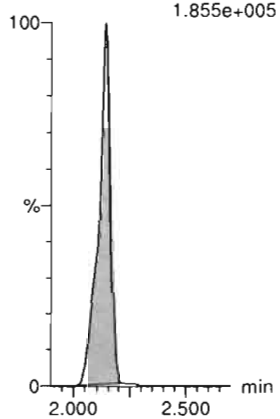
Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

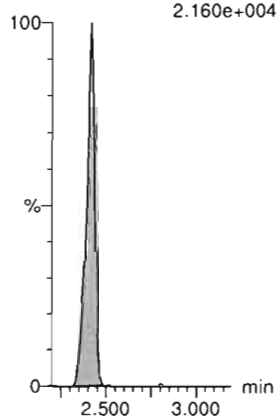
13C3-PFBA-RSD
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.591e+004



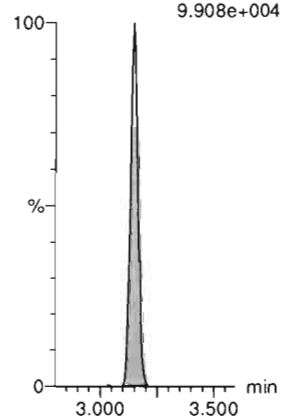
13C3-PFPeA-RSD
F8:MRM of 1 channel,ES-
266.0 > 221.8
1.855e+005



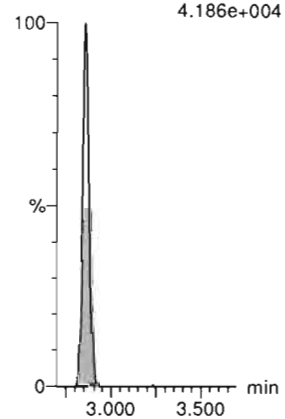
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.160e+004



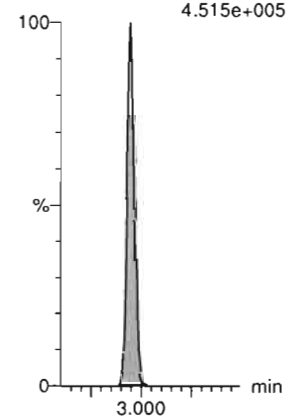
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.908e+004



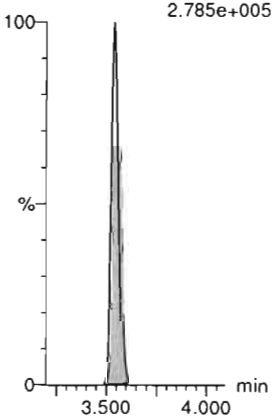
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
4.186e+004



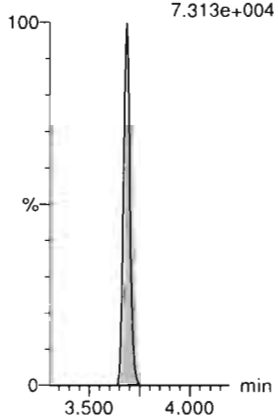
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.515e+005



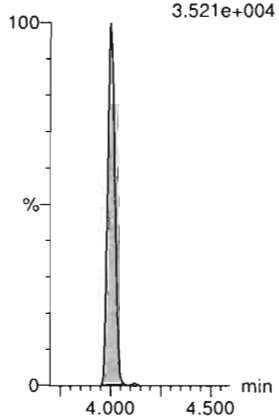
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.785e+005



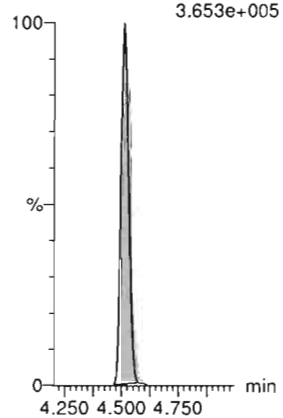
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.313e+004



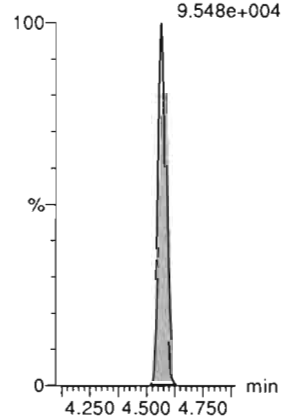
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.521e+004



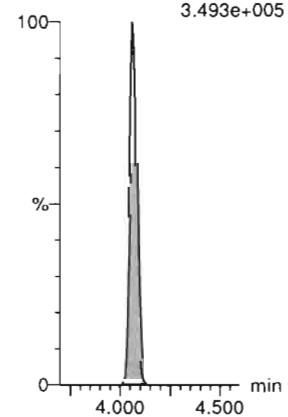
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.653e+005



13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.548e+004



13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.493e+005



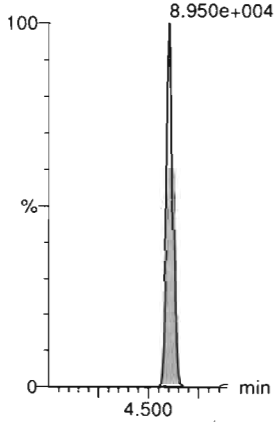
RK 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

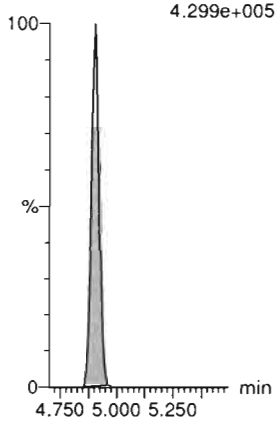
Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

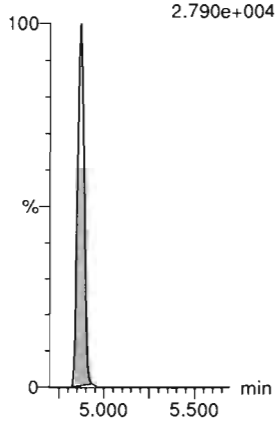
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
8.950e+004



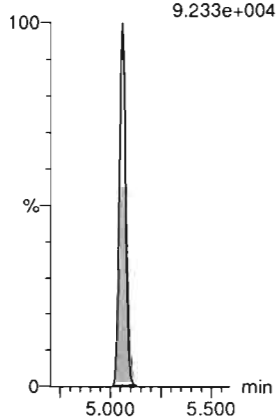
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.299e+005



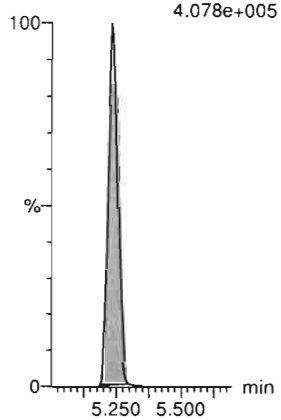
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.790e+004



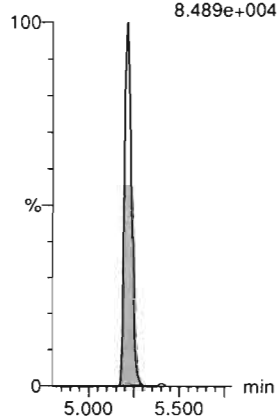
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
9.233e+004



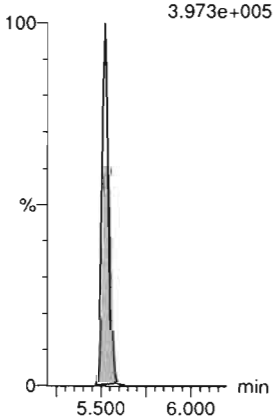
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.078e+005



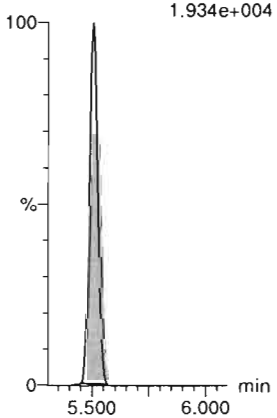
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.489e+004



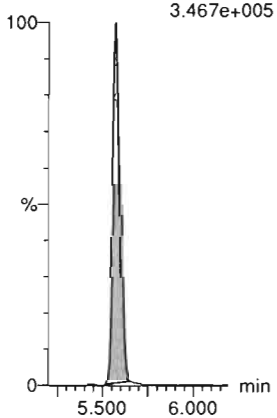
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.973e+005



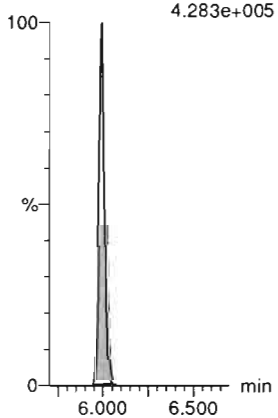
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.934e+004



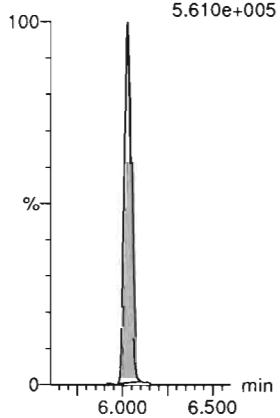
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.467e+005



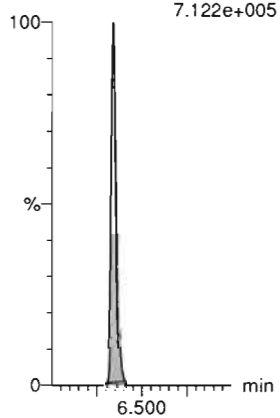
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.283e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.610e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.122e+005



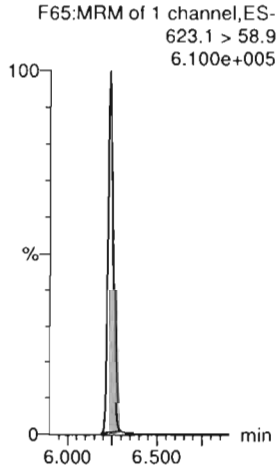
RK 3/6/2020

Dataset: P:\PFAS5.PRO\RESULTS\200305P1\200305P1-33.qld

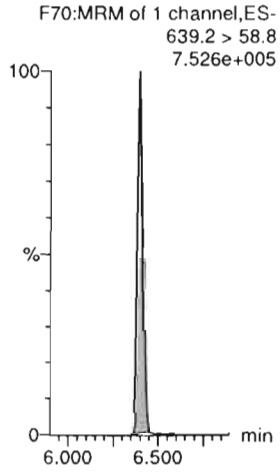
Last Altered: Friday, March 06, 2020 10:53:55 Pacific Standard Time
Printed: Friday, March 06, 2020 10:56:08 Pacific Standard Time

Name: 200305P1-33, Date: 05-Mar-2020, Time: 22:50:47, ID: ST200305P1-11 PFC CS3 20C0309, Description: PFC CS3 20C0309

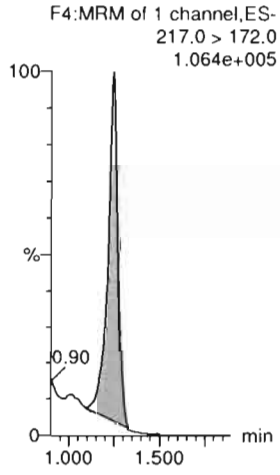
d7-N-MeFOSE-RSD



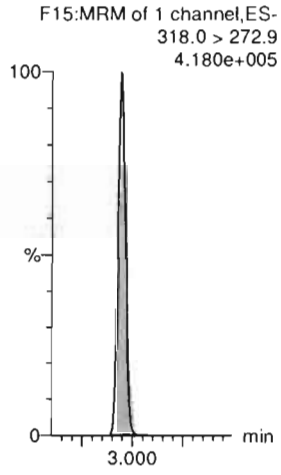
d9-N-EtFOSE-RSD



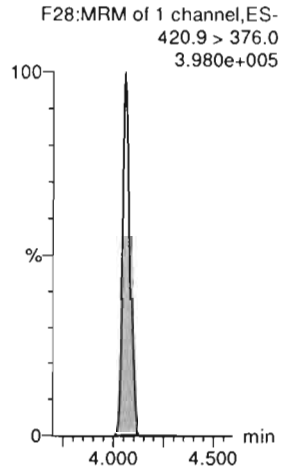
13C4-PFBA



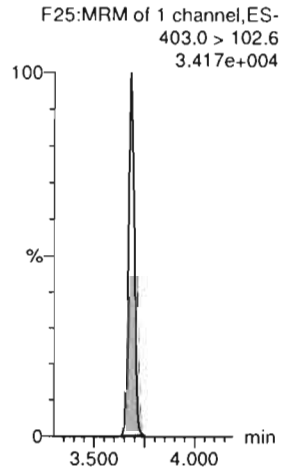
13C5-PFHxA



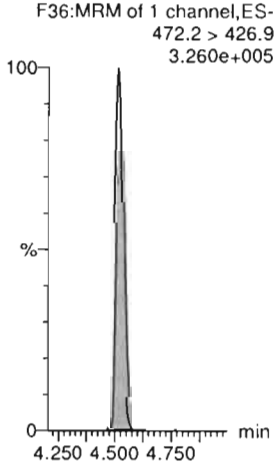
13C8-PFOA



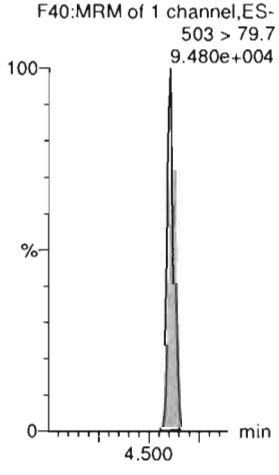
18O2-PFHxS



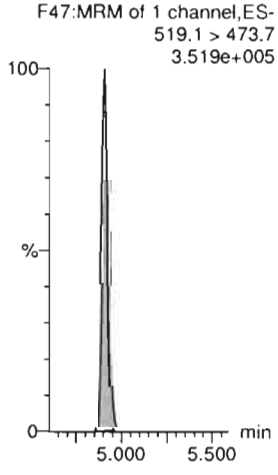
13C9-PFNA



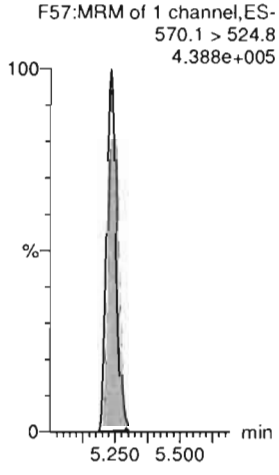
13C4-PFOS



13C6-PFDA



13C7-PFUdA



RK 3/6/2020

INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

INITIAL CALIBRATION VERIFICATION (ICV) AND INSTRUMENT BLANK (IB)

Quantify Compound Summary Report **MassLynx V4.2 SCN977**
Vista Analytical Laboratory

Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 09:51:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 09:56:37 Pacific Standard Time

VJ 03/05/20

low point
9Cl: 0.5
8:2 ~~FTCA~~ FTS: 0.5
10:2 FTS: 0.5
N-MeFOSA: 2.5

high point
3:3 FTCA: 100
5:3 FTCA: 100
7:3 FTCA: 100
9Cl: 250

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 09:48:04

Compound name: PFBA
Correlation coefficient: r = 0.999870, r^2 = 0.999739
Calibration curve: 1.22877 * x + -0.0485473
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

VOPV 03/05/20

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	1.23	106.451	4402.323	0.302	0.3	14.2	NO	1.000	NO	MM
2	2 200304P2-4	Standard	0.500	1.24	211.015	4523.122	0.583	0.5	2.8	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	1.23	384.448	4593.813	1.046	0.9	-10.9	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	1.23	897.895	4614.375	2.432	2.0	0.9	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	1.23	2251.017	4510.145	6.239	5.1	2.3	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	1.23	4216.689	4645.938	11.345	9.3	-7.3	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	1.23	22361.617	4583.611	60.983	49.7	-0.7	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	1.23	45028.648	4727.791	119.053	96.9	-3.1	NO	1.000	NO	MM
9	9 200304P2-11	Standard	250.000	1.23	88963.188	3562.562	312.146	254.1	1.6	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	1.23	152122.063	3095.351	614.317	500.0	-0.0	NO	1.000	NO	bb

Compound name: PFPrS
Correlation coefficient: r = 0.996168, r^2 = 0.992351
Calibration curve: 1.22997 * x + -0.0283487
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	1.53	24.122	944.498	0.319	0.3	13.0	NO	0.992	NO	MM
2	2 200304P2-4	Standard	0.500	1.54	42.099	926.629	0.568	0.5	-3.0	NO	0.992	NO	MM
3	3 200304P2-5	Standard	1.000	1.53	79.518	931.432	1.067	0.9	-10.9	NO	0.992	NO	MM
4	4 200304P2-6	Standard	2.000	1.53	185.355	979.440	2.366	1.9	-2.7	NO	0.992	NO	MM
5	5 200304P2-7	Standard	5.000	1.53	499.523	1022.516	6.107	5.0	-0.2	NO	0.992	NO	MM
6	6 200304P2-8	Standard	10.000	1.53	951.755	1033.085	11.516	9.4	-6.1	NO	0.992	NO	MM
7	7 200304P2-9	Standard	50.000	1.53	4673.519	1018.825	57.340	46.6	-6.7	NO	0.992	NO	bb
8	8 200304P2-10	Standard	100.000	1.53	9951.688	1015.569	122.489	99.6	-0.4	NO	0.992	NO	bb
9	9 200304P2-11	Standard	250.000	1.53	19883.764	709.261	350.431	284.9	14.0	NO	0.992	NO	MM
10	10 200304P2-12	Standard	500.000	1.53	29207.746	632.153	577.545	469.6	-6.1	NO	0.992	NO	MM

VJ 03/05/20

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 09:51:10 Pacific Standard Time
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Compound name: 3:3 FTCA
Coefficient of Determination: R^2 = 0.999269
Calibration curve: -3.67081e-005 * x^2 + 0.150027 * x + -0.0084447
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	2.00	16.639	8063.190	0.026	0.2	-8.7	NO	0.999	NO	MM
2	2 200304P2-4	Standard	0.500	2.00	47.007	8473.734	0.069	0.5	3.7	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	2.00	92.228	8350.816	0.138	1.0	-2.3	NO	0.999	NO	MM
4	4 200304P2-6	Standard	2.000	2.00	180.163	8447.558	0.267	1.8	-8.3	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	2.00	476.698	8522.696	0.699	4.7	-5.6	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	2.00	974.832	8513.549	1.431	9.6	-3.8	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	2.00	5135.647	8403.462	7.639	51.6	3.3	NO	0.999	NO	bd
8	8 200304P2-10	Standard	100.000	2.00	10179.168	8765.210	14.516	99.2	-0.8	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	2.00	4117.748	6657.588	7.731	52.3	-79.1	YES	0.999	NO	bbX
10	10 200304P2-12	Standard	500.000	2.00	6912.938	5716.588	15.116	103.4	-79.3	YES	0.999	NO	bbX

Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999784
Calibration curve: 1.01374e-005 * x^2 + 0.947655 * x + 0.00565638
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	2.14	165.294	8063.190	0.256	0.3	5.8	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	2.13	304.193	8473.734	0.449	0.5	-6.5	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	2.13	651.669	8350.816	0.975	1.0	2.3	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	2.13	1297.164	8447.558	1.919	2.0	1.0	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	2.13	3282.896	8522.696	4.815	5.1	1.5	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	2.13	6470.257	8513.549	9.500	10.0	0.2	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	2.13	31702.072	8403.462	47.156	49.7	-0.5	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	2.13	64573.207	8765.210	92.087	97.1	-2.9	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	2.13	129025.805	6657.588	242.253	254.9	2.0	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	2.13	217047.063	5716.588	474.599	498.2	-0.4	NO	1.000	NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 09:51:10 Pacific Standard Time
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Compound name: PFBS
Correlation coefficient: r = 0.999122, r^2 = 0.998244
Calibration curve: 2.59023 * x + -0.116823
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	2.40	44.368	944.498	0.587	0.3	8.7	NO	0.998	NO	MM
2	2	200304P2-4	Standard	0.500	2.40	96.554	926.629	1.302	0.5	9.6	NO	0.998	NO	MM
3	3	200304P2-5	Standard	1.000	2.40	177.525	931.432	2.382	1.0	-3.5	NO	0.998	NO	bb
4	4	200304P2-6	Standard	2.000	2.40	363.583	979.440	4.640	1.8	-8.2	NO	0.998	NO	bb
5	5	200304P2-7	Standard	5.000	2.41	1017.387	1022.516	12.437	4.8	-3.1	NO	0.998	NO	bb
6	6	200304P2-8	Standard	10.000	2.41	1841.729	1033.085	22.284	8.6	-13.5	NO	0.998	NO	MM
7	7	200304P2-9	Standard	50.000	2.41	9819.501	1018.825	120.476	46.6	-6.9	NO	0.998	NO	bb
8	8	200304P2-10	Standard	100.000	2.40	19732.361	1015.569	242.873	93.8	-6.2	NO	0.998	NO	bb
9	9	200304P2-11	Standard	250.000	2.40	38751.766	709.261	682.960	263.7	5.5	NO	0.998	NO	bb
10	10	200304P2-12	Standard	500.000	2.41	65170.457	632.153	1288.661	497.6	-0.5	NO	0.998	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999395
Calibration curve: -0.000488235 * x^2 + 1.57983 * x + -0.224097
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	2.85	30.564	1425.508	0.268	0.3	24.6	NO	0.999	NO	bb
2	2	200304P2-4	Standard	0.500	2.86	75.893	1625.470	0.584	0.5	2.3	NO	0.999	NO	bb
3	3	200304P2-5	Standard	1.000	2.86	143.525	1479.255	1.213	0.9	-9.0	NO	0.999	NO	bb
4	4	200304P2-6	Standard	2.000	2.85	376.538	1649.539	2.853	1.9	-2.5	NO	0.999	NO	bb
5	5	200304P2-7	Standard	5.000	2.85	864.044	1543.641	6.997	4.6	-8.5	NO	0.999	NO	bb
6	6	200304P2-8	Standard	10.000	2.85	1655.124	1509.876	13.702	8.8	-11.6	NO	0.999	NO	bb
7	7	200304P2-9	Standard	50.000	2.85	8962.080	1356.426	82.589	53.3	6.6	NO	0.999	NO	bb
8	8	200304P2-10	Standard	100.000	2.85	16774.352	1399.257	149.851	98.0	-2.0	NO	0.999	NO	bb
9	9	200304P2-11	Standard	250.000	2.85	30750.594	1052.841	365.091	250.7	0.3	NO	0.999	NO	bb
10	10	200304P2-12	Standard	500.000	2.85	49872.043	934.155	667.342	499.7	-0.1	NO	0.999	NO	bb

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Compound name: PFHxA
Correlation coefficient: r = 0.999772, r^2 = 0.999543
Calibration curve: 0.877166 * x + 0.0585886
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	2.94	361.076	14509.173	0.311	0.3	15.1	NO	1.000	NO	MM
2	2 200304P2-4	Standard	0.500	2.94	638.306	14849.003	0.537	0.5	9.2	NO	1.000	NO	MM
3	3 200304P2-5	Standard	1.000	2.94	1142.623	15509.219	0.921	1.0	-1.7	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	2.94	2189.881	15098.153	1.813	2.0	0.0	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	2.94	5496.962	15357.925	4.474	5.0	0.7	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	2.94	11119.762	15163.504	9.167	10.4	3.8	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	2.94	52564.230	14979.496	43.863	49.9	-0.1	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	2.94	108298.438	15772.194	85.830	97.8	-2.2	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	2.94	210286.391	11616.815	226.274	257.9	3.2	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	2.94	348792.656	10062.281	433.292	493.9	-1.2	NO	1.000	NO	bb

Compound name: PFPeS
Correlation coefficient: r = 0.998482, r^2 = 0.996966
Calibration curve: 2.32483 * x + -0.043047
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.12	34.517	944.498	0.457	0.2	-14.0	NO	0.997	NO	bb
2	2 200304P2-4	Standard	0.500	3.13	65.392	926.629	0.882	0.4	-20.4	NO	0.997	NO	bb
3	3 200304P2-5	Standard	1.000	3.13	194.933	931.432	2.616	1.1	14.4	NO	0.997	NO	bb
4	4 200304P2-6	Standard	2.000	3.13	366.238	979.440	4.674	2.0	1.5	NO	0.997	NO	bb
5	5 200304P2-7	Standard	5.000	3.13	960.176	1022.516	11.738	5.1	1.3	NO	0.997	NO	bb
6	6 200304P2-8	Standard	10.000	3.13	1971.296	1033.085	23.852	10.3	2.8	NO	0.997	NO	bb
7	7 200304P2-9	Standard	50.000	3.13	9914.851	1018.825	121.646	52.3	4.7	NO	0.997	NO	bb
8	8 200304P2-10	Standard	100.000	3.13	18609.518	1015.569	229.053	98.5	-1.5	NO	0.997	NO	bb
9	9 200304P2-11	Standard	250.000	3.13	35655.414	709.261	628.390	270.3	8.1	NO	0.997	NO	bb
10	10 200304P2-12	Standard	500.000	3.13	56246.297	632.153	1112.197	478.4	-4.3	NO	0.997	NO	bb

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Compound name: HFPO-DA
Coefficient of Determination: R^2 = 0.999734
Calibration curve: -0.000291166 * x^2 + 1.11135 * x + -0.00438747
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.14	86.328	3365.811	0.321	0.3	17.0	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	3.15	128.368	3514.446	0.457	0.4	-17.0	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	3.14	315.901	3675.547	1.074	1.0	-2.9	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	3.14	635.486	3660.667	2.170	2.0	-2.1	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	3.14	1586.639	3336.894	5.944	5.4	7.2	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	3.14	3072.865	3502.690	10.966	9.9	-1.0	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	3.14	15497.971	3621.955	53.486	48.8	-2.5	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	3.14	30821.723	3622.897	106.343	98.2	-1.8	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	3.14	62366.672	2944.603	264.750	255.3	2.1	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	3.14	101278.023	2632.906	480.828	497.5	-0.5	NO	1.000	NO	bb

Compound name: 5:3 FTCA
Coefficient of Determination: R^2 = 0.999383
Calibration curve: -0.000189215 * x^2 + 0.387413 * x + -0.0250636
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.47	50.360	7836.800	0.080	0.3	8.8	NO	0.999	NO	bb
2	2 200304P2-4	Standard	0.500	3.47	113.700	8147.872	0.174	0.5	3.0	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	3.47	244.575	8334.623	0.367	1.0	1.2	NO	0.999	NO	bb
4	4 200304P2-6	Standard	2.000	3.47	474.437	8280.926	0.716	1.9	-4.2	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	3.47	1257.433	8897.463	1.767	4.6	-7.3	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	3.47	2491.258	8450.053	3.685	9.6	-3.8	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	3.47	12276.574	7899.096	19.427	51.5	3.0	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	3.47	24878.275	8503.916	36.569	99.3	-0.7	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	3.47	9984.608	6681.411	18.680	49.5	-80.2	YES	0.999	NO	bbX
10	10 200304P2-12	Standard	500.000	3.47	16424.561	5411.800	37.937	103.2	-79.4	YES	0.999	NO	bbX

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Compound name: PFHpA
Correlation coefficient: r = 0.999380, r^2 = 0.998760
Calibration curve: 1.19534 * x + 0.12732
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.53	260.709	7836.800	0.416	0.2	-3.5	NO	0.999	NO	bb
2	2 200304P2-4	Standard	0.500	3.54	431.817	8147.872	0.662	0.4	-10.5	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	3.54	768.436	8334.623	1.152	0.9	-14.2	NO	0.999	NO	bb
4	4 200304P2-6	Standard	2.000	3.54	1815.026	8280.926	2.740	2.2	9.3	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	3.54	4354.429	8897.463	6.118	5.0	0.2	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	3.54	8830.096	8450.053	13.062	10.8	8.2	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	3.54	41651.848	7899.096	65.912	55.0	10.1	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	3.53	81608.414	8503.916	119.957	100.2	0.2	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	3.54	164079.438	6681.411	306.970	256.7	2.7	NO	0.999	NO	bb
10	10 200304P2-12	Standard	500.000	3.53	252191.266	5411.800	582.503	487.2	-2.6	NO	0.999	NO	bb

Compound name: ADONA
Coefficient of Determination: R^2 = 0.999377
Calibration curve: 6.47742e-005 * x^2 + 3.40294 * x + 0.107116
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.64	605.293	7836.800	0.965	0.3	0.9	NO	0.999	NO	bb
2	2 200304P2-4	Standard	0.500	3.64	1191.161	8147.872	1.827	0.5	1.1	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	3.64	2305.535	8334.623	3.458	1.0	-1.5	NO	0.999	NO	bb
4	4 200304P2-6	Standard	2.000	3.64	4497.291	8280.926	6.789	2.0	-1.8	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	3.64	12005.535	8897.463	16.867	4.9	-1.5	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	3.64	22506.025	8450.053	33.293	9.8	-2.5	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	3.64	117689.984	7899.096	186.240	54.6	9.3	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	3.64	224610.328	8503.916	330.157	96.8	-3.2	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	3.64	452364.781	6681.411	846.312	247.5	-1.0	NO	0.999	NO	bb
10	10 200304P2-12	Standard	500.000	3.64	745823.438	5411.800	1722.679	501.4	0.3	NO	0.999	NO	bb

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Compound name: L-PFHxS
Correlation coefficient: r = 0.999868, r^2 = 0.999736
Calibration curve: 1.02796 * x + -0.0723975
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	3.67	34.781	2244.017	0.194	0.3	3.6	NO	1.000	NO	MM
2	2 200304P2-4	Standard	0.500	3.69	55.246	2219.308	0.311	0.4	-25.4	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	3.68	177.689	2314.499	0.960	1.0	0.4	NO	1.000	NO	MM
4	4 200304P2-6	Standard	2.000	3.68	426.901	2343.224	2.277	2.3	14.3	NO	1.000	NO	MM
5	5 200304P2-7	Standard	5.000	3.68	1054.128	2472.347	5.330	5.3	5.1	NO	1.000	NO	MM
6	6 200304P2-8	Standard	10.000	3.68	1923.361	2375.726	10.120	9.9	-0.8	NO	1.000	NO	MM
7	7 200304P2-9	Standard	50.000	3.68	9776.357	2325.628	52.547	51.2	2.4	NO	1.000	NO	MM
8	8 200304P2-10	Standard	100.000	3.68	19506.957	2373.408	102.737	100.0	0.0	NO	1.000	NO	MM
9	9 200304P2-11	Standard	250.000	3.68	37936.953	1816.874	261.004	254.0	1.6	NO	1.000	NO	MM
10	10 200304P2-12	Standard	500.000	3.68	60718.355	1493.357	508.237	494.5	-1.1	NO	1.000	NO	MM

Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998778
Calibration curve: -0.000416301 * x^2 + 1.91794 * x + -0.0251531
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.01	31.653	1219.295	0.325	0.2	-27.1	NO	0.999	NO	bb
2	2 200304P2-4	Standard	0.500	4.00	125.807	1300.462	1.209	0.6	28.7	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	4.00	158.685	1230.747	1.612	0.9	-14.6	NO	0.999	NO	bb
4	4 200304P2-6	Standard	2.000	4.00	350.349	1325.912	3.303	1.7	-13.2	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	3.99	999.470	1358.383	9.197	4.8	-3.7	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	4.00	2124.607	1126.713	23.571	12.3	23.4	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	4.00	9794.355	1253.748	97.651	51.5	3.0	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	4.00	19186.371	1268.946	188.999	100.8	0.8	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	4.00	35099.590	998.548	439.383	241.8	-3.3	NO	0.999	NO	bb
10	10 200304P2-12	Standard	500.000	3.99	56947.449	826.518	861.255	504.3	0.9	NO	0.999	NO	bb

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Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999780
Calibration curve: -7.77191e-005 * x^2 + 1.26767 * x + 0.134631
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	4.05	376.004	11962.581	0.393	0.2	-18.5	NO	1.000	NO	bb
2	2	200304P2-4	Standard	0.500	4.05	816.069	12456.621	0.819	0.5	8.0	NO	1.000	NO	dd
3	3	200304P2-5	Standard	1.000	4.05	1482.646	12396.286	1.495	1.1	7.3	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	4.05	2579.941	12098.559	2.666	2.0	-0.2	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	4.06	7047.730	12792.719	6.886	5.3	6.6	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	4.06	12647.805	12706.853	12.442	9.7	-2.9	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	4.05	62735.492	12183.001	64.368	50.8	1.7	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	4.06	120910.031	12355.636	122.323	97.0	-3.0	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	4.06	245225.344	9696.579	316.124	253.2	1.3	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	4.05	375690.594	7657.978	613.234	498.9	-0.2	NO	1.000	NO	bb

Compound name: PFecHS
Coefficient of Determination: R^2 = 0.999622
Calibration curve: -5.1658e-006 * x^2 + 0.197943 * x + -0.0130452
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	4.08	24.145	11962.581	0.025	0.2	-22.7	NO	1.000	NO	bb
2	2	200304P2-4	Standard	0.500	4.07	80.644	12456.621	0.081	0.5	-5.1	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	4.06	210.794	12396.286	0.213	1.1	14.0	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	4.07	402.178	12098.559	0.416	2.2	8.3	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	4.07	1073.392	12792.719	1.049	5.4	7.3	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	4.07	1888.510	12706.853	1.858	9.5	-5.5	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	4.07	10075.730	12183.001	10.338	52.4	4.7	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	4.07	19607.482	12355.636	19.837	100.5	0.5	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	4.07	37327.504	9696.579	48.119	244.7	-2.1	NO	1.000	NO	bd
10	10	200304P2-12	Standard	500.000	4.07	60109.285	7657.978	98.115	502.3	0.5	NO	1.000	NO	bb

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999650
Calibration curve: 0.000156607 * x^2 + 0.906492 * x + 0.0221239
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.17	46.770	2486.245	0.235	0.2	-6.0	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	4.17	104.236	2666.816	0.489	0.5	2.9	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	4.17	211.882	2443.940	1.084	1.2	17.1	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	4.18	340.114	2726.697	1.559	1.7	-15.2	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	4.17	1046.732	2631.129	4.973	5.5	9.1	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	4.17	1860.679	2599.295	8.948	9.8	-1.7	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	4.17	10094.089	2622.791	48.108	52.6	5.1	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	4.17	19806.426	2688.689	92.082	99.8	-0.2	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	4.17	39062.816	2103.390	232.142	245.6	-1.7	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	4.17	64288.020	1625.539	494.359	501.8	0.4	NO	1.000	NO	MM

Compound name: 7:3 FTCA
Coefficient of Determination: R^2 = 0.999627
Calibration curve: -3.85292e-006 * x^2 + 0.289803 * x + -0.0102751
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.50	49.657	10236.276	0.061	0.2	-2.1	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	4.49	106.174	10902.920	0.122	0.5	-8.9	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	4.50	254.897	10857.461	0.293	1.0	4.8	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	4.49	496.816	11028.038	0.563	2.0	-1.1	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	4.49	1263.472	10389.095	1.520	5.3	5.6	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	4.49	2588.376	10842.604	2.984	10.3	3.3	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	4.49	12184.954	10760.623	14.155	48.9	-2.2	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	4.49	24817.146	10669.225	29.076	100.5	0.5	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	4.49	9851.047	8471.279	14.536	50.2	-79.9	YES	1.000	NO	bbX
10	10 200304P2-12	Standard	500.000	4.49	16597.367	6981.723	29.716	102.7	-79.5	YES	1.000	NO	bbX

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Compound name: PFNA
Correlation coefficient: r = 0.999943, r^2 = 0.999887
Calibration curve: 1.24763 * x + 0.03244
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	4.50	280.176	10236.276	0.342	0.2	-0.7	NO	1.000	NO	bb
2	2	200304P2-4	Standard	0.500	4.51	579.010	10902.920	0.664	0.5	1.2	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	4.51	1215.880	10857.461	1.400	1.1	9.6	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	4.51	2217.431	11028.038	2.513	2.0	-0.6	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	4.51	5360.472	10389.095	6.450	5.1	2.9	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	4.51	10600.131	10842.604	12.220	9.8	-2.3	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	4.51	54774.344	10760.623	63.628	51.0	1.9	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	4.51	105364.023	10669.225	123.444	98.9	-1.1	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	4.51	208970.172	8471.279	308.351	247.1	-1.2	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	4.51	350521.563	6981.723	627.570	503.0	0.6	NO	1.000	NO	bb

Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999772
Calibration curve: 0.000232487 * x^2 + 0.926276 * x + 0.158051
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	4.56	102.301	3240.639	0.395	0.3	2.1	NO	1.000	NO	bb
2	2	200304P2-4	Standard	0.500	4.55	178.515	3221.668	0.693	0.6	15.4	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	4.56	290.617	3272.469	1.110	1.0	2.8	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	4.56	441.905	3442.417	1.605	1.6	-21.9	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	4.56	1217.721	3379.171	4.505	4.7	-6.3	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	4.56	2547.329	3191.502	9.977	10.6	5.7	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	4.56	13257.215	3402.070	48.710	51.7	3.5	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	4.56	25559.625	3389.875	94.250	99.1	-0.9	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	4.56	50120.078	2559.343	244.790	248.6	-0.6	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	4.56	84862.664	2031.562	522.152	500.6	0.1	NO	1.000	NO	bb

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Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999622
Calibration curve: 0.00015808 * x^2 + 0.933834 * x + -0.0156559
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.60	52.374	2486.245	0.263	0.3	19.5	NO	1.000	NO	MM
2	2 200304P2-4	Standard	0.500	4.59	80.956	2666.816	0.379	0.4	-15.4	NO	1.000	NO	MM
3	3 200304P2-5	Standard	1.000	4.60	151.285	2443.940	0.774	0.8	-15.5	NO	1.000	NO	MM
4	4 200304P2-6	Standard	2.000	4.60	376.933	2726.697	1.728	1.9	-6.7	NO	1.000	NO	MM
5	5 200304P2-7	Standard	5.000	4.60	1081.886	2631.129	5.140	5.5	10.3	NO	1.000	NO	MM
6	6 200304P2-8	Standard	10.000	4.60	2046.481	2599.295	9.842	10.5	5.4	NO	1.000	NO	MM
7	7 200304P2-9	Standard	50.000	4.60	10149.154	2622.791	48.370	51.4	2.7	NO	1.000	NO	MM
8	8 200304P2-10	Standard	100.000	4.60	20743.611	2688.689	96.439	101.5	1.5	NO	1.000	NO	MM
9	9 200304P2-11	Standard	250.000	4.60	39922.070	2103.390	237.248	244.0	-2.4	NO	1.000	NO	MM
10	10 200304P2-12	Standard	500.000	4.60	66194.086	1625.539	509.016	502.4	0.5	NO	1.000	NO	MM

Compound name: 9Cl-PF30NS
Coefficient of Determination: R^2 = 0.999244
Calibration curve: -0.000203218 * x^2 + 1.56445 * x + 0.0154204
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.82	137.460	2486.245	0.691	0.4	72.8	YES	0.999	NO	bbX
2	2 200304P2-4	Standard	0.500	4.82	125.536	2666.816	0.588	0.4	-26.7	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	4.83	364.700	2443.940	1.865	1.2	18.3	NO	0.999	NO	bb
4	4 200304P2-6	Standard	2.000	4.82	663.882	2726.697	3.043	1.9	-3.2	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	4.82	1850.353	2631.129	8.791	5.6	12.3	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	4.82	3213.050	2599.295	15.452	9.9	-1.2	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	4.82	16841.313	2622.791	80.264	51.6	3.3	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	4.82	32226.652	2688.689	149.825	97.0	-3.0	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	4.82	63901.152	2103.390	379.751	250.9	0.4	NO	0.999	NO	bb
10	10 200304P2-12	Standard	500.000	4.82	101211.344	1625.539	778.291	534.6	6.9	NO	0.999	NO	bbX

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.999870
Calibration curve: -8.43611e-005 * x^2 + 1.33585 * x + 0.0646678
Response type: Internal Std (Ref 73), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.91	351.805	11630.392	0.378	0.2	-6.1	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	4.90	789.351	12905.041	0.765	0.5	4.8	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	4.90	1550.192	11539.324	1.679	1.2	20.9	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	4.90	2659.881	12846.407	2.588	1.9	-5.5	NO	1.000	NO	bd
5	5 200304P2-7	Standard	5.000	4.90	6968.416	12592.307	6.917	5.1	2.6	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	4.90	13251.632	11812.490	14.023	10.5	4.6	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	4.90	66758.969	12809.952	65.144	48.9	-2.3	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	4.90	126203.219	11822.187	133.439	100.5	0.5	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	4.90	251751.422	9576.072	328.620	249.9	-0.0	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	4.90	412989.219	7979.246	646.974	500.1	0.0	NO	1.000	NO	bb

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998078
Calibration curve: -0.000554636 * x^2 + 1.63509 * x + 0.0342798
Response type: Internal Std (Ref 75), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	4.86	10.750	995.327	0.135	0.1	-75.4	YES	0.998	NO	bbX
2	2 200304P2-4	Standard	0.500	4.87	70.903	975.824	0.908	0.5	6.9	NO	0.998	NO	bb
3	3 200304P2-5	Standard	1.000	4.87	155.680	1093.071	1.780	1.1	6.8	NO	0.998	NO	bb
4	4 200304P2-6	Standard	2.000	4.87	325.377	1197.075	3.398	2.1	2.9	NO	0.998	NO	bb
5	5 200304P2-7	Standard	5.000	4.87	713.943	1130.040	7.897	4.8	-3.7	NO	0.998	NO	bb
6	6 200304P2-8	Standard	10.000	4.87	1321.077	1090.783	15.139	9.3	-7.3	NO	0.998	NO	bb
7	7 200304P2-9	Standard	50.000	4.87	6541.082	1073.573	76.160	47.3	-5.4	NO	0.998	NO	bb
8	8 200304P2-10	Standard	100.000	4.87	13064.128	1090.699	149.722	94.6	-5.4	NO	0.998	NO	bb
9	9 200304P2-11	Standard	250.000	4.87	25175.764	791.861	397.415	267.3	6.9	NO	0.998	NO	bb
10	10 200304P2-12	Standard	500.000	4.87	38423.227	717.508	669.387	491.2	-1.8	NO	0.998	NO	bb

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Compound name: PFNS
Correlation coefficient: r = 0.999568, r^2 = 0.999135
Calibration curve: 0.889815 * x + -0.0800002
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	4.96	15.468	2486.245	0.078	0.2	-29.1	NO	0.999	NO	bb
2	2	200304P2-4	Standard	0.500	4.97	83.184	2666.816	0.390	0.5	5.6	NO	0.999	NO	bb
3	3	200304P2-5	Standard	1.000	4.96	127.982	2443.940	0.655	0.8	-17.4	NO	0.999	NO	bb
4	4	200304P2-6	Standard	2.000	4.97	349.011	2726.697	1.600	1.9	-5.6	NO	0.999	NO	bb
5	5	200304P2-7	Standard	5.000	4.97	1012.583	2631.129	4.811	5.5	9.9	NO	0.999	NO	bb
6	6	200304P2-8	Standard	10.000	4.97	1879.969	2599.295	9.041	10.3	2.5	NO	0.999	NO	bb
7	7	200304P2-9	Standard	50.000	4.96	9555.288	2622.791	45.540	51.3	2.5	NO	0.999	NO	bb
8	8	200304P2-10	Standard	100.000	4.97	18573.645	2688.689	86.351	97.1	-2.9	NO	0.999	NO	bb
9	9	200304P2-11	Standard	250.000	4.97	36078.398	2103.390	214.406	241.0	-3.6	NO	0.999	NO	bb
10	10	200304P2-12	Standard	500.000	4.96	59019.711	1625.539	453.847	510.1	2.0	NO	0.999	NO	bb

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998149
Calibration curve: -5.05982e-006 * x^2 + 2.09223 * x + -0.0722389
Response type: Internal Std (Ref 77), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.06	70.699	2518.952	0.351	0.2	-19.1	NO	0.998	NO	MM
2	2	200304P2-4	Standard	0.500	5.06	187.553	2322.667	1.009	0.5	3.4	NO	0.998	NO	bb
3	3	200304P2-5	Standard	1.000	5.06	404.371	2473.148	2.044	1.0	1.1	NO	0.998	NO	MM
4	4	200304P2-6	Standard	2.000	5.06	778.922	2658.003	3.663	1.8	-10.7	NO	0.998	NO	MM
5	5	200304P2-7	Standard	5.000	5.06	2288.061	2450.393	11.672	5.6	12.3	NO	0.998	NO	MM
6	6	200304P2-8	Standard	10.000	5.06	4265.580	2438.336	21.867	10.5	4.9	NO	0.998	NO	MM
7	7	200304P2-9	Standard	50.000	5.06	21581.094	2613.591	103.216	49.4	-1.3	NO	0.998	NO	MM
8	8	200304P2-10	Standard	100.000	5.06	41343.492	2709.132	190.760	91.2	-8.8	NO	0.998	NO	MM
9	9	200304P2-11	Standard	250.000	5.06	84521.875	1918.110	550.815	263.5	5.4	NO	0.998	NO	MM
10	10	200304P2-12	Standard	500.000	5.06	137697.406	1663.858	1034.474	495.1	-1.0	NO	0.998	NO	MM

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Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: L-EtFOSAA
Correlation coefficient: r = 0.998874, r^2 = 0.997750
Calibration curve: 1.32406 * x + -0.0705772
Response type: Internal Std (Ref 81), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.22	69.024	3589.006	0.240	0.2	-6.1	NO	0.998	NO	MM
2	2	200304P2-4	Standard	0.500	5.22	129.323	3786.040	0.427	0.4	-24.8	NO	0.998	NO	MM
3	3	200304P2-5	Standard	1.000	5.22	383.115	3572.632	1.340	1.1	6.6	NO	0.998	NO	MM
4	4	200304P2-6	Standard	2.000	5.22	712.370	3638.702	2.447	1.9	-4.9	NO	0.998	NO	MM
5	5	200304P2-7	Standard	5.000	5.22	2003.673	3747.157	6.684	5.1	2.0	NO	0.998	NO	MM
6	6	200304P2-8	Standard	10.000	5.22	3695.556	3600.419	12.830	9.7	-2.6	NO	0.998	NO	MM
7	7	200304P2-9	Standard	50.000	5.22	20175.709	3572.146	70.601	53.4	6.7	NO	0.998	NO	MM
8	8	200304P2-10	Standard	100.000	5.22	37461.602	3581.539	130.745	98.8	-1.2	NO	0.998	NO	MM
9	9	200304P2-11	Standard	250.000	5.22	70627.180	2503.029	352.709	266.4	6.6	NO	0.998	NO	MM
10	10	200304P2-12	Standard	500.000	5.22	110921.148	2174.078	637.748	481.7	-3.7	NO	0.998	NO	MM

Compound name: PFUdA
Correlation coefficient: r = 0.999241, r^2 = 0.998484
Calibration curve: 0.932703 * x + 0.0893084
Response type: Internal Std (Ref 79), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.24	342.580	13986.149	0.306	0.2	-7.0	NO	0.998	NO	bb
2	2	200304P2-4	Standard	0.500	5.24	646.949	14588.602	0.554	0.5	-0.3	NO	0.998	NO	bb
3	3	200304P2-5	Standard	1.000	5.23	1124.149	15326.997	0.917	0.9	-11.3	NO	0.998	NO	db
4	4	200304P2-6	Standard	2.000	5.24	2582.842	15895.778	2.031	2.1	4.1	NO	0.998	NO	bb
5	5	200304P2-7	Standard	5.000	5.24	6454.685	16044.878	5.029	5.3	5.9	NO	0.998	NO	bb
6	6	200304P2-8	Standard	10.000	5.24	11971.809	15333.686	9.759	10.4	3.7	NO	0.998	NO	bb
7	7	200304P2-9	Standard	50.000	5.23	58003.938	14660.305	49.457	52.9	5.9	NO	0.998	NO	bb
8	8	200304P2-10	Standard	100.000	5.24	112135.141	15577.330	89.983	96.4	-3.6	NO	0.998	NO	bb
9	9	200304P2-11	Standard	250.000	5.24	225137.750	11464.172	245.480	263.1	5.2	NO	0.998	NO	bb
10	10	200304P2-12	Standard	500.000	5.23	346550.750	9535.332	454.298	487.0	-2.6	NO	0.998	NO	bb

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Compound name: PFDS
Coefficient of Determination: R^2 = 0.999638
Calibration curve: 3.89757e-005 * x^2 + 0.882121 * x + 0.0622793
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.28	53.567	2486.245	0.269	0.2	-6.1	NO	1.000	NO	MM
2	2	200304P2-4	Standard	0.500	5.28	102.982	2666.816	0.483	0.5	-4.7	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	5.28	236.043	2443.940	1.207	1.3	29.8	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	5.28	363.555	2726.697	1.667	1.8	-9.1	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	5.28	1068.681	2631.129	5.077	5.7	13.7	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	5.28	1913.895	2599.295	9.204	10.4	3.6	NO	1.000	NO	bd
7	7	200304P2-9	Standard	50.000	5.28	9563.985	2622.791	45.581	51.5	3.0	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	5.28	18900.871	2688.689	87.872	99.1	-0.9	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	5.28	37015.516	2103.390	219.975	246.6	-1.4	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	5.28	58832.504	1625.539	452.408	501.7	0.3	NO	1.000	NO	bb

Compound name: 11Cl-PF30UdS
Correlation coefficient: r = 0.999339, r^2 = 0.998678
Calibration curve: 0.452206 * x + -0.00335863
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.45	133.131	14975.688	0.111	0.3	1.3	NO	0.999	NO	bb
2	2	200304P2-4	Standard	0.500	5.45	276.798	15521.729	0.223	0.5	0.1	NO	0.999	NO	bb
3	3	200304P2-5	Standard	1.000	5.45	522.954	15446.988	0.423	0.9	-5.7	NO	0.999	NO	bb
4	4	200304P2-6	Standard	2.000	5.45	1111.722	15279.108	0.910	2.0	0.9	NO	0.999	NO	bb
5	5	200304P2-7	Standard	5.000	5.45	2993.457	16333.823	2.291	5.1	1.5	NO	0.999	NO	bb
6	6	200304P2-8	Standard	10.000	5.45	5817.941	15150.304	4.800	10.6	6.2	NO	0.999	NO	bb
7	7	200304P2-9	Standard	50.000	5.45	28520.188	15336.411	23.245	51.4	2.8	NO	0.999	NO	bb
8	8	200304P2-10	Standard	100.000	5.45	55290.699	16243.715	42.548	94.1	-5.9	NO	0.999	NO	bb
9	9	200304P2-11	Standard	250.000	5.45	110970.539	12775.509	108.577	240.1	-4.0	NO	0.999	NO	bb
10	10	200304P2-12	Standard	500.000	5.45	181759.766	9780.345	232.302	513.7	2.7	NO	0.999	NO	bb

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Compound name: 10:2 FTS
Coefficient of Determination: R^2 = 0.999279
Calibration curve: -0.000180939 * x^2 + 2.28371 * x + -0.0530499
Response type: Internal Std (Ref 85), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.52	15.155	761.356	0.249	0.1	-47.1	YES	0.999	NO	bbX
2	2	200304P2-4	Standard	0.500	5.51	59.925	893.221	0.839	0.4	-21.9	NO	0.999	NO	bb
3	3	200304P2-5	Standard	1.000	5.51	148.644	801.870	2.317	1.0	3.8	NO	0.999	NO	bb
4	4	200304P2-6	Standard	2.000	5.51	262.226	771.722	4.247	1.9	-5.8	NO	0.999	NO	bb
5	5	200304P2-7	Standard	5.000	5.51	772.587	810.089	11.921	5.2	4.9	NO	0.999	NO	bb
6	6	200304P2-8	Standard	10.000	5.51	1440.248	715.079	25.176	11.1	10.6	NO	0.999	NO	bb
7	7	200304P2-9	Standard	50.000	5.51	6596.637	676.500	121.889	53.6	7.2	NO	0.999	NO	bb
8	8	200304P2-10	Standard	100.000	5.51	13043.731	730.327	223.252	98.6	-1.4	NO	0.999	NO	bb
9	9	200304P2-11	Standard	250.000	5.51	24109.164	552.938	545.024	243.4	-2.7	NO	0.999	NO	bb
10	10	200304P2-12	Standard	500.000	5.51	37566.203	425.490	1103.616	503.4	0.7	NO	0.999	NO	bb

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999054
Calibration curve: 6.05516e-005 * x^2 + 0.981539 * x + 0.207633
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	5.54	520.103	14975.688	0.434	0.2	-7.7	NO	0.999	NO	MM
2	2	200304P2-4	Standard	0.500	5.53	996.613	15521.729	0.803	0.6	21.2	NO	0.999	NO	bb
3	3	200304P2-5	Standard	1.000	5.53	1820.122	15446.988	1.473	1.3	28.9	NO	0.999	NO	bb
4	4	200304P2-6	Standard	2.000	5.53	3150.176	15279.108	2.577	2.4	20.7	NO	0.999	NO	bb
5	5	200304P2-7	Standard	5.000	5.52	7348.811	16333.823	5.624	5.5	10.3	NO	0.999	NO	bb
6	6	200304P2-8	Standard	10.000	5.52	13308.725	15150.304	10.981	11.0	9.7	NO	0.999	NO	bb
7	7	200304P2-9	Standard	50.000	5.52	62875.223	15336.411	51.247	51.8	3.7	NO	0.999	NO	bb
8	8	200304P2-10	Standard	100.000	5.52	129058.211	16243.715	99.314	100.3	0.3	NO	0.999	NO	bb
9	9	200304P2-11	Standard	250.000	5.52	246462.813	12775.509	241.148	241.9	-3.3	NO	0.999	NO	bb
10	10	200304P2-12	Standard	500.000	5.52	399001.063	9780.345	509.953	503.7	0.7	NO	0.999	NO	bb

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Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999695
Calibration curve: -4.32992e-005 * x^2 + 1.02257 * x + 0.260289
Response type: Internal Std (Ref 87), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	1.250	5.52	70.426	12411.970	0.847	0.6	-54.1	YES	1.000	NO	bbX
2	2 200304P2-4	Standard	2.500	5.52	229.867	13206.982	2.597	2.3	-8.6	NO	1.000	NO	bb
3	3 200304P2-5	Standard	5.000	5.52	453.332	13376.281	5.056	4.7	-6.2	NO	1.000	NO	bb
4	4 200304P2-6	Standard	10.000	5.52	996.247	13200.816	11.260	10.8	7.6	NO	1.000	NO	bb
5	5 200304P2-7	Standard	25.000	5.52	2441.544	13332.186	27.323	26.5	6.0	NO	1.000	NO	bb
6	6 200304P2-8	Standard	50.000	5.52	4881.039	12541.115	58.069	56.7	13.3	NO	1.000	NO	bb
7	7 200304P2-9	Standard	250.000	5.52	22637.475	13452.481	251.070	247.9	-0.8	NO	1.000	NO	bb
8	8 200304P2-10	Standard	500.000	5.52	44666.691	13400.754	497.306	496.5	-0.7	NO	1.000	NO	bb
9	9 200304P2-11	Standard	1250.000	5.52	86454.406	10719.670	1203.302	1241.8	-0.7	NO	1.000	NO	bb
10	10 200304P2-12	Standard	2500.000	5.52	137942.141	8985.102	2290.566	2505.6	0.2	NO	1.000	NO	bb

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.998738
Calibration curve: -7.60291e-005 * x^2 + 1.03461 * x + 0.194492
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	5.77	480.598	14975.688	0.401	0.2	-20.1	NO	0.999	NO	bb
2	2 200304P2-4	Standard	0.500	5.77	749.191	15521.729	0.603	0.4	-21.0	NO	0.999	NO	bb
3	3 200304P2-5	Standard	1.000	5.77	1629.643	15446.988	1.319	1.1	8.7	NO	0.999	NO	bd
4	4 200304P2-6	Standard	2.000	5.77	3020.809	15279.108	2.471	2.2	10.1	NO	0.999	NO	bb
5	5 200304P2-7	Standard	5.000	5.77	7415.407	16333.823	5.675	5.3	6.0	NO	0.999	NO	bb
6	6 200304P2-8	Standard	10.000	5.77	14143.641	15150.304	11.669	11.1	11.0	NO	0.999	NO	bb
7	7 200304P2-9	Standard	50.000	5.77	69259.297	15336.411	56.450	54.6	9.2	NO	0.999	NO	bb
8	8 200304P2-10	Standard	100.000	5.77	132933.656	16243.715	102.296	99.4	-0.6	NO	0.999	NO	bb
9	9 200304P2-11	Standard	250.000	5.77	248817.516	12775.509	243.452	239.3	-4.3	NO	0.999	NO	bb
10	10 200304P2-12	Standard	500.000	5.77	393899.813	9780.345	503.433	505.2	1.0	NO	0.999	NO	bb

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Compound name: PFDoS
Coefficient of Determination: R^2 = 0.999587
Calibration curve: 2.48924e-005 * x^2 + 0.192004 * x + 0.00333864
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	5.80	64.309	12643.240	0.064	0.3	25.5	NO	1.000	NO	bb
2	2 200304P2-4	Standard	0.500	5.80	97.156	13202.983	0.092	0.5	-7.7	NO	1.000	NO	bb
3	3 200304P2-5	Standard	1.000	5.80	203.151	14128.079	0.180	0.9	-8.1	NO	1.000	NO	bb
4	4 200304P2-6	Standard	2.000	5.80	392.701	13911.713	0.353	1.8	-9.0	NO	1.000	NO	bb
5	5 200304P2-7	Standard	5.000	5.80	1066.265	14095.519	0.946	4.9	-1.9	NO	1.000	NO	bb
6	6 200304P2-8	Standard	10.000	5.80	2052.470	13365.991	1.919	10.0	-0.3	NO	1.000	NO	bb
7	7 200304P2-9	Standard	50.000	5.80	10256.451	13432.020	9.545	49.4	-1.2	NO	1.000	NO	bb
8	8 200304P2-10	Standard	100.000	5.80	20515.176	12597.357	20.357	104.6	4.6	NO	1.000	NO	bb
9	9 200304P2-11	Standard	250.000	5.80	38847.848	10018.346	48.471	244.7	-2.1	NO	1.000	NO	bb
10	10 200304P2-12	Standard	500.000	5.80	59927.699	7300.786	102.605	501.7	0.3	NO	1.000	NO	bb

Compound name: PFTeDA
Correlation coefficient: r = 0.998829, r^2 = 0.997658
Calibration curve: 1.42837 * x + -0.0322598
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	0.250	5.99	361.679	12643.240	0.358	0.3	9.2	NO	0.998	NO	MM
2	2 200304P2-4	Standard	0.500	6.00	760.713	13202.983	0.720	0.5	5.4	NO	0.998	NO	MM
3	3 200304P2-5	Standard	1.000	5.99	1638.783	14128.079	1.450	1.0	3.8	NO	0.998	NO	bb
4	4 200304P2-6	Standard	2.000	5.99	2931.904	13911.713	2.634	1.9	-6.7	NO	0.998	NO	MM
5	5 200304P2-7	Standard	5.000	5.99	8069.897	14095.519	7.156	5.0	0.7	NO	0.998	NO	bb
6	6 200304P2-8	Standard	10.000	5.99	14086.068	13365.991	13.173	9.2	-7.5	NO	0.998	NO	bb
7	7 200304P2-9	Standard	50.000	5.99	74936.914	13432.020	69.737	48.8	-2.3	NO	0.998	NO	db
8	8 200304P2-10	Standard	100.000	5.99	145314.859	12597.357	144.192	101.0	1.0	NO	0.998	NO	bb
9	9 200304P2-11	Standard	250.000	5.99	265540.219	10018.346	331.317	232.0	-7.2	NO	0.998	NO	bb
10	10 200304P2-12	Standard	500.000	5.99	432940.750	7300.786	741.257	519.0	3.8	NO	0.998	NO	db

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Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999833
Calibration curve: -2.57826e-005 * x^2 + 0.876385 * x + 0.179923
Response type: Internal Std (Ref 91), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	1.250	5.99	171.549	21034.195	1.217	1.2	-5.3	NO	1.000	NO	bb
2	2	200304P2-4	Standard	2.500	5.99	334.031	21302.590	2.340	2.5	-1.4	NO	1.000	NO	bb
3	3	200304P2-5	Standard	5.000	5.99	730.969	21913.150	4.977	5.5	9.5	NO	1.000	NO	bb
4	4	200304P2-6	Standard	10.000	5.99	1207.008	21527.838	8.365	9.3	-6.6	NO	1.000	NO	bb
5	5	200304P2-7	Standard	25.000	5.99	3447.382	22135.055	23.237	26.3	5.3	NO	1.000	NO	bb
6	6	200304P2-8	Standard	50.000	5.99	6368.637	21696.475	43.795	49.8	-0.3	NO	1.000	NO	bb
7	7	200304P2-9	Standard	250.000	5.99	31421.488	21505.869	217.991	250.4	0.2	NO	1.000	NO	bb
8	8	200304P2-10	Standard	500.000	5.99	59123.660	20927.984	421.505	487.8	-2.4	NO	1.000	NO	bb
9	9	200304P2-11	Standard	1250.000	5.99	115373.625	16088.674	1069.929	1267.9	1.4	NO	1.000	NO	bb
10	10	200304P2-12	Standard	2500.000	5.99	180188.688	13277.647	2024.768	2493.0	-0.3	NO	1.000	NO	bb

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999870
Calibration curve: -0.000132812 * x^2 + 0.671946 * x + 0.0858042
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	6.34	387.367	20568.721	0.235	0.2	-10.9	NO	1.000	NO	bb
2	2	200304P2-4	Standard	0.500	6.34	748.602	20939.432	0.447	0.5	7.5	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	6.34	1299.980	20448.461	0.795	1.1	5.5	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	6.34	2357.784	20766.674	1.419	2.0	-0.7	NO	1.000	NO	bb
5	5	200304P2-7	Standard	5.000	6.34	5867.944	20828.457	3.522	5.1	2.4	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	6.34	11023.527	21034.990	6.551	9.6	-3.6	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	6.34	54531.621	20219.934	33.712	50.5	1.1	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	6.34	106108.758	20536.414	64.586	97.9	-2.1	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	6.34	209623.297	16218.968	161.557	253.0	1.2	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	6.34	310015.375	12823.098	302.204	498.8	-0.2	NO	1.000	NO	bb

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Compound name: PFODA
Coefficient of Determination: R^2 = 0.999840
Calibration curve: -7.84163e-005 * x^2 + 0.925009 * x + -0.0217035
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	0.250	6.58	268.493	20568.721	0.163	0.2	-20.1	NO	1.000	NO	MM
2	2	200304P2-4	Standard	0.500	6.58	679.823	20939.432	0.406	0.5	-7.6	NO	1.000	NO	bb
3	3	200304P2-5	Standard	1.000	6.58	1719.993	20448.461	1.051	1.2	16.0	NO	1.000	NO	bb
4	4	200304P2-6	Standard	2.000	6.59	3201.033	20766.674	1.927	2.1	5.3	NO	1.000	NO	MM
5	5	200304P2-7	Standard	5.000	6.58	7397.082	20828.457	4.439	4.8	-3.5	NO	1.000	NO	bb
6	6	200304P2-8	Standard	10.000	6.58	15846.798	21034.990	9.417	10.2	2.1	NO	1.000	NO	bb
7	7	200304P2-9	Standard	50.000	6.58	73603.852	20219.934	45.502	49.4	-1.2	NO	1.000	NO	bb
8	8	200304P2-10	Standard	100.000	6.59	148122.344	20536.414	90.158	98.3	-1.7	NO	1.000	NO	bb
9	9	200304P2-11	Standard	250.000	6.58	297585.000	16218.968	229.350	253.4	1.4	NO	1.000	NO	bb
10	10	200304P2-12	Standard	500.000	6.58	453143.969	12823.098	441.726	498.6	-0.3	NO	1.000	NO	bb

Compound name: N-MeFOSE
Correlation coefficient: r = 0.999567, r^2 = 0.999134
Calibration curve: 1.01157 * x + -0.0701665
Response type: Internal Std (Ref 95), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	1.250	6.24	177.576	18841.561	1.406	1.5	16.8	NO	0.999	NO	bb
2	2	200304P2-4	Standard	2.500	6.25	300.611	18907.783	2.372	2.4	-3.4	NO	0.999	NO	bb
3	3	200304P2-5	Standard	5.000	6.25	686.281	18921.934	5.411	5.4	8.4	NO	0.999	NO	bb
4	4	200304P2-6	Standard	10.000	6.25	1241.734	19029.912	9.736	9.7	-3.1	NO	0.999	NO	bb
5	5	200304P2-7	Standard	25.000	6.25	3196.819	19414.918	24.567	24.4	-2.6	NO	0.999	NO	bb
6	6	200304P2-8	Standard	50.000	6.25	6178.604	20014.893	46.058	45.6	-8.8	NO	0.999	NO	bb
7	7	200304P2-9	Standard	250.000	6.25	31601.070	19361.348	243.520	240.8	-3.7	NO	0.999	NO	bb
8	8	200304P2-10	Standard	500.000	6.25	63058.039	19294.727	487.608	482.1	-3.6	NO	0.999	NO	bb
9	9	200304P2-11	Standard	1250.000	6.25	131453.781	15920.189	1231.952	1217.9	-2.6	NO	0.999	NO	bb
10	10	200304P2-12	Standard	2500.000	6.25	229135.375	13181.493	2593.560	2564.0	2.6	NO	0.999	NO	bb

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Compound name: N-EtFOSE
Correlation coefficient: r = 0.999962, r^2 = 0.999924
Calibration curve: 0.96721 * x + -0.0485328
Response type: Internal Std (Ref 97), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	1.250	6.40	163.592	21483.859	1.136	1.2	-2.0	NO	1.000	NO	db
2	2	200304P2-4	Standard	2.500	6.40	363.014	21706.154	2.495	2.6	5.2	NO	1.000	NO	bb
3	3	200304P2-5	Standard	5.000	6.40	737.134	22207.584	4.952	5.2	3.4	NO	1.000	NO	bb
4	4	200304P2-6	Standard	10.000	6.40	1459.686	22550.350	9.658	10.0	0.4	NO	1.000	NO	bb
5	5	200304P2-7	Standard	25.000	6.40	3487.438	22518.729	23.106	23.9	-4.2	NO	1.000	NO	bb
6	6	200304P2-8	Standard	50.000	6.40	7114.336	22643.750	46.876	48.5	-3.0	NO	1.000	NO	bb
7	7	200304P2-9	Standard	250.000	6.40	36005.262	22333.270	240.537	248.7	-0.5	NO	1.000	NO	bb
8	8	200304P2-10	Standard	500.000	6.40	71395.102	22022.555	483.693	500.1	0.0	NO	1.000	NO	bb
9	9	200304P2-11	Standard	1250.000	6.40	145658.688	17761.475	1223.563	1265.1	1.2	NO	1.000	NO	bb
10	10	200304P2-12	Standard	2500.000	6.40	236572.375	14666.474	2406.618	2488.3	-0.5	NO	1.000	NO	bb

Compound name: 13C3-PFBA-EIS
Response Factor: 371.675
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	1.23	4402.323		4402.323	11.8	-5.2	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	1.23	4523.122		4523.122	12.2	-2.6	NO		NO	MMX
3	3	200304P2-5	Standard	12.500	1.23	4593.813		4593.813	12.4	-1.1	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	1.23	4614.375		4614.375	12.4	-0.7	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	1.23	4510.145		4510.145	12.1	-2.9	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	1.23	4645.938		4645.938	12.5	0.0	NO		NO	MM
7	7	200304P2-9	Standard	12.500	1.23	4583.611		4583.611	12.3	-1.3	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	1.23	4727.791		4727.791	12.7	1.8	NO		NO	MMX
9	9	200304P2-11	Standard	12.500	1.23	3562.562		3562.562	9.6	-23.3	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	1.23	3095.351		3095.351	8.3	-33.4	NO		NO	bbX

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Compound name: 13C3-PFBA-RSD
Response Factor: 0.797493
RRF SD: 0.0159423, Relative SD: 1.99905
Response type: Internal Std (Ref 99), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	1.23	4402.323	5526.569	9.957	12.5	-0.1	NO		NO	bb
2	2	200304P2-4	Standard	12.500	1.23	4478.059	5829.053	9.603	12.0	-3.7	NO		NO	MM
3	3	200304P2-5	Standard	12.500	1.23	4593.813	5658.267	10.148	12.7	1.8	NO		NO	bb
4	4	200304P2-6	Standard	12.500	1.23	4614.375	5755.885	10.021	12.6	0.5	NO		NO	bb
5	5	200304P2-7	Standard	12.500	1.23	4510.145	5735.158	9.830	12.3	-1.4	NO		NO	bb
6	6	200304P2-8	Standard	12.500	1.23	4683.711	5718.201	10.239	12.8	2.7	NO		NO	MM
7	7	200304P2-9	Standard	12.500	1.23	4583.611	5839.218	9.812	12.3	-1.6	NO		NO	bb
8	8	200304P2-10	Standard	12.500	1.23	4727.791	5921.604	9.980	12.5	0.1	NO		NO	MM
9	9	200304P2-11	Standard	12.500	1.23	3701.051	4526.713	10.220	12.8	2.5	NO		NO	MM
10	10	200304P2-12	Standard	12.500	1.23	3095.351	3917.625	9.876	12.4	-0.9	NO		NO	bb

Compound name: 13C3-PFPeA-EIS
Response Factor: 681.084
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	2.13	8063.190		8063.190	11.8	-5.3	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	2.13	8473.734		8473.734	12.4	-0.5	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	2.13	8350.816		8350.816	12.3	-1.9	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	2.13	8447.558		8447.558	12.4	-0.8	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	2.13	8522.696		8522.696	12.5	0.1	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	2.13	8513.549		8513.549	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	2.13	8403.462		8403.462	12.3	-1.3	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	2.13	8765.210		8765.210	12.9	3.0	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	2.13	6657.588		6657.588	9.8	-21.8	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	2.13	5716.588		5716.588	8.4	-32.9	NO		NO	bbX

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Compound name: 13C3-PFPeA-RSD
Response Factor: 0.568929
RRF SD: 0.0104136, Relative SD: 1.83039
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	2.13	7916.325	13804.979	7.168	12.6	0.8	NO		NO	MM
2	2 200304P2-4	Standard	12.500	2.13	8371.446	15035.333	6.960	12.2	-2.1	NO		NO	MM
3	3 200304P2-5	Standard	12.500	2.13	8286.785	14964.110	6.922	12.2	-2.7	NO		NO	MM
4	4 200304P2-6	Standard	12.500	2.13	8427.991	14885.100	7.078	12.4	-0.5	NO		NO	MM
5	5 200304P2-7	Standard	12.500	2.13	8422.743	14761.557	7.132	12.5	0.3	NO		NO	MM
6	6 200304P2-8	Standard	12.500	2.13	8487.761	14681.915	7.226	12.7	1.6	NO		NO	MM
7	7 200304P2-9	Standard	12.500	2.13	8314.831	14929.965	6.962	12.2	-2.1	NO		NO	MM
8	8 200304P2-10	Standard	12.500	2.13	8556.028	14616.780	7.317	12.9	2.9	NO		NO	MM
9	9 200304P2-11	Standard	12.500	2.13	6657.027	11536.978	7.213	12.7	1.4	NO		NO	MM
10	10 200304P2-12	Standard	12.500	2.13	5509.420	9647.108	7.139	12.5	0.4	NO		NO	MM

Compound name: 13C3-PFBS-EIS
Response Factor: 82.6468
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	2.41	944.498		944.498	11.4	-8.6	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	2.41	926.629		926.629	11.2	-10.3	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	2.41	931.432		931.432	11.3	-9.8	NO		NO	MMX
4	4 200304P2-6	Standard	12.500	2.41	979.440		979.440	11.9	-5.2	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	2.41	1022.516		1022.516	12.4	-1.0	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	2.41	1033.085		1033.085	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	2.41	1018.825		1018.825	12.3	-1.4	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	2.41	1015.569		1015.569	12.3	-1.7	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	2.41	709.261		709.261	8.6	-31.3	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	2.41	632.153		632.153	7.6	-38.8	NO		NO	bbX

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Compound name: 13C3-PFBS-RSD
Response Factor: 1.00588
RRF SD: 0.0619324, Relative SD: 6.15704
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	2.41	944.498	989.156	11.936	11.9	-5.1	NO		NO	bb
2	2 200304P2-4	Standard	12.500	2.41	926.629	956.648	12.108	12.0	-3.7	NO		NO	bb
3	3 200304P2-5	Standard	12.500	2.41	960.497	948.934	12.652	12.6	0.6	NO		NO	bd
4	4 200304P2-6	Standard	12.500	2.41	979.440	1004.360	12.190	12.1	-3.1	NO		NO	bb
5	5 200304P2-7	Standard	12.500	2.41	1022.516	1006.445	12.700	12.6	1.0	NO		NO	bb
6	6 200304P2-8	Standard	12.500	2.41	1033.085	971.809	13.288	13.2	5.7	NO		NO	bb
7	7 200304P2-9	Standard	12.500	2.41	1018.825	961.273	13.248	13.2	5.4	NO		NO	bb
8	8 200304P2-10	Standard	12.500	2.41	1015.569	900.798	14.093	14.0	12.1	NO		NO	bb
9	9 200304P2-11	Standard	12.500	2.41	709.261	756.725	11.716	11.6	-6.8	NO		NO	bb
10	10 200304P2-12	Standard	12.500	2.41	632.153	669.401	11.804	11.7	-6.1	NO		NO	bb

Compound name: 13C3-HFPO-DA-EIS
Response Factor: 280.215
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	3.14	3365.811		3365.811	12.0	-3.9	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	3.14	3514.446		3514.446	12.5	0.3	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	3.14	3675.547		3675.547	13.1	4.9	NO		NO	bbX
4	4 200304P2-6	Standard	12.500	3.14	3660.667		3660.667	13.1	4.5	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	3.14	3336.894		3336.894	11.9	-4.7	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	3.14	3502.690		3502.690	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	3.14	3621.955		3621.955	12.9	3.4	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	3.14	3622.897		3622.897	12.9	3.4	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	3.14	2944.603		2944.603	10.5	-15.9	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	3.14	2632.906		2632.906	9.4	-24.8	NO		NO	bbX

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Compound name: 13C3-HFPO-DA-RSD
Response Factor: 0.245234
RRF SD: 0.0125934, Relative SD: 5.13526
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.14	3365.811	13804.979	3.048	12.4	-0.6	NO		NO	bb
2	2	200304P2-4	Standard	12.500	3.14	3514.446	15035.333	2.922	11.9	-4.7	NO		NO	bb
3	3	200304P2-5	Standard	12.500	3.14	3675.547	14964.110	3.070	12.5	0.2	NO		NO	bb
4	4	200304P2-6	Standard	12.500	3.14	3660.667	14885.100	3.074	12.5	0.3	NO		NO	bb
5	5	200304P2-7	Standard	12.500	3.14	3336.894	14761.557	2.826	11.5	-7.8	NO		NO	bb
6	6	200304P2-8	Standard	12.500	3.14	3502.690	14681.915	2.982	12.2	-2.7	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.14	3621.955	14929.965	3.032	12.4	-1.1	NO		NO	bb
8	8	200304P2-10	Standard	12.500	3.14	3622.897	14616.780	3.098	12.6	1.1	NO		NO	bb
9	9	200304P2-11	Standard	12.500	3.14	2944.603	11536.978	3.190	13.0	4.1	NO		NO	bb
10	10	200304P2-12	Standard	12.500	3.14	2632.906	9647.108	3.412	13.9	11.3	NO		NO	bb

Compound name: 13C2-4:2 FTS-EIS
Response Factor: 120.79
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	2.85	1425.508		1425.508	11.8	-5.6	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	2.85	1625.470		1625.470	13.5	7.7	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	2.85	1479.255		1479.255	12.2	-2.0	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	2.85	1649.539		1649.539	13.7	9.2	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	2.85	1543.641		1543.641	12.8	2.2	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	2.85	1509.876		1509.876	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	2.85	1356.426		1356.426	11.2	-10.2	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	2.85	1399.257		1399.257	11.6	-7.3	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	2.85	1052.841		1052.841	8.7	-30.3	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	2.85	934.155		934.155	7.7	-38.1	NO		NO	bdX

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Compound name: 13C2-4:2 FTS-RSD
Response Factor: 1.51802
RRF SD: 0.105995, Relative SD: 6.98244
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	2.85	1425.508	989.156	18.014	11.9	-5.1	NO		NO	bb
2	2 200304P2-4	Standard	12.500	2.85	1625.470	956.648	21.239	14.0	11.9	NO		NO	bb
3	3 200304P2-5	Standard	12.500	2.85	1479.255	948.934	19.486	12.8	2.7	NO		NO	bb
4	4 200304P2-6	Standard	12.500	2.85	1649.539	1004.360	20.530	13.5	8.2	NO		NO	bb
5	5 200304P2-7	Standard	12.500	2.85	1543.641	1006.445	19.172	12.6	1.0	NO		NO	bb
6	6 200304P2-8	Standard	12.500	2.85	1509.876	971.809	19.421	12.8	2.3	NO		NO	bb
7	7 200304P2-9	Standard	12.500	2.85	1356.426	961.273	17.638	11.6	-7.0	NO		NO	bb
8	8 200304P2-10	Standard	12.500	2.85	1399.257	900.798	19.417	12.8	2.3	NO		NO	bb
9	9 200304P2-11	Standard	12.500	2.85	1052.841	756.725	17.391	11.5	-8.3	NO		NO	bb
10	10 200304P2-12	Standard	12.500	2.85	934.155	669.401	17.444	11.5	-8.1	NO		NO	bd

Compound name: 13C2-PFHxA-EIS
Response Factor: 1213.08
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	2.94	14509.173		14509.173	12.0	-4.3	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	2.94	14849.003		14849.003	12.2	-2.1	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	2.94	15509.219		15509.219	12.8	2.3	NO		NO	bbX
4	4 200304P2-6	Standard	12.500	2.94	15098.153		15098.153	12.4	-0.4	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	2.94	15357.925		15357.925	12.7	1.3	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	2.94	15163.504		15163.504	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	2.94	14979.496		14979.496	12.3	-1.2	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	2.94	15772.194		15772.194	13.0	4.0	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	2.94	11616.815		11616.815	9.6	-23.4	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	2.94	10062.281		10062.281	8.3	-33.6	NO		NO	bbX

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Compound name: 13C2-PFHxA-RSD
Response Factor: 1.02949
RRF SD: 0.0267904, Relative SD: 2.60231
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	2.94	14509.173	13804.979	13.138	12.8	2.1	NO		NO	bb
2	2	200304P2-4	Standard	12.500	2.94	14849.003	15035.333	12.345	12.0	-4.1	NO		NO	bb
3	3	200304P2-5	Standard	12.500	2.94	15509.219	14964.110	12.955	12.6	0.7	NO		NO	bb
4	4	200304P2-6	Standard	12.500	2.94	15098.153	14885.100	12.679	12.3	-1.5	NO		NO	bb
5	5	200304P2-7	Standard	12.500	2.94	15357.925	14761.557	13.005	12.6	1.1	NO		NO	bb
6	6	200304P2-8	Standard	12.500	2.94	15163.504	14681.915	12.910	12.5	0.3	NO		NO	bb
7	7	200304P2-9	Standard	12.500	2.94	14979.496	14929.965	12.541	12.2	-2.5	NO		NO	bb
8	8	200304P2-10	Standard	12.500	2.94	15772.194	14616.780	13.488	13.1	4.8	NO		NO	bb
9	9	200304P2-11	Standard	12.500	2.94	11616.815	11536.978	12.587	12.2	-2.2	NO		NO	bb
10	10	200304P2-12	Standard	12.500	2.94	10062.281	9647.108	13.038	12.7	1.3	NO		NO	bb

Compound name: 13C4-PFHpA-EIS
Response Factor: 676.004
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.53	7836.800		7836.800	11.6	-7.3	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	3.53	8147.872		8147.872	12.1	-3.6	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	3.53	8334.623		8334.623	12.3	-1.4	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	3.53	8280.926		8280.926	12.2	-2.0	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	3.54	8897.463		8897.463	13.2	5.3	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	3.53	8450.053		8450.053	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.53	7899.096		7899.096	11.7	-6.5	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	3.53	8503.916		8503.916	12.6	0.6	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	3.53	6681.411		6681.411	9.9	-20.9	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	3.53	5411.800		5411.800	8.0	-36.0	NO		NO	bbX

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Compound name: 13C4-PFHpA-RSD
Response Factor: 0.565215
RRF SD: 0.021091, Relative SD: 3.7315
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.53	7836.800	13804.979	7.096	12.6	0.4	NO		NO	bb
2	2	200304P2-4	Standard	12.500	3.53	8147.872	15035.333	6.774	12.0	-4.1	NO		NO	bb
3	3	200304P2-5	Standard	12.500	3.53	8334.623	14964.110	6.962	12.3	-1.5	NO		NO	bb
4	4	200304P2-6	Standard	12.500	3.53	8280.926	14885.100	6.954	12.3	-1.6	NO		NO	bb
5	5	200304P2-7	Standard	12.500	3.54	8897.463	14761.557	7.534	13.3	6.6	NO		NO	bb
6	6	200304P2-8	Standard	12.500	3.53	8450.053	14681.915	7.194	12.7	1.8	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.53	7899.096	14929.965	6.613	11.7	-6.4	NO		NO	bb
8	8	200304P2-10	Standard	12.500	3.53	8503.916	14616.780	7.272	12.9	2.9	NO		NO	bb
9	9	200304P2-11	Standard	12.500	3.53	6681.411	11536.978	7.239	12.8	2.5	NO		NO	bb
10	10	200304P2-12	Standard	12.500	3.53	5411.800	9647.108	7.012	12.4	-0.7	NO		NO	bb

Compound name: 13C3-PFHxS-EIS
Response Factor: 190.058
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.68	2244.017		2244.017	11.8	-5.5	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	3.68	2219.308		2219.308	11.7	-6.6	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	3.68	2314.499		2314.499	12.2	-2.6	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	3.68	2343.224		2343.224	12.3	-1.4	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	3.68	2472.347		2472.347	13.0	4.1	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	3.68	2375.726		2375.726	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.68	2325.628		2325.628	12.2	-2.1	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	3.68	2373.408		2373.408	12.5	-0.1	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	3.68	1816.874		1816.874	9.6	-23.5	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	3.67	1493.357		1493.357	7.9	-37.1	NO		NO	bdX

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Compound name: 13C3-PFHxS-RSD
Response Factor: 2.39477
RRF SD: 0.114842, Relative SD: 4.79554
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.68	2244.017	989.156	28.358	11.8	-5.3	NO		NO	bb
2	2	200304P2-4	Standard	12.500	3.68	2219.308	956.648	28.998	12.1	-3.1	NO		NO	bb
3	3	200304P2-5	Standard	12.500	3.68	2314.499	948.934	30.488	12.7	1.8	NO		NO	bb
4	4	200304P2-6	Standard	12.500	3.68	2343.224	1004.360	29.163	12.2	-2.6	NO		NO	bb
5	5	200304P2-7	Standard	12.500	3.68	2472.347	1006.445	30.706	12.8	2.6	NO		NO	bb
6	6	200304P2-8	Standard	12.500	3.68	2375.726	971.809	30.558	12.8	2.1	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.68	2325.628	961.273	30.242	12.6	1.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	3.68	2373.408	900.798	32.935	13.8	10.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	3.68	1816.874	756.725	30.012	12.5	0.3	NO		NO	bb
10	10	200304P2-12	Standard	12.500	3.67	1493.357	669.401	27.886	11.6	-6.8	NO		NO	bd

Compound name: 13C2-6:2 FTS-EIS
Response Factor: 90.137
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.00	1219.295		1219.295	13.5	8.2	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	3.99	1300.462		1300.462	14.4	15.4	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.00	1230.747		1230.747	13.7	9.2	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.00	1325.912		1325.912	14.7	17.7	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.00	1358.383		1358.383	15.1	20.6	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.00	1126.713		1126.713	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.00	1253.748		1253.748	13.9	11.3	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.00	1268.946		1268.946	14.1	12.6	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.00	998.548		998.548	11.1	-11.4	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	3.99	826.518		826.518	9.2	-26.6	NO		NO	bbX

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Compound name: 13C2-6:2 FTS-RSD
Response Factor: 0.480081
RRF SD: 0.0263075, Relative SD: 5.47979
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	4.00	1219.295	2700.339	5.644	11.8	-5.9	NO		NO	bb
2	2 200304P2-4	Standard	12.500	3.99	1300.462	2645.743	6.144	12.8	2.4	NO		NO	bb
3	3 200304P2-5	Standard	12.500	4.00	1230.747	2613.269	5.887	12.3	-1.9	NO		NO	bb
4	4 200304P2-6	Standard	12.500	4.00	1325.912	2610.713	6.348	13.2	5.8	NO		NO	bb
5	5 200304P2-7	Standard	12.500	4.00	1358.383	2608.924	6.508	13.6	8.5	NO		NO	bb
6	6 200304P2-8	Standard	12.500	4.00	1126.713	2621.303	5.373	11.2	-10.5	NO		NO	bb
7	7 200304P2-9	Standard	12.500	4.00	1253.748	2629.795	5.959	12.4	-0.7	NO		NO	bb
8	8 200304P2-10	Standard	12.500	4.00	1268.946	2686.450	5.904	12.3	-1.6	NO		NO	bb
9	9 200304P2-11	Standard	12.500	4.00	998.548	2040.663	6.117	12.7	1.9	NO		NO	bb
10	10 200304P2-12	Standard	12.500	3.99	826.518	1686.791	6.125	12.8	2.1	NO		NO	bb

Compound name: 13C5-PFNA-EIS
Response Factor: 867.408
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	4.51	10236.276		10236.276	11.8	-5.6	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	4.51	10902.920		10902.920	12.6	0.6	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	4.51	10857.461		10857.461	12.5	0.1	NO		NO	bbX
4	4 200304P2-6	Standard	12.500	4.51	11028.038		11028.038	12.7	1.7	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	4.51	10389.095		10389.095	12.0	-4.2	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	4.51	10842.604		10842.604	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	4.51	10760.623		10760.623	12.4	-0.8	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	4.51	10669.225		10669.225	12.3	-1.6	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	4.51	8471.279		8471.279	9.8	-21.9	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	4.51	6981.723		6981.723	8.0	-35.6	NO		NO	bbX

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Compound name: 13C5-PFNA-RSD
Response Factor: 0.934221
RRF SD: 0.0425405, Relative SD: 4.55358
Response type: Internal Std (Ref 103), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.51	10236.276	11461.869	11.163	11.9	-4.4	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.51	10902.920	11902.924	11.450	12.3	-2.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.51	10857.461	11445.872	11.857	12.7	1.5	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.51	11028.038	11926.093	11.559	12.4	-1.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.51	10389.095	12077.129	10.753	11.5	-7.9	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.51	10842.604	11265.634	12.031	12.9	3.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.51	10760.623	11489.718	11.707	12.5	0.2	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.51	10669.225	11272.323	11.831	12.7	1.3	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.51	8471.279	8296.820	12.763	13.7	9.3	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.51	6981.723	7482.180	11.664	12.5	-0.1	NO		NO	bb

Compound name: 13C8-PFOSA-EIS
Response Factor: 255.32
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.56	3240.639		3240.639	12.7	1.5	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	4.56	3221.668		3221.668	12.6	0.9	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.56	3272.469		3272.469	12.8	2.5	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.56	3442.417		3442.417	13.5	7.9	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.56	3379.171		3379.171	13.2	5.9	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.56	3191.502		3191.502	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.56	3402.070		3402.070	13.3	6.6	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.56	3389.875		3389.875	13.3	6.2	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.56	2559.343		2559.343	10.0	-19.8	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	4.56	2031.562		2031.562	8.0	-36.3	NO		NO	bbX

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Compound name: 13C8-PFOSA-RSD
Response Factor: 0.210843
RRF SD: 0.00807586, Relative SD: 3.83026
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.56	3240.639	14942.221	2.711	12.9	2.9	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.56	3221.668	15394.384	2.616	12.4	-0.7	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.56	3272.469	15002.663	2.727	12.9	3.5	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.56	3442.417	16038.360	2.683	12.7	1.8	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.56	3379.171	16869.279	2.504	11.9	-5.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.56	3191.502	15873.069	2.513	11.9	-4.6	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.56	3402.070	16794.652	2.532	12.0	-3.9	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.56	3389.875	16182.857	2.618	12.4	-0.6	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.56	2559.343	11368.781	2.814	13.3	6.8	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.56	2031.562	9629.320	2.637	12.5	0.1	NO		NO	bb

Compound name: 13C2-PFOA-EIS
Response Factor: 1016.55
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.05	11962.581		11962.581	11.8	-5.9	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	4.06	12456.621		12456.621	12.3	-2.0	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.05	12396.286		12396.286	12.2	-2.4	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.06	12098.559		12098.559	11.9	-4.8	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.06	12792.719		12792.719	12.6	0.7	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.06	12706.853		12706.853	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.05	12183.001		12183.001	12.0	-4.1	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.05	12355.636		12355.636	12.2	-2.8	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.06	9696.579		9696.579	9.5	-23.7	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	4.05	7657.978		7657.978	7.5	-39.7	NO		NO	bbX

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Compound name: 13C2-PFOA-RSD
Response Factor: 0.821629
RRF SD: 0.0244247, Relative SD: 2.97272
Response type: Internal Std (Ref 102), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.05	11962.581	14644.351	10.211	12.4	-0.6	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.06	12456.621	15478.947	10.059	12.2	-2.1	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.05	12396.286	15183.021	10.206	12.4	-0.6	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.06	12098.559	15389.105	9.827	12.0	-4.3	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.06	12792.719	15782.379	10.132	12.3	-1.3	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.06	12706.853	15318.031	10.369	12.6	1.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.05	12183.001	14917.743	10.208	12.4	-0.6	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.05	12355.636	15129.512	10.208	12.4	-0.6	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.06	9696.579	11042.833	10.976	13.4	6.9	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.05	7657.978	9111.191	10.506	12.8	2.3	NO		NO	bb

Compound name: 13C8-PFOS-EIS
Response Factor: 207.944
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.60	2486.245		2486.245	12.0	-4.3	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	4.60	2666.816		2666.816	12.8	2.6	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.60	2443.940		2443.940	11.8	-6.0	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.60	2726.697		2726.697	13.1	4.9	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.60	2631.129		2631.129	12.7	1.2	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.60	2599.295		2599.295	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.60	2622.791		2622.791	12.6	0.9	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.60	2688.689		2688.689	12.9	3.4	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.60	2103.390		2103.390	10.1	-19.1	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	4.60	1625.539		1625.539	7.8	-37.5	NO		NO	MMX

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Compound name: 13C8-PFOS-RSD
Response Factor: 0.989578
RRF SD: 0.0396599, Relative SD: 4.00776
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.60	2486.245	2700.339	11.509	11.6	-7.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.60	2666.816	2645.743	12.600	12.7	1.9	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.60	2443.940	2613.269	11.690	11.8	-5.5	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.60	2726.697	2610.713	13.055	13.2	5.5	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.60	2631.129	2608.924	12.606	12.7	1.9	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.60	2599.295	2621.303	12.395	12.5	0.2	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.60	2619.232	2629.795	12.450	12.6	0.6	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.60	2688.689	2686.450	12.510	12.6	1.1	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.60	2103.390	2040.663	12.884	13.0	4.2	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.60	1618.980	1686.791	11.997	12.1	-3.0	NO		NO	bb

Compound name: 13C2-PFDA-EIS
Response Factor: 944.999
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.90	11630.392		11630.392	12.3	-1.5	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	4.90	12905.041		12905.041	13.7	9.2	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.90	11539.324		11539.324	12.2	-2.3	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.90	12846.407		12846.407	13.6	8.8	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.90	12592.307		12592.307	13.3	6.6	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.90	11812.490		11812.490	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.90	12809.952		12809.952	13.6	8.4	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.90	11822.187		11822.187	12.5	0.1	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.90	9576.072		9576.072	10.1	-18.9	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	4.90	7979.246		7979.246	8.4	-32.5	NO		NO	bbX

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Compound name: 13C2-PFDA-RSD
Response Factor: 0.981866
RRF SD: 0.0687978, Relative SD: 7.00684
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.90	11630.392	12201.438	11.915	12.1	-2.9	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.90	12905.041	12128.779	13.300	13.5	8.4	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.90	11539.324	12931.947	11.154	11.4	-9.1	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.90	12846.407	14112.664	11.378	11.6	-7.3	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.90	12592.307	12685.072	12.409	12.6	1.1	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.90	11812.490	11404.034	12.948	13.2	5.5	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.90	12809.952	13787.399	11.614	11.8	-5.4	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.90	11822.187	12624.012	11.706	11.9	-4.6	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.90	9576.072	9506.756	12.591	12.8	2.6	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.90	7979.246	7270.491	13.719	14.0	11.8	NO		NO	bb

Compound name: 13C2-8:2 FTS-EIS
Response Factor: 87.2626
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.87	995.327		995.327	11.4	-8.8	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	4.87	975.824		975.824	11.2	-10.5	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	4.87	1093.071		1093.071	12.5	0.2	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	4.87	1197.075		1197.075	13.7	9.7	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	4.87	1130.040		1130.040	12.9	3.6	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	4.87	1090.783		1090.783	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.87	1073.573		1073.573	12.3	-1.6	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	4.87	1090.699		1090.699	12.5	-0.0	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	4.87	791.861		791.861	9.1	-27.4	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	4.87	717.508		717.508	8.2	-34.2	NO		NO	bbX

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Compound name: 13C2-8:2 FTS-RSD
Response Factor: 0.409113
RRF SD: 0.0281574, Relative SD: 6.88253
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	4.87	995.327	2700.339	4.607	11.3	-9.9	NO		NO	bb
2	2 200304P2-4	Standard	12.500	4.87	975.824	2645.743	4.610	11.3	-9.8	NO		NO	bb
3	3 200304P2-5	Standard	12.500	4.87	1093.071	2613.269	5.228	12.8	2.2	NO		NO	bb
4	4 200304P2-6	Standard	12.500	4.87	1197.075	2610.713	5.732	14.0	12.1	NO		NO	bb
5	5 200304P2-7	Standard	12.500	4.87	1130.040	2608.924	5.414	13.2	5.9	NO		NO	bb
6	6 200304P2-8	Standard	12.500	4.87	1090.783	2621.303	5.202	12.7	1.7	NO		NO	bb
7	7 200304P2-9	Standard	12.500	4.87	1073.573	2629.795	5.103	12.5	-0.2	NO		NO	bb
8	8 200304P2-10	Standard	12.500	4.87	1090.699	2686.450	5.075	12.4	-0.8	NO		NO	bb
9	9 200304P2-11	Standard	12.500	4.87	791.861	2040.663	4.851	11.9	-5.2	NO		NO	bb
10	10 200304P2-12	Standard	12.500	4.87	717.508	1686.791	5.317	13.0	4.0	NO		NO	bb

Compound name: d3-N-MeFOSAA-EIS
Response Factor: 195.067
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	5.06	2518.952		2518.952	12.9	3.3	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	5.06	2322.667		2322.667	11.9	-4.7	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	5.05	2473.148		2473.148	12.7	1.4	NO		NO	bbX
4	4 200304P2-6	Standard	12.500	5.05	2658.003		2658.003	13.6	9.0	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	5.06	2450.393		2450.393	12.6	0.5	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	5.05	2438.336		2438.336	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	5.06	2613.591		2613.591	13.4	7.2	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	5.06	2709.132		2709.132	13.9	11.1	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	5.06	1918.110		1918.110	9.8	-21.3	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	5.05	1663.858		1663.858	8.5	-31.8	NO		NO	bbX

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Compound name: d3-N-MeFOSAA-RSD
Response Factor: 0.161344
RRF SD: 0.00923051, Relative SD: 5.72101
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.06	2518.952	14942.221	2.107	13.1	4.5	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.06	2322.667	15394.384	1.886	11.7	-6.5	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.05	2473.148	15002.663	2.061	12.8	2.2	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.05	2658.003	16038.360	2.072	12.8	2.7	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.06	2450.393	16869.279	1.816	11.3	-10.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.05	2438.336	15873.069	1.920	11.9	-4.8	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.06	2613.591	16794.652	1.945	12.1	-3.5	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.06	2709.132	16182.857	2.093	13.0	3.8	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.06	1918.110	11368.781	2.109	13.1	4.6	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.05	1663.858	9629.320	2.160	13.4	7.1	NO		NO	bb

Compound name: 13C2-PFUdA-EIS
Response Factor: 1226.69
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.23	13986.149		13986.149	11.4	-8.8	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	5.23	14588.602		14588.602	11.9	-4.9	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	5.23	15326.997		15326.997	12.5	-0.0	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	5.24	15895.778		15895.778	13.0	3.7	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	5.24	16044.878		16044.878	13.1	4.6	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	5.24	15333.686		15333.686	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.23	14660.305		14660.305	12.0	-4.4	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	5.23	15577.330		15577.330	12.7	1.6	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	5.24	11464.172		11464.172	9.3	-25.2	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	5.23	9535.332		9535.332	7.8	-37.8	NO		NO	bbX

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Compound name: 13C2-PFUdA-RSD
Response Factor: 0.964768
RRF SD: 0.0424609, Relative SD: 4.40116
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.23	13986.149	14942.221	11.700	12.1	-3.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.23	14588.602	15394.384	11.846	12.3	-1.8	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.23	15326.997	15002.663	12.770	13.2	5.9	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.24	15895.778	16038.360	12.389	12.8	2.7	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.24	16044.878	16869.279	11.889	12.3	-1.4	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.24	15333.686	15873.069	12.075	12.5	0.1	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.23	14660.305	16794.652	10.911	11.3	-9.5	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.23	15577.330	16182.857	12.032	12.5	-0.2	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.24	11464.172	11368.781	12.605	13.1	4.5	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.23	9535.332	9629.320	12.378	12.8	2.6	NO		NO	bb

Compound name: d5-N-EtFOSAA-EIS
Response Factor: 288.034
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.22	3589.006		3589.006	12.5	-0.3	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	5.22	3786.040		3786.040	13.1	5.2	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	5.22	3572.632		3572.632	12.4	-0.8	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	5.21	3638.702		3638.702	12.6	1.1	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	5.22	3747.157		3747.157	13.0	4.1	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	5.22	3600.419		3600.419	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.22	3572.146		3572.146	12.4	-0.8	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	5.21	3581.539		3581.539	12.4	-0.5	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	5.21	2503.029		2503.029	8.7	-30.5	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	5.21	2174.078		2174.078	7.5	-39.6	NO		NO	bbX

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Compound name: d5-N-EtFOSAA-RSD
Response Factor: 0.228005
RRF SD: 0.0103029, Relative SD: 4.51874
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.22	3589.006	14942.221	3.002	13.2	5.3	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.22	3786.040	15394.384	3.074	13.5	7.9	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.22	3572.632	15002.663	2.977	13.1	4.4	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.21	3638.702	16038.360	2.836	12.4	-0.5	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.22	3747.157	16869.279	2.777	12.2	-2.6	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.22	3600.419	15873.069	2.835	12.4	-0.5	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.22	3572.146	16794.652	2.659	11.7	-6.7	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.21	3581.539	16182.857	2.766	12.1	-2.9	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.21	2503.029	11368.781	2.752	12.1	-3.4	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.21	2174.078	9629.320	2.822	12.4	-1.0	NO		NO	bb

Compound name: 13C2-PFDoA-EIS
Response Factor: 1212.02
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.52	14975.688		14975.688	12.4	-1.2	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	5.52	15521.729		15521.729	12.8	2.5	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	5.52	15446.988		15446.988	12.7	2.0	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	5.52	15279.108		15279.108	12.6	0.9	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	5.52	16333.823		16333.823	13.5	7.8	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	5.52	15150.304		15150.304	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.52	15336.411		15336.411	12.7	1.2	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	5.52	16243.715		16243.715	13.4	7.2	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	5.52	12775.509		12775.509	10.5	-15.7	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	5.52	9780.345		9780.345	8.1	-35.4	NO		NO	bbX

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Compound name: 13C2-PFDoA-RSD
Response Factor: 1.24885
RRF SD: 0.0932247, Relative SD: 7.46483
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.52	14975.688	12201.438	15.342	12.3	-1.7	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.52	15521.729	12128.779	15.997	12.8	2.5	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.52	15446.988	12931.947	14.931	12.0	-4.4	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.52	15279.108	14112.664	13.533	10.8	-13.3	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.52	16333.823	12685.072	16.096	12.9	3.1	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.52	15150.304	11404.034	16.606	13.3	6.4	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.52	15336.411	13787.399	13.904	11.1	-10.9	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.52	16243.715	12624.012	16.084	12.9	3.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.52	12775.509	9506.756	16.798	13.5	7.6	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.52	9780.345	7270.491	16.815	13.5	7.7	NO		NO	bb

Compound name: 13C2-10:2 FTS-EIS
Response Factor: 57.2063
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.51	761.356		761.356	13.3	6.5	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	5.50	893.221		893.221	15.6	24.9	NO		NO	bbX
3	3	200304P2-5	Standard	12.500	5.50	801.870		801.870	14.0	12.1	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	5.50	771.722		771.722	13.5	7.9	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	5.51	810.089		810.089	14.2	13.3	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	5.50	715.079		715.079	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.50	676.500		676.500	11.8	-5.4	NO		NO	MMX
8	8	200304P2-10	Standard	12.500	5.50	730.327		730.327	12.8	2.1	NO		NO	MMX
9	9	200304P2-11	Standard	12.500	5.50	552.938		552.938	9.7	-22.7	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	5.50	425.490		425.490	7.4	-40.5	YES		NO	MMX

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Compound name: 13C2-10:2 FTS-RSD
Response Factor: 0.285593
RRF SD: 0.026844, Relative SD: 9.39939
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.51	761.356	2700.339	3.524	12.3	-1.3	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.50	893.221	2645.743	4.220	14.8	18.2	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.50	801.870	2613.269	3.836	13.4	7.4	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.50	771.722	2610.713	3.695	12.9	3.5	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.51	810.089	2608.924	3.881	13.6	8.7	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.50	715.079	2621.303	3.410	11.9	-4.5	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.50	675.903	2629.795	3.213	11.2	-10.0	NO		NO	MM
8	8	200304P2-10	Standard	12.500	5.50	730.339	2686.450	3.398	11.9	-4.8	NO		NO	MM
9	9	200304P2-11	Standard	12.500	5.50	552.938	2040.663	3.387	11.9	-5.1	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.50	423.033	1686.791	3.135	11.0	-12.2	NO		NO	MM

Compound name: d3-N-MeFOSA-EIS
Response Factor: 84.0557
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	5.55	12411.970		12411.970	147.7	-1.0	NO		NO	bbX
2	2	200304P2-4	Standard	149.200	5.55	13206.982		13206.982	157.1	5.3	NO		NO	MMX
3	3	200304P2-5	Standard	149.200	5.55	13376.281		13376.281	159.1	6.7	NO		NO	bbX
4	4	200304P2-6	Standard	149.200	5.55	13200.816		13200.816	157.0	5.3	NO		NO	bbX
5	5	200304P2-7	Standard	149.200	5.55	13332.186		13332.186	158.6	6.3	NO		NO	bbX
6	6	200304P2-8	Standard	149.200	5.55	12541.115		12541.115	149.2	0.0	NO		NO	bb
7	7	200304P2-9	Standard	149.200	5.55	13452.481		13452.481	160.0	7.3	NO		NO	bbX
8	8	200304P2-10	Standard	149.200	5.55	13400.754		13400.754	159.4	6.9	NO		NO	MMX
9	9	200304P2-11	Standard	149.200	5.55	10719.670		10719.670	127.5	-14.5	NO		NO	bbX
10	10	200304P2-12	Standard	149.200	5.55	8985.102		8985.102	106.9	-28.4	NO		NO	bbX

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Compound name: d3-N-MeFOSA-RSD
Response Factor: 0.0712065
RRF SD: 0.00469218, Relative SD: 6.58954
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	149.200	5.55	12411.970	14942.221	10.383	145.8	-2.3	NO		NO	bb
2	2 200304P2-4	Standard	149.200	5.55	13248.598	15394.384	10.758	151.1	1.3	NO		NO	bd
3	3 200304P2-5	Standard	149.200	5.55	13376.281	15002.663	11.145	156.5	4.9	NO		NO	bb
4	4 200304P2-6	Standard	149.200	5.55	13200.816	16038.360	10.288	144.5	-3.2	NO		NO	bb
5	5 200304P2-7	Standard	149.200	5.55	13332.186	16869.279	9.879	138.7	-7.0	NO		NO	bb
6	6 200304P2-8	Standard	149.200	5.55	12541.115	15873.069	9.876	138.7	-7.0	NO		NO	bb
7	7 200304P2-9	Standard	149.200	5.55	13452.481	16794.652	10.012	140.6	-5.8	NO		NO	bb
8	8 200304P2-10	Standard	149.200	5.55	13526.464	16182.857	10.448	146.7	-1.7	NO		NO	bd
9	9 200304P2-11	Standard	149.200	5.55	10719.670	11368.781	11.786	165.5	10.9	NO		NO	bb
10	10 200304P2-12	Standard	149.200	5.55	8985.102	9629.320	11.664	163.8	9.8	NO		NO	bb

Compound name: 13C2-PFTeDA-EIS
Response Factor: 1069.28
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	5.99	12643.240		12643.240	11.8	-5.4	NO		NO	bbX
2	2 200304P2-4	Standard	12.500	5.99	13202.983		13202.983	12.3	-1.2	NO		NO	bbX
3	3 200304P2-5	Standard	12.500	5.99	14128.079		14128.079	13.2	5.7	NO		NO	bbX
4	4 200304P2-6	Standard	12.500	5.99	13911.713		13911.713	13.0	4.1	NO		NO	bbX
5	5 200304P2-7	Standard	12.500	5.99	14095.519		14095.519	13.2	5.5	NO		NO	bbX
6	6 200304P2-8	Standard	12.500	5.99	13365.991		13365.991	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	5.99	13432.020		13432.020	12.6	0.5	NO		NO	bbX
8	8 200304P2-10	Standard	12.500	5.99	12597.357		12597.357	11.8	-5.8	NO		NO	bbX
9	9 200304P2-11	Standard	12.500	5.99	10018.346		10018.346	9.4	-25.0	NO		NO	bbX
10	10 200304P2-12	Standard	12.500	5.99	7300.786		7300.786	6.8	-45.4	NO		NO	bbX

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Compound name: 13C2-PFTeDA-RSD
Response Factor: 0.840346
RRF SD: 0.0529478, Relative SD: 6.30072
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.99	12573.312	14942.221	10.518	12.5	0.1	NO		NO	MM
2	2	200304P2-4	Standard	12.500	5.99	13202.983	15394.384	10.721	12.8	2.1	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.99	14128.079	15002.663	11.771	14.0	12.1	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.99	13911.713	16038.360	10.843	12.9	3.2	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.99	14095.519	16869.279	10.445	12.4	-0.6	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.99	13365.991	15873.069	10.526	12.5	0.2	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.99	13432.020	16794.652	9.997	11.9	-4.8	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.99	12597.357	16182.857	9.730	11.6	-7.4	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.99	10018.346	11368.781	11.015	13.1	4.9	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.99	7300.786	9629.320	9.477	11.3	-9.8	NO		NO	bb

Compound name: d5-N-ETFOSA-EIS
Response Factor: 145.419
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	6.01	21034.195		21034.195	144.6	-3.1	NO		NO	bbX
2	2	200304P2-4	Standard	149.200	6.01	21302.590		21302.590	146.5	-1.8	NO		NO	bbX
3	3	200304P2-5	Standard	149.200	6.01	21913.150		21913.150	150.7	1.0	NO		NO	bbX
4	4	200304P2-6	Standard	149.200	6.01	21527.838		21527.838	148.0	-0.8	NO		NO	bbX
5	5	200304P2-7	Standard	149.200	6.01	22135.055		22135.055	152.2	2.0	NO		NO	bbX
6	6	200304P2-8	Standard	149.200	6.01	21696.475		21696.475	149.2	0.0	NO		NO	bb
7	7	200304P2-9	Standard	149.200	6.01	21505.869		21505.869	147.9	-0.9	NO		NO	bbX
8	8	200304P2-10	Standard	149.200	6.01	20927.984		20927.984	143.9	-3.5	NO		NO	bbX
9	9	200304P2-11	Standard	149.200	6.01	16088.674		16088.674	110.6	-25.8	NO		NO	bbX
10	10	200304P2-12	Standard	149.200	6.01	13277.647		13277.647	91.3	-38.8	NO		NO	bbX

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Compound name: d5-N-ETFOSA-RSD
Response Factor: 0.114286
RRF SD: 0.00480655, Relative SD: 4.20571
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	6.01	21034.195	14942.221	17.596	154.0	3.2	NO		NO	bb
2	2	200304P2-4	Standard	149.200	6.01	21302.590	15394.384	17.297	151.4	1.4	NO		NO	bb
3	3	200304P2-5	Standard	149.200	6.01	21913.150	15002.663	18.258	159.8	7.1	NO		NO	bb
4	4	200304P2-6	Standard	149.200	6.01	21527.838	16038.360	16.778	146.8	-1.6	NO		NO	bb
5	5	200304P2-7	Standard	149.200	6.01	22135.055	16869.279	16.402	143.5	-3.8	NO		NO	bb
6	6	200304P2-8	Standard	149.200	6.01	21696.475	15873.069	17.086	149.5	0.2	NO		NO	bb
7	7	200304P2-9	Standard	149.200	6.01	21505.869	16794.652	16.006	140.1	-6.1	NO		NO	bb
8	8	200304P2-10	Standard	149.200	6.01	20927.984	16182.857	16.165	141.4	-5.2	NO		NO	bb
9	9	200304P2-11	Standard	149.200	6.01	16088.674	11368.781	17.690	154.8	3.7	NO		NO	bb
10	10	200304P2-12	Standard	149.200	6.01	13277.647	9629.320	17.236	150.8	1.1	NO		NO	bb

Compound name: 13C2-PFHxDA-EIS
Response Factor: 1682.8
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	6.34	20568.721		20568.721	12.2	-2.2	NO		NO	bbX
2	2	200304P2-4	Standard	12.500	6.34	20939.432		20939.432	12.4	-0.5	NO		NO	MMX
3	3	200304P2-5	Standard	12.500	6.34	20448.461		20448.461	12.2	-2.8	NO		NO	bbX
4	4	200304P2-6	Standard	12.500	6.34	20766.674		20766.674	12.3	-1.3	NO		NO	bbX
5	5	200304P2-7	Standard	12.500	6.34	20828.457		20828.457	12.4	-1.0	NO		NO	bbX
6	6	200304P2-8	Standard	12.500	6.34	21034.990		21034.990	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	6.34	20219.934		20219.934	12.0	-3.9	NO		NO	bbX
8	8	200304P2-10	Standard	12.500	6.34	20536.414		20536.414	12.2	-2.4	NO		NO	bbX
9	9	200304P2-11	Standard	12.500	6.34	16218.968		16218.968	9.6	-22.9	NO		NO	bbX
10	10	200304P2-12	Standard	12.500	6.34	12823.098		12823.098	7.6	-39.0	NO		NO	bbX

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Compound name: 13C2-PFHxDA-RSD
Response Factor: 1.31879
RRF SD: 0.0685866, Relative SD: 5.20072
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	6.34	20568.721	14942.221	17.207	13.0	4.4	NO		NO	bb
2	2	200304P2-4	Standard	12.500	6.34	20973.158	15394.384	17.030	12.9	3.3	NO		NO	bd
3	3	200304P2-5	Standard	12.500	6.34	20448.461	15002.663	17.037	12.9	3.4	NO		NO	bb
4	4	200304P2-6	Standard	12.500	6.34	20766.674	16038.360	16.185	12.3	-1.8	NO		NO	bb
5	5	200304P2-7	Standard	12.500	6.34	20828.457	16869.279	15.434	11.7	-6.4	NO		NO	bb
6	6	200304P2-8	Standard	12.500	6.34	21034.990	15873.069	16.565	12.6	0.5	NO		NO	bb
7	7	200304P2-9	Standard	12.500	6.34	20219.934	16794.652	15.049	11.4	-8.7	NO		NO	bb
8	8	200304P2-10	Standard	12.500	6.34	20536.414	16182.857	15.863	12.0	-3.8	NO		NO	bb
9	9	200304P2-11	Standard	12.500	6.34	16218.968	11368.781	17.833	13.5	8.2	NO		NO	bb
10	10	200304P2-12	Standard	12.500	6.34	12823.098	9629.320	16.646	12.6	1.0	NO		NO	bb

Compound name: d7-N-MeFOSE-EIS
Response Factor: 134.148
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	6.24	18841.561		18841.561	140.5	-5.9	NO		NO	bbX
2	2	200304P2-4	Standard	149.200	6.24	18907.783		18907.783	140.9	-5.5	NO		NO	bbX
3	3	200304P2-5	Standard	149.200	6.24	18921.934		18921.934	141.1	-5.5	NO		NO	bbX
4	4	200304P2-6	Standard	149.200	6.24	19029.912		19029.912	141.9	-4.9	NO		NO	bbX
5	5	200304P2-7	Standard	149.200	6.24	19414.918		19414.918	144.7	-3.0	NO		NO	bbX
6	6	200304P2-8	Standard	149.200	6.24	20014.893		20014.893	149.2	0.0	NO		NO	bb
7	7	200304P2-9	Standard	149.200	6.24	19361.348		19361.348	144.3	-3.3	NO		NO	bbX
8	8	200304P2-10	Standard	149.200	6.24	19294.727		19294.727	143.8	-3.6	NO		NO	bbX
9	9	200304P2-11	Standard	149.200	6.24	15920.189		15920.189	118.7	-20.5	NO		NO	bbX
10	10	200304P2-12	Standard	149.200	6.24	13181.493		13181.493	98.3	-34.1	NO		NO	bbX

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Compound name: d7-N-MeFOSE-RSD
Response Factor: 0.104416
RRF SD: 0.00706848, Relative SD: 6.76951
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	6.24	18841.561	14942.221	15.762	151.0	1.2	NO		NO	bb
2	2	200304P2-4	Standard	149.200	6.24	18907.783	15394.384	15.353	147.0	-1.5	NO		NO	bb
3	3	200304P2-5	Standard	149.200	6.24	18921.934	15002.663	15.765	151.0	1.2	NO		NO	bb
4	4	200304P2-6	Standard	149.200	6.24	19029.912	16038.360	14.832	142.0	-4.8	NO		NO	bb
5	5	200304P2-7	Standard	149.200	6.24	19414.918	16869.279	14.386	137.8	-7.7	NO		NO	bb
6	6	200304P2-8	Standard	149.200	6.24	20014.893	15873.069	15.762	151.0	1.2	NO		NO	bb
7	7	200304P2-9	Standard	149.200	6.24	19361.348	16794.652	14.410	138.0	-7.5	NO		NO	bb
8	8	200304P2-10	Standard	149.200	6.24	19294.727	16182.857	14.904	142.7	-4.3	NO		NO	bb
9	9	200304P2-11	Standard	149.200	6.24	15920.189	11368.781	17.504	167.6	12.4	NO		NO	bb
10	10	200304P2-12	Standard	149.200	6.24	13181.493	9629.320	17.111	163.9	9.8	NO		NO	bb

Compound name: d9-N-EtFOSE-EIS
Response Factor: 151.768
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	149.200	6.39	21483.859		21483.859	141.6	-5.1	NO		NO	bbX
2	2	200304P2-4	Standard	149.200	6.39	21706.154		21706.154	143.0	-4.1	NO		NO	bbX
3	3	200304P2-5	Standard	149.200	6.39	22207.584		22207.584	146.3	-1.9	NO		NO	bbX
4	4	200304P2-6	Standard	149.200	6.39	22550.350		22550.350	148.6	-0.4	NO		NO	bbX
5	5	200304P2-7	Standard	149.200	6.39	22518.729		22518.729	148.4	-0.6	NO		NO	bbX
6	6	200304P2-8	Standard	149.200	6.39	22643.750		22643.750	149.2	0.0	NO		NO	bb
7	7	200304P2-9	Standard	149.200	6.39	22333.270		22333.270	147.2	-1.4	NO		NO	bbX
8	8	200304P2-10	Standard	149.200	6.39	22022.555		22022.555	145.1	-2.7	NO		NO	bbX
9	9	200304P2-11	Standard	149.200	6.39	17761.475		17761.475	117.0	-21.6	NO		NO	bbX
10	10	200304P2-12	Standard	149.200	6.39	14666.474		14666.474	96.6	-35.2	NO		NO	bbX

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Compound name: d9-N-EtFOSE-RSD
Response Factor: 0.119567
RRF SD: 0.0064614, Relative SD: 5.40398
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	149.200	6.39	21483.859	14942.221	17.972	150.3	0.7	NO		NO	bb
2	2 200304P2-4	Standard	149.200	6.39	21706.154	15394.384	17.625	147.4	-1.2	NO		NO	bb
3	3 200304P2-5	Standard	149.200	6.39	22207.584	15002.663	18.503	154.7	3.7	NO		NO	bb
4	4 200304P2-6	Standard	149.200	6.39	22550.350	16038.360	17.575	147.0	-1.5	NO		NO	bb
5	5 200304P2-7	Standard	149.200	6.39	22518.729	16869.279	16.686	139.6	-6.5	NO		NO	bb
6	6 200304P2-8	Standard	149.200	6.39	22643.750	15873.069	17.832	149.1	-0.0	NO		NO	bb
7	7 200304P2-9	Standard	149.200	6.39	22333.270	16794.652	16.622	139.0	-6.8	NO		NO	bb
8	8 200304P2-10	Standard	149.200	6.39	22022.555	16182.857	17.011	142.3	-4.6	NO		NO	bb
9	9 200304P2-11	Standard	149.200	6.39	17761.475	11368.781	19.529	163.3	9.5	NO		NO	bb
10	10 200304P2-12	Standard	149.200	6.39	14666.474	9629.320	19.039	159.2	6.7	NO		NO	bb

Compound name: 13C4-PFBA
Response Factor: 1
RRF SD: 3.70074e-017, Relative SD: 3.70074e-015
Response type: Internal Std (Ref 99), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	1.23	5526.569	5526.569	12.500	12.5	0.0	NO		NO	bb
2	2 200304P2-4	Standard	12.500	1.23	5829.053	5829.053	12.500	12.5	0.0	NO		NO	MM
3	3 200304P2-5	Standard	12.500	1.23	5658.267	5658.267	12.500	12.5	0.0	NO		NO	bb
4	4 200304P2-6	Standard	12.500	1.23	5755.885	5755.885	12.500	12.5	0.0	NO		NO	MM
5	5 200304P2-7	Standard	12.500	1.23	5735.158	5735.158	12.500	12.5	0.0	NO		NO	bb
6	6 200304P2-8	Standard	12.500	1.23	5718.201	5718.201	12.500	12.5	0.0	NO		NO	MM
7	7 200304P2-9	Standard	12.500	1.23	5839.218	5839.218	12.500	12.5	0.0	NO		NO	bb
8	8 200304P2-10	Standard	12.500	1.23	5921.604	5921.604	12.500	12.5	0.0	NO		NO	MM
9	9 200304P2-11	Standard	12.500	1.23	4526.713	4526.713	12.500	12.5	0.0	NO		NO	MM
10	10 200304P2-12	Standard	12.500	1.23	3917.625	3917.625	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 9.06493e-017, Relative SD: 9.06493e-015
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	2.94	13804.979	13804.979	12.500	12.5	0.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	2.94	15035.333	15035.333	12.500	12.5	0.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	2.94	14964.110	14964.110	12.500	12.5	0.0	NO		NO	bb
4	4	200304P2-6	Standard	12.500	2.94	14885.100	14885.100	12.500	12.5	0.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	2.94	14761.557	14761.557	12.500	12.5	0.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	2.94	14681.915	14681.915	12.500	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	2.94	14929.965	14929.965	12.500	12.5	0.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	2.94	14616.780	14616.780	12.500	12.5	0.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	2.94	11536.978	11536.978	12.500	12.5	0.0	NO		NO	bb
10	10	200304P2-12	Standard	12.500	2.94	9647.108	9647.108	12.500	12.5	0.0	NO		NO	bb

Compound name: 18O2-PFHxS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	3.67	989.156	989.156	12.500	12.5	0.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	3.68	956.648	956.648	12.500	12.5	0.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	3.68	948.934	948.934	12.500	12.5	0.0	NO		NO	bb
4	4	200304P2-6	Standard	12.500	3.68	1004.360	1004.360	12.500	12.5	0.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	3.68	1006.445	1006.445	12.500	12.5	0.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	3.68	971.809	971.809	12.500	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	3.67	961.273	961.273	12.500	12.5	0.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	3.68	900.798	900.798	12.500	12.5	0.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	3.68	756.725	756.725	12.500	12.5	0.0	NO		NO	bb
10	10	200304P2-12	Standard	12.500	3.67	669.401	669.401	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 9.79125e-017, Relative SD: 9.79125e-015
Response type: Internal Std (Ref 102), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	4.05	14644.351	14644.351	12.500	12.5	0.0	NO		NO	bb
2	2 200304P2-4	Standard	12.500	4.05	15478.947	15478.947	12.500	12.5	0.0	NO		NO	bb
3	3 200304P2-5	Standard	12.500	4.05	15183.021	15183.021	12.500	12.5	0.0	NO		NO	bb
4	4 200304P2-6	Standard	12.500	4.05	15389.105	15389.105	12.500	12.5	0.0	NO		NO	bb
5	5 200304P2-7	Standard	12.500	4.05	15782.379	15782.379	12.500	12.5	0.0	NO		NO	bb
6	6 200304P2-8	Standard	12.500	4.05	15318.031	15318.031	12.500	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	4.05	14917.743	14917.743	12.500	12.5	0.0	NO		NO	bb
8	8 200304P2-10	Standard	12.500	4.06	15129.512	15129.512	12.500	12.5	0.0	NO		NO	bb
9	9 200304P2-11	Standard	12.500	4.06	11042.833	11042.833	12.500	12.5	0.0	NO		NO	bb
10	10 200304P2-12	Standard	12.500	4.05	9111.191	9111.191	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C9-PFNA
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
Response type: Internal Std (Ref 103), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200304P2-3	Standard	12.500	4.51	11461.869	11461.869	12.500	12.5	0.0	NO		NO	bb
2	2 200304P2-4	Standard	12.500	4.51	11902.924	11902.924	12.500	12.5	0.0	NO		NO	bb
3	3 200304P2-5	Standard	12.500	4.51	11445.872	11445.872	12.500	12.5	0.0	NO		NO	bb
4	4 200304P2-6	Standard	12.500	4.51	11926.093	11926.093	12.500	12.5	0.0	NO		NO	bb
5	5 200304P2-7	Standard	12.500	4.51	12077.129	12077.129	12.500	12.5	0.0	NO		NO	bb
6	6 200304P2-8	Standard	12.500	4.51	11265.634	11265.634	12.500	12.5	0.0	NO		NO	bb
7	7 200304P2-9	Standard	12.500	4.51	11489.718	11489.718	12.500	12.5	0.0	NO		NO	bb
8	8 200304P2-10	Standard	12.500	4.51	11272.323	11272.323	12.500	12.5	0.0	NO		NO	bb
9	9 200304P2-11	Standard	12.500	4.51	8296.820	8296.820	12.500	12.5	0.0	NO		NO	bb
10	10 200304P2-12	Standard	12.500	4.51	7482.180	7482.180	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.60	2700.339	2700.339	12.500	12.5	0.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.60	2645.743	2645.743	12.500	12.5	0.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.60	2613.269	2613.269	12.500	12.5	0.0	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.60	2610.713	2610.713	12.500	12.5	0.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.60	2608.924	2608.924	12.500	12.5	0.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.60	2621.303	2621.303	12.500	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.60	2629.795	2629.795	12.500	12.5	0.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.60	2686.450	2686.450	12.500	12.5	0.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.60	2040.663	2040.663	12.500	12.5	0.0	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.60	1686.791	1686.791	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	4.90	12201.438	12201.438	12.500	12.5	0.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	4.90	12128.779	12128.779	12.500	12.5	0.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	4.90	12931.947	12931.947	12.500	12.5	0.0	NO		NO	bb
4	4	200304P2-6	Standard	12.500	4.90	14112.664	14112.664	12.500	12.5	0.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	4.90	12685.072	12685.072	12.500	12.5	0.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	4.90	11404.034	11404.034	12.500	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	4.90	13787.399	13787.399	12.500	12.5	0.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	4.91	12624.012	12624.012	12.500	12.5	0.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	4.90	9506.756	9506.756	12.500	12.5	0.0	NO		NO	bb
10	10	200304P2-12	Standard	12.500	4.90	7270.491	7270.491	12.500	12.5	0.0	NO		NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
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Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 1.17028e-016, Relative SD: 1.17028e-014
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200304P2-3	Standard	12.500	5.23	14942.221	14942.221	12.500	12.5	0.0	NO		NO	bb
2	2	200304P2-4	Standard	12.500	5.23	15394.384	15394.384	12.500	12.5	0.0	NO		NO	bb
3	3	200304P2-5	Standard	12.500	5.23	15002.663	15002.663	12.500	12.5	0.0	NO		NO	bb
4	4	200304P2-6	Standard	12.500	5.23	16038.360	16038.360	12.500	12.5	0.0	NO		NO	bb
5	5	200304P2-7	Standard	12.500	5.24	16869.279	16869.279	12.500	12.5	0.0	NO		NO	bb
6	6	200304P2-8	Standard	12.500	5.23	15873.069	15873.069	12.500	12.5	0.0	NO		NO	bb
7	7	200304P2-9	Standard	12.500	5.23	16794.652	16794.652	12.500	12.5	0.0	NO		NO	bb
8	8	200304P2-10	Standard	12.500	5.24	16182.857	16182.857	12.500	12.5	0.0	NO		NO	bb
9	9	200304P2-11	Standard	12.500	5.23	11368.781	11368.781	12.500	12.5	0.0	NO		NO	bb
10	10	200304P2-12	Standard	12.500	5.23	9629.320	9629.320	12.500	12.5	0.0	NO		NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:06:21 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	47	0.9997	NO	
2	2	PFPrS	51	0.9924	NO	
3	3	3:3 FTCA	49	0.9993	NO	
4	4	PFPeA	49	0.9998	NO	
5	5	PFBS	51	0.9982	NO	
6	6	4:2 FTS	55	0.9994	NO	
7	7	PFHxA	57	0.9995	NO	
8	8	PFPeS	51	0.9970	NO	
9	9	HFPO-DA	53	0.9997	NO	
10	10	5:3 FTCA	59	0.9994	NO	
11	11	PFHpA	59	0.9988	NO	
12	12	ADONA	59	0.9994	NO	
13	13	L-PFHxS	61	0.9997	NO	
14	15	6:2 FTS	63	0.9988	NO	
15	16	L-PFOA	69	0.9998	NO	
16	18	PFecHS	69	0.9996	NO	
17	19	PFHpS	71	0.9996	NO	
18	20	7:3 FTCA	65	0.9996	NO	
19	21	PFNA	65	0.9999	NO	
20	22	PFOSA	67	0.9998	NO	
21	23	L-PFOS	71	0.9996	NO	
22	25	9Cl-PF30NS	71	0.9992	NO	
23	26	PFDA	73	0.9999	NO	
24	27	8:2 FTS	75	0.9981	NO	
25	28	PFNS	71	0.9991	NO	
26	29	L-MeFOSAA	77	0.9981	NO	

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:06:54 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
1	31	L-EtFOSAA	81	0.9978	NO	
2	33	PFUdA	79	0.9985	NO	
3	34	PFDS	71	0.9996	NO	
4	35	11Cl-PF30UdS	83	0.9987	NO	
5	36	10:2 FTS	85	0.9993	NO	
6	37	PFDoA	83	0.9991	NO	
7	38	N-MeFOSA	87	0.9997	NO	
8	39	PFTrDA	83	0.9987	NO	
9	40	PFDoS	89	0.9996	NO	
10	41	PFTeDA	89	0.9977	NO	
11	42	N-EtFOSA	91	0.9998	NO	
12	43	PFHxDA	93	0.9999	NO	
13	44	PFODA	93	0.9998	NO	
14	45	N-MeFOSE	95	0.9991	NO	
15	46	N-EtFOSE	97	0.9999	NO	
16	47	13C3-PFBA-EIS			NO	0.000
17	48	13C3-PFBA-RSD	99		NO	1.999
18	49	13C3-PFPeA-EIS			NO	0.000
19	50	13C3-PFPeA-RSD	100		NO	1.830
20	51	13C3-PFBS-EIS			NO	0.000
21	52	13C3-PFBS-RSD	101		NO	6.157
22	53	13C3-HFPO-DA-EIS			NO	0.000
23	54	13C3-HFPO-DA-RSD	100		NO	5.135
24	55	13C2-4:2 FTS-EIS			NO	0.000
25	56	13C2-4:2 FTS-RSD	101		NO	6.982
26	57	13C2-PFHxA-EIS			NO	0.000
27	58	13C2-PFHxA-RSD	100		NO	2.602
28	59	13C4-PFHpA-EIS			NO	0.000
29	60	13C4-PFHpA-RSD	100		NO	3.731
30	61	13C3-PFHxS-EIS			NO	0.000
31	62	13C3-PFHxS-RSD	101		NO	4.796
32	63	13C2-6:2 FTS-EIS			NO	0.000

Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:06:54 Pacific Standard Time

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
33	64	13C2-6:2 FTS-RSD	104		NO	5.480
34	65	13C5-PFNA-EIS			NO	0.000
35	66	13C5-PFNA-RSD	103		NO	4.554
36	67	13C8-PFOSA-EIS			NO	0.000
37	68	13C8-PFOSA-RSD	106		NO	3.830
38	69	13C2-PFOA-EIS			NO	0.000
39	70	13C2-PFOA-RSD	102		NO	2.973
40	71	13C8-PFOS-EIS			NO	0.000
41	72	13C8-PFOS-RSD	104		NO	4.008
42	73	13C2-PFDA-EIS			NO	0.000
43	74	13C2-PFDA-RSD	105		NO	7.007
44	75	13C2-8:2 FTS-EIS			NO	0.000
45	76	13C2-8:2 FTS-RSD	104		NO	6.883
46	77	d3-N-MeFOSAA-EIS			NO	0.000
47	78	d3-N-MeFOSAA-RSD	106		NO	5.721
48	79	13C2-PFUdA-EIS			NO	0.000
49	80	13C2-PFUdA-RSD	106		NO	4.401
50	81	d5-N-EtFOSAA-EIS			NO	0.000
51	82	d5-N-EtFOSAA-RSD	106		NO	4.519
52	83	13C2-PFDoA-EIS			NO	0.000
53	84	13C2-PFDoA-RSD	105		NO	7.465
54	85	13C2-10:2 FTS-EIS			NO	0.000
55	86	13C2-10:2 FTS-RSD	104		NO	9.399
56	87	d3-N-MeFOSA-EIS			NO	0.000
57	88	d3-N-MeFOSA-RSD	106		NO	6.590
58	89	13C2-PFTeDA-EIS			NO	0.000
59	90	13C2-PFTeDA-RSD	106		NO	6.301
60	91	d5-N-ETFOSA-EIS			NO	0.000
61	92	d5-N-ETFOSA-RSD	106		NO	4.206
62	93	13C2-PFHxDA-EIS			NO	0.000
63	94	13C2-PFHxDA-RSD	106		NO	5.201
64	95	d7-N-MeFOSE-EIS			NO	0.000
65	96	d7-N-MeFOSE-RSD	106		NO	6.770
66	97	d9-N-EtFOSE-EIS			NO	0.000
67	98	d9-N-EtFOSE-RSD	106		NO	5.404
68	99	13C4-PFBA	99		NO	0.000

Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:06:54 Pacific Standard Time

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
69	1...	13C5-PFHxA	100		NO	0.000
70	1...	18O2-PFHxS	101		NO	0.000
71	1...	13C8-PFOA	102		NO	0.000
72	1...	13C9-PFNA	103		NO	0.000
73	1...	13C4-PFOS	104		NO	0.000
74	1...	13C6-PFDA	105		NO	0.000
75	1...	13C7-PFUdA	106		NO	0.000

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:10:01 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	Name	Pred.RT	RT	Pred. Ratio	Ion Ratio	Ratio out?
1	PFBA	1.23	1.23			
2	PFPrS	1.62	1.53	2.560	2.528	NO
3	3:3 FTCA	2.00	2.00	4.187	3.785	NO
4	PFPeA	2.13	2.13			
5	PFBS	2.41	2.41	3.171	3.093	NO
6	4:2 FTS	2.85	2.85	0.987	1.066	NO
7	PFHxA	2.94	2.94	17.202	17.857	NO
8	PFPeS	3.04	3.13	2.435	2.529	NO
9	HFPO-DA	3.14	3.14	2.632	2.657	NO
10	5:3 FTCA	3.48	3.47	1.741	1.830	NO
11	PFHpA	3.53	3.54	16.764	14.505	NO
12	ADONA	3.62	3.64	4.212	3.925	NO
13	L-PFHxS	3.68	3.68	2.577	2.479	NO
14	6:2 FTS	4.00	4.00	1.368	1.506	NO
15	L-PFOA	4.06	4.06	3.084	3.082	NO
16	PFecHS	4.07	4.07	0.604	0.532	NO
17	PFHpS	4.22	4.17	1.721	1.758	NO
18	7:3 FTCA	4.50	4.49	1.613	1.905	NO
19	PFNA	4.51	4.51	5.337	5.604	NO
20	PFOSA	4.56	4.56	32.007	30.440	NO
21	L-PFOS	4.60	4.60	2.054	2.256	NO
22	9Cl-PF30NS	4.80	4.82	24.839	14.781	NO
23	PFDA	4.90	4.90	8.114	8.070	NO
24	8:2 FTS	4.87	4.87	3.211	2.864	NO
25	PFNS	4.94	4.97	2.515	1.994	NO
26	L-MeFOSAA	5.05	5.06	2.451	2.181	NO

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Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:10:28 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	Name	Pred.RT	RT	Pred. Ratio	Ion Ratio	Ratio out?
1	L-EtFOSAA	5.22	5.22	1.317	1.210	NO
2	PFUdA	5.24	5.24	17.647	16.133	NO
3	PFDS	5.21	5.28	2.055	2.007	NO
4	11Cl-PF30UdS	5.45	5.45	20.284	22.826	NO
5	10:2 FTS	5.50	5.51	0.941	1.103	NO
6	PFDoA	5.52	5.52	11.533	9.979	NO
7	N-MeFOSA	5.54	5.52	1.793	1.628	NO
8	PFTrDA	5.77	5.77	43.400	44.148	NO
9	PFDoS	5.80	5.80	3.341	3.090	NO
10	PFTeDA	5.99	5.99	16.724	16.938	NO
11	N-EtFOSA	5.99	5.99	1.645	1.780	NO
12	PFHxDA	6.34	6.34	67.004	71.454	NO
13	PFODA	6.55	6.58			
14	N-MeFOSE	6.24	6.25			
15	N-EtFOSE	6.39	6.40			

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Dataset: Untitled

Last Altered: Thursday, March 05, 2020 10:12:17 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:12:34 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	200304P2-1	IPA	04-Mar-20	19:10:51
2	2	200304P2-2	IPA	04-Mar-20	19:21:20
3	3	200304P2-3	ST200304P2-1 PFC CS-2 20C0304	04-Mar-20	19:31:52
4	4	200304P2-4	ST200304P2-2 PFC CS-1 20C0305	04-Mar-20	19:42:23
5	5	200304P2-5	ST200304P2-3 PFC CS0 20C0306	04-Mar-20	19:52:51
6	6	200304P2-6	ST200304P2-4 PFC CS1 20C0307	04-Mar-20	20:03:23
7	7	200304P2-7	ST200304P2-5 PFC CS2 20C0308	04-Mar-20	20:13:54
8	8	200304P2-8	ST200304P2-6 PFC CS3 20C0309	04-Mar-20	20:24:22
9	9	200304P2-9	ST200304P2-7 PFC CS4 20C0310	04-Mar-20	20:34:54
10	10	200304P2-10	ST200304P2-8 PFC CS5 20C0311	04-Mar-20	20:45:22
11	11	200304P2-11	ST200304P2-9 PFC CS6 20C0312	04-Mar-20	20:55:55
12	12	200304P2-12	ST200304P2-10 PFC CS7 20C0313	04-Mar-20	21:06:25
13	13	200304P2-13	IB	04-Mar-20	21:16:56
14	14	200304P2-14	ICV200304P2-1 PFC ICV 20C0314	04-Mar-20	21:27:24
15	15	200304P2-15	IB	04-Mar-20	21:37:55

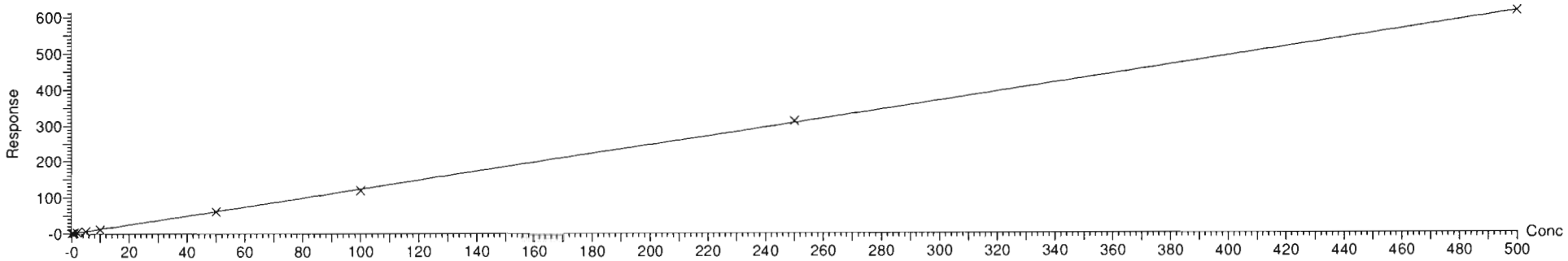
Vista Analytical Laboratory Q1

Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

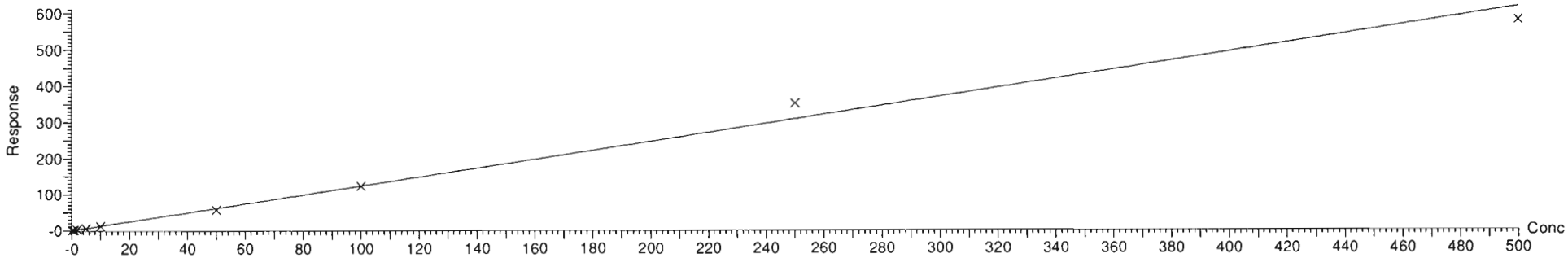
Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:07:52 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: PFBA
Correlation coefficient: r = 0.999870, r^2 = 0.999739
Calibration curve: 1.22877 * x + -0.0485473
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



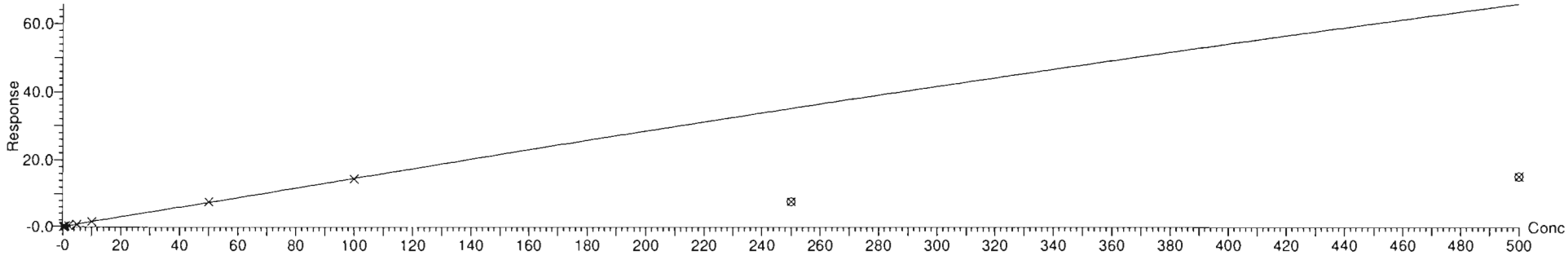
Compound name: PFPrS
Correlation coefficient: r = 0.996168, r^2 = 0.992351
Calibration curve: 1.22997 * x + -0.0283487
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



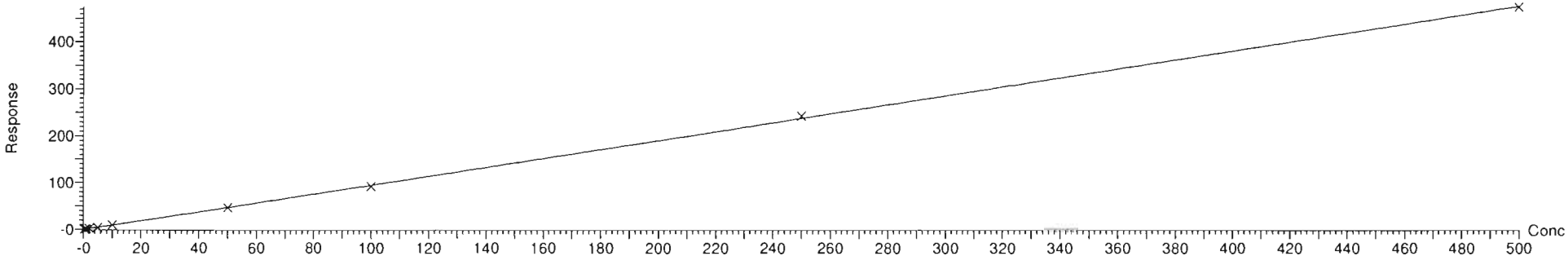
Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:07:52 Pacific Standard Time

Compound name: 3:3 FTCA
Coefficient of Determination: R^2 = 0.999269
Calibration curve: -3.67081e-005 * x^2 + 0.150027 * x + -0.0084447
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



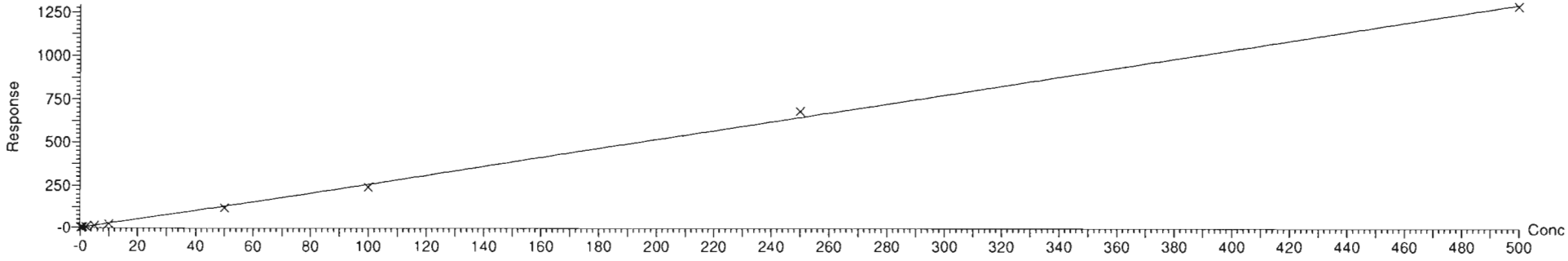
Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999784
Calibration curve: 1.01374e-005 * x^2 + 0.947655 * x + 0.00565638
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



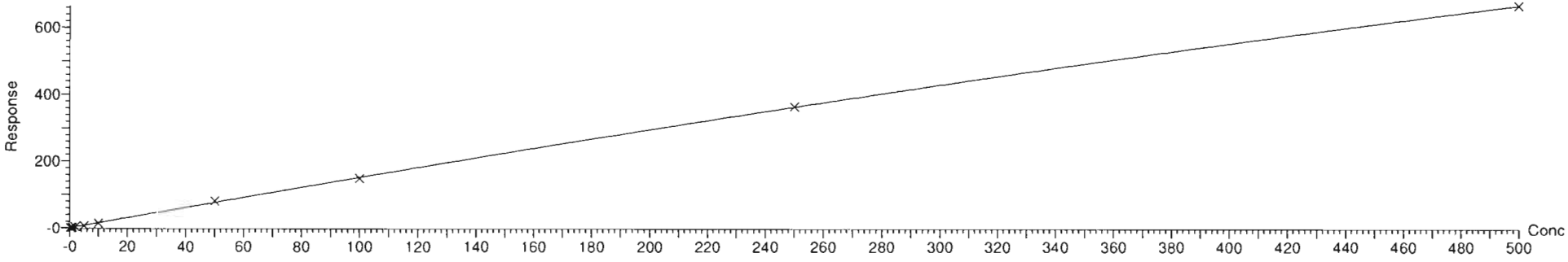
Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:07:52 Pacific Standard Time

Compound name: PFBS
Correlation coefficient: r = 0.999122, r^2 = 0.998244
Calibration curve: 2.59023 * x + -0.116823
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999395
Calibration curve: -0.000488235 * x^2 + 1.57983 * x + -0.224097
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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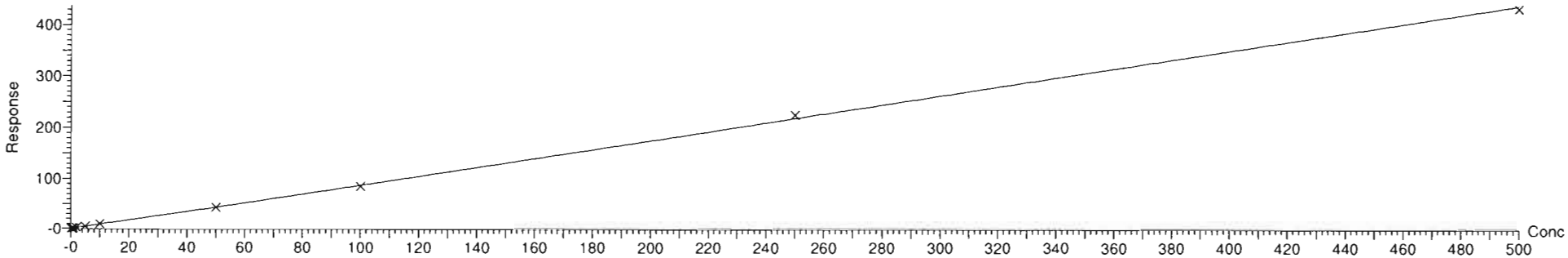
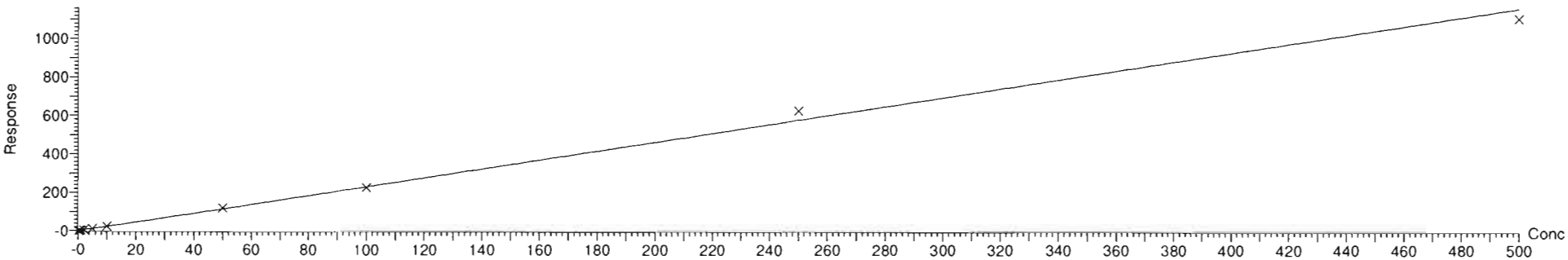
Compound name: PFHxA
Correlation coefficient: r = 0.999772, r^2 = 0.999543
Calibration curve: 0.877166 * x + 0.0585886
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFPeS
Correlation coefficient: r = 0.998482, r^2 = 0.996966
Calibration curve: 2.32483 * x + -0.043047
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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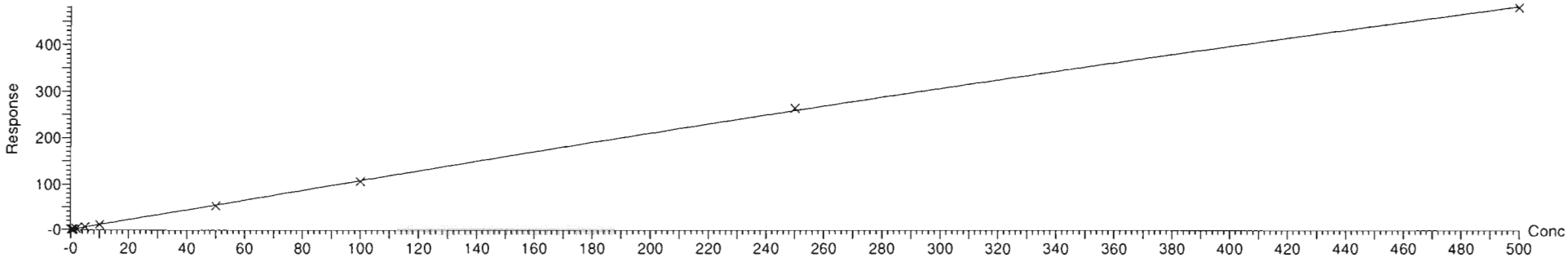
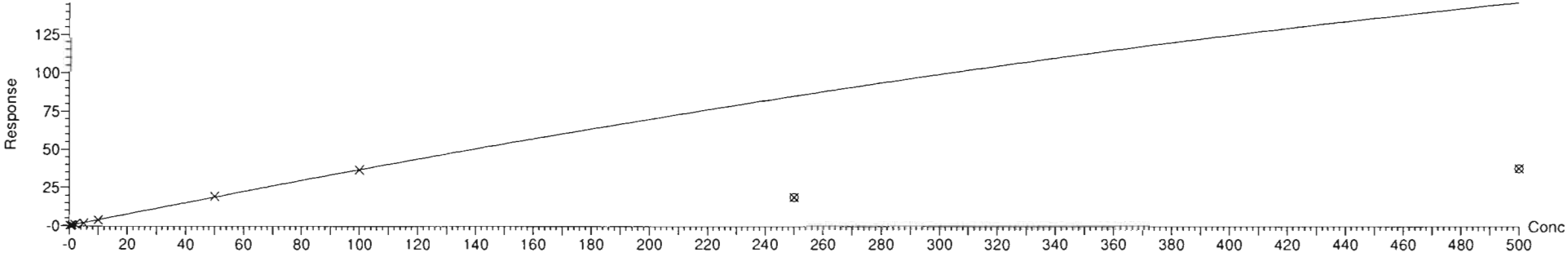
Compound name: HFPO-DA
Coefficient of Determination: R^2 = 0.999734
Calibration curve: -0.000291166 * x^2 + 1.11135 * x + -0.00438747
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 5:3 FTCA
Coefficient of Determination: R^2 = 0.999383
Calibration curve: -0.000189215 * x^2 + 0.387413 * x + -0.0250636
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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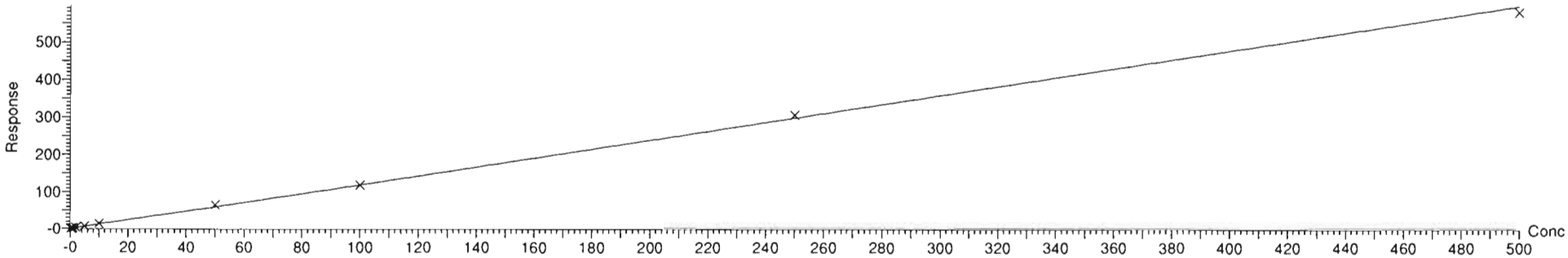
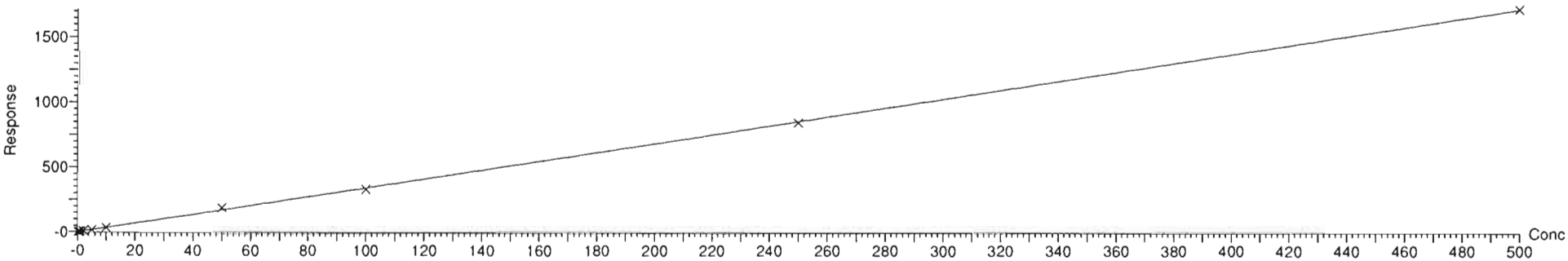
Compound name: PFHpA
Correlation coefficient: r = 0.999380, r^2 = 0.998760
Calibration curve: 1.19534 * x + 0.12732
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: ADONA
Coefficient of Determination: R^2 = 0.999377
Calibration curve: 6.47742e-005 * x^2 + 3.40294 * x + 0.107116
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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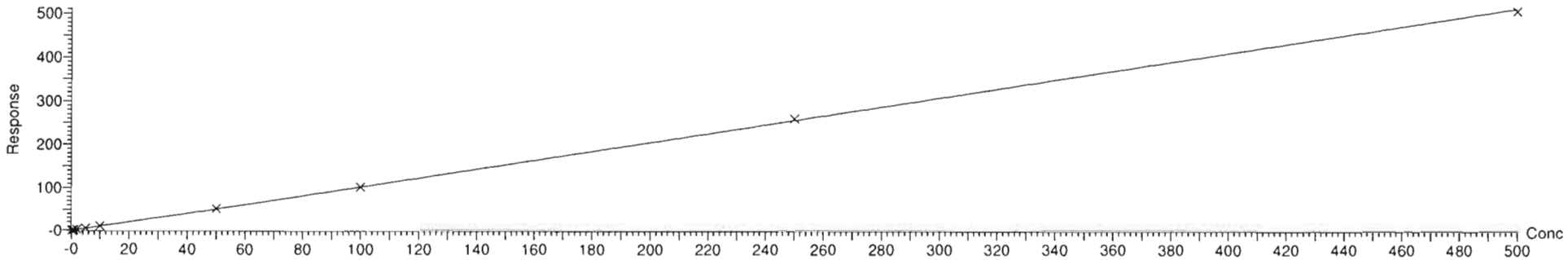
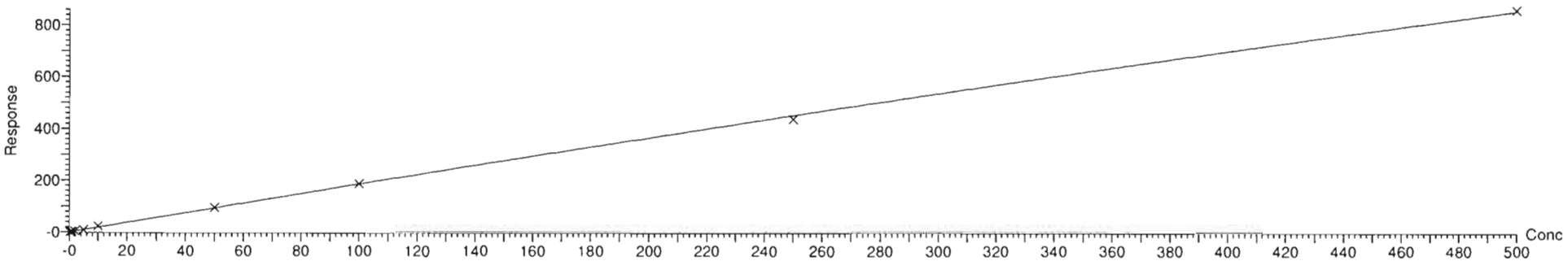
Compound name: L-PFHxS
Correlation coefficient: r = 0.999868, r^2 = 0.999736
Calibration curve: 1.02796 * x + -0.0723975
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998778
Calibration curve: -0.000416301 * x^2 + 1.91794 * x + -0.0251531
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



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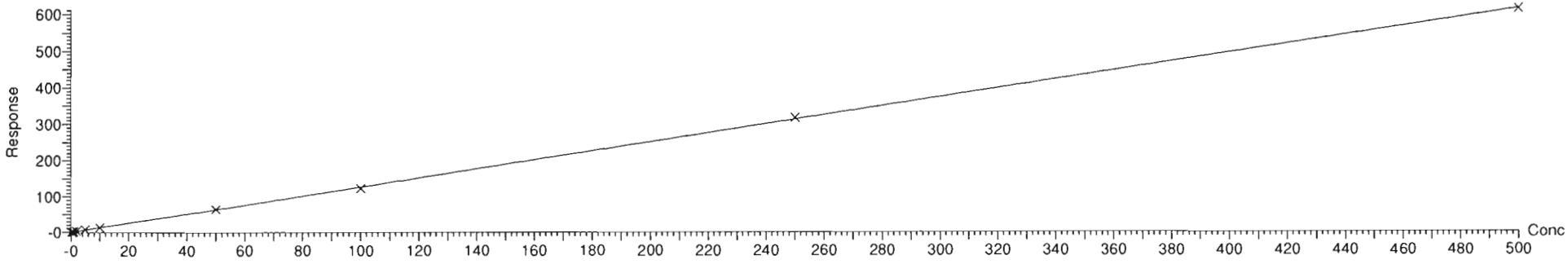
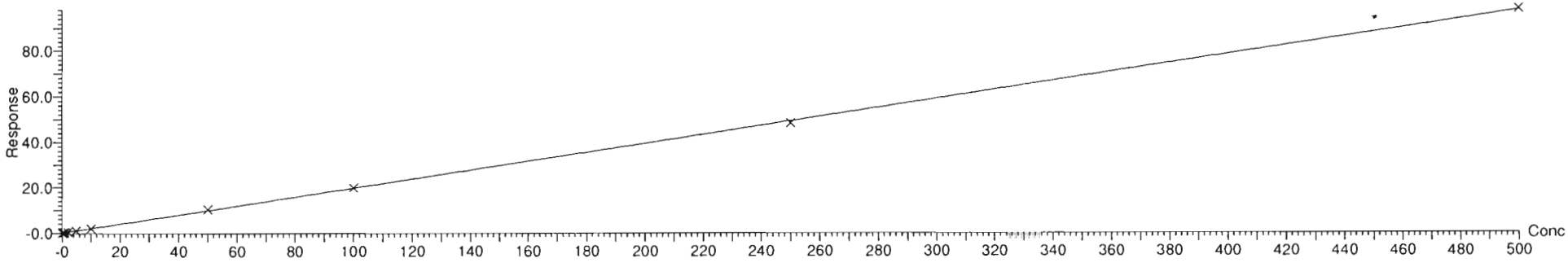
Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999780
Calibration curve: -7.77191e-005 * x^2 + 1.26767 * x + 0.134631
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: PFecHS
Coefficient of Determination: R^2 = 0.999622
Calibration curve: -5.1658e-006 * x^2 + 0.197943 * x + -0.0130452
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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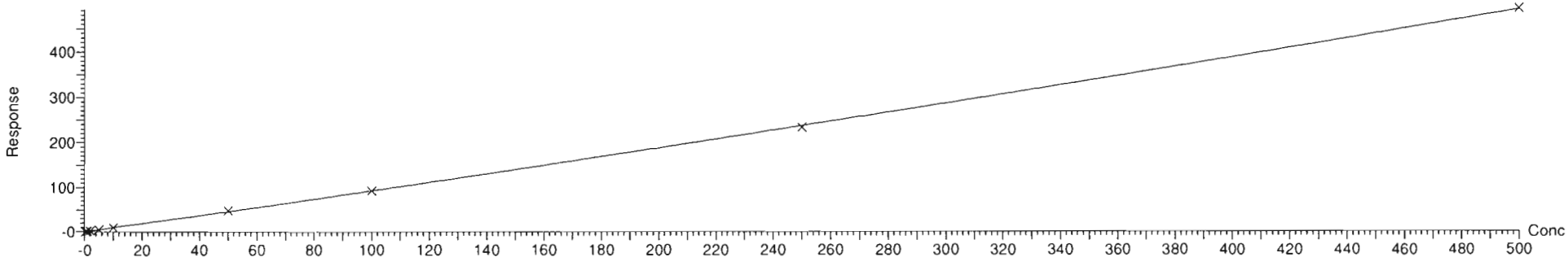
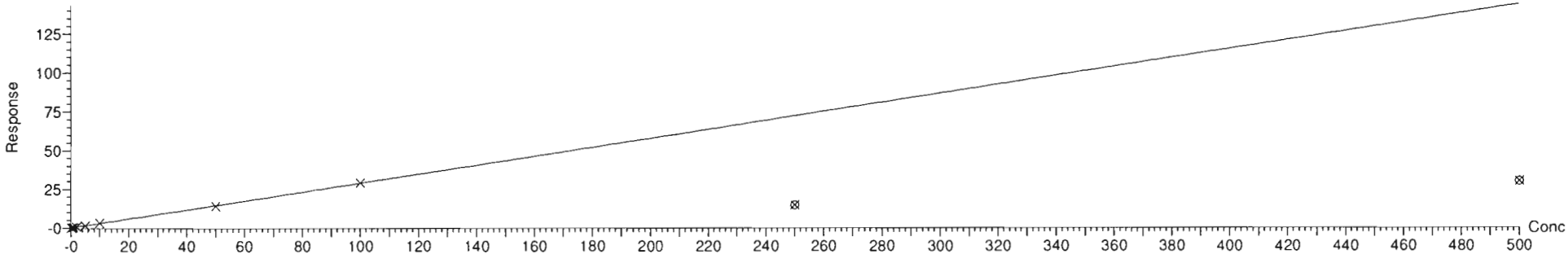
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999650
Calibration curve: 0.000156607 * x^2 + 0.906492 * x + 0.0221239
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 7:3 FTCA
Coefficient of Determination: R^2 = 0.999627
Calibration curve: -3.85292e-006 * x^2 + 0.289803 * x + -0.0102751
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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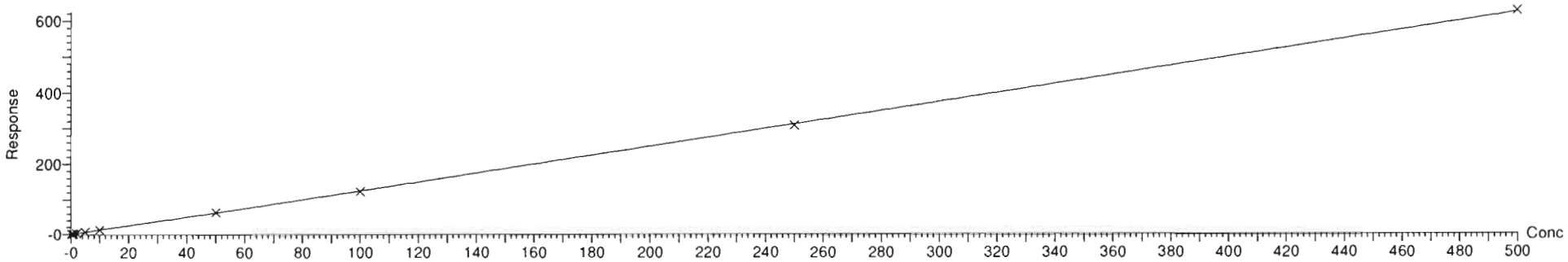
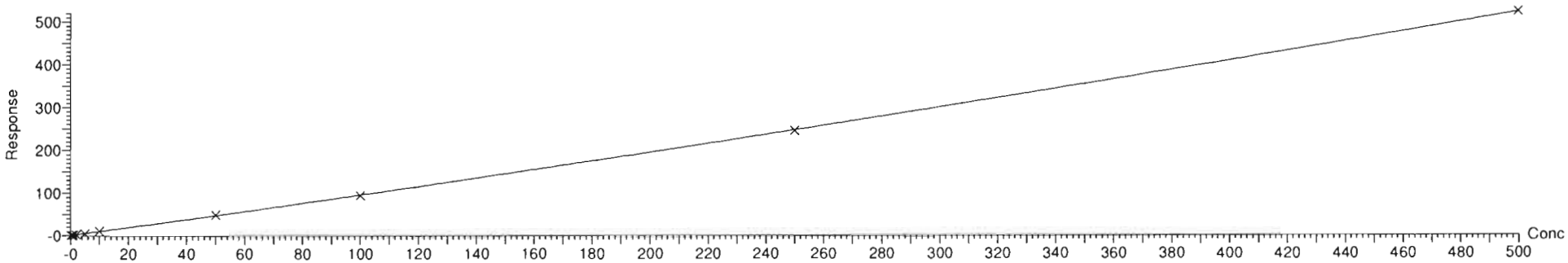
Compound name: PFNA
Correlation coefficient: r = 0.999943, r^2 = 0.999887
Calibration curve: 1.24763 * x + 0.03244
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999772
Calibration curve: 0.000232487 * x^2 + 0.926276 * x + 0.158051
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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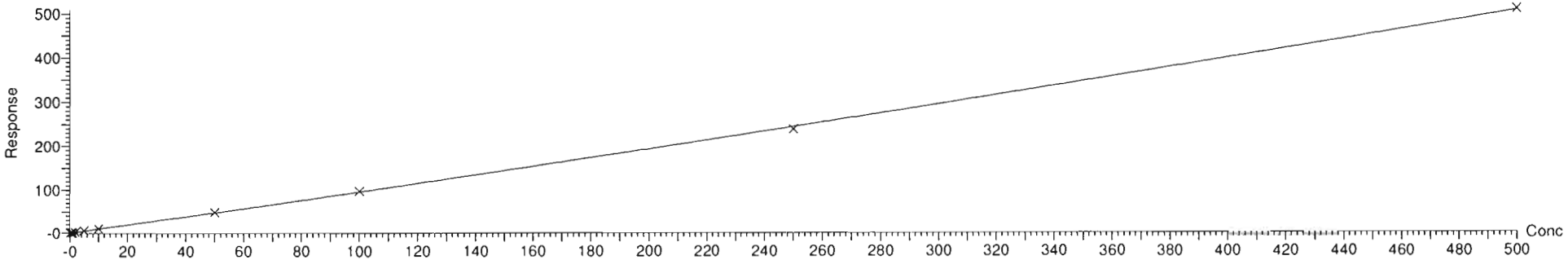
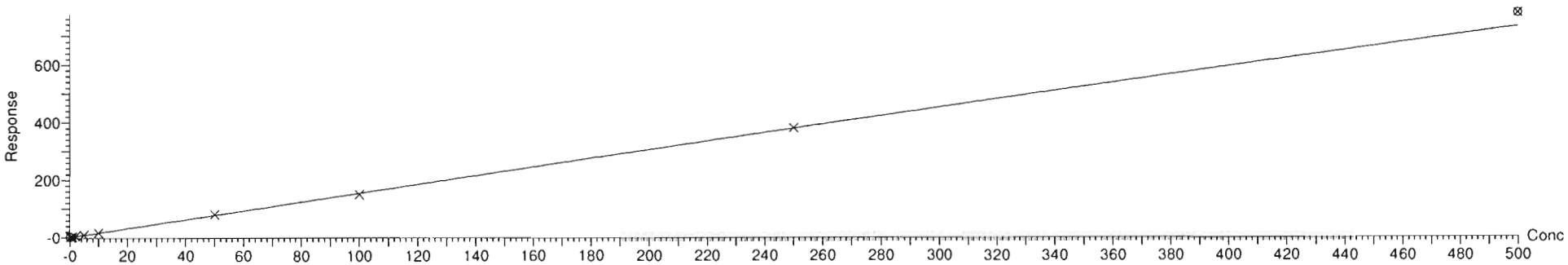
Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999622
Calibration curve: 0.00015808 * x^2 + 0.933834 * x + -0.0156559
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: 9Cl-PF30NS
Coefficient of Determination: R^2 = 0.999244
Calibration curve: -0.000203218 * x^2 + 1.56445 * x + 0.0154204
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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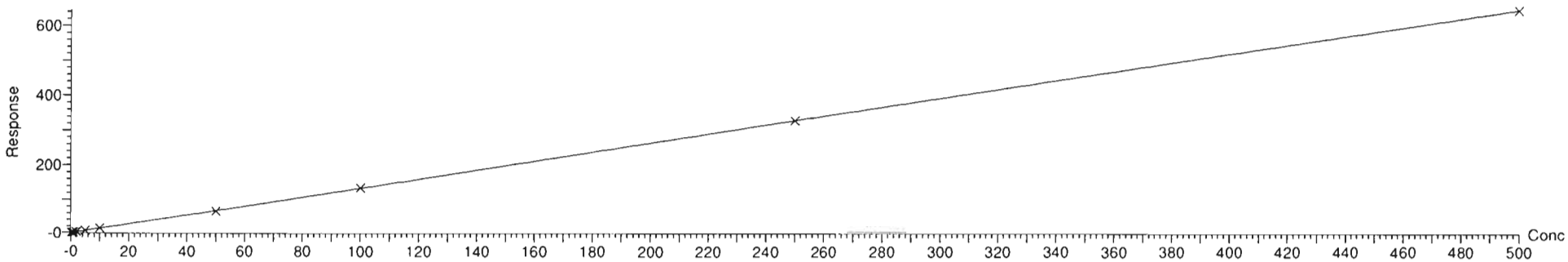
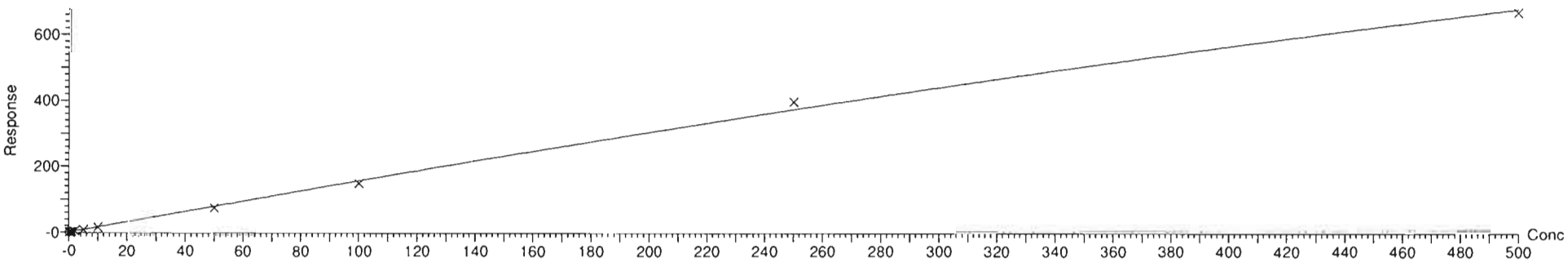
Compound name: PFDA
Coefficient of Determination: R^2 = 0.999870
Calibration curve: -8.43611e-005 * x^2 + 1.33585 * x + 0.0646678
Response type: Internal Std (Ref 73), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998078
Calibration curve: -0.000554636 * x^2 + 1.63509 * x + 0.0342798
Response type: Internal Std (Ref 75), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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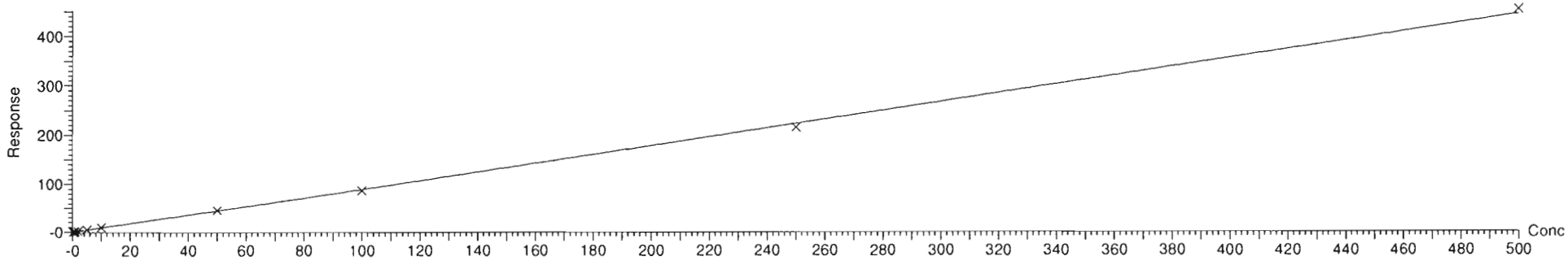
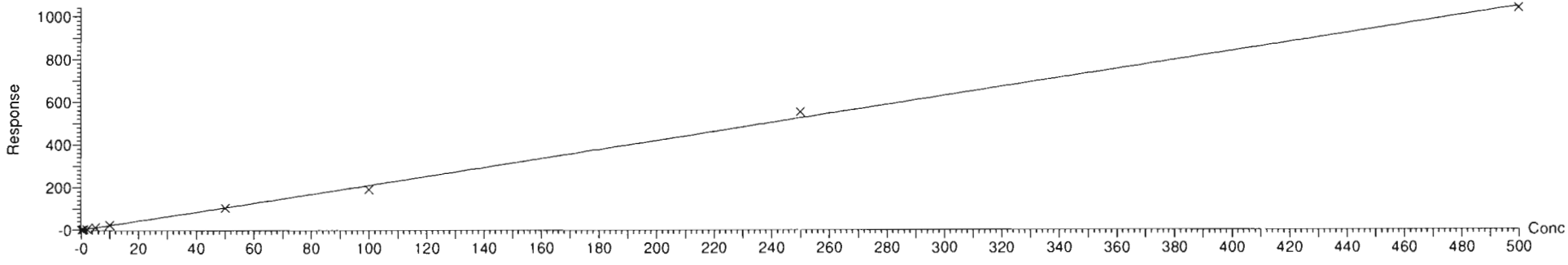
Compound name: PFNS
Correlation coefficient: r = 0.999568, r^2 = 0.999135
Calibration curve: 0.889815 * x + -0.0800002
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998149
Calibration curve: -5.05982e-006 * x^2 + 2.09223 * x + -0.0722389
Response type: Internal Std (Ref 77), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



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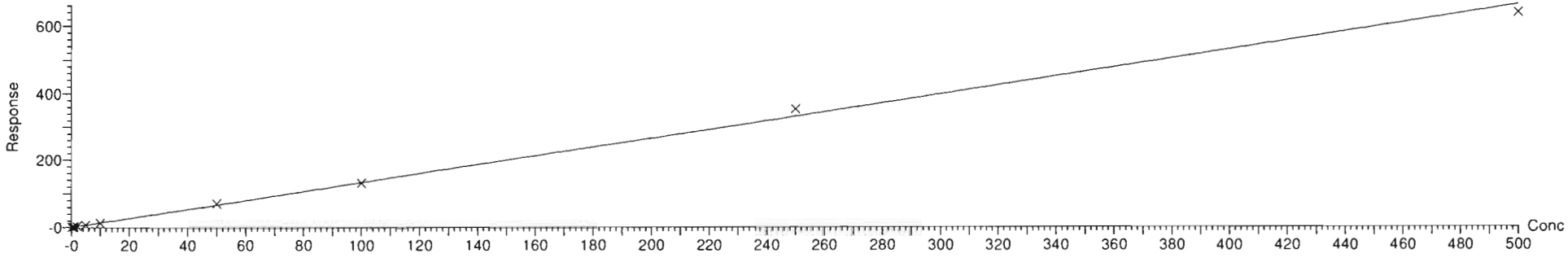
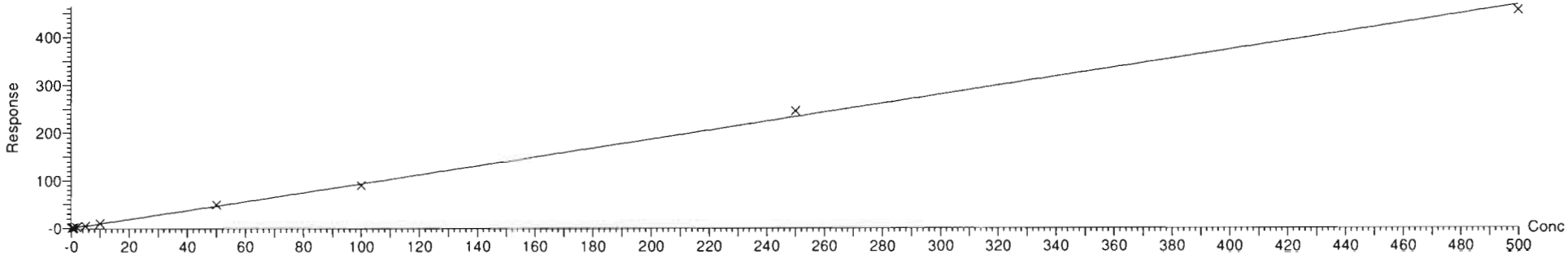
Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Compound name: L-EtFOSAA
Correlation coefficient: r = 0.998874, r^2 = 0.997750
Calibration curve: 1.32406 * x + -0.0705772
Response type: Internal Std (Ref 81), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFUdA
Correlation coefficient: r = 0.999241, r^2 = 0.998484
Calibration curve: 0.932703 * x + 0.0893084
Response type: Internal Std (Ref 79), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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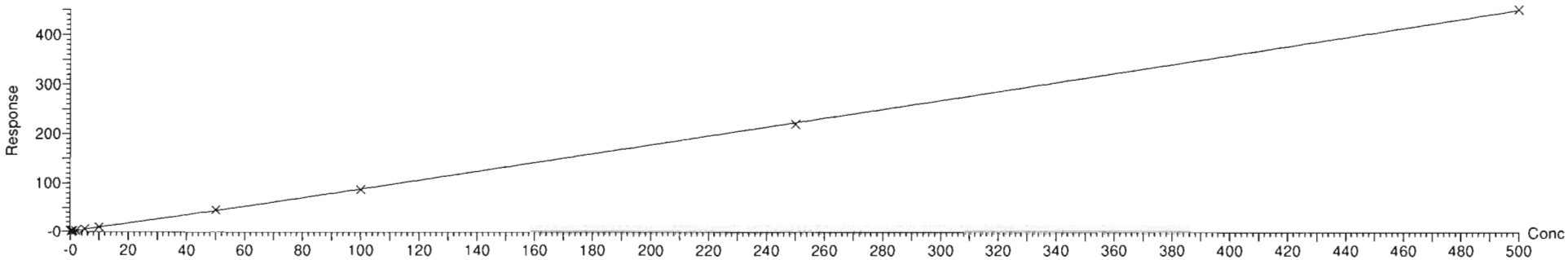
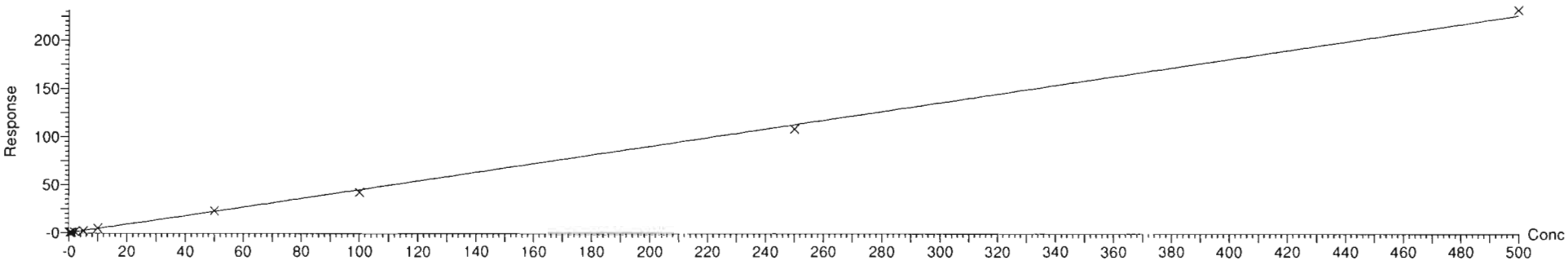
Compound name: PFDS
Coefficient of Determination: R^2 = 0.999638
Calibration curve: 3.89757e-005 * x^2 + 0.882121 * x + 0.0622793
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 11Cl-PF30UdS
Correlation coefficient: r = 0.999339, r^2 = 0.998678
Calibration curve: 0.452206 * x + -0.00335863
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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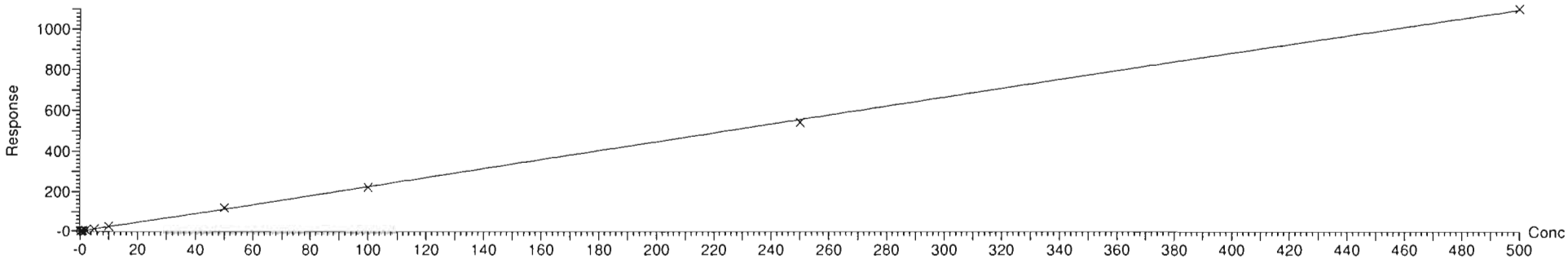
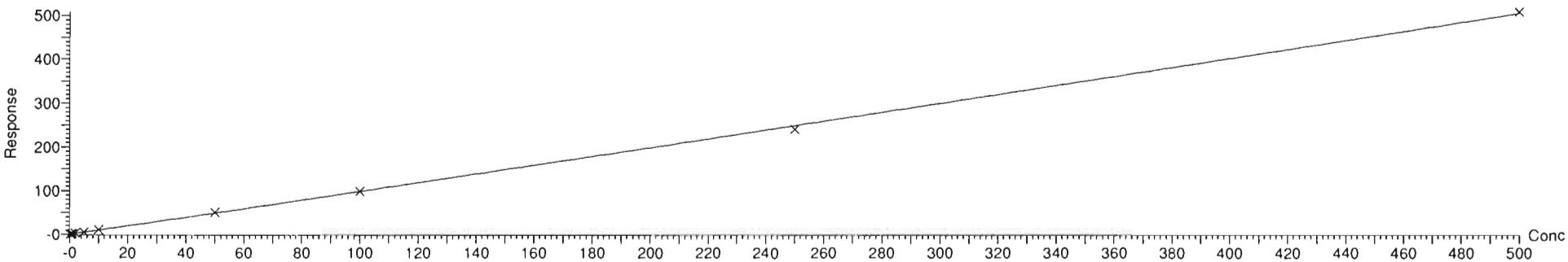
Compound name: 10:2 FTS
Coefficient of Determination: R^2 = 0.999279
Calibration curve: -0.000180939 * x^2 + 2.28371 * x + -0.0530499
Response type: Internal Std (Ref 85), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999054
Calibration curve: 6.05516e-005 * x^2 + 0.981539 * x + 0.207633
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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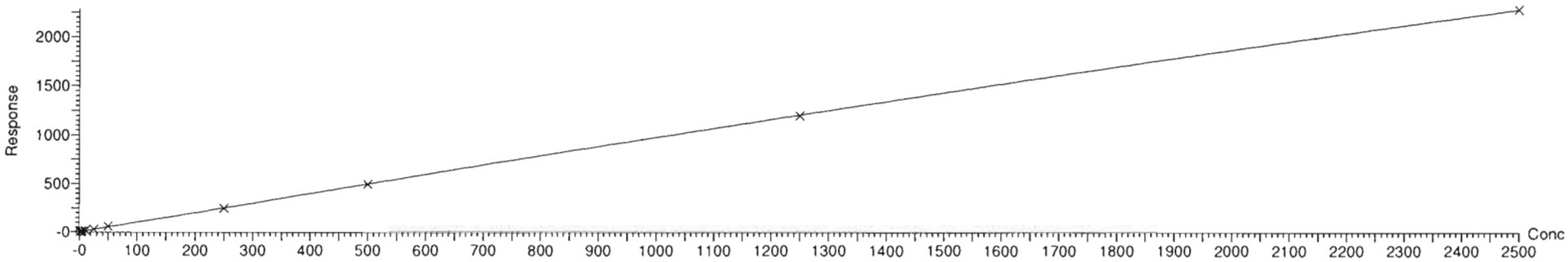
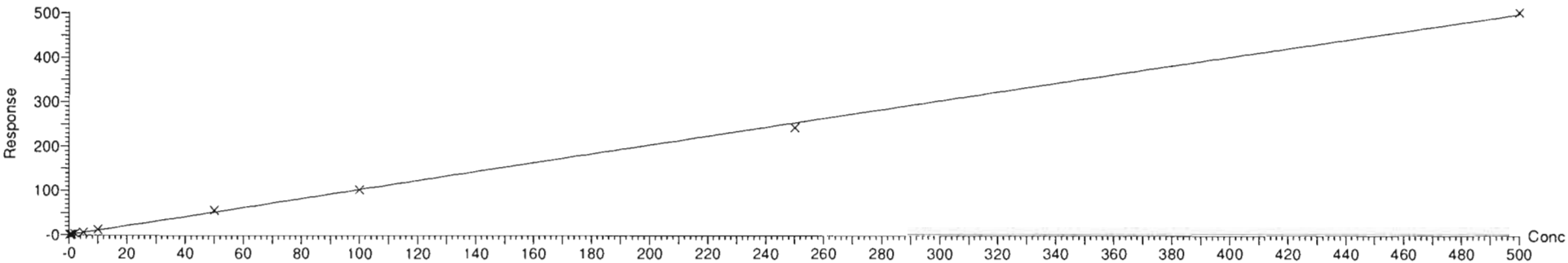
Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999695
Calibration curve: -4.32992e-005 * x^2 + 1.02257 * x + 0.260289
Response type: Internal Std (Ref 87), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.998738
Calibration curve: -7.60291e-005 * x^2 + 1.03461 * x + 0.194492
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

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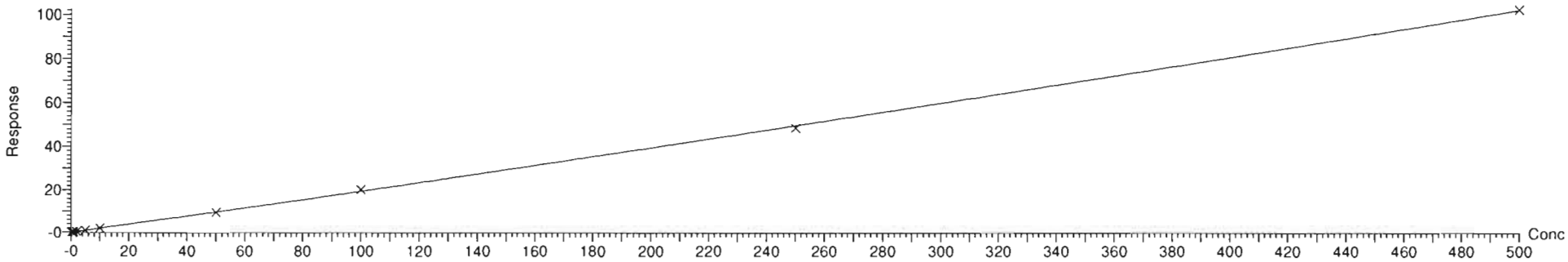
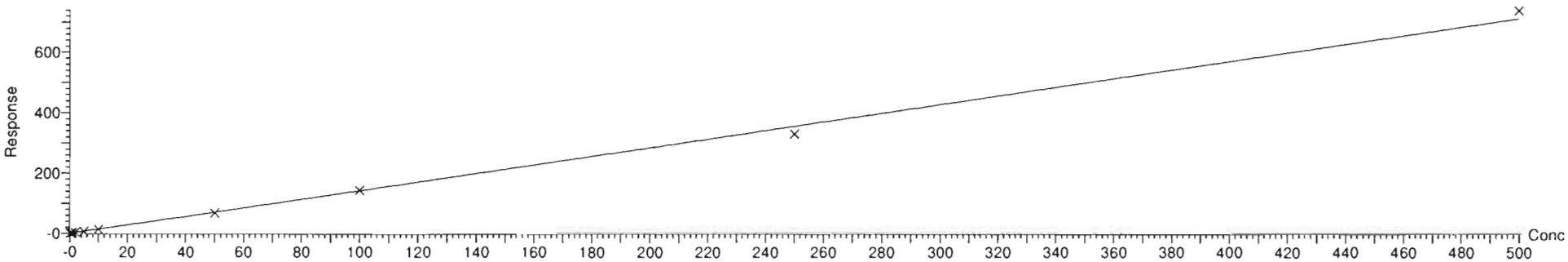
Compound name: PFDoS
Coefficient of Determination: R^2 = 0.999587
Calibration curve: 2.48924e-005 * x^2 + 0.192004 * x + 0.00333864
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



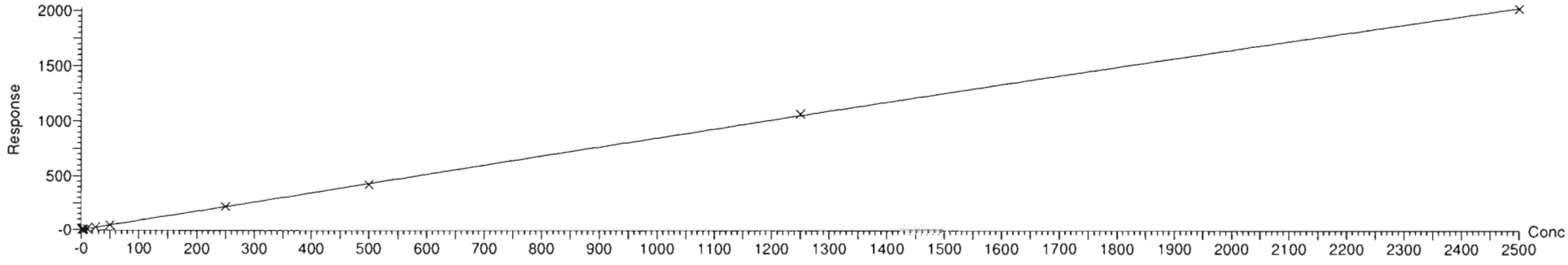
Compound name: PFTeDA
Correlation coefficient: r = 0.998829, r^2 = 0.997658
Calibration curve: 1.42837 * x + -0.0322598
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



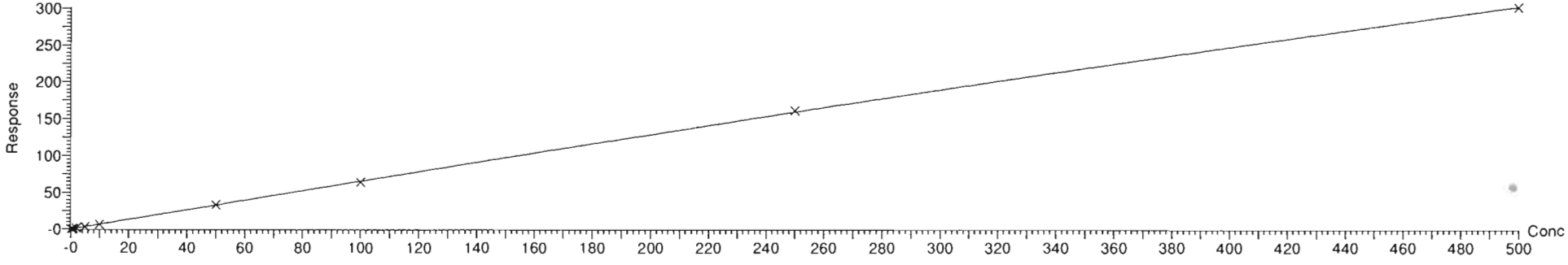
Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:08:42 Pacific Standard Time

Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999833
Calibration curve: -2.57826e-005 * x^2 + 0.876385 * x + 0.179923
Response type: Internal Std (Ref 91), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



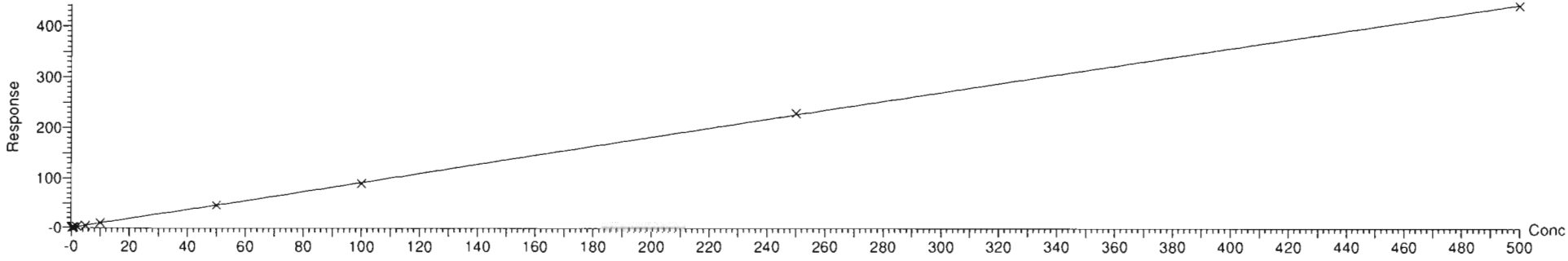
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999870
Calibration curve: -0.000132812 * x^2 + 0.671946 * x + 0.0858042
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



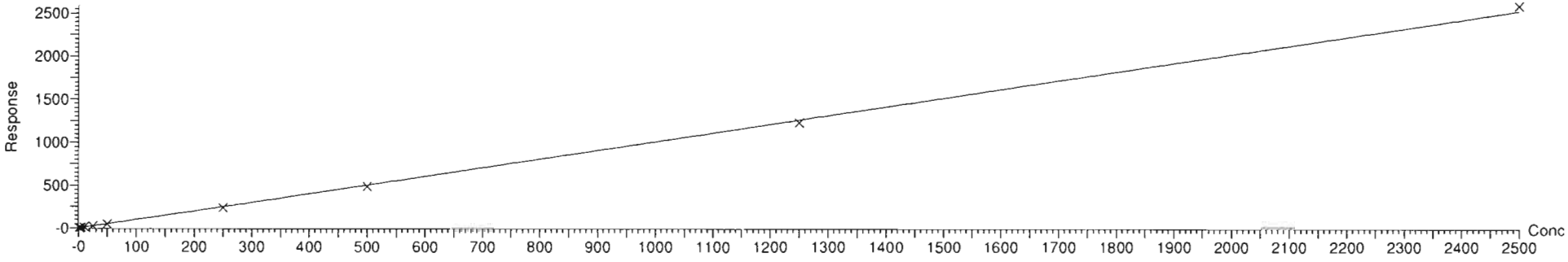
Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:08:42 Pacific Standard Time

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999840
Calibration curve: -7.84163e-005 * x^2 + 0.925009 * x + -0.0217035
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



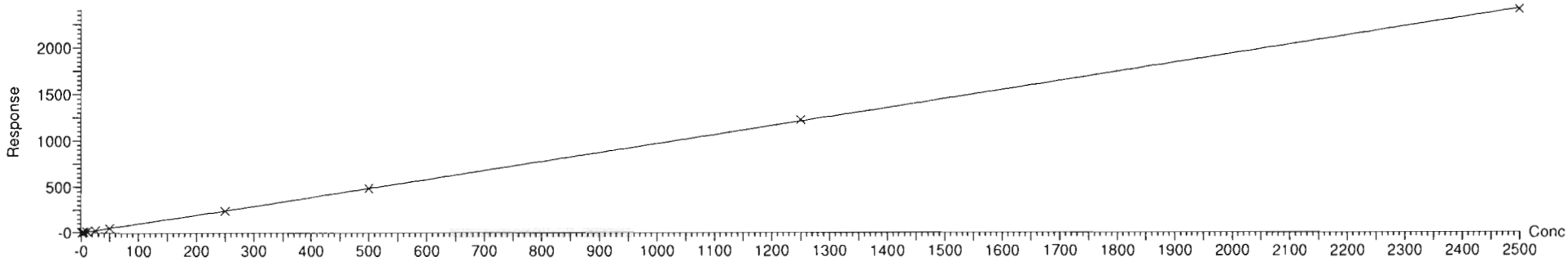
Compound name: N-MeFOSE
Correlation coefficient: r = 0.999567, r^2 = 0.999134
Calibration curve: 1.01157 * x + -0.0701665
Response type: Internal Std (Ref 95), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200304P2\200304P2-CRV.qld

Last Altered: Thursday, March 05, 2020 10:00:36 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:08:42 Pacific Standard Time

Compound name: N-EtFOSE
Correlation coefficient: r = 0.999962, r^2 = 0.999924
Calibration curve: 0.96721 * x + -0.0485328
Response type: Internal Std (Ref 97), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Vista Analytical Laboratory

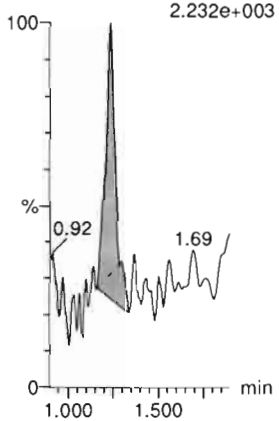
Dataset: Untitled

Last Altered: Thursday, March 05, 2020 09:34:37 Pacific Standard Time
Printed: Thursday, March 05, 2020 09:35:09 Pacific Standard Time

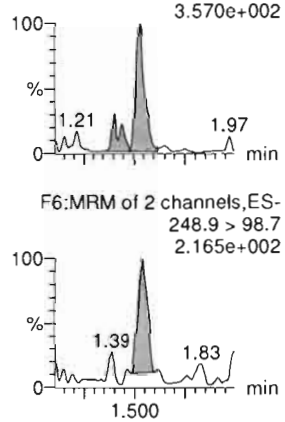
Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030320.mdb 04 Mar 2020 10:58:08
Calibration: 05 Mar 2020 09:34:37

Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

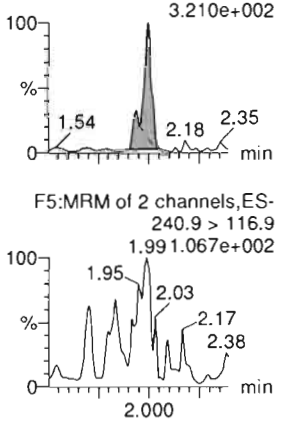
PFBA



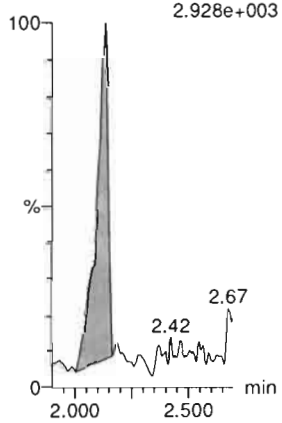
PFPrS



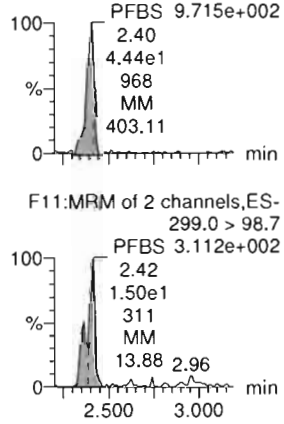
3:3 FTCA



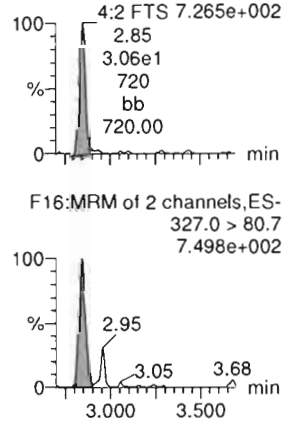
PFPeA



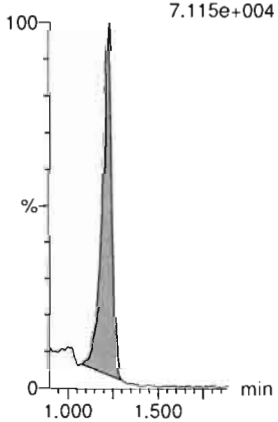
PFBS



4:2 FTS



13C3-PFBA-EIS



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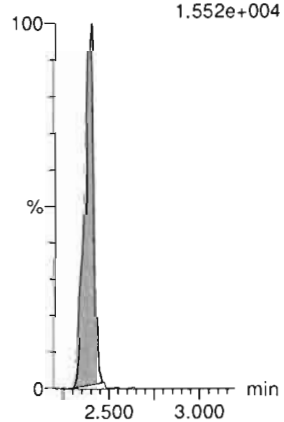

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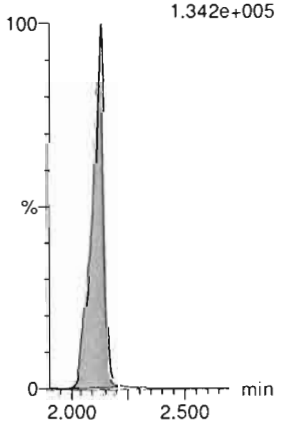

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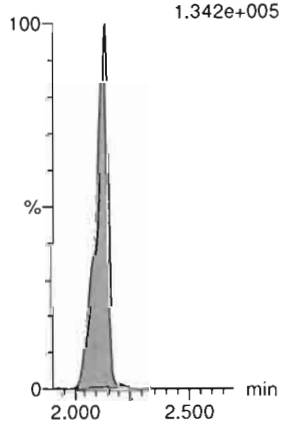
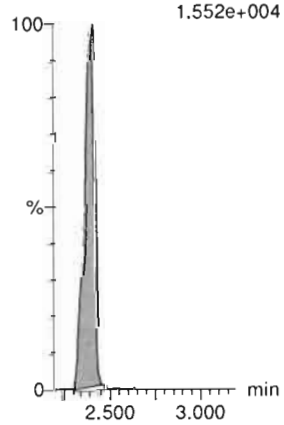
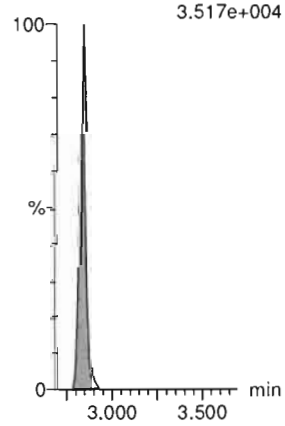


13C3-PFBS-EIS



13C2-4:2 FTS-EIS



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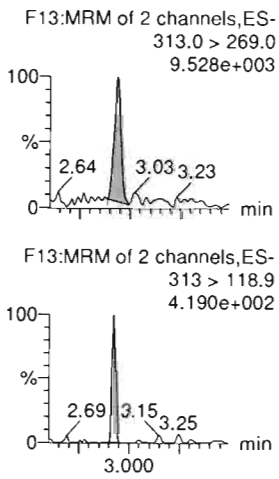
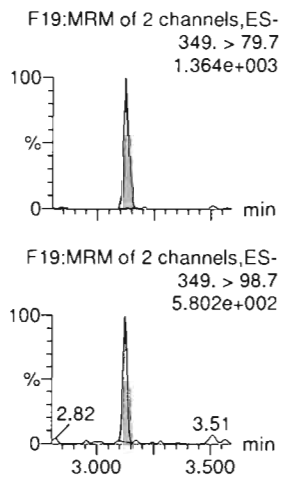
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

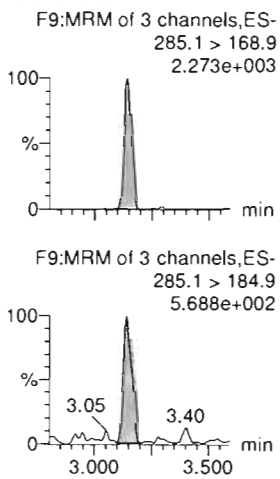
PFHxA



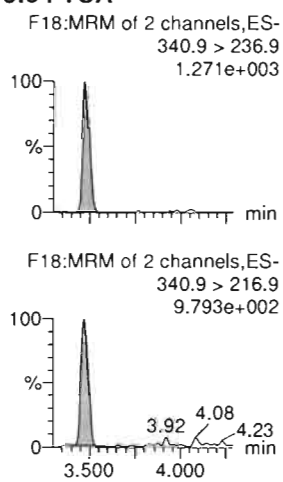
PFPeS



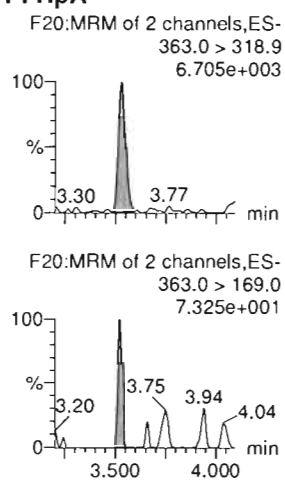
HFPO-DA



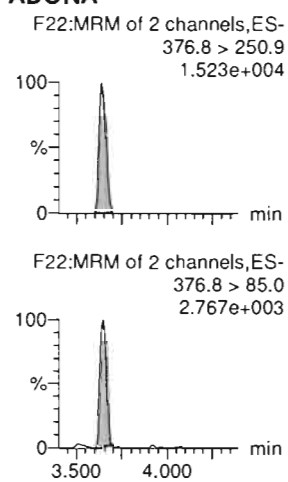
5:3 FTCA



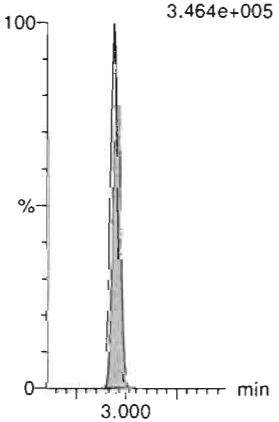
PFHpA



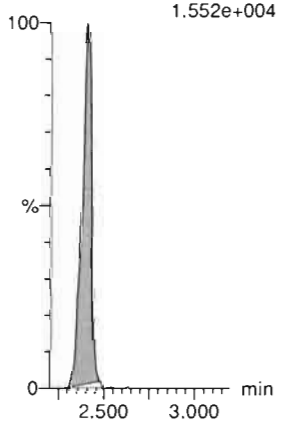
ADONA



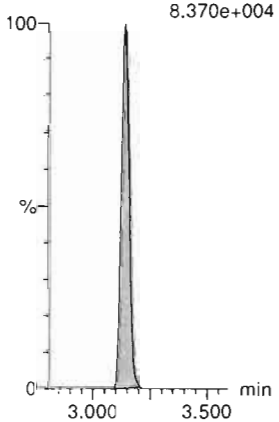
13C2-PFHxA-EIS



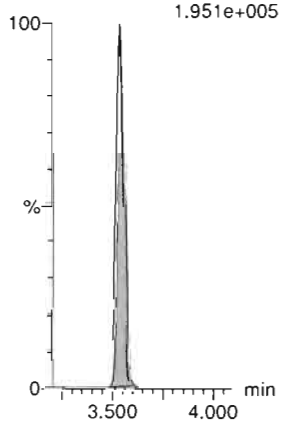
13C3-PFBS-EIS



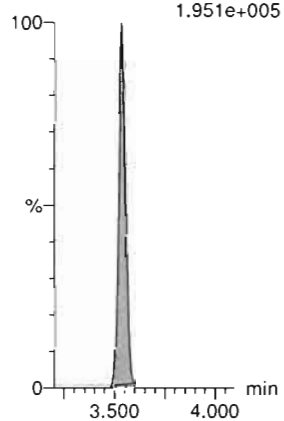
13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



13C4-PFHpA-EIS



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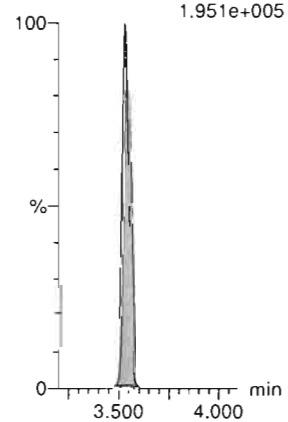

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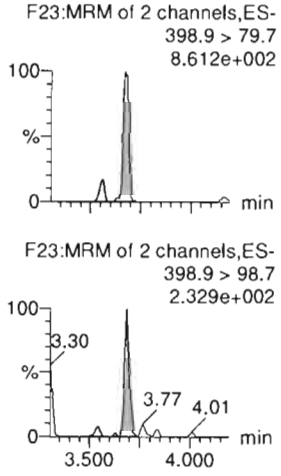
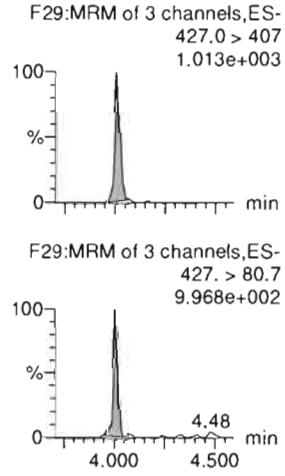
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

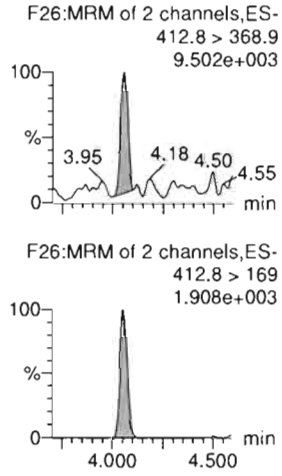
L-PFHxS



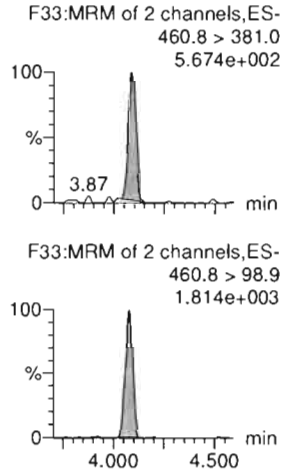
6:2 FTS



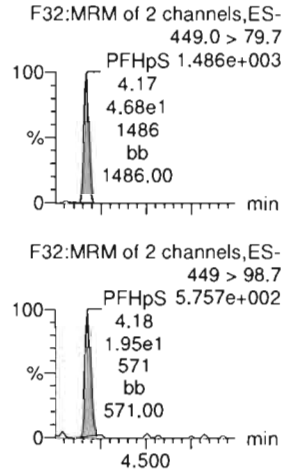
L-PFOA



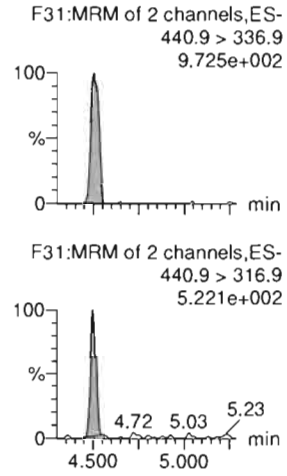
PFEChS



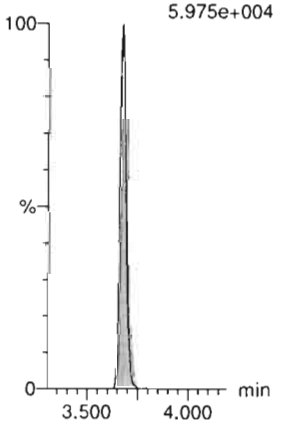
PFHpS



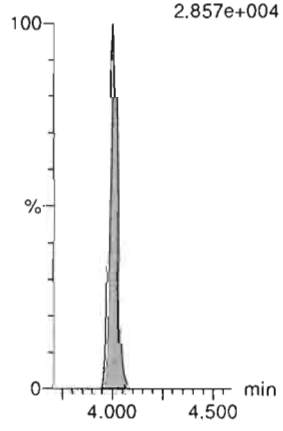
7:3 FTCA



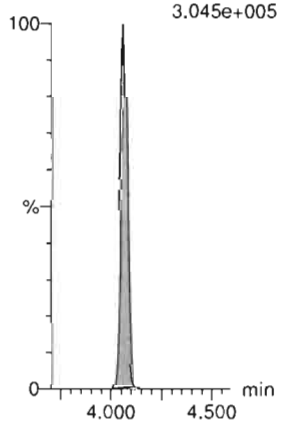
13C3-PFHxS-EIS



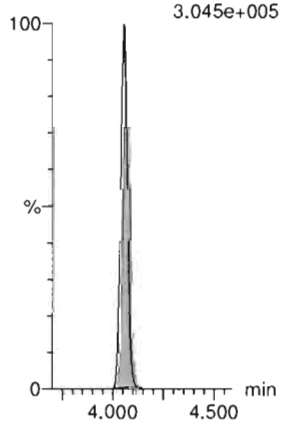
13C2-6:2 FTS-EIS



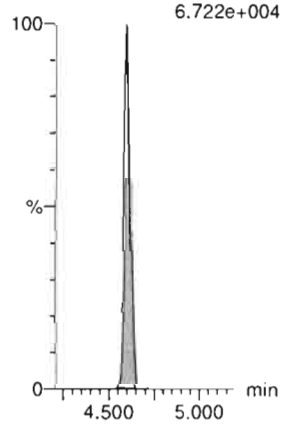
13C2-PFOA-EIS



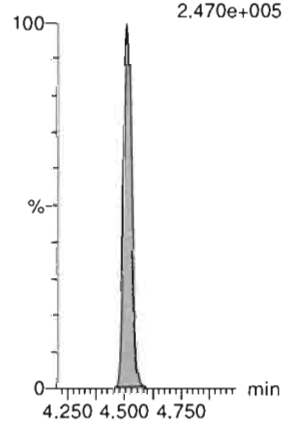
13C2-PFOA-EIS



13C8-PFOS-EIS



13C5-PFNA-EIS



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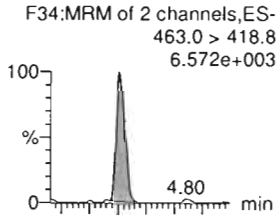
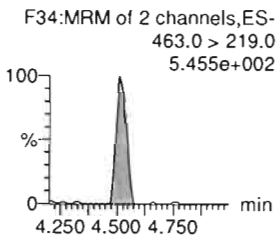
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

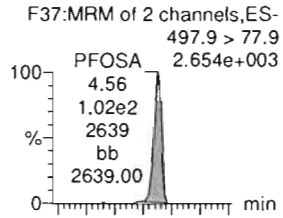
Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

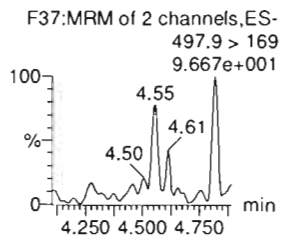
PFNA



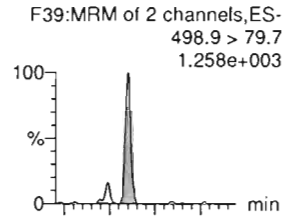


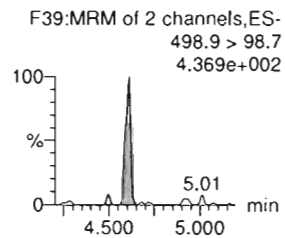
PFOSA





L-PFOS





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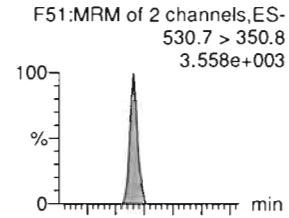

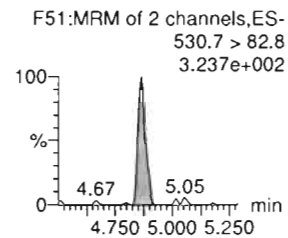

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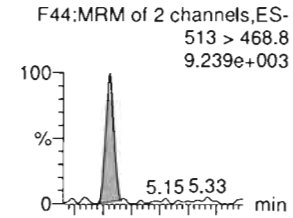

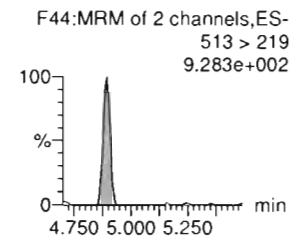

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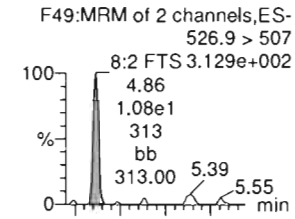

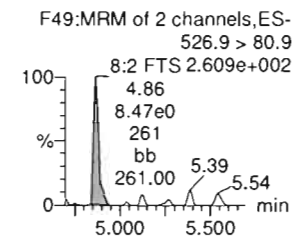

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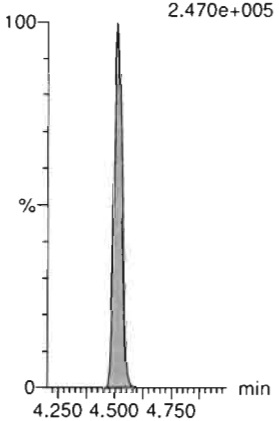

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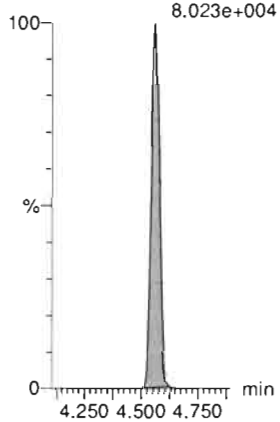

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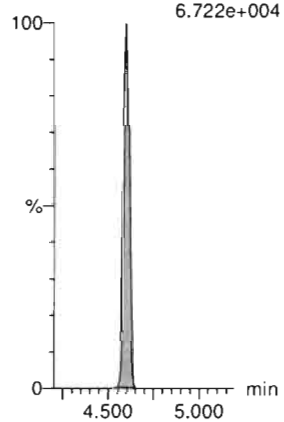

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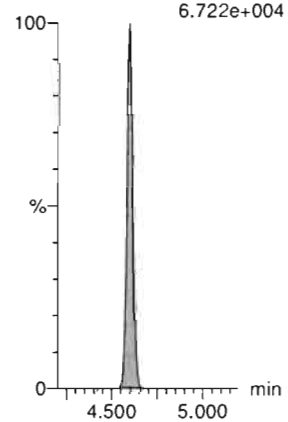

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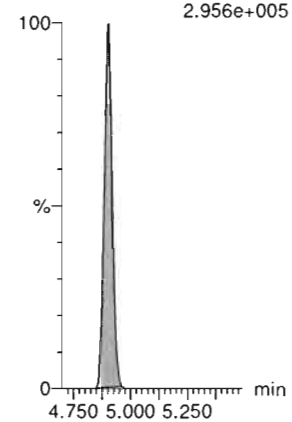

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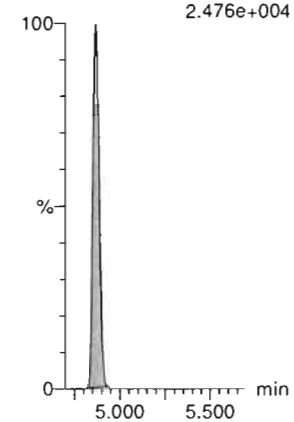

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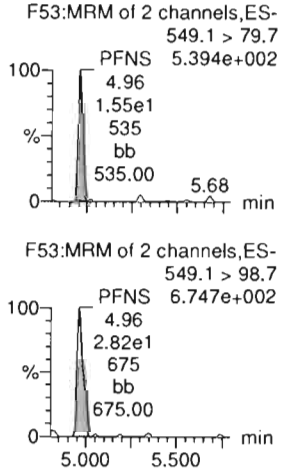

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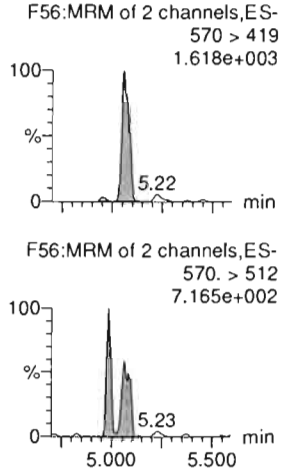

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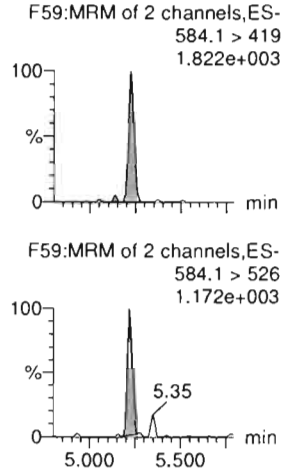

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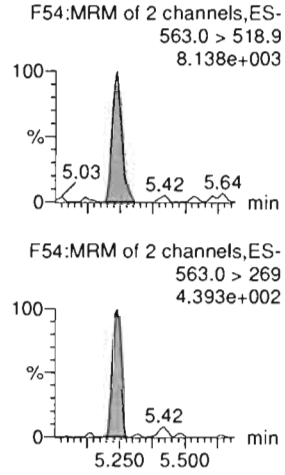

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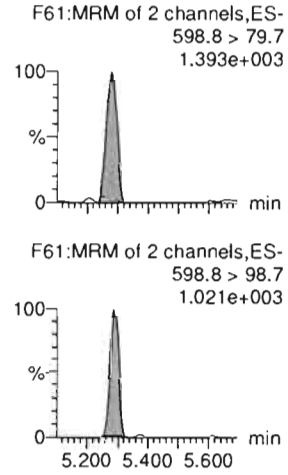

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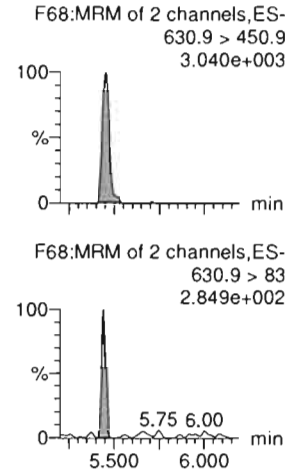

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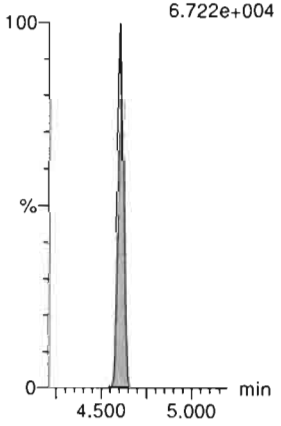

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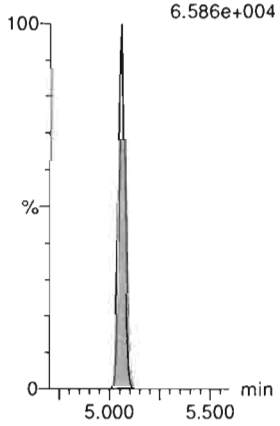

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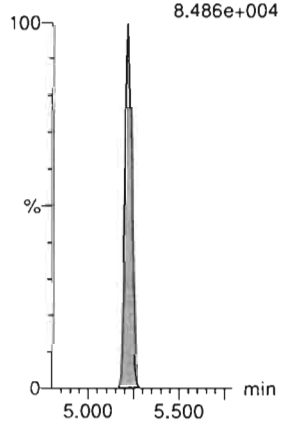

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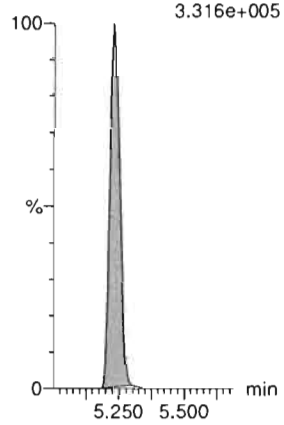

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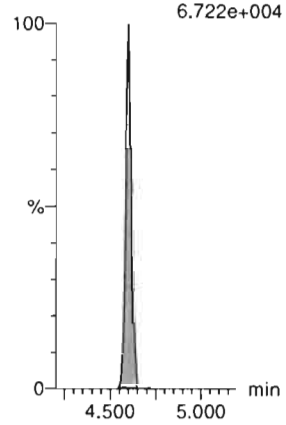

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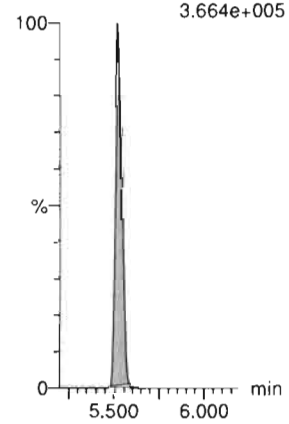

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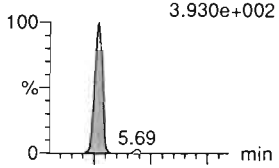
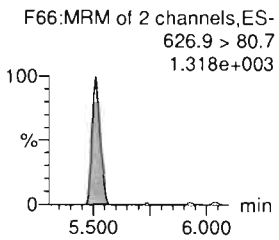
10:2 FTS





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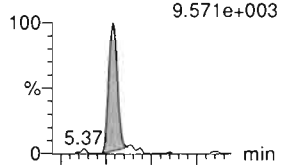

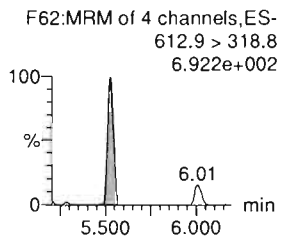

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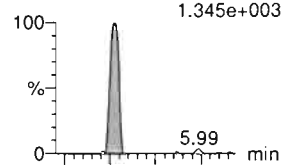

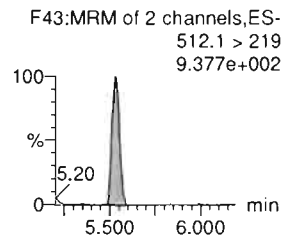

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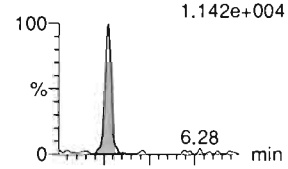

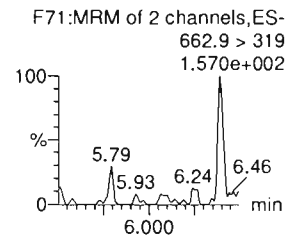

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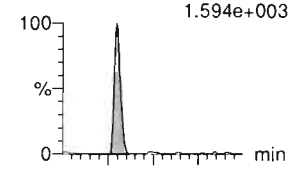

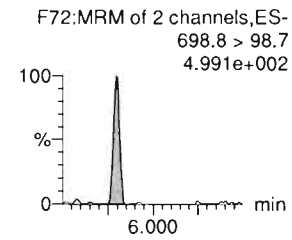

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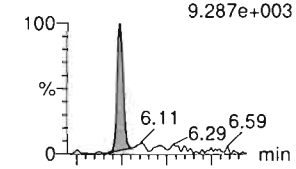

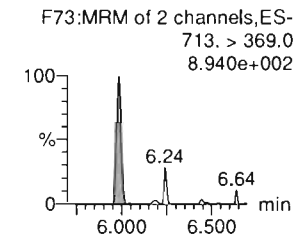

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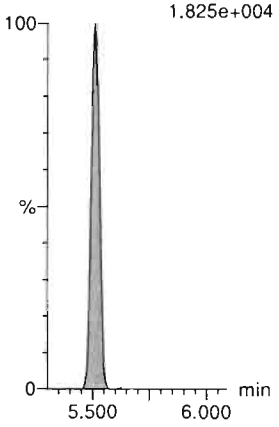

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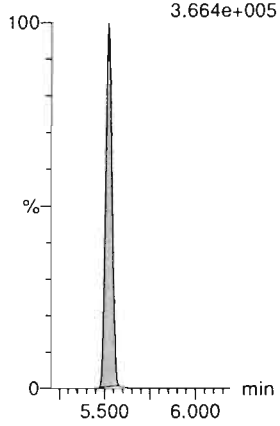

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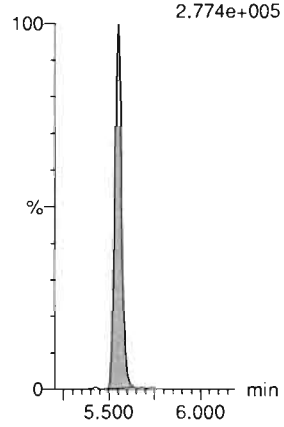

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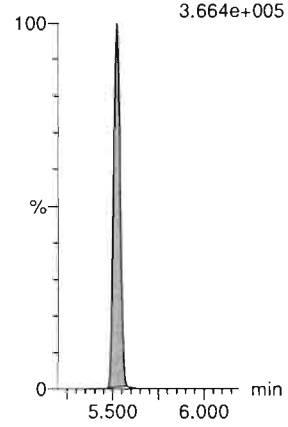

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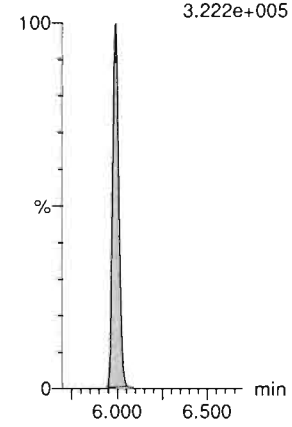

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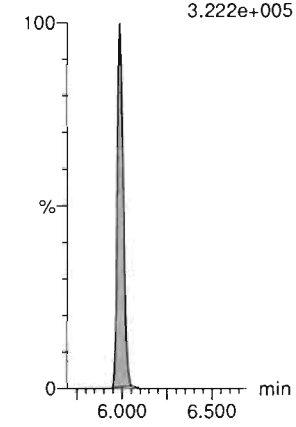

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Last Altered: Thursday, March 05, 2020 09:34:37 Pacific Standard Time
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Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

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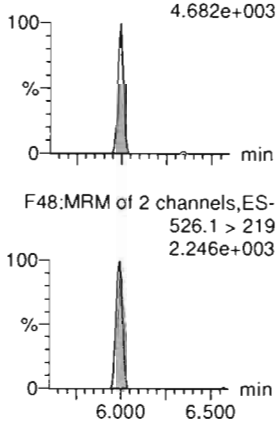

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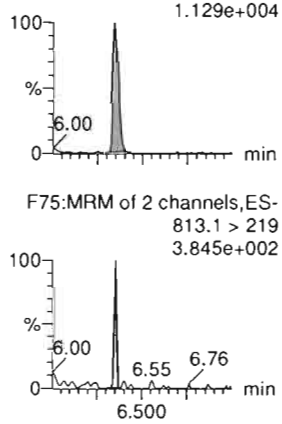

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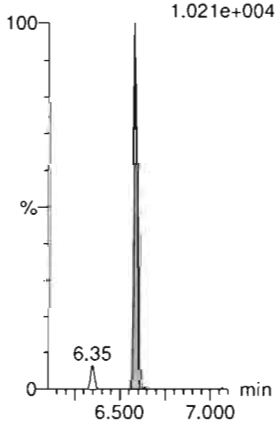
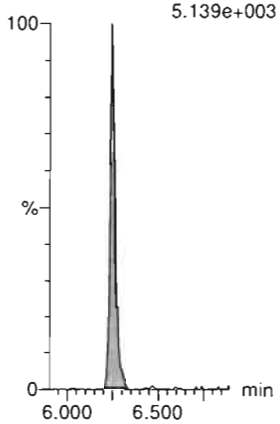


N-MeFOSE



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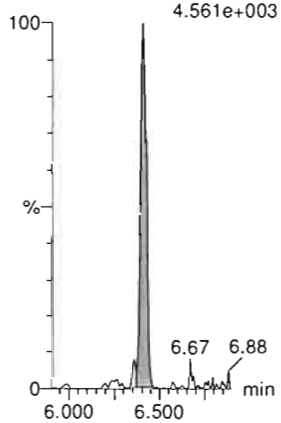

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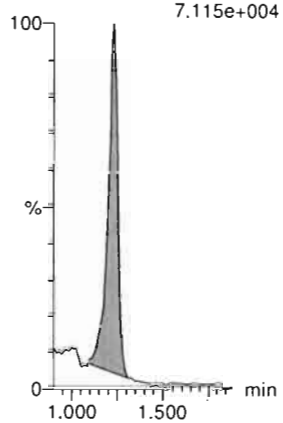

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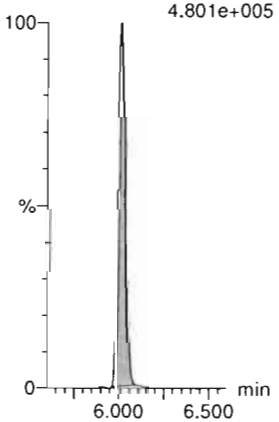

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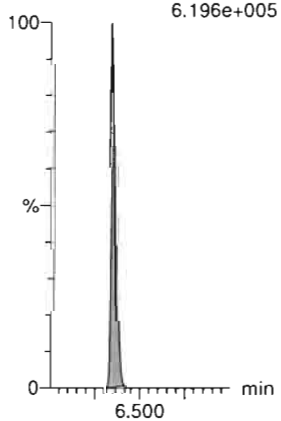

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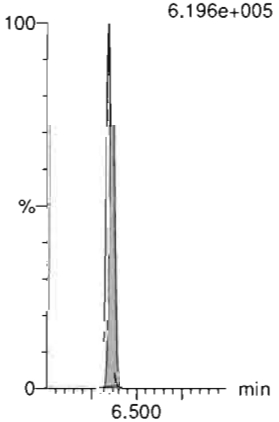
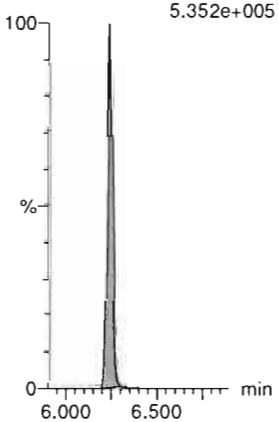
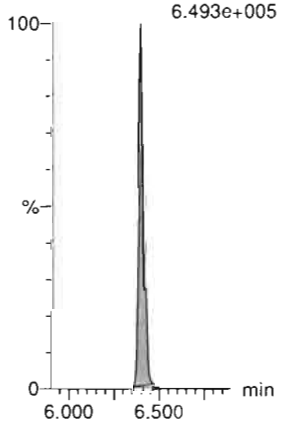


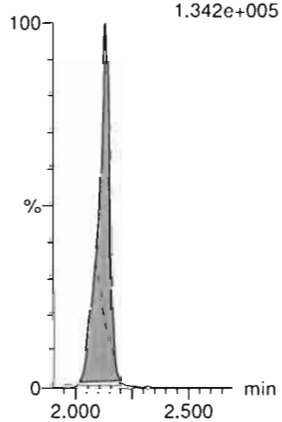
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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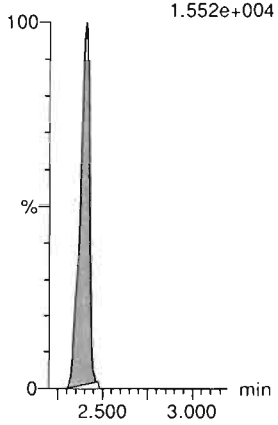
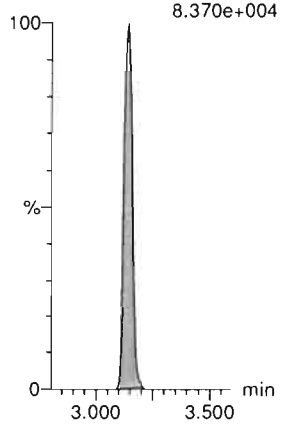
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

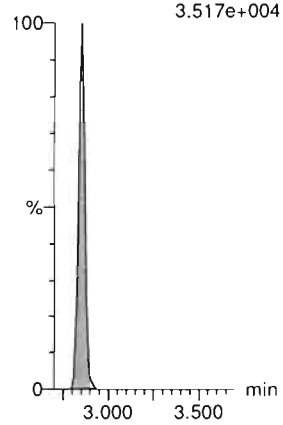
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.552e+004



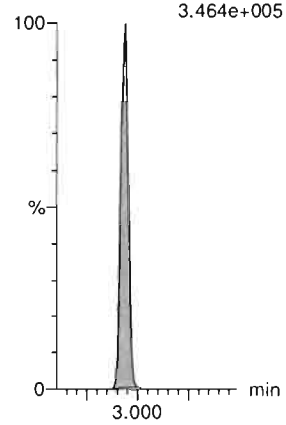
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
8.370e+004



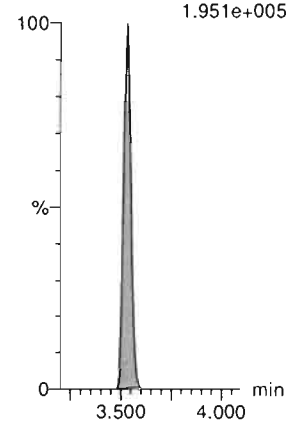
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.517e+004



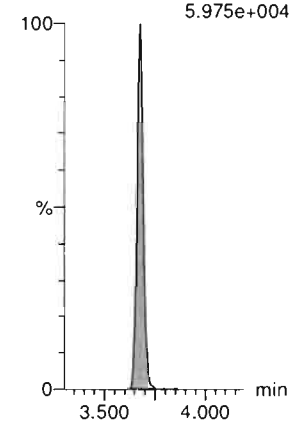
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.464e+005



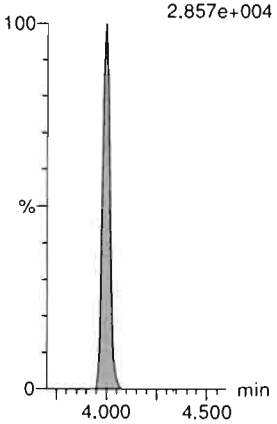
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
1.951e+005



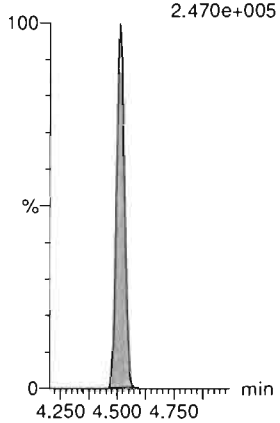
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
5.975e+004



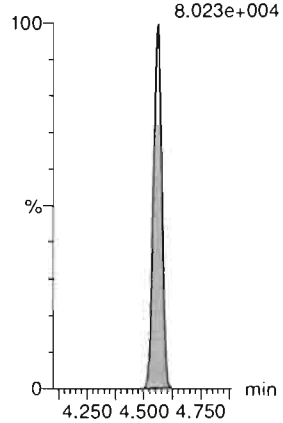
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
2.857e+004



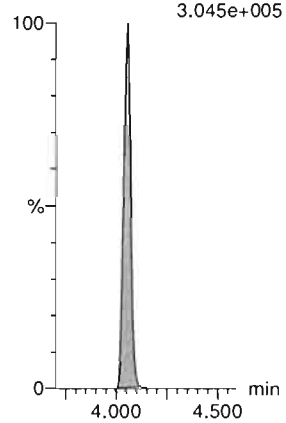
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.470e+005



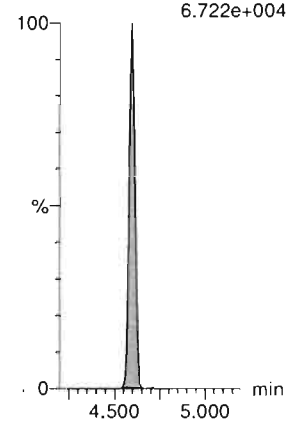
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.023e+004



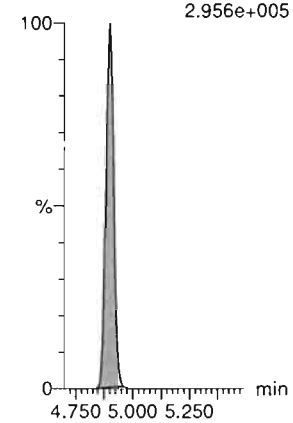
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.045e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.722e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
2.956e+005



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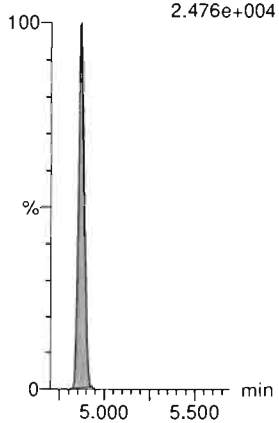
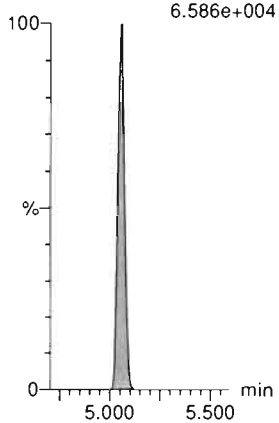
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

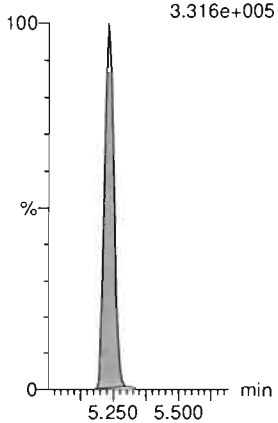
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.476e+004



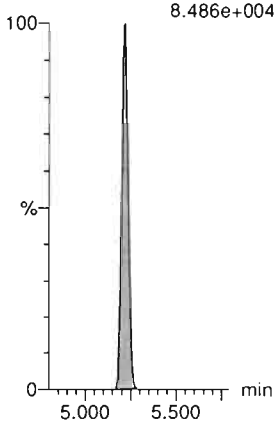
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.586e+004



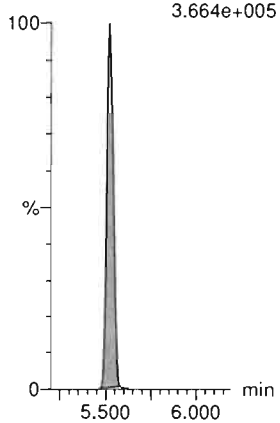
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.316e+005



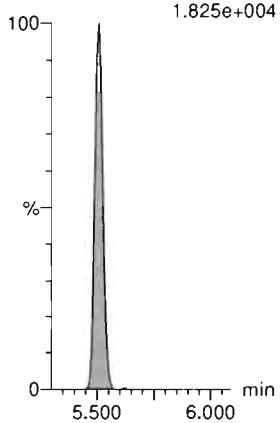
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.486e+004



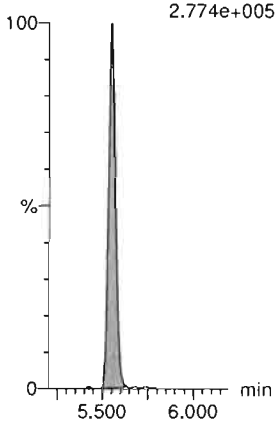
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.664e+005



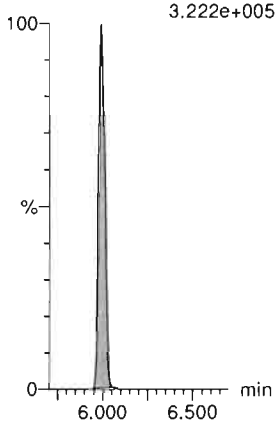
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.825e+004



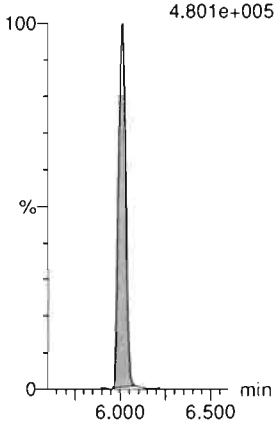
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.774e+005



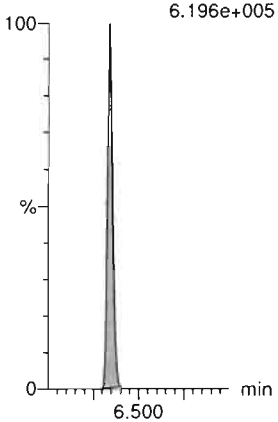
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.222e+005



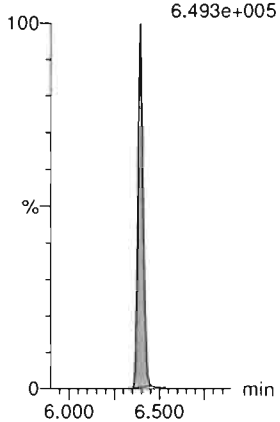
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.801e+005



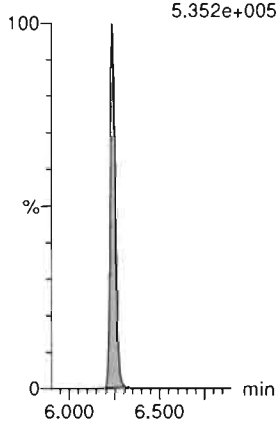
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.196e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.493e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.352e+005



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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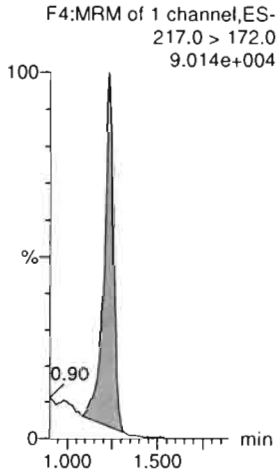
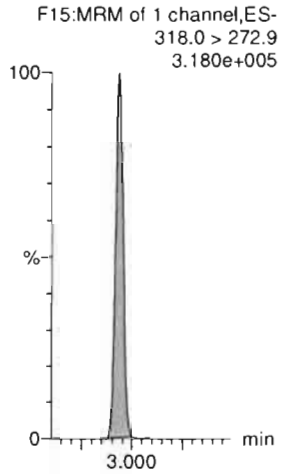
Name: 200304P2-3, Date: 04-Mar-2020, Time: 19:31:52, ID: ST200304P2-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

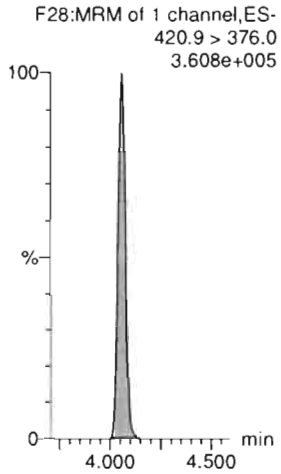
13C4-PFBA



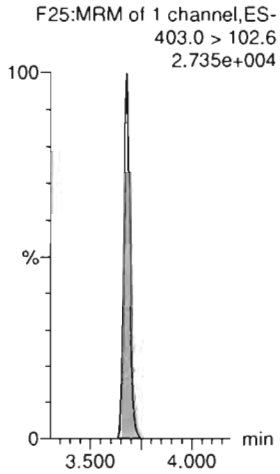
13C5-PFHxA



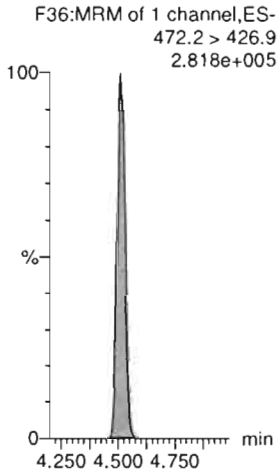
13C8-PFOA



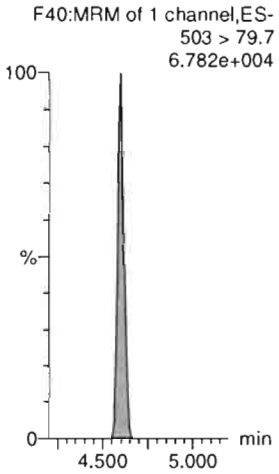
18O2-PFHxS



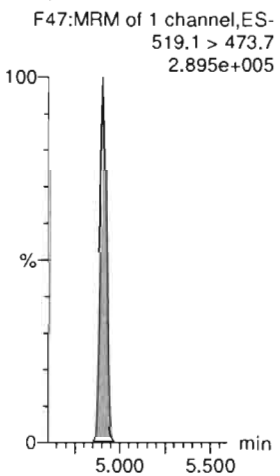
13C9-PFNA



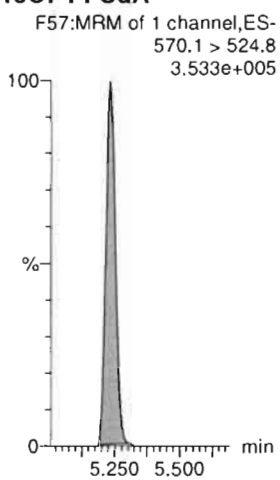
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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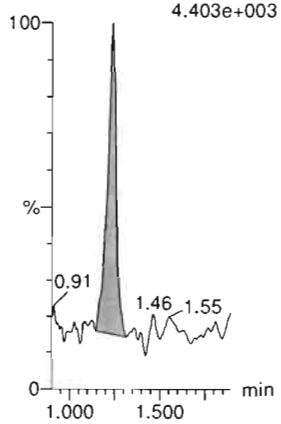
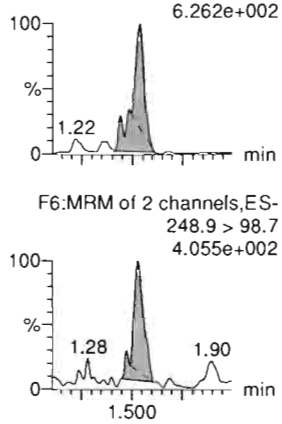
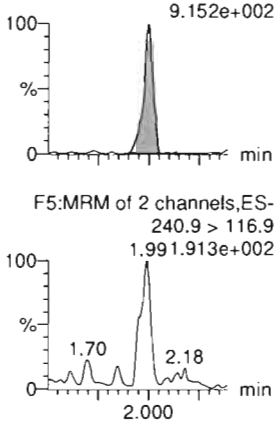
PFBA



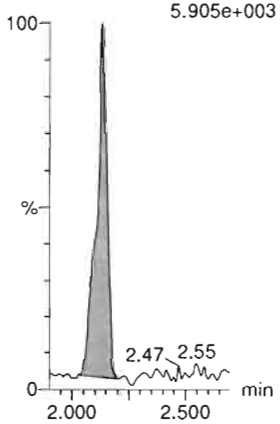
PFPrS



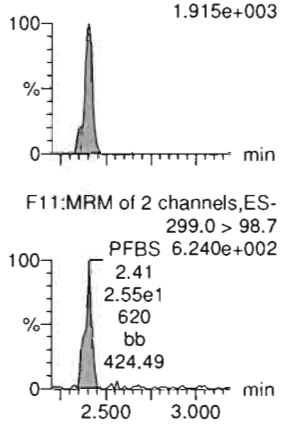
3:3 FTCA



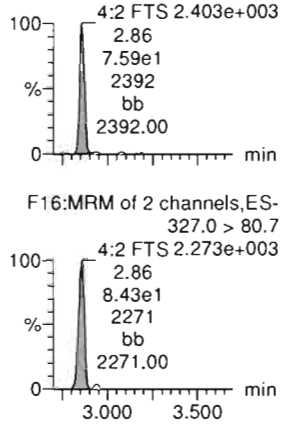
PFPeA



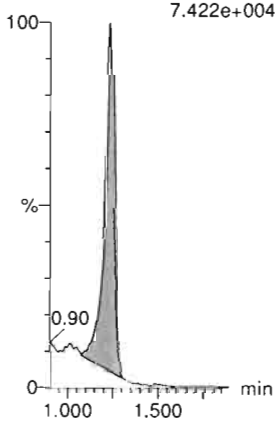
PFBS



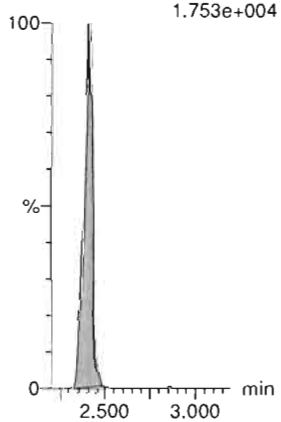
4:2 FTS



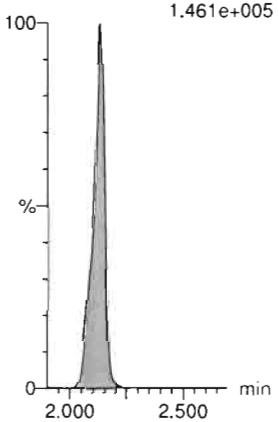
13C3-PFBA-EIS



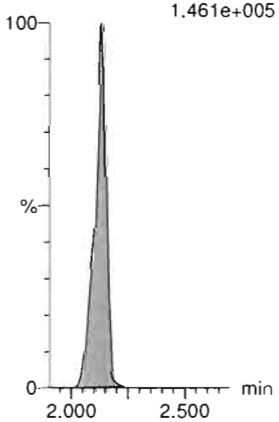
13C3-PFBS-EIS



13C3-PFPeA-EIS



13C3-PFPeA-EIS



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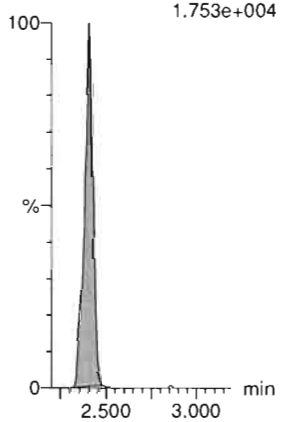
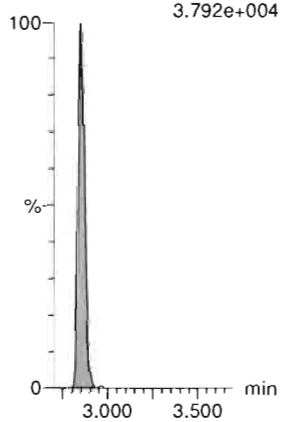


13C2-4:2 FTS-EIS



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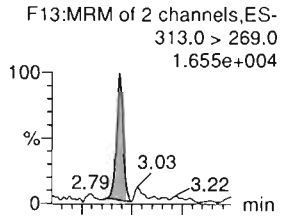
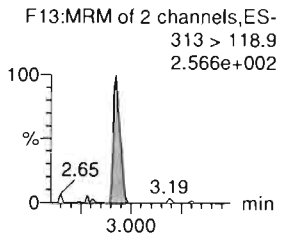
PFHxA





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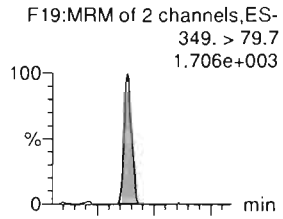

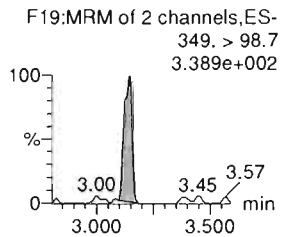

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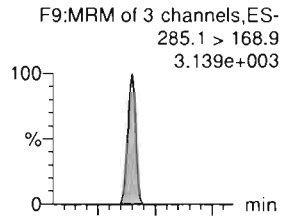

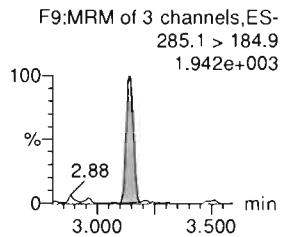

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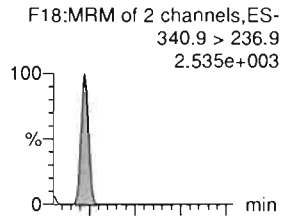

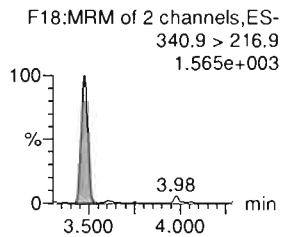

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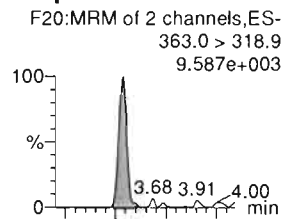

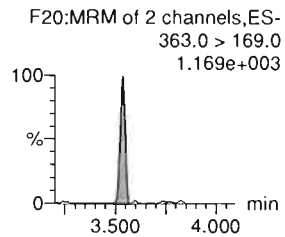

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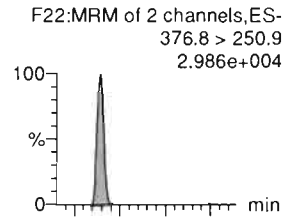

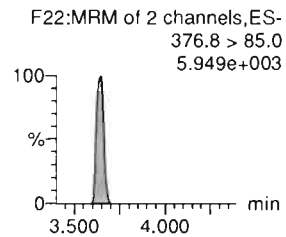

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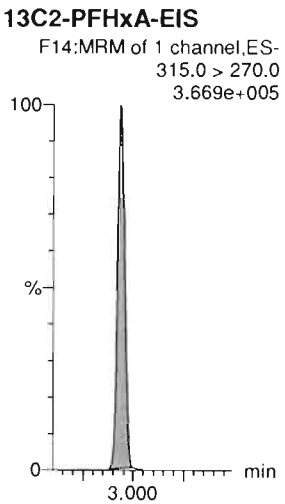

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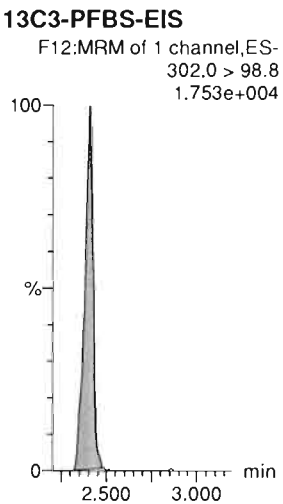

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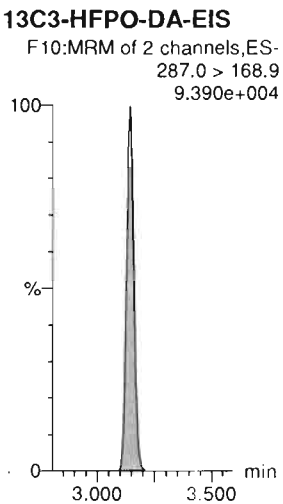

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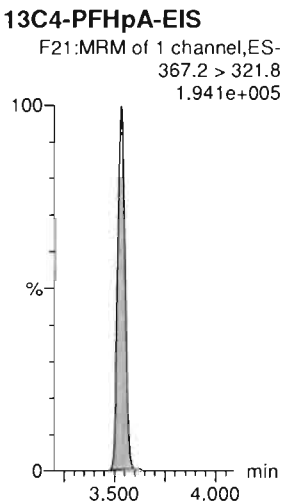

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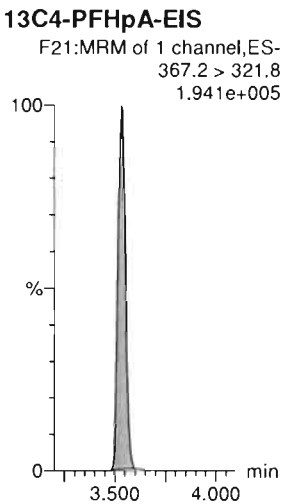

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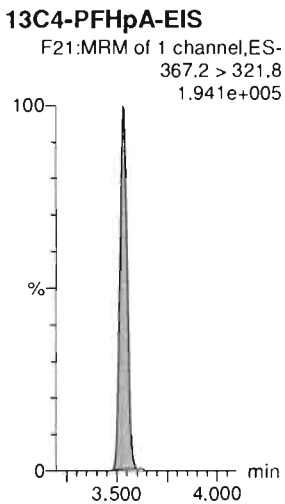

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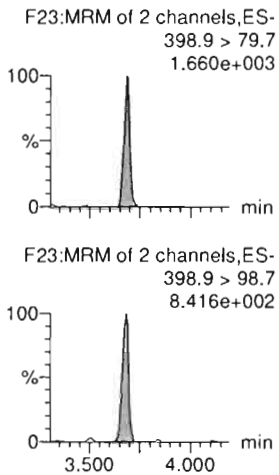
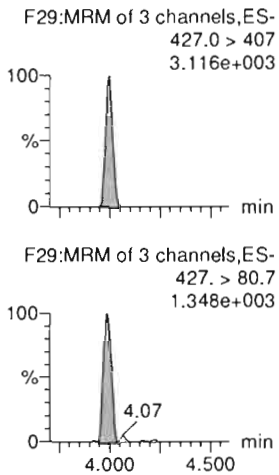


6:2 FTS



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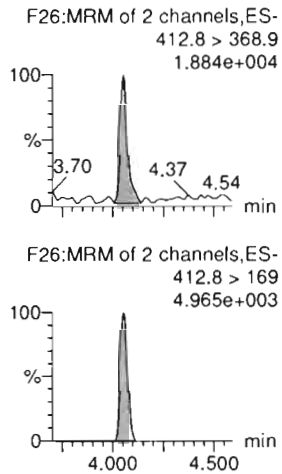

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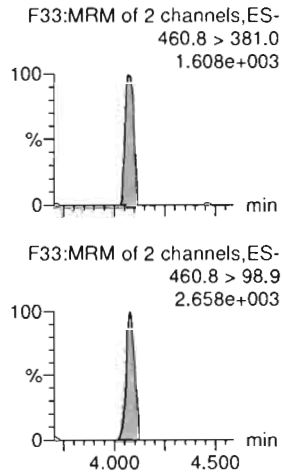

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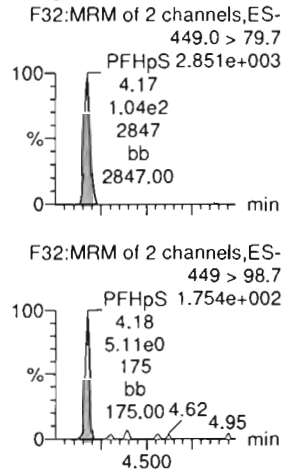

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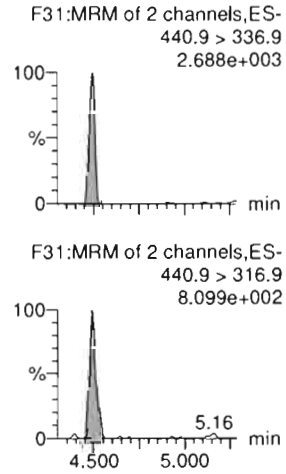

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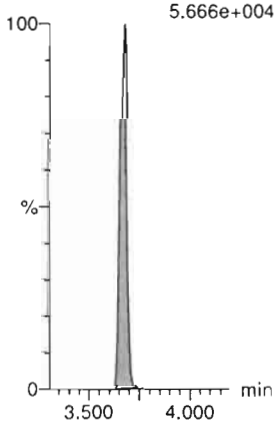

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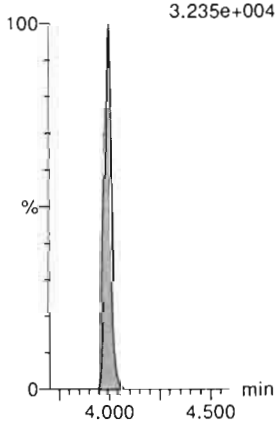

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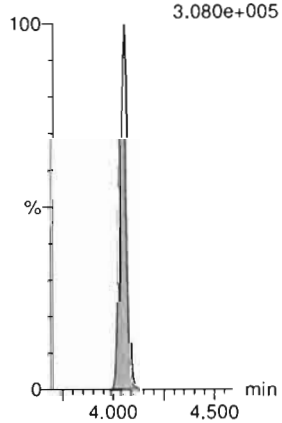

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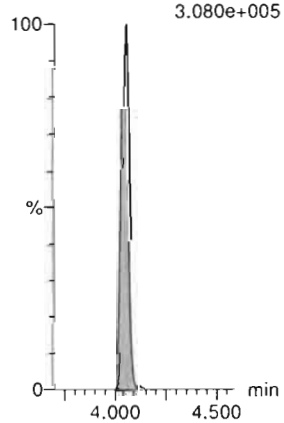

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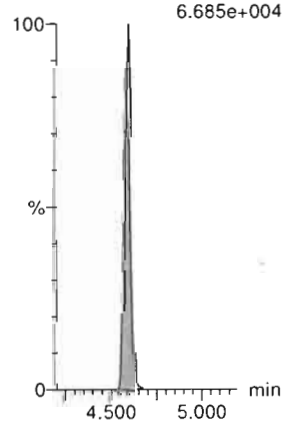

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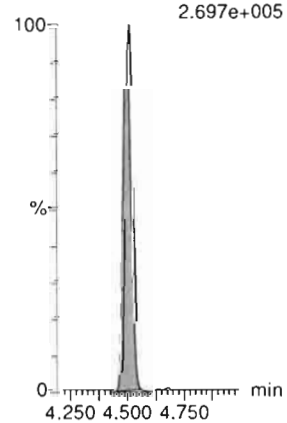

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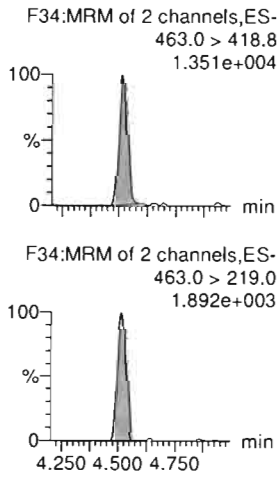

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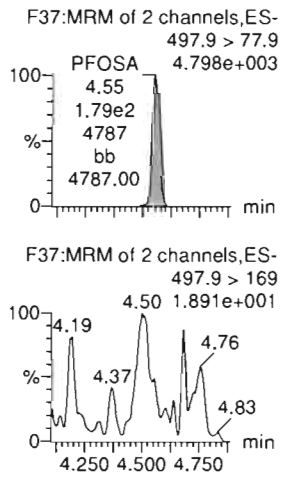
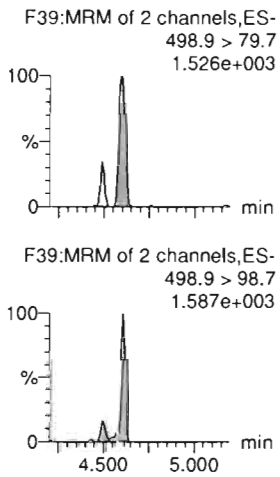


L-PFOS



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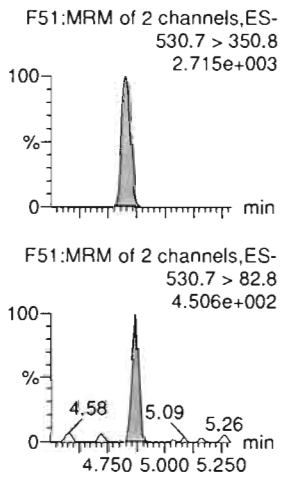

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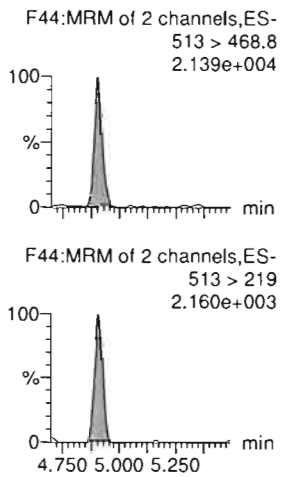
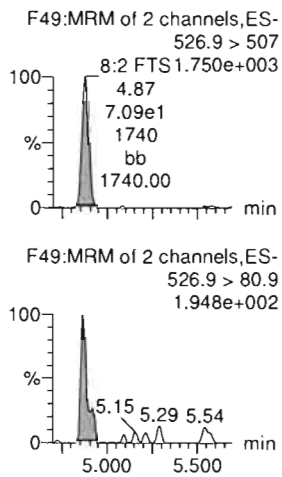


8:2 FTS



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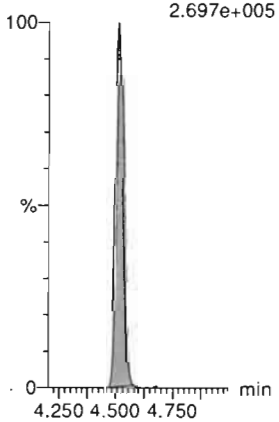

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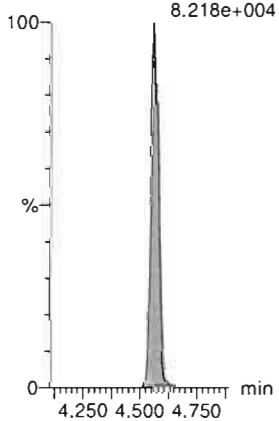

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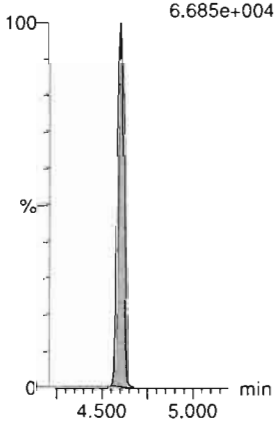

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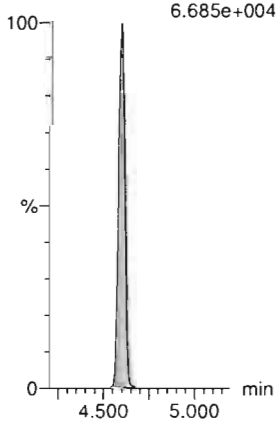

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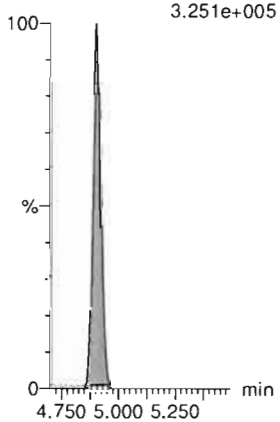

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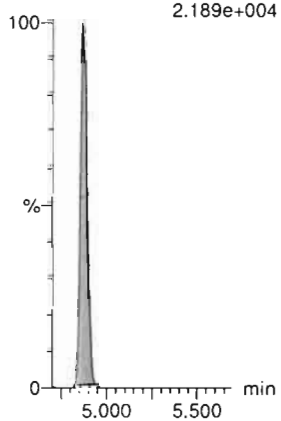

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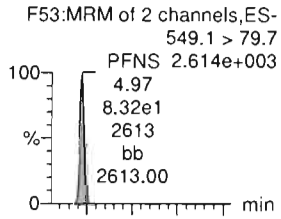
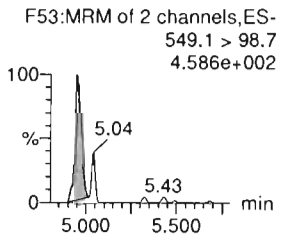
PFNS





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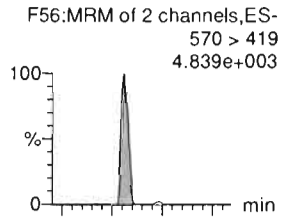

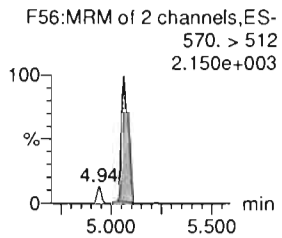

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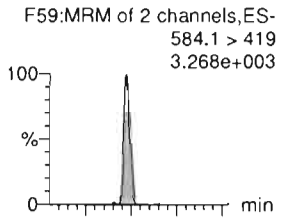

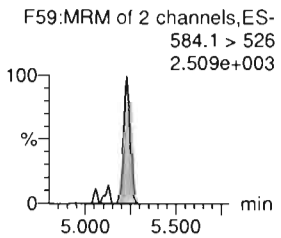

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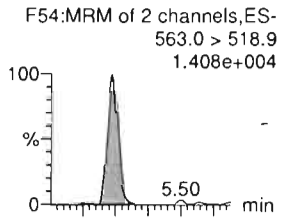

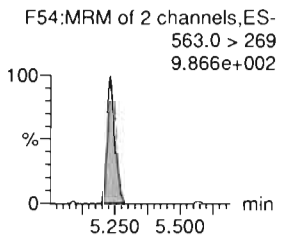

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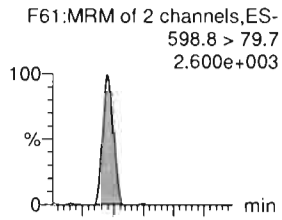
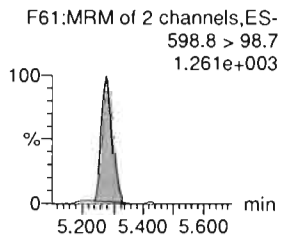
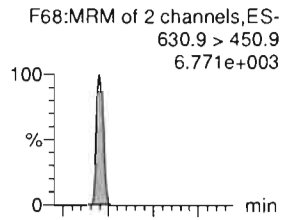
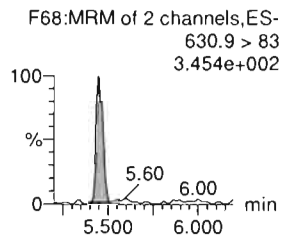


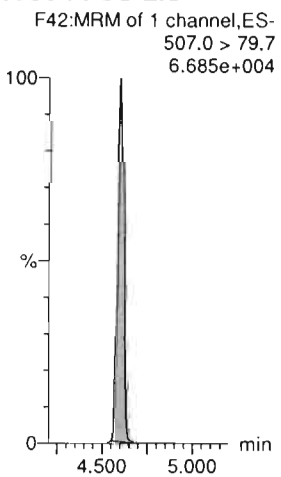


11Cl-PF30UdS

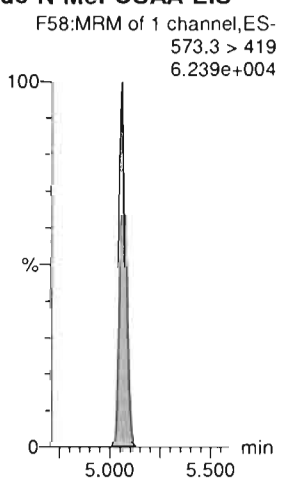




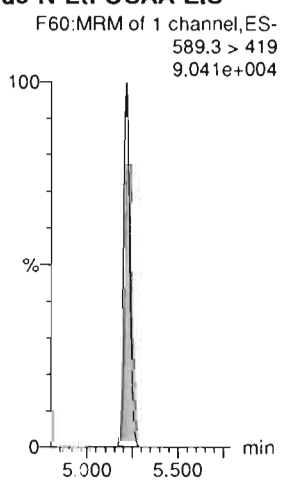
13C8-PFOS-EIS



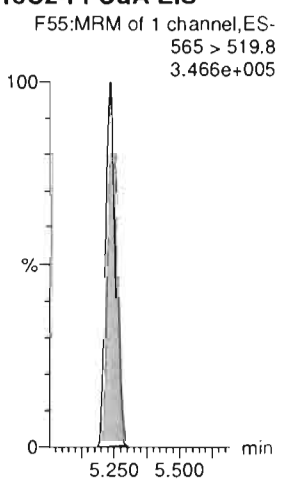
d3-N-MeFOSAA-EIS



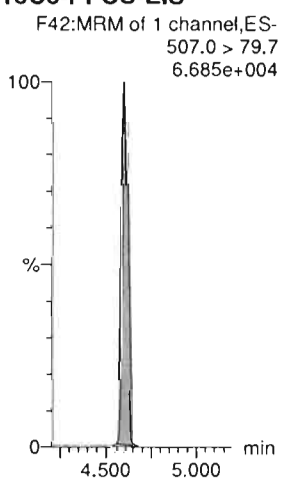
d5-N-EtFOSAA-EIS



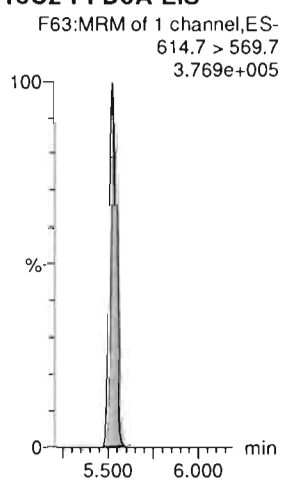
13C2-PFUdA-EIS



13C8-PFOS-EIS



13C2-PFDoA-EIS



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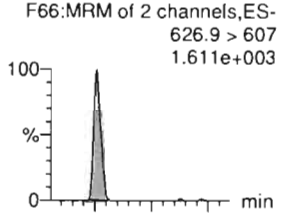
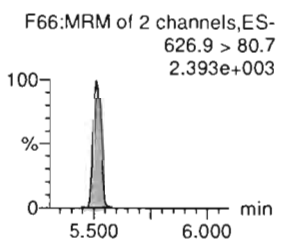
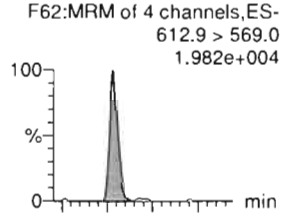
Name: 200304P2-4, Date: 04-Mar-2020, Time: 19:42:23, ID: ST200304P2-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

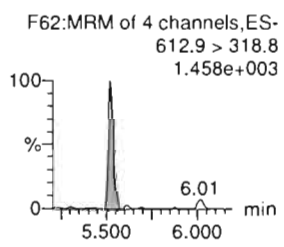
10:2 FTS



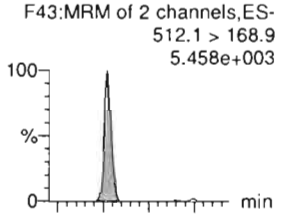


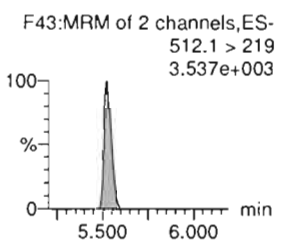
PFDoA



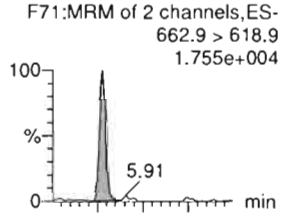


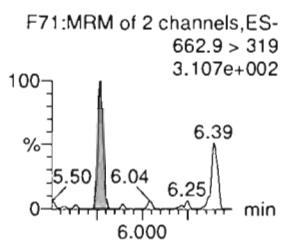
N-MeFOSA



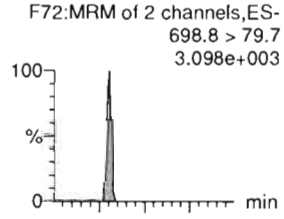


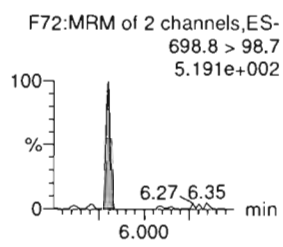
PFTrDA





PFDoS





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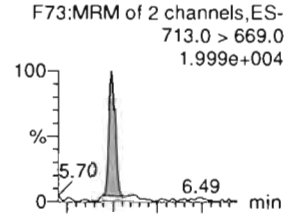
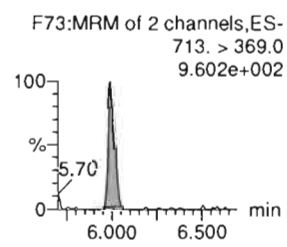
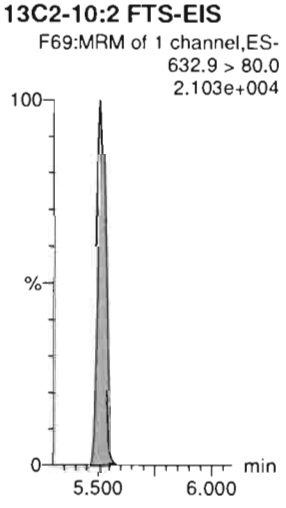
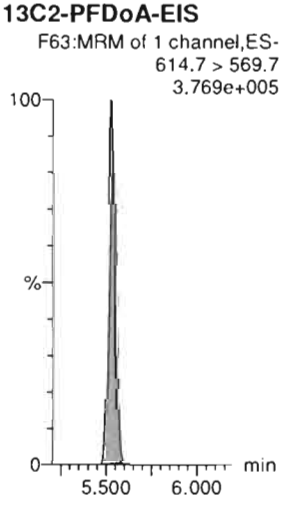




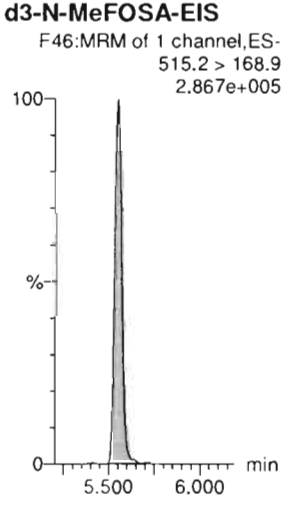
13C2-10:2 FTS-EIS



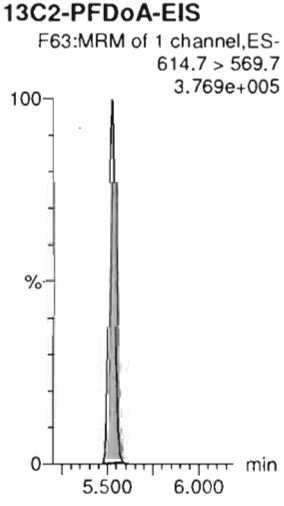
13C2-PFDoA-EIS



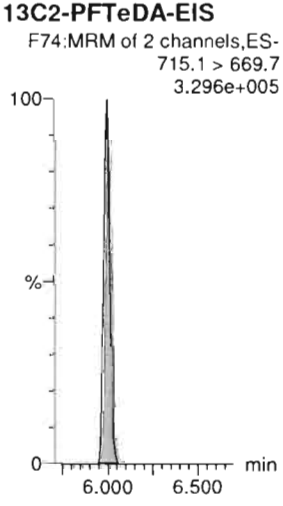
d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



13C2-PFTeDA-EIS



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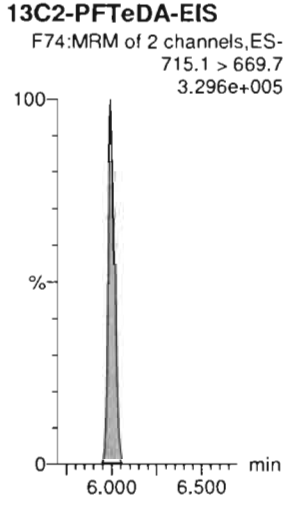

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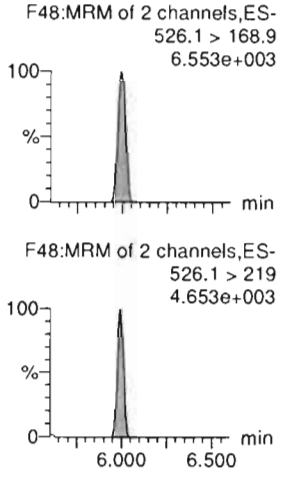
Name: 200304P2-4, Date: 04-Mar-2020, Time: 19:42:23, ID: ST200304P2-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

N-EtFOSA



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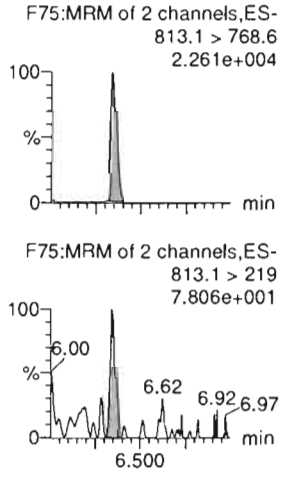
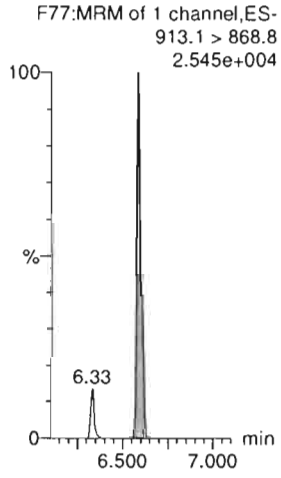
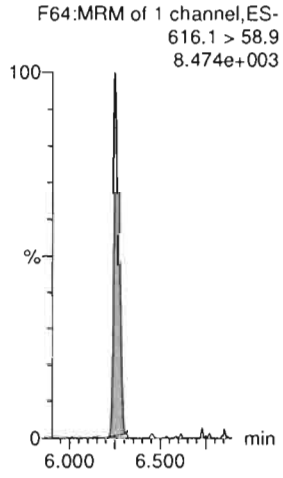


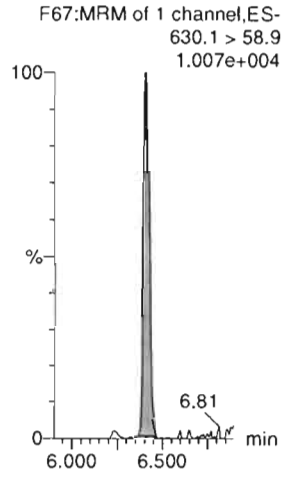
PFODA



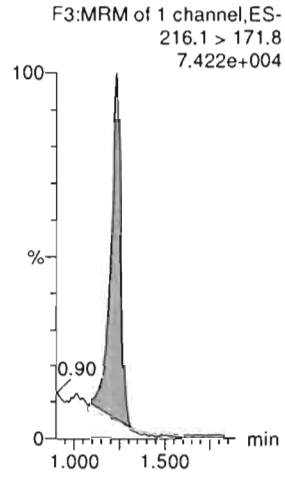
N-MeFOSE



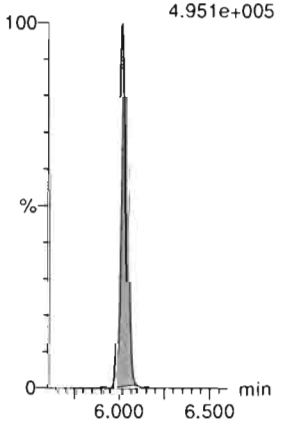
N-EtFOSE



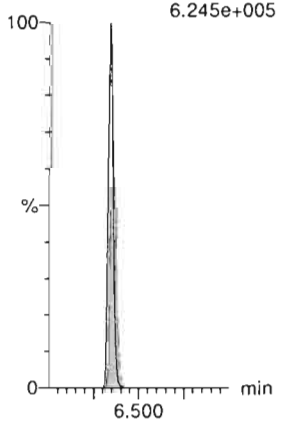
13C3-PFBA-RSD



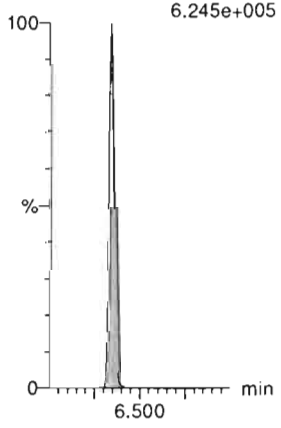
d5-N-ETFOSA-EIS



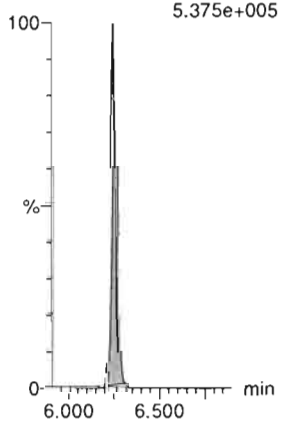
13C2-PFHxDA-EIS



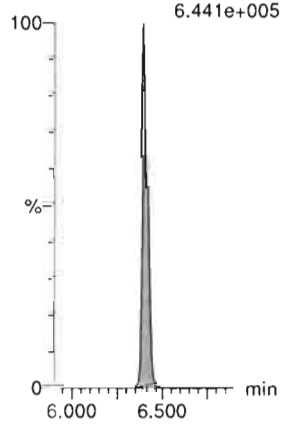
13C2-PFHxDA-EIS



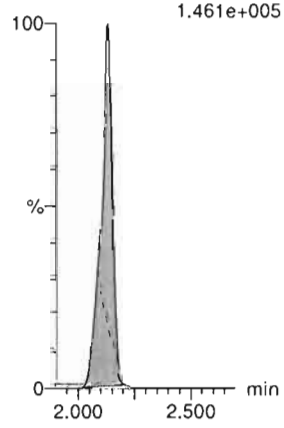
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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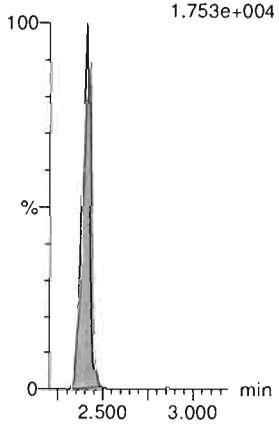
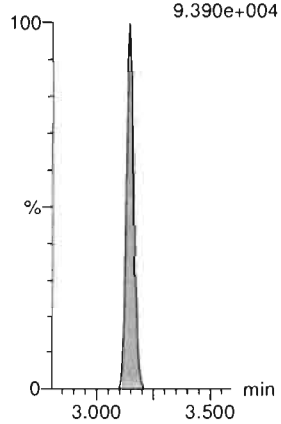
Name: 200304P2-4, Date: 04-Mar-2020, Time: 19:42:23, ID: ST200304P2-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

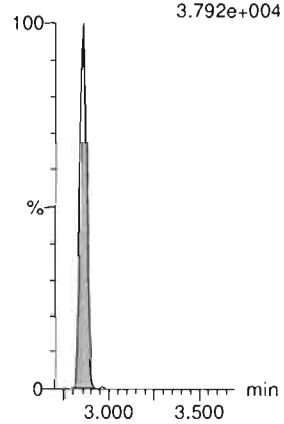
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.753e+004



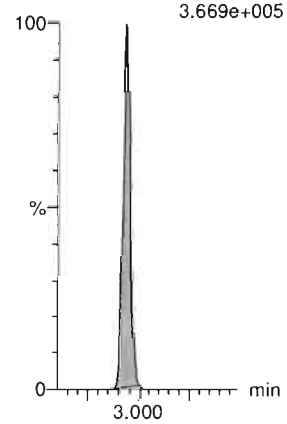
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.390e+004



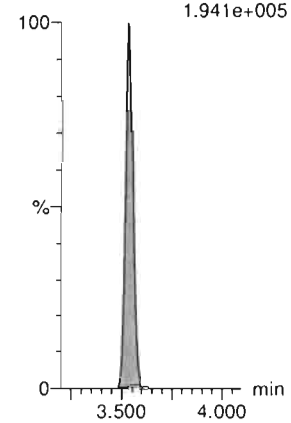
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.792e+004



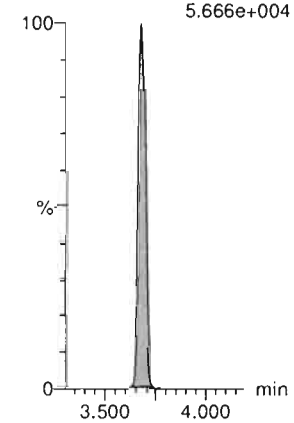
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.669e+005



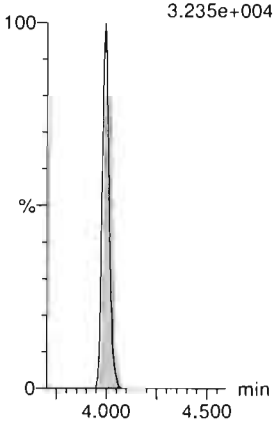
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
1.941e+005



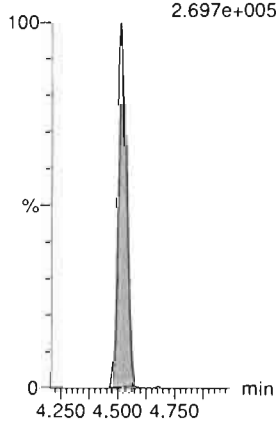
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
5.666e+004



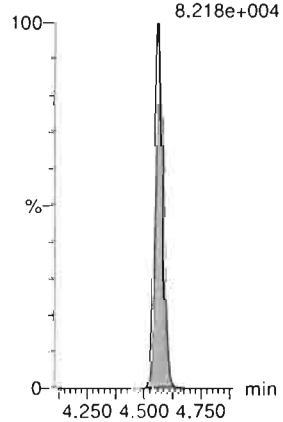
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.235e+004



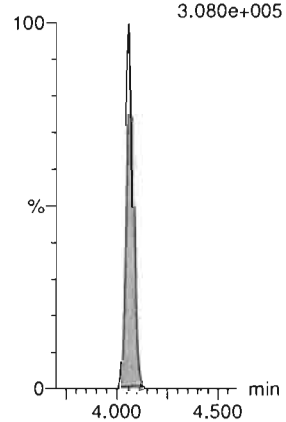
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.697e+005



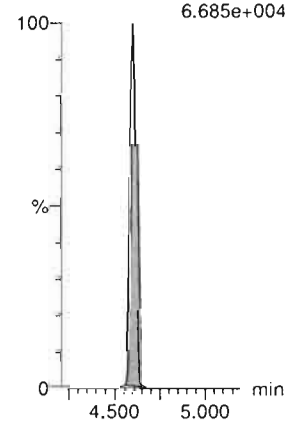
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.218e+004



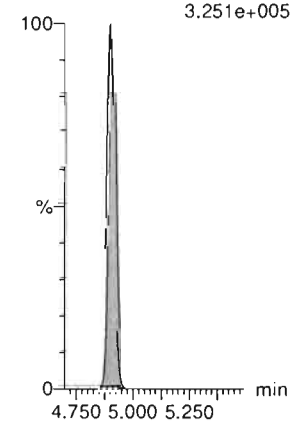
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.080e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.685e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.251e+005



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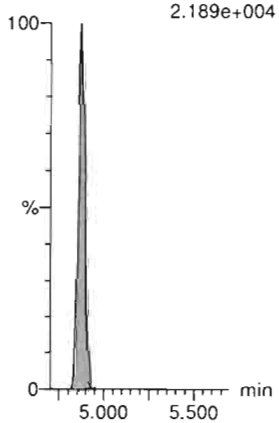
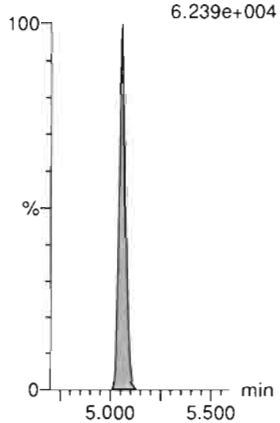
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-4, Date: 04-Mar-2020, Time: 19:42:23, ID: ST200304P2-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

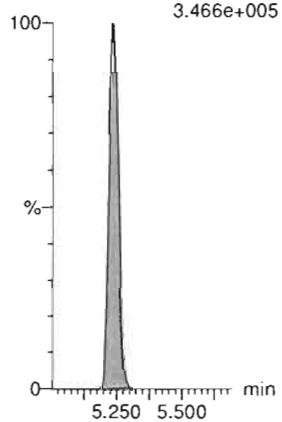
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.189e+004



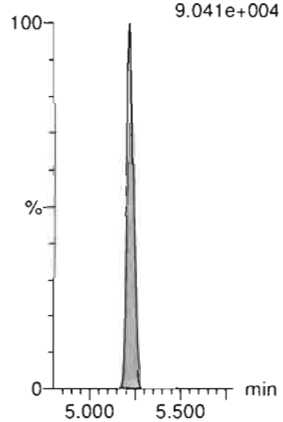
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.239e+004



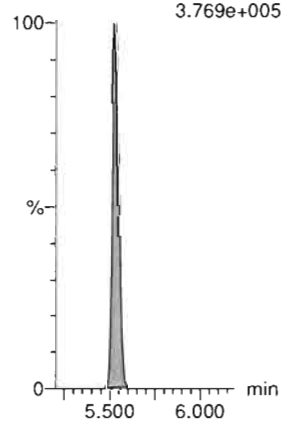
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.466e+005



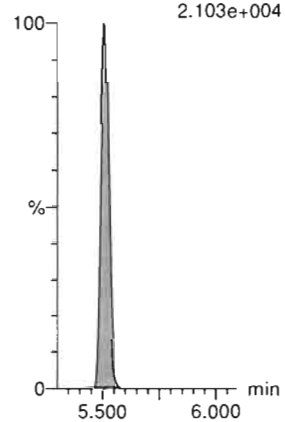
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.041e+004



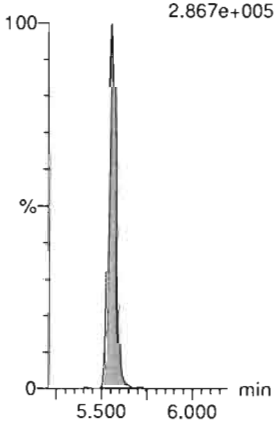
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.769e+005



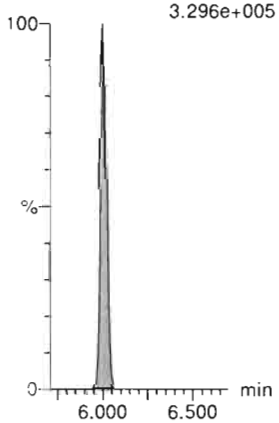
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.103e+004



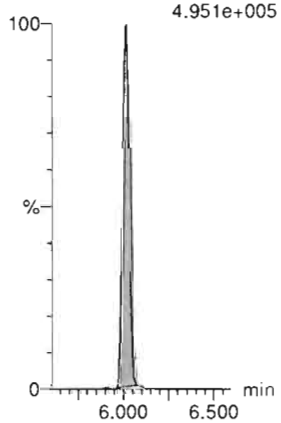
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.867e+005



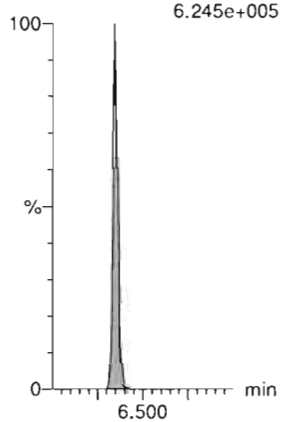
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.296e+005



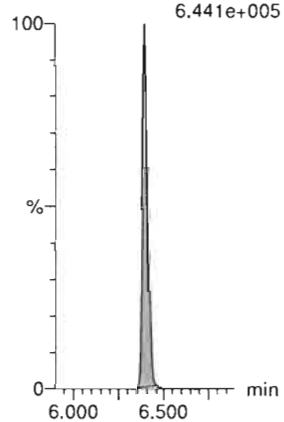
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.951e+005



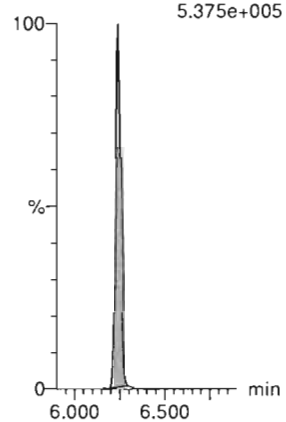
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.245e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.441e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.375e+005



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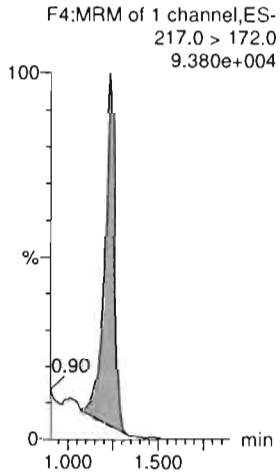
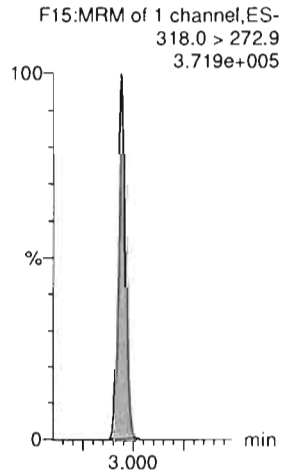
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-4, Date: 04-Mar-2020, Time: 19:42:23, ID: ST200304P2-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

13C4-PFBA



13C5-PFHxA



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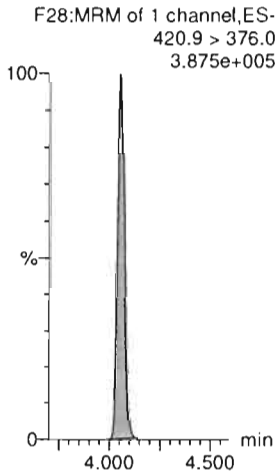
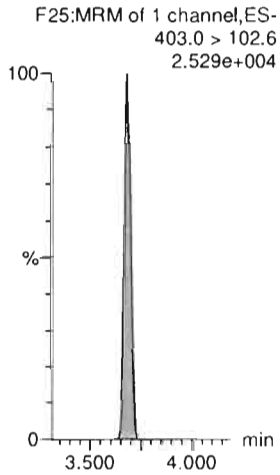
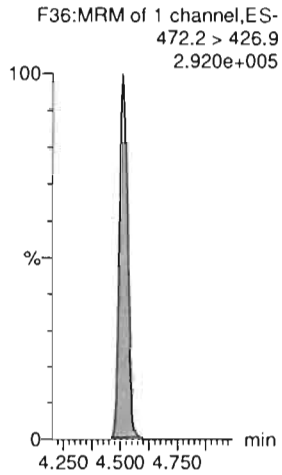


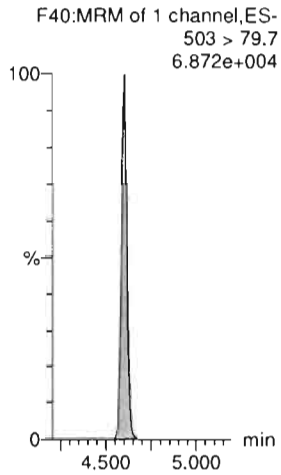
18O2-PFHxS



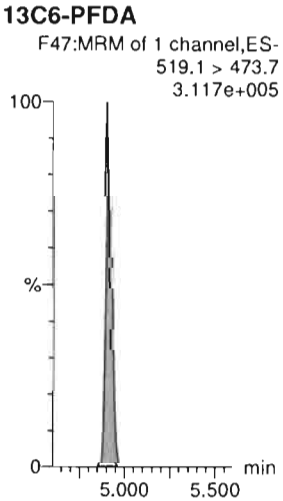
13C9-PFNA



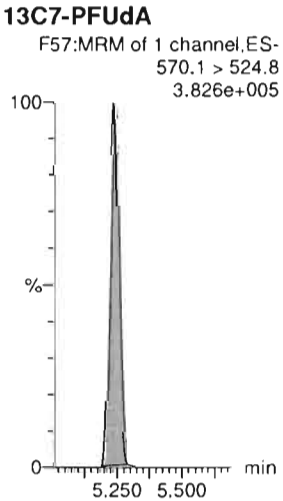
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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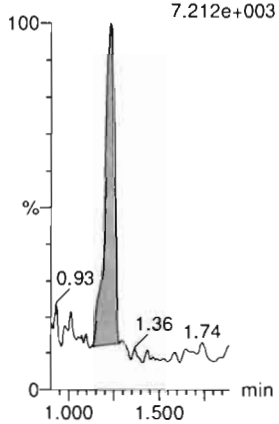
PFBA



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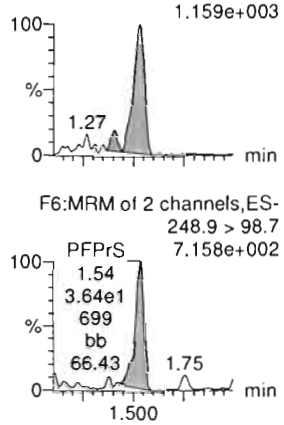
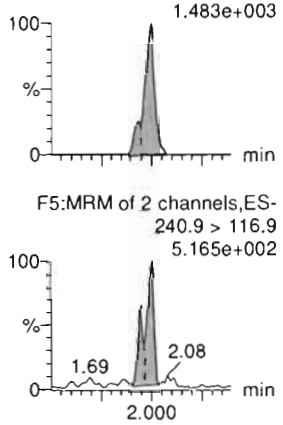


3:3 FTCA



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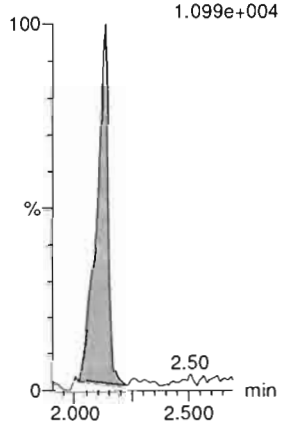
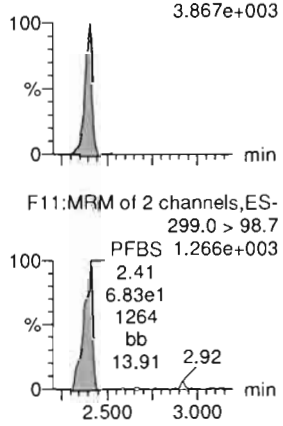
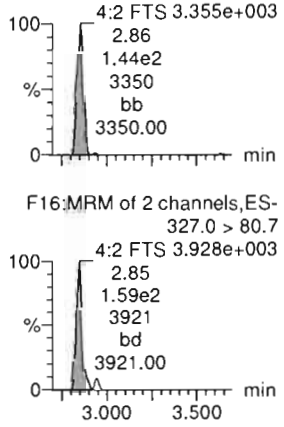


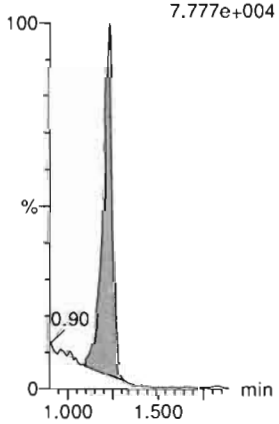
PFBS



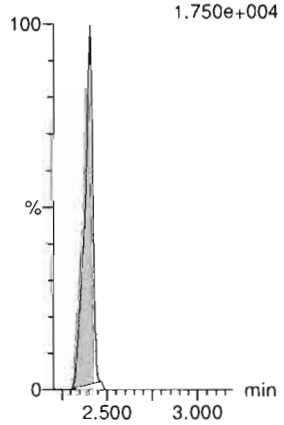
4:2 FTS



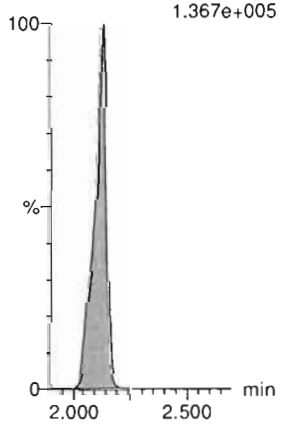
13C3-PFBA-EIS



13C3-PFBS-EIS



13C3-PFPeA-EIS



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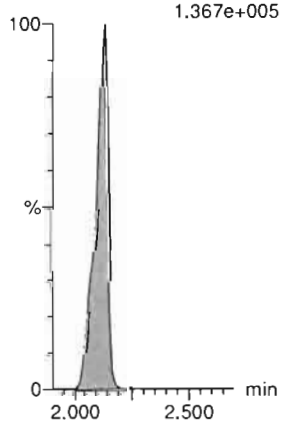

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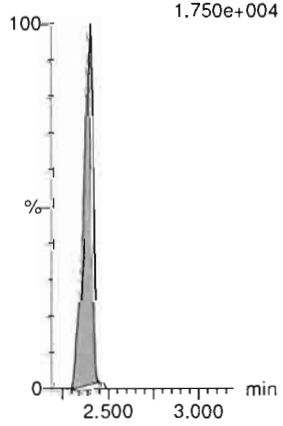
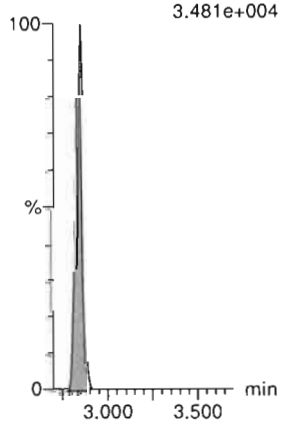


13C2-4:2 FTS-EIS



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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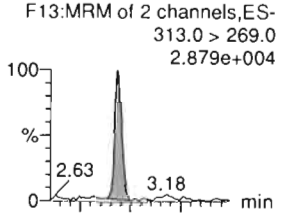
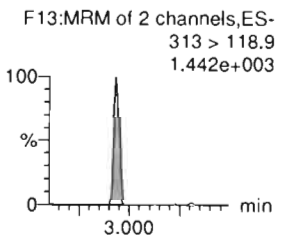
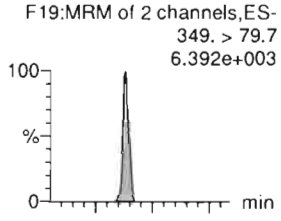
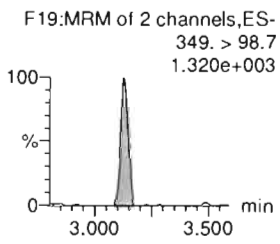
PFHxA



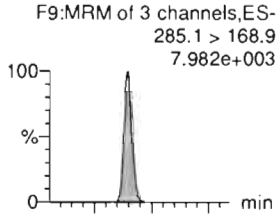


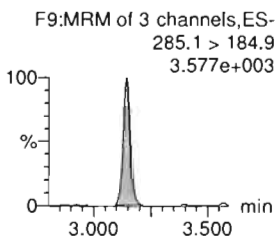
PFPeS



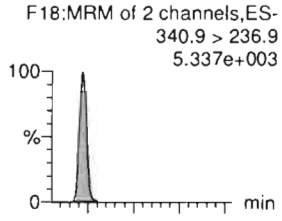


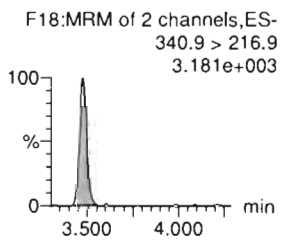
HFPO-DA



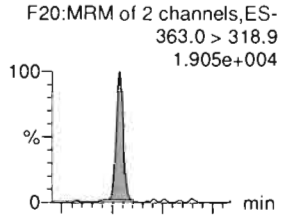


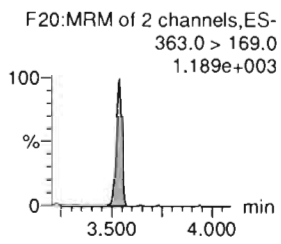
5:3 FTCA





PFHpA





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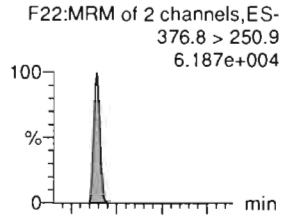
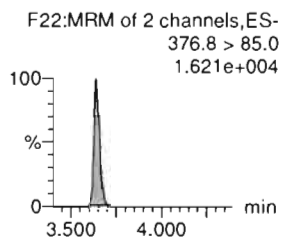
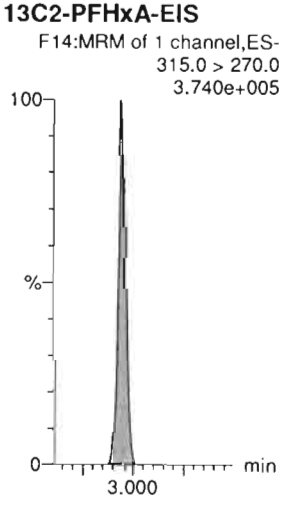
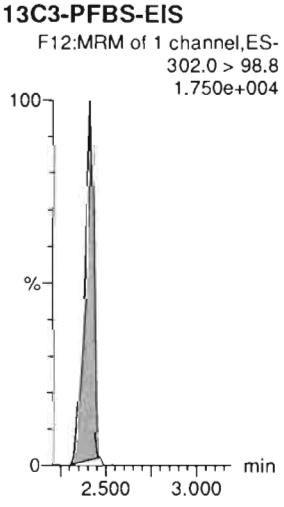




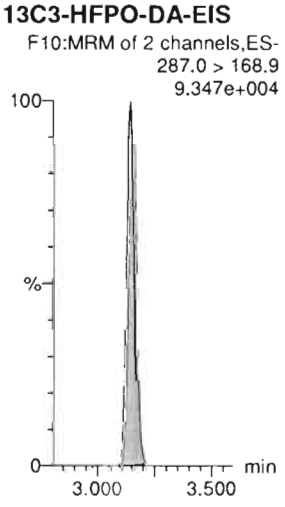
13C2-PFHxA-EIS



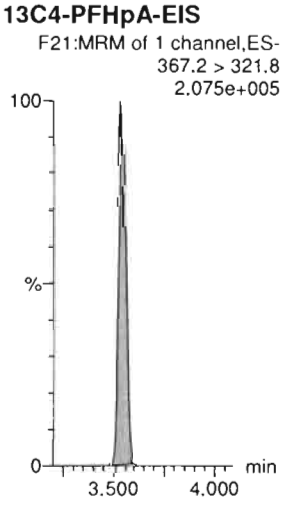
13C3-PFBS-EIS



13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



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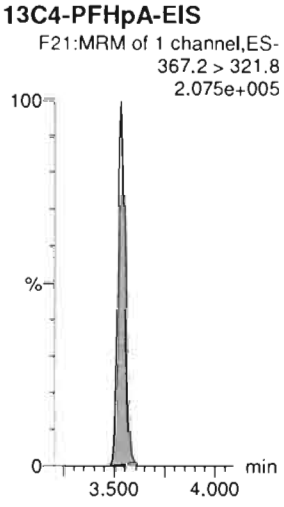
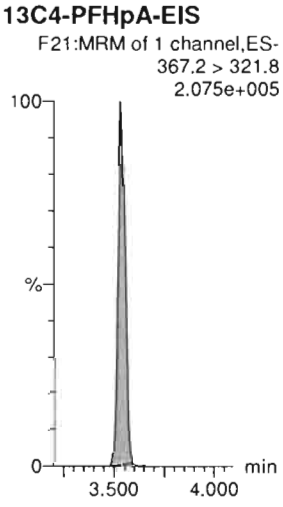


13C4-PFHpA-EIS



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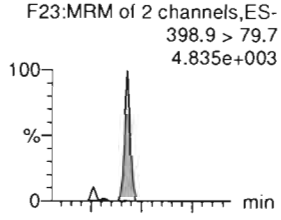
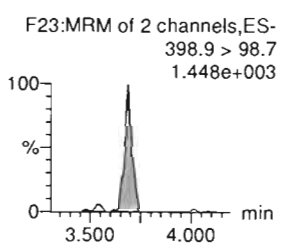
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

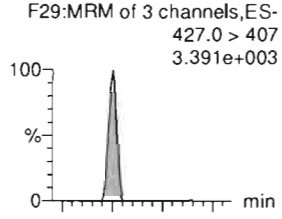
Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

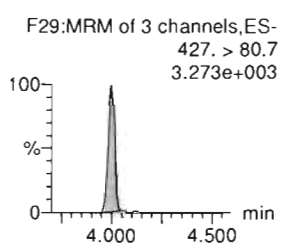
L-PFHxS





6:2 FTS





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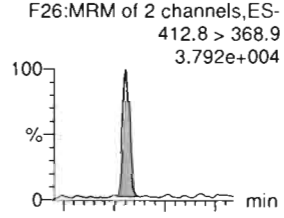

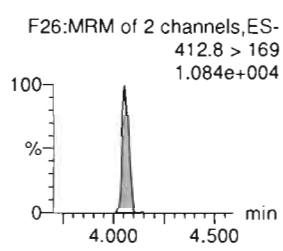

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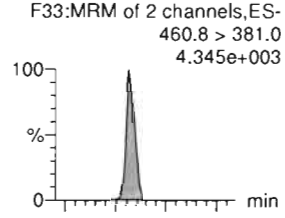

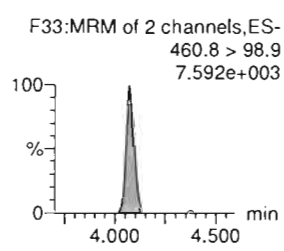

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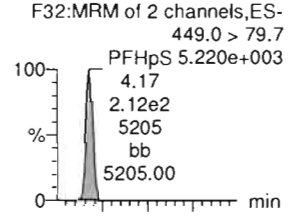
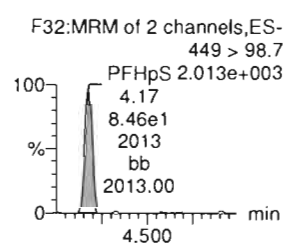
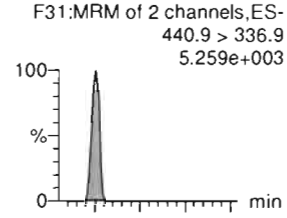
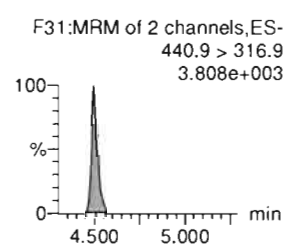




7:3 FTCA





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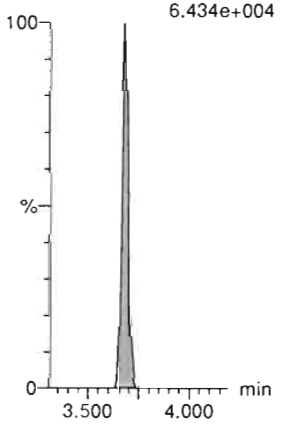
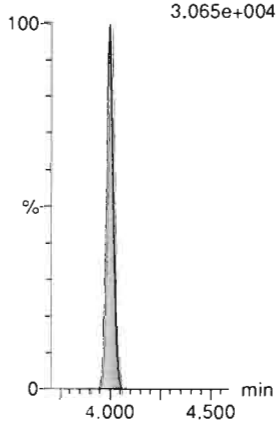


13C2-6:2 FTS-EIS



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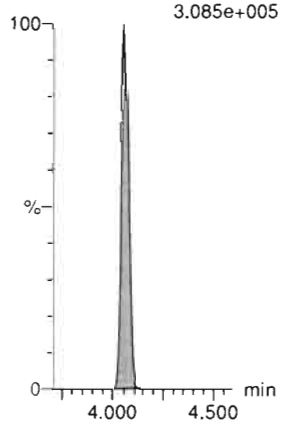

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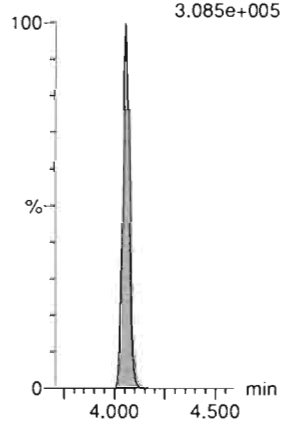
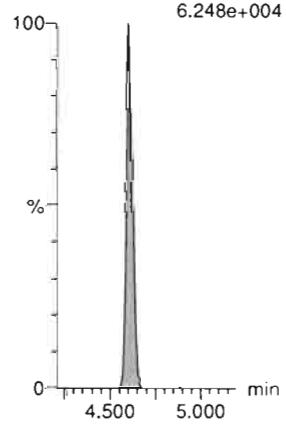


13C8-PFOS-EIS



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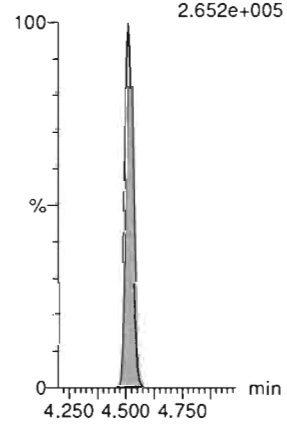

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Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

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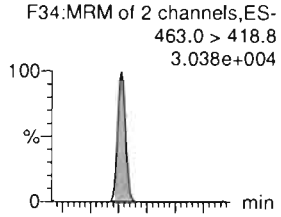

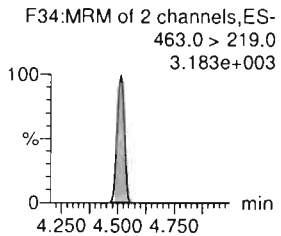

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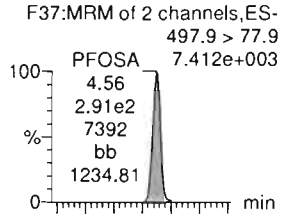
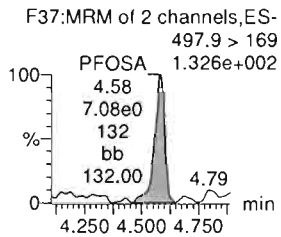
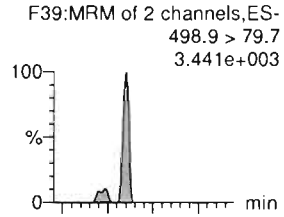
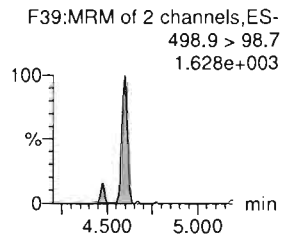




L-PFOS





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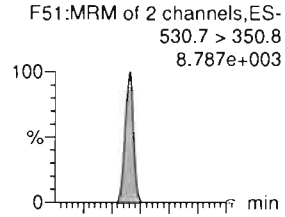

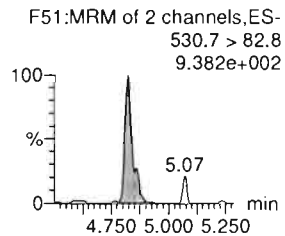

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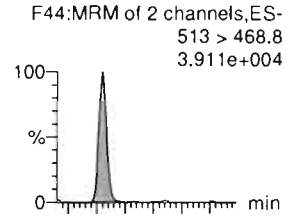

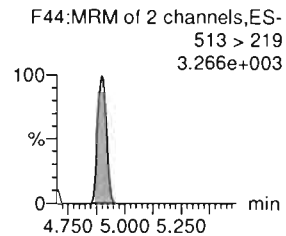

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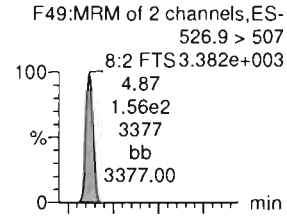

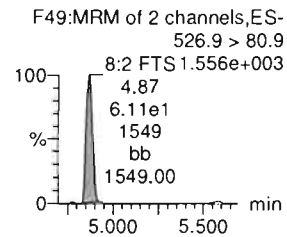

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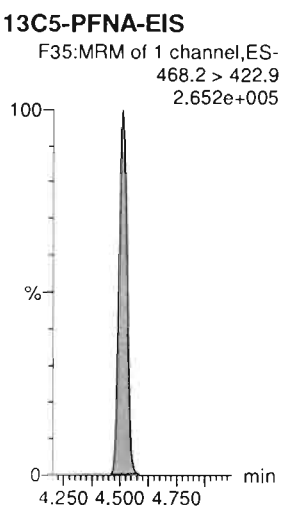

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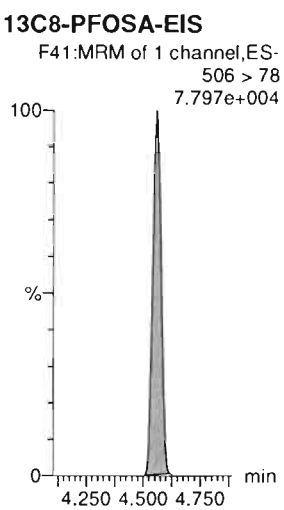

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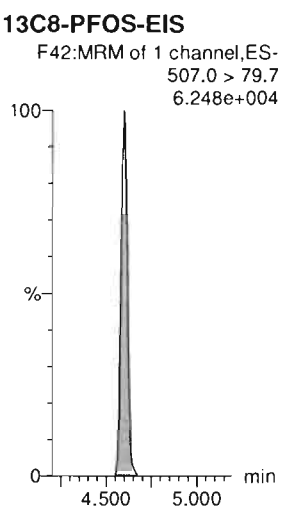

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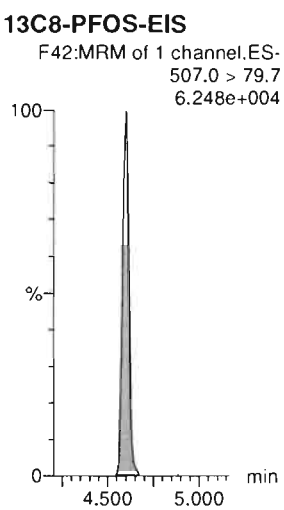

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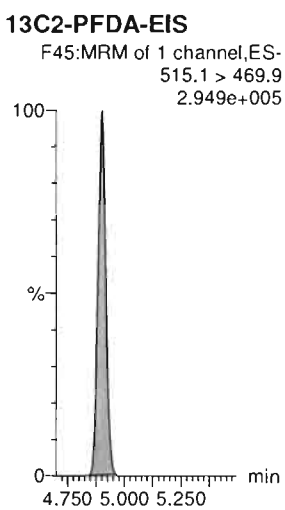

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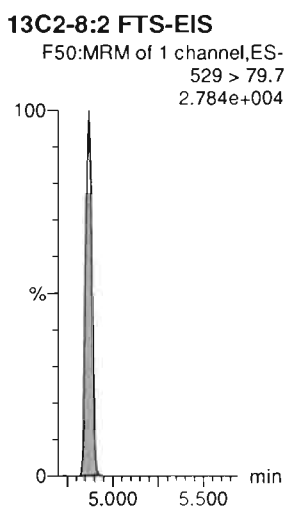

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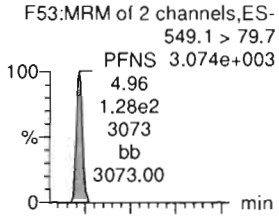

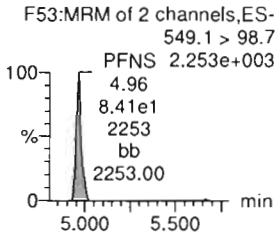

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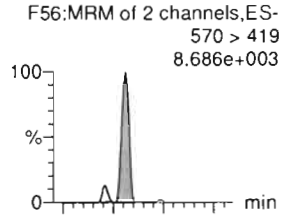

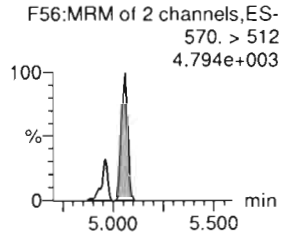

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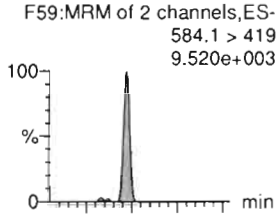

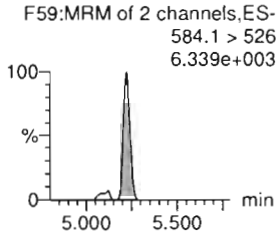

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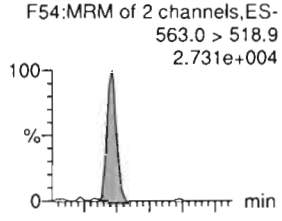

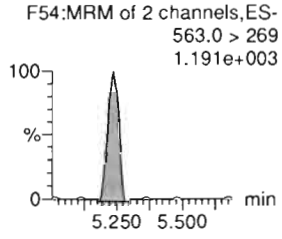

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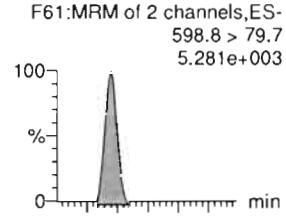

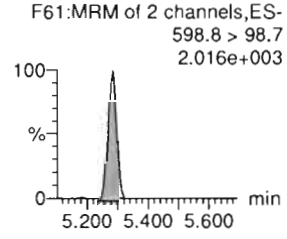

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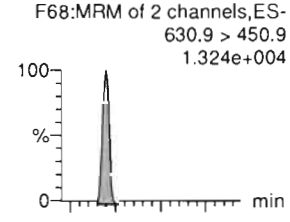
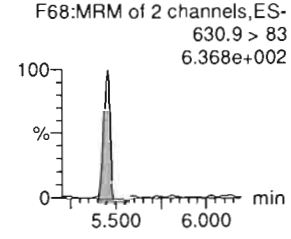
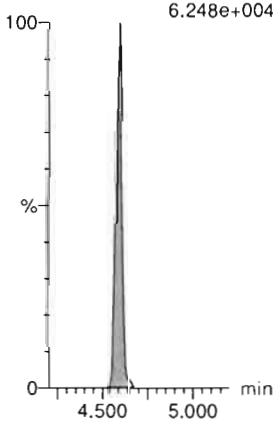




13C8-PFOS-EIS



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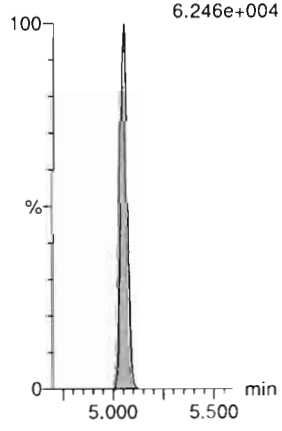

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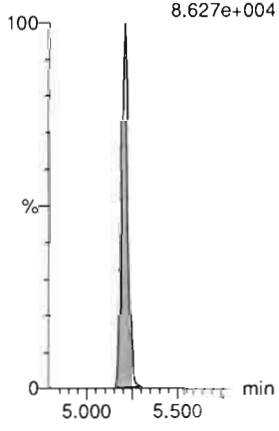

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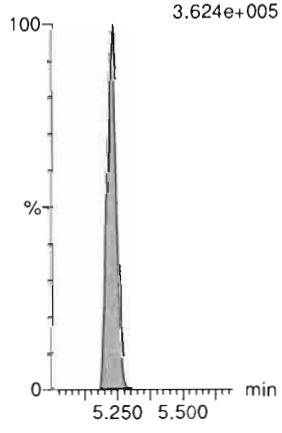
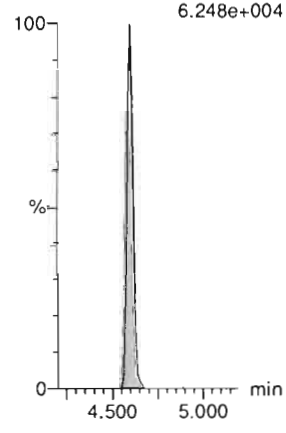
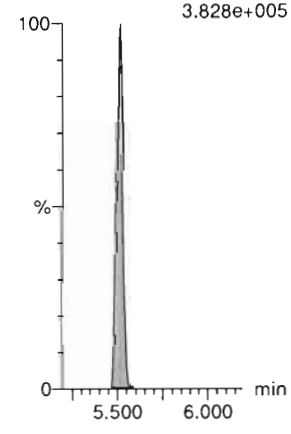


13C8-PFOS-EIS



13C2-PFDoA-EIS



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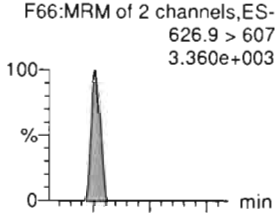
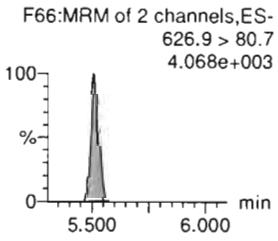
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

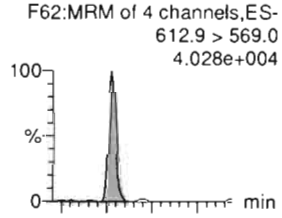
Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

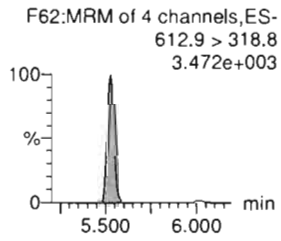
10:2 FTS



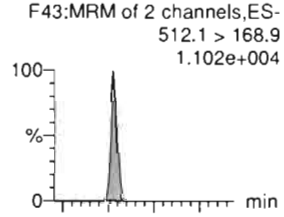


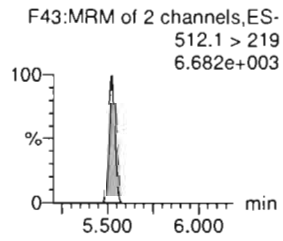
PFDoA





N-MeFOSA





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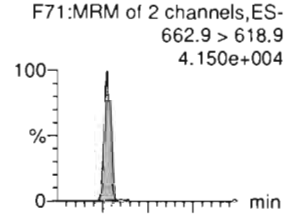
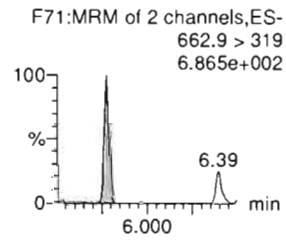
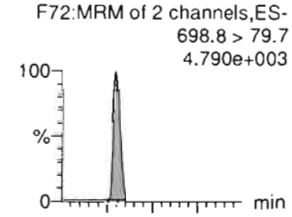
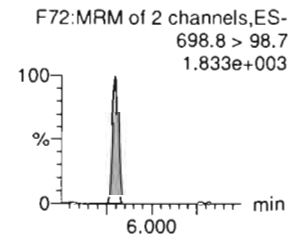


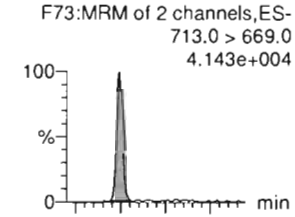


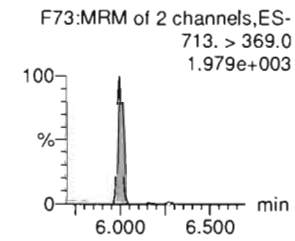
PFDoS



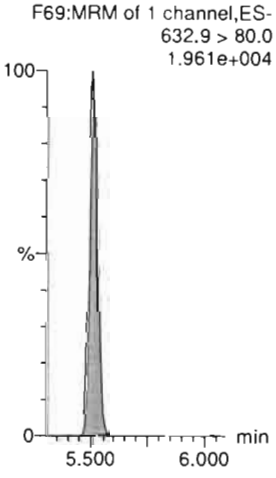


PFTeDA

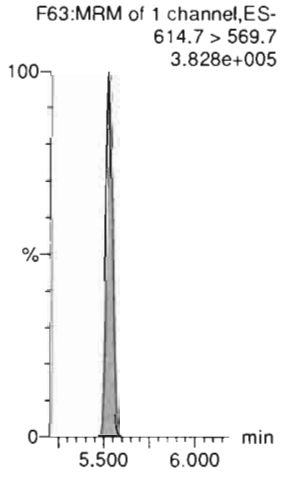




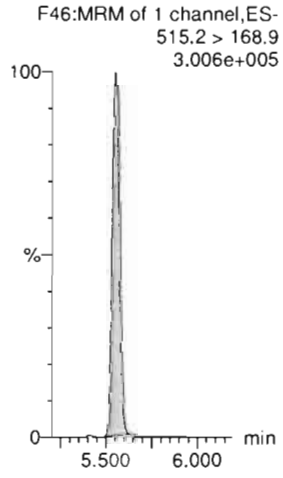
13C2-10:2 FTS-EIS



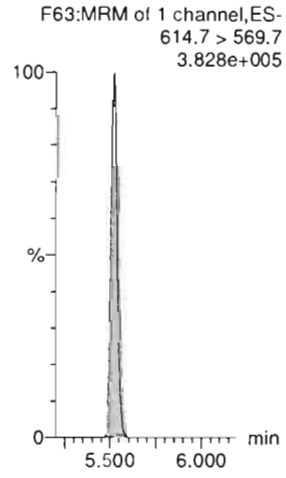
13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



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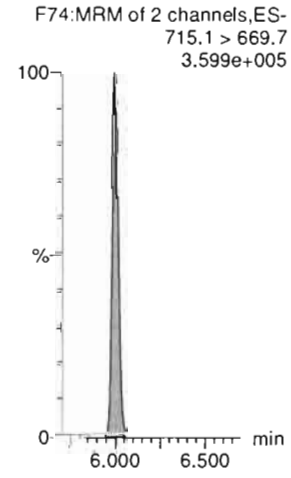

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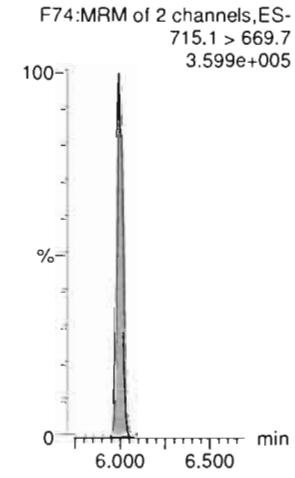

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Last Altered: Thursday, March 05, 2020 09:34:37 Pacific Standard Time
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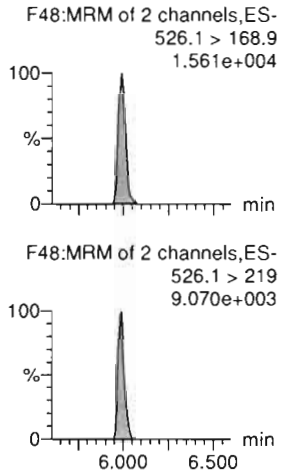
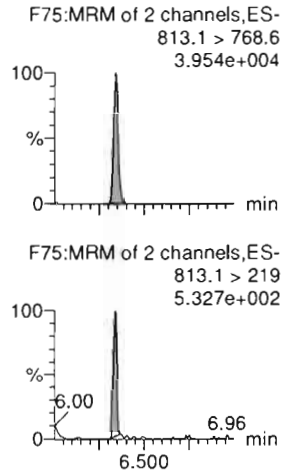
Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

N-EtFOSA



PFHxDA



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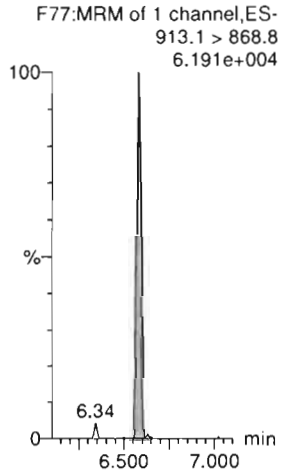
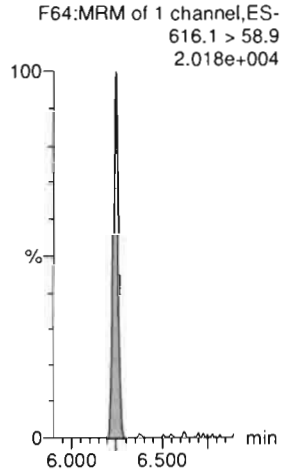
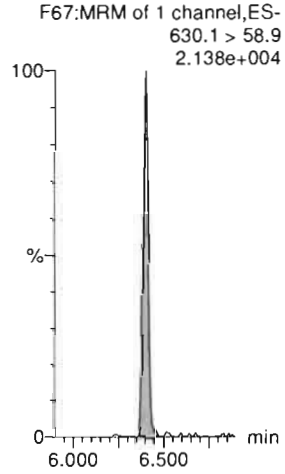


N-MeFOSE



N-EtFOSE



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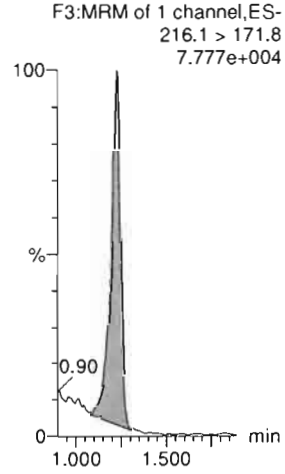
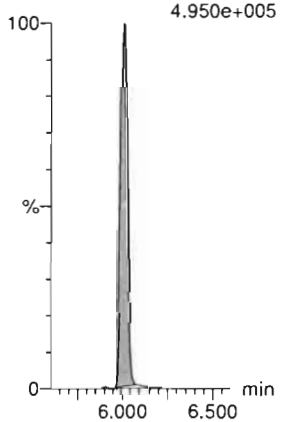
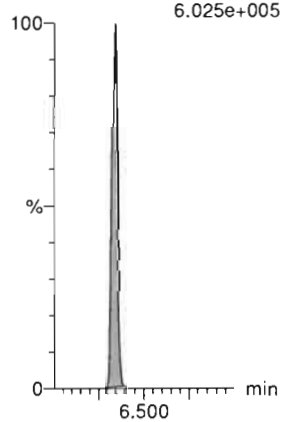


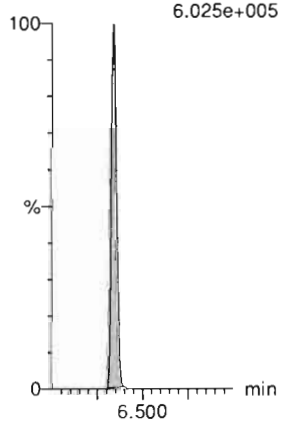
d5-N-ETFOSA-EIS



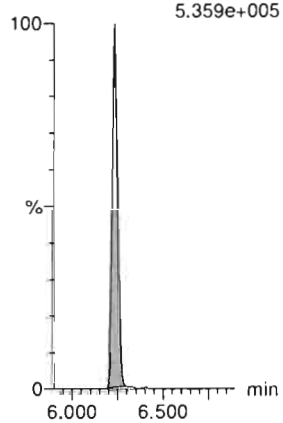
13C2-PFHxDA-EIS



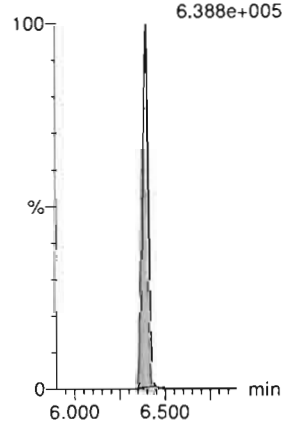
13C2-PFHxDA-EIS



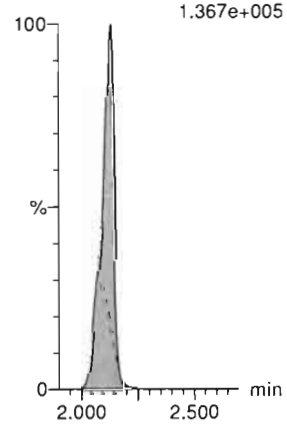
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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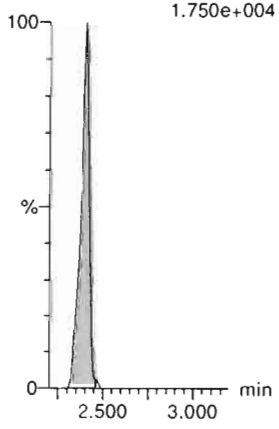
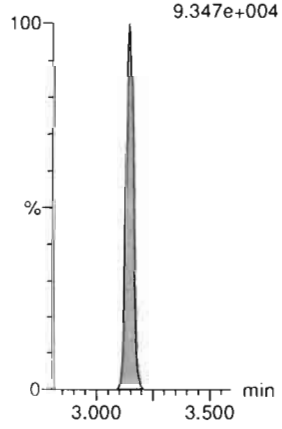
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

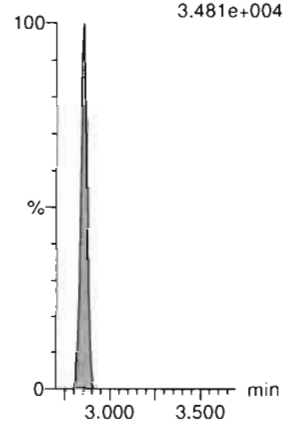
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.750e+004



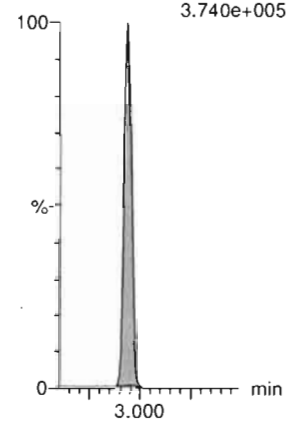
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.347e+004



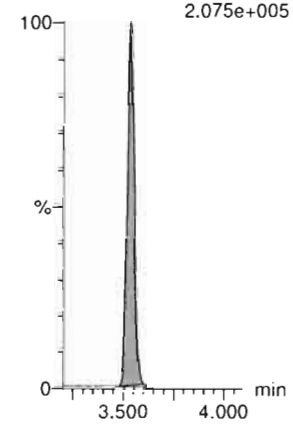
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.481e+004



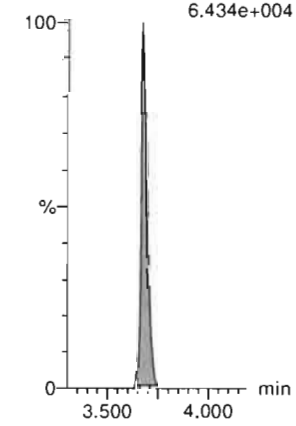
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.740e+005



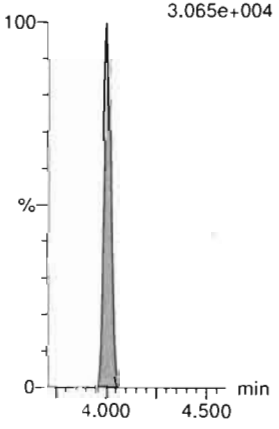
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.075e+005



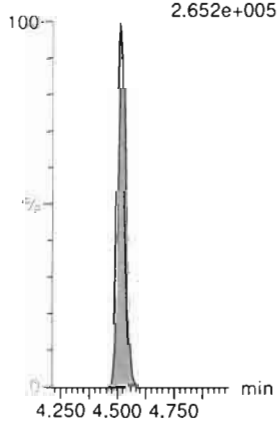
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.434e+004



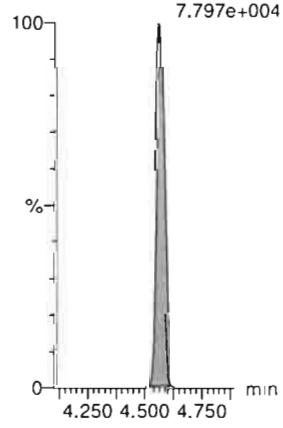
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.065e+004



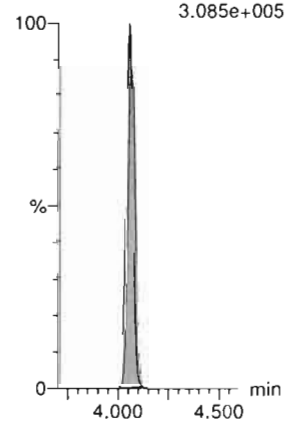
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.652e+005



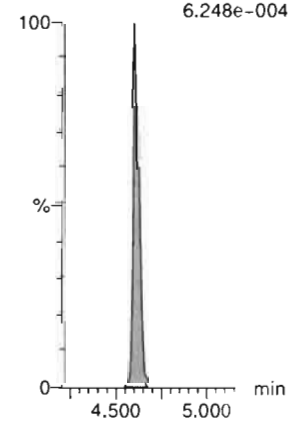
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
7.797e+004



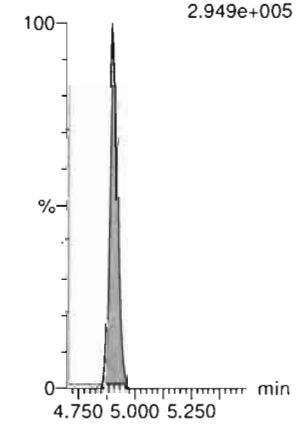
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.085e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.248e-004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
2.949e+005



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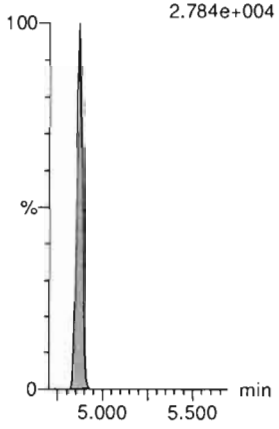
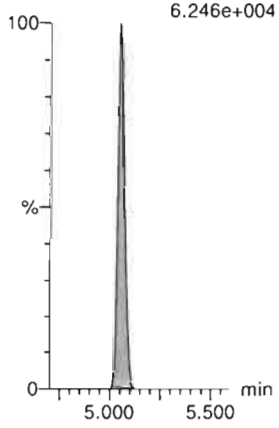
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

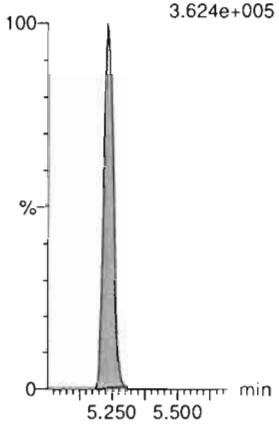
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.784e+004



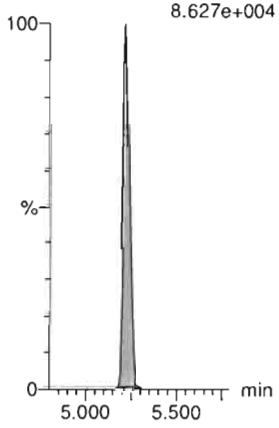
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.246e+004



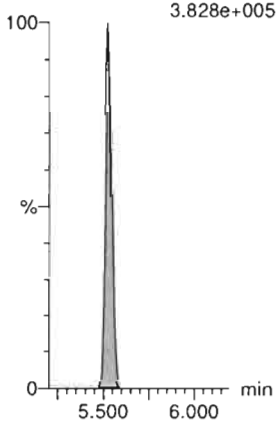
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.624e+005



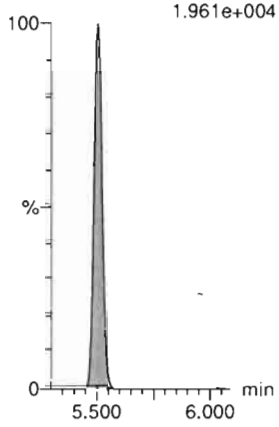
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.627e+004



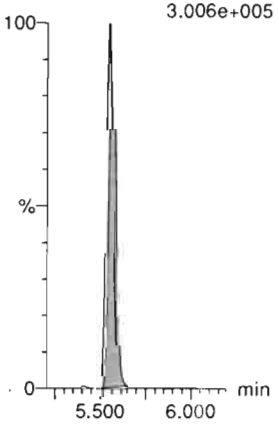
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.828e+005



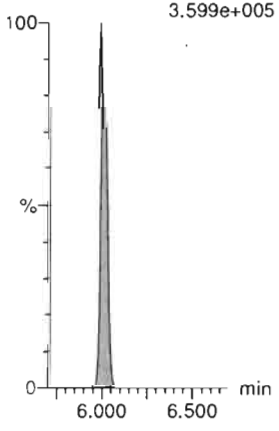
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.961e+004



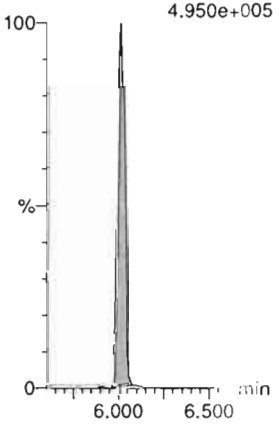
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.006e+005



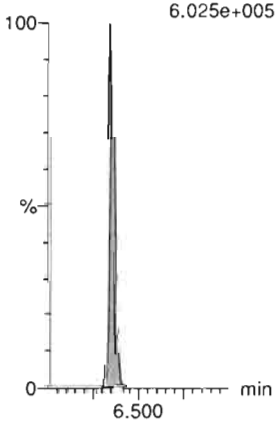
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.599e+005



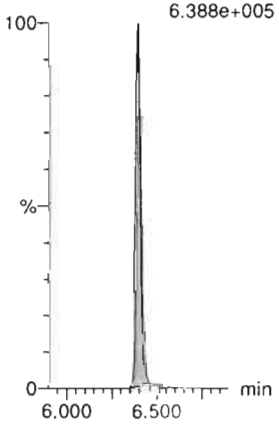
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.950e+005



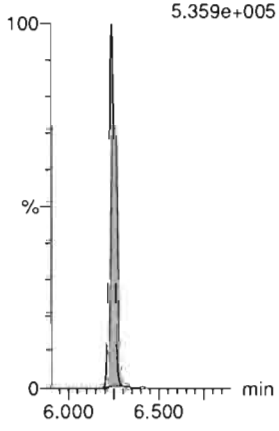
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.025e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.388e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.359e+005



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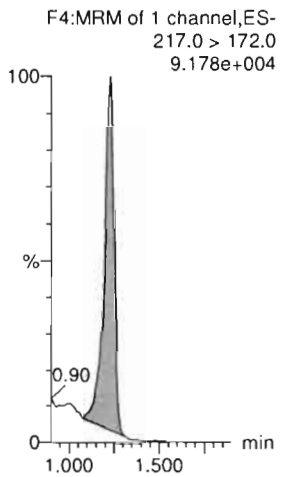
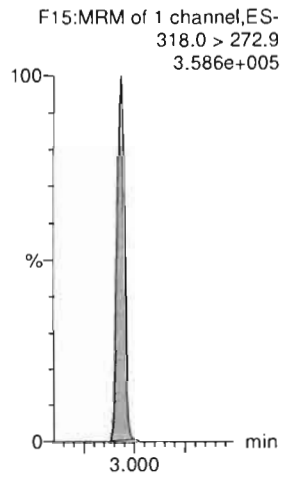
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-5, Date: 04-Mar-2020, Time: 19:52:51, ID: ST200304P2-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

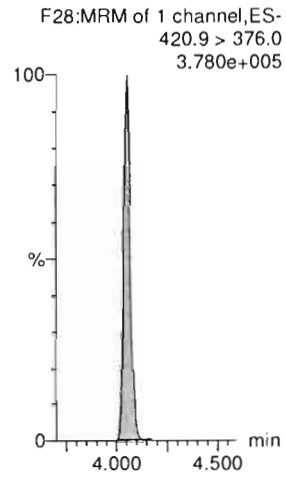
13C4-PFBA



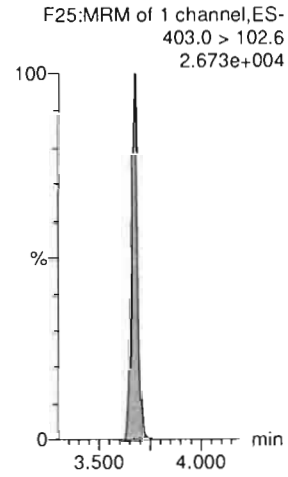
13C5-PFHxA



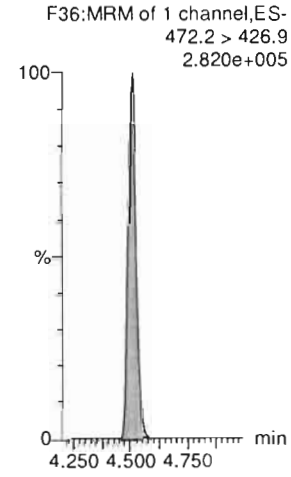
13C8-PFOA



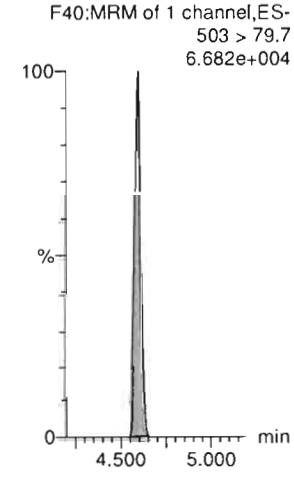
18O2-PFHxS



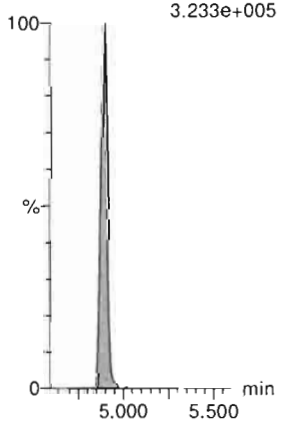
13C9-PFNA



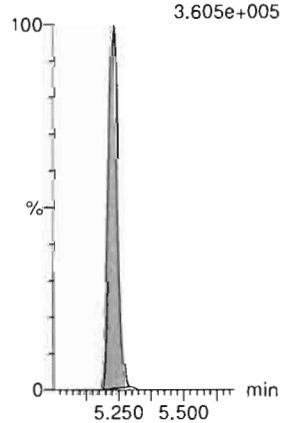
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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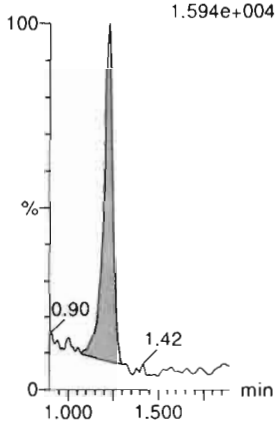
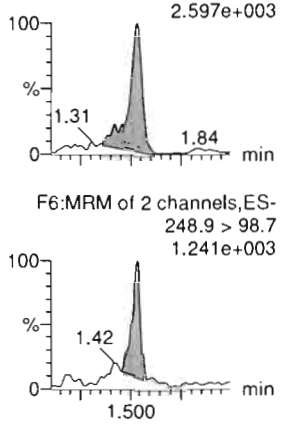
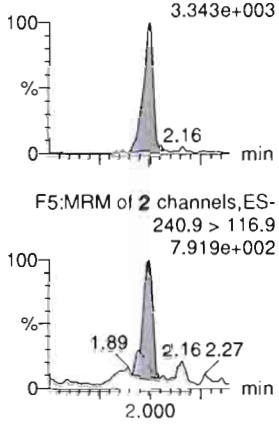
PFBA



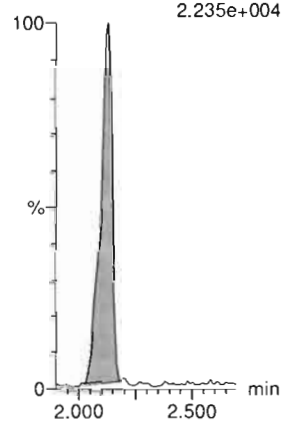
PFPrS



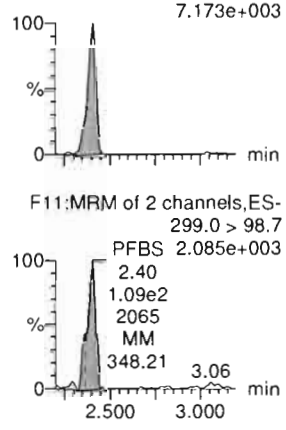
3:3 FTCA



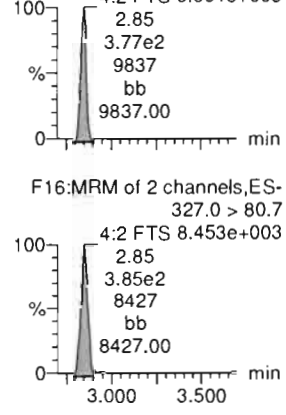
PFPeA



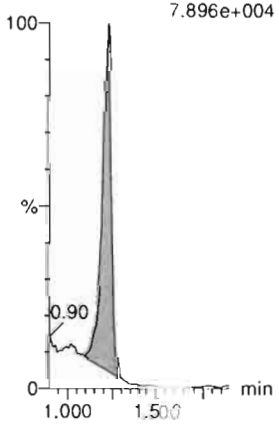
PFBS



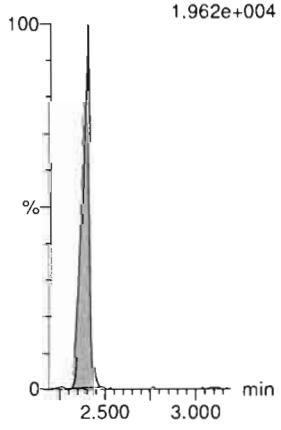
4:2 FTS



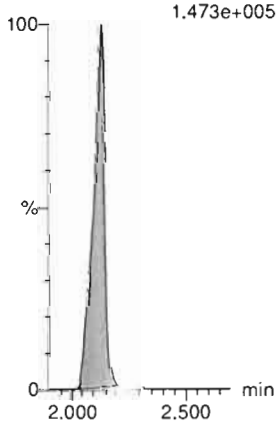
13C3-PFBA-EIS



13C3-PFBS-EIS



13C3-PFPeA-EIS



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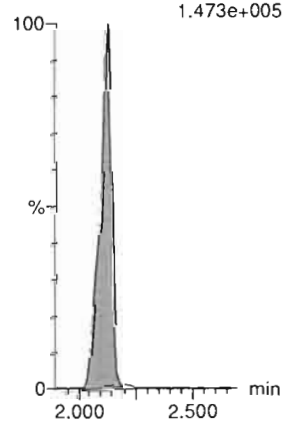

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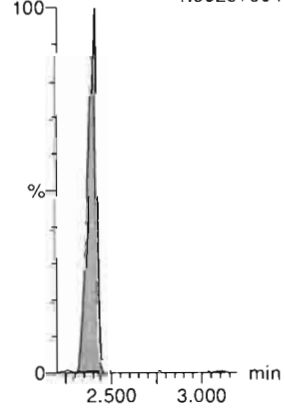
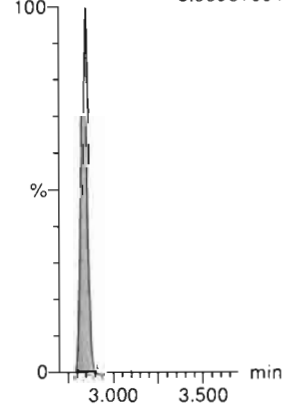


13C2-4:2 FTS-EIS



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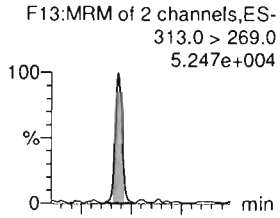
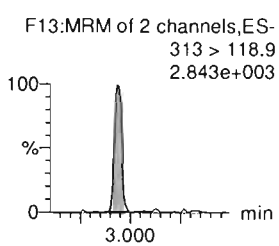
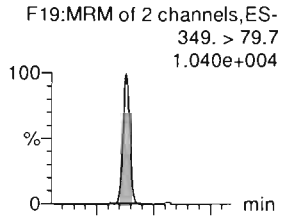
Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

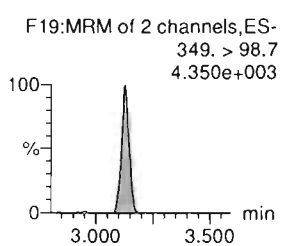
PFHxA



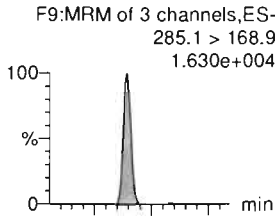


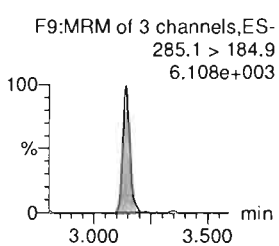
PFPeS



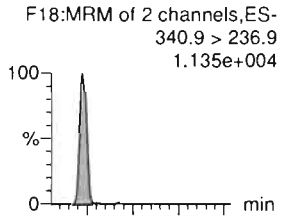


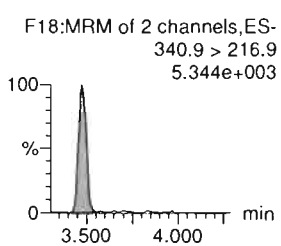
HFPO-DA



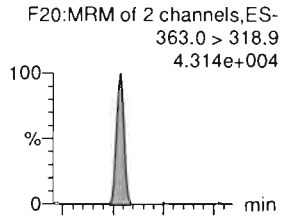


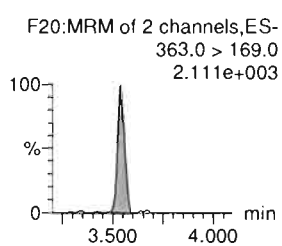
5:3 FTCA



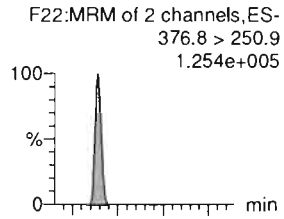


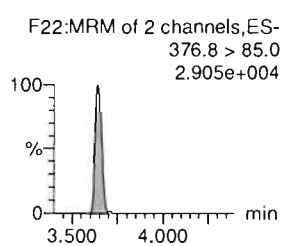
PFHpA



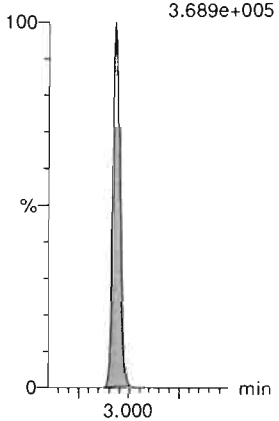


ADONA

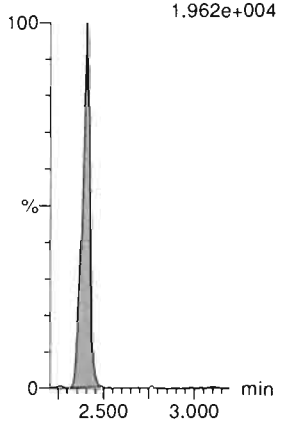




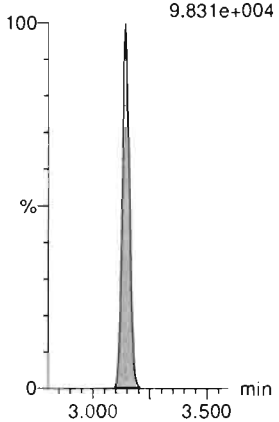
13C2-PFHxA-EIS



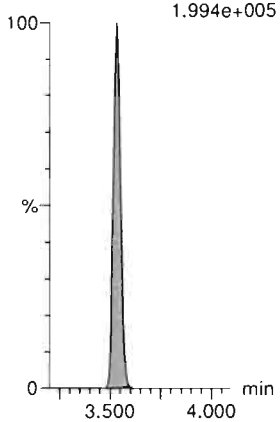
13C3-PFBS-EIS



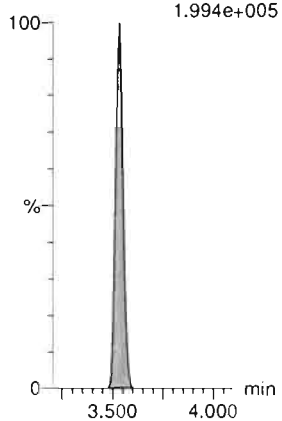
13C3-HFPO-DA-EIS



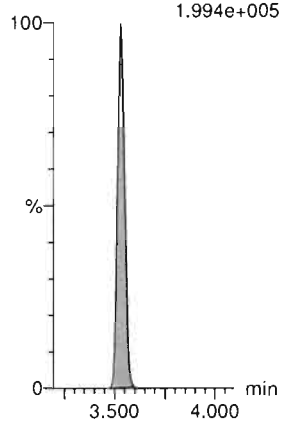
13C4-PFHpA-EIS



13C4-PFHpA-EIS



13C4-PFHpA-EIS



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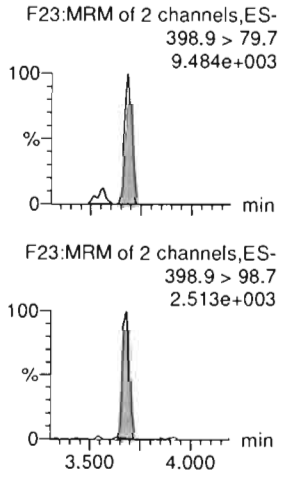
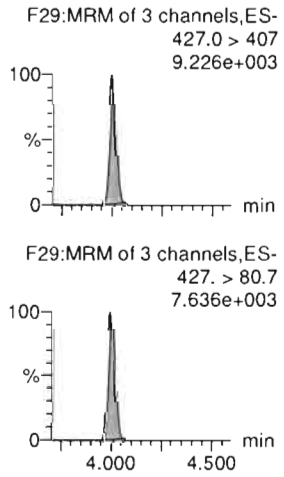
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

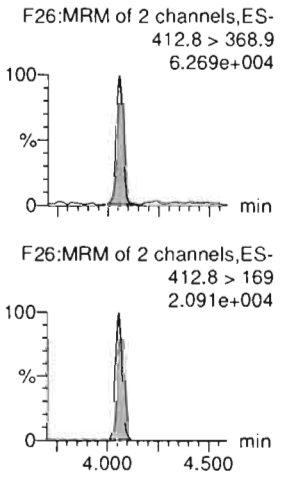
L-PFHxS



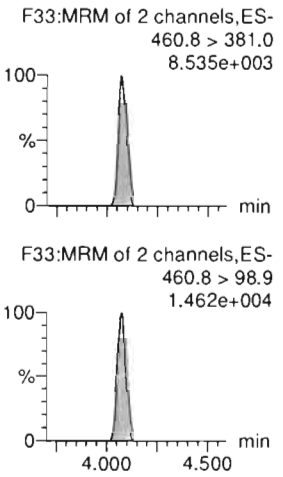
6:2 FTS



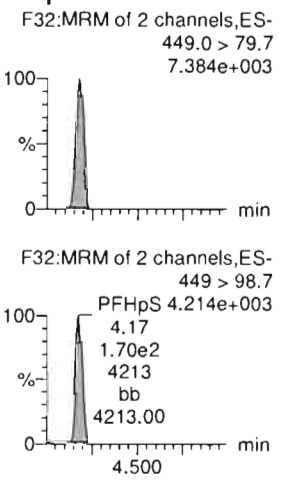
L-PFOA



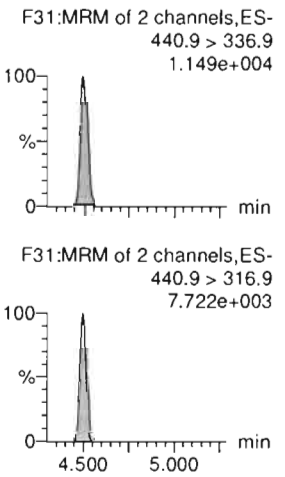
PFEChS



PFHpS



7:3 FTCA



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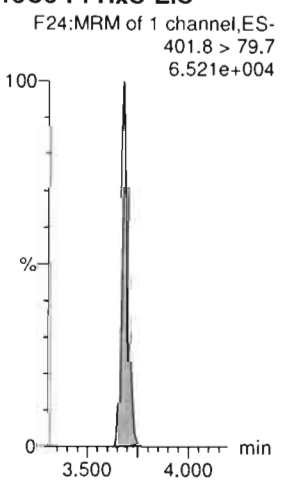

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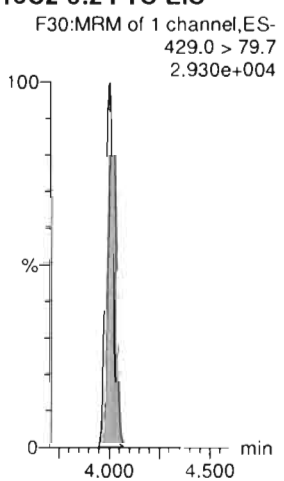

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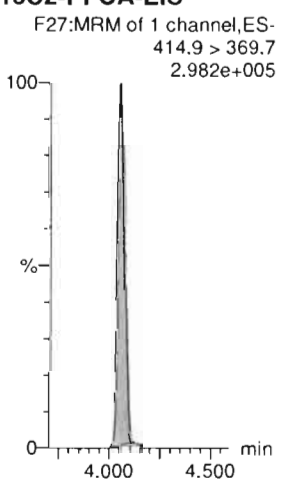

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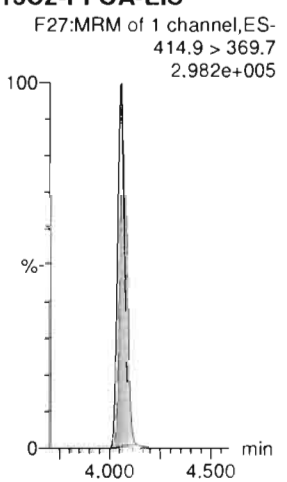

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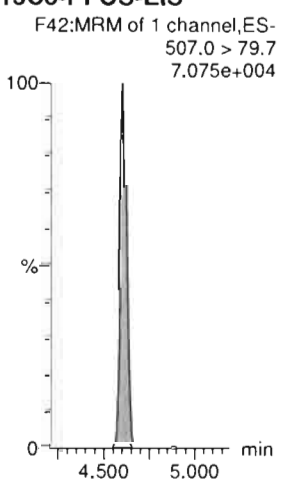
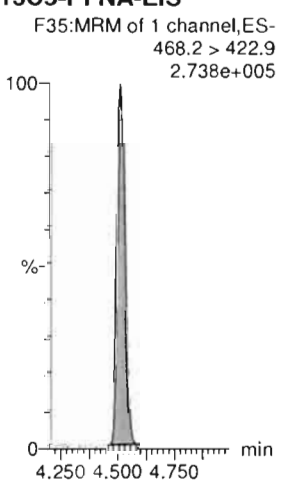


13C5-PFNA-EIS



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Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

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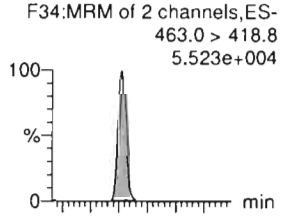

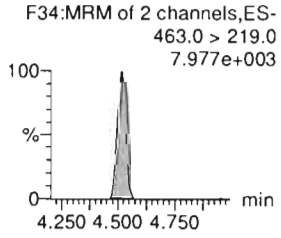

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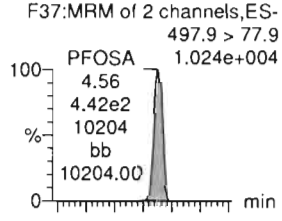

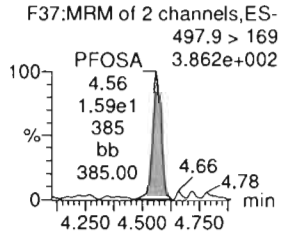

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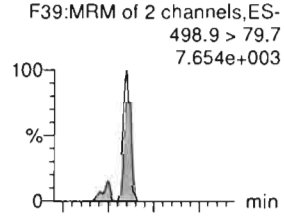
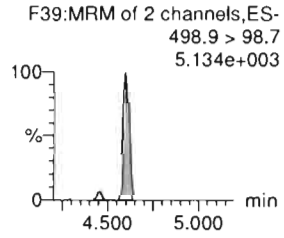
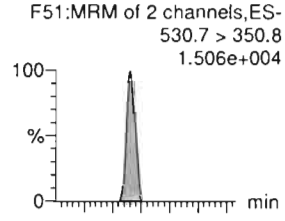
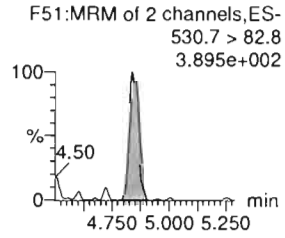




9Cl-PF30NS





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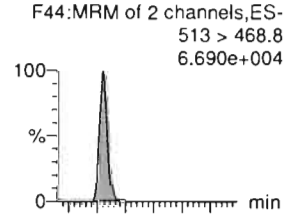
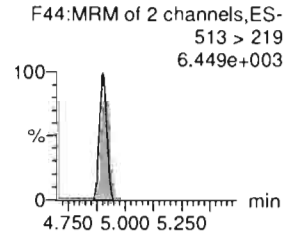
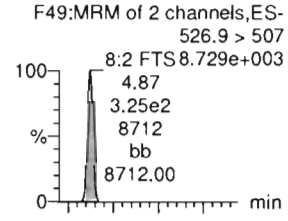
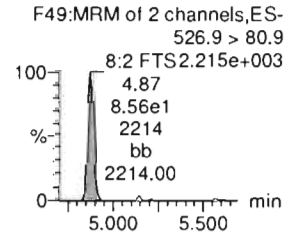




8:2 FTS





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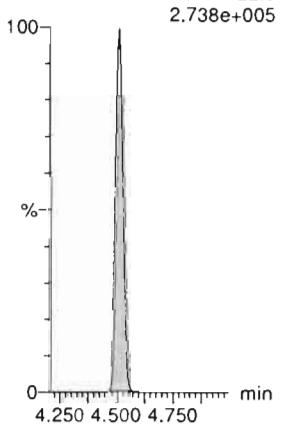

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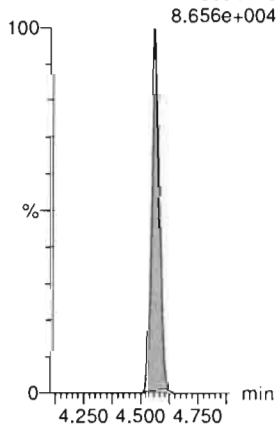

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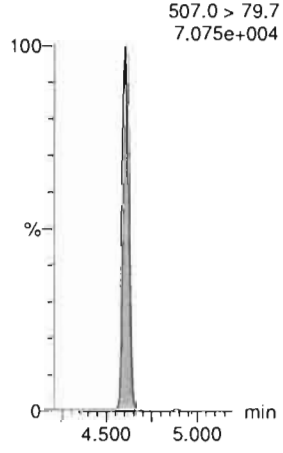

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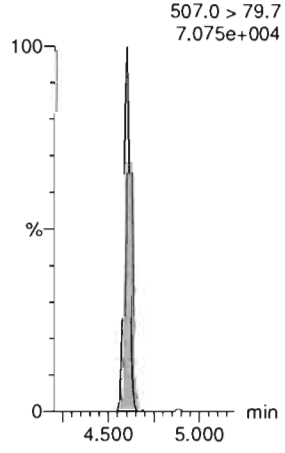

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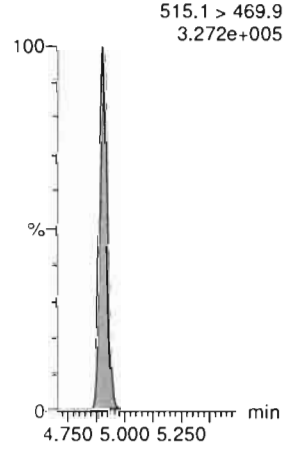

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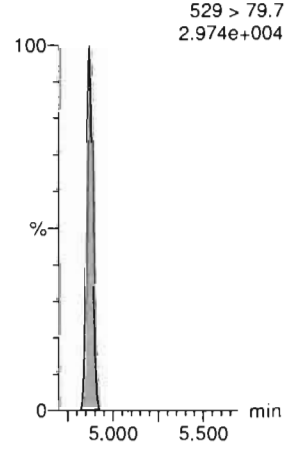

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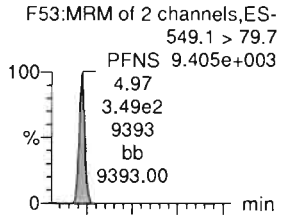

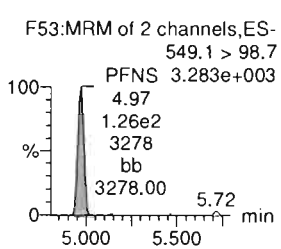

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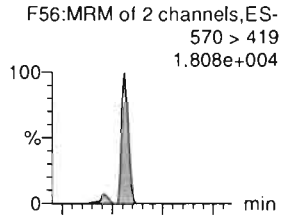

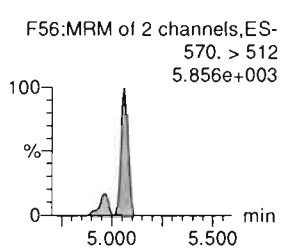

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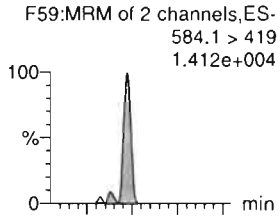

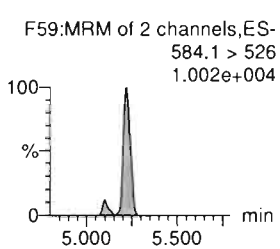

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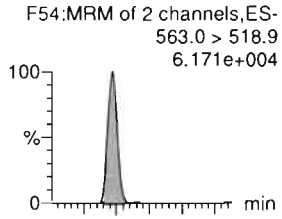

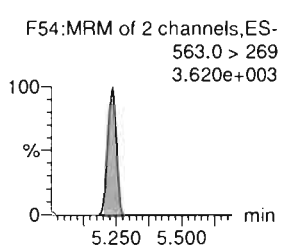

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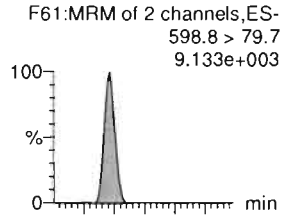

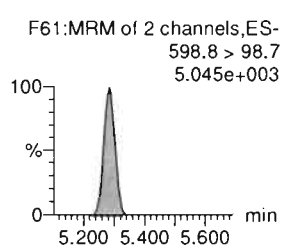

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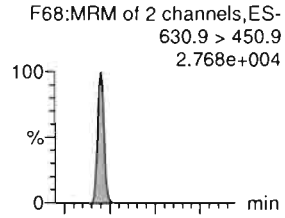

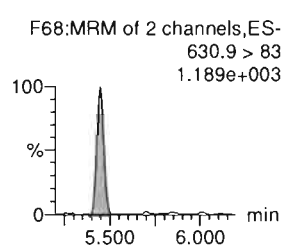

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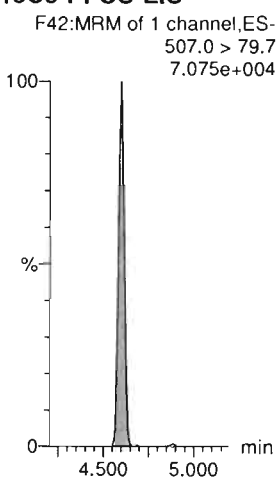

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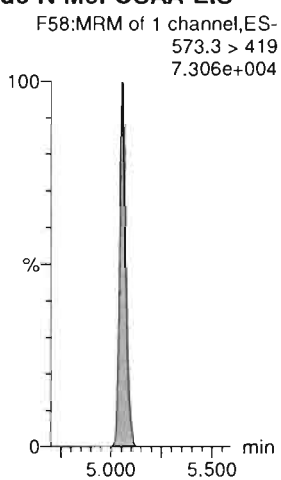

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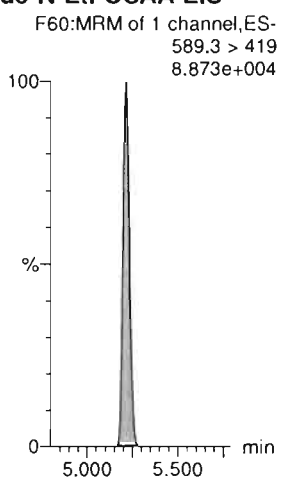

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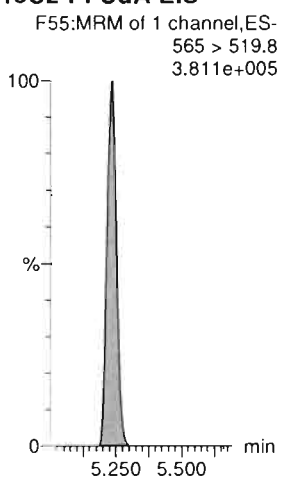

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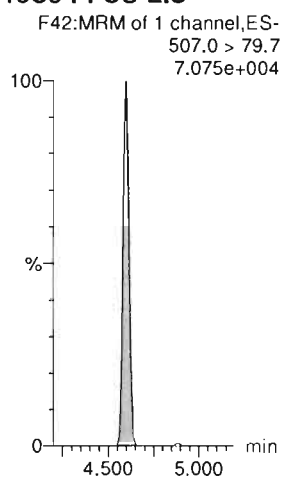

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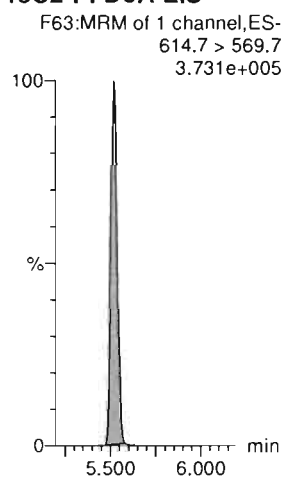

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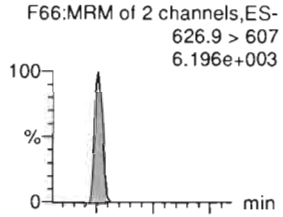
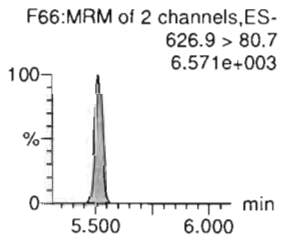
10:2 FTS





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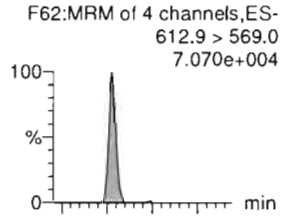

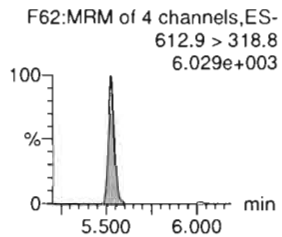

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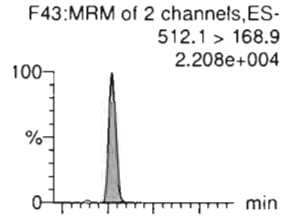

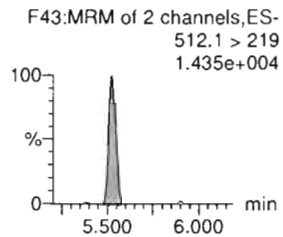

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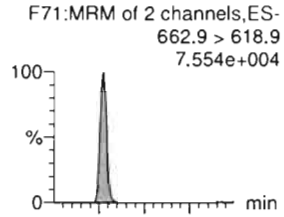

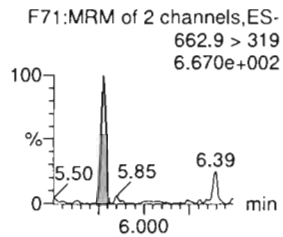

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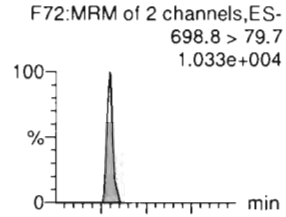
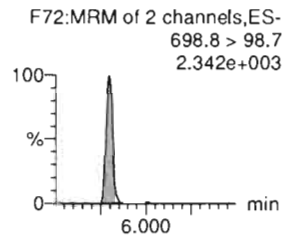
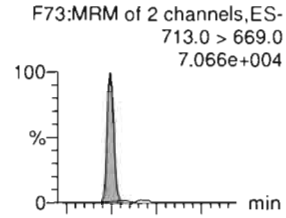
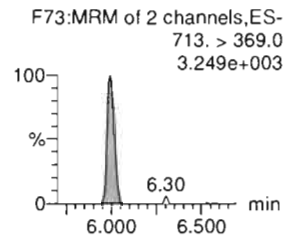


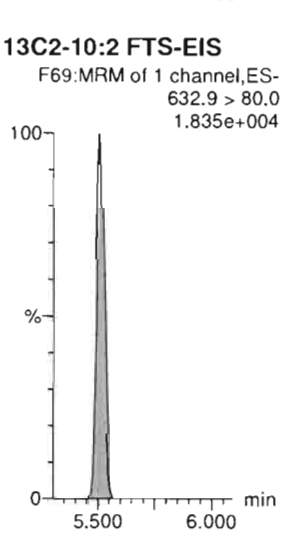


PFTeDA

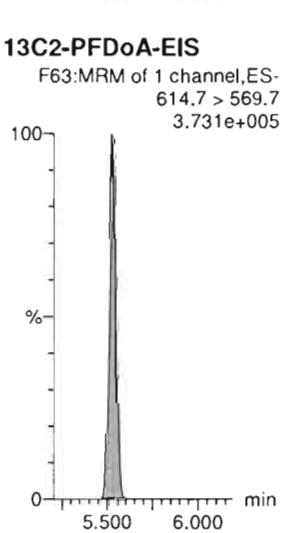




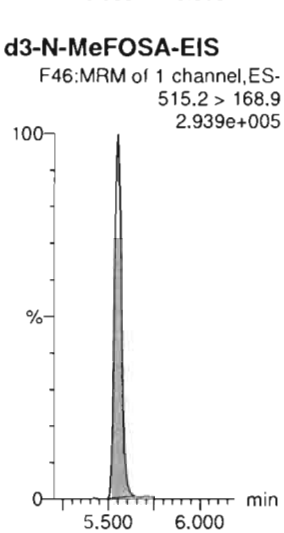
13C2-10:2 FTS-EIS



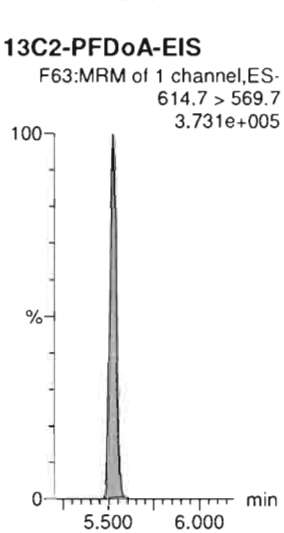
13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



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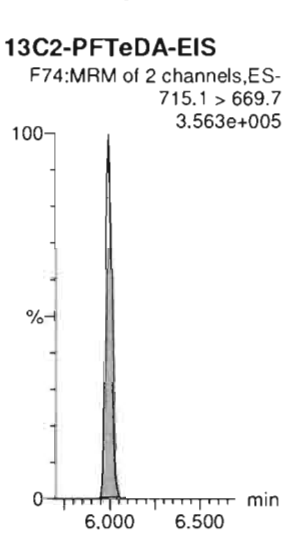

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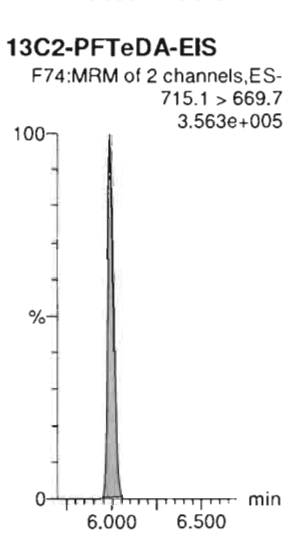

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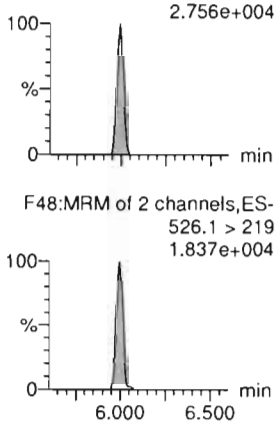
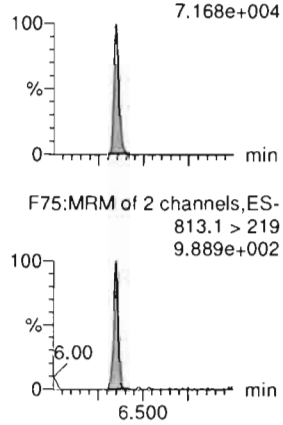
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

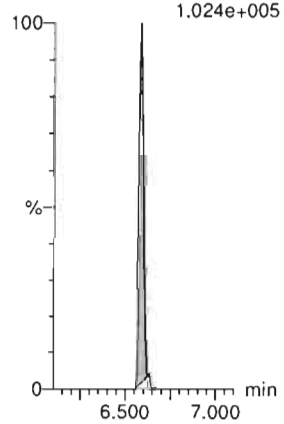
N-EtFOSA



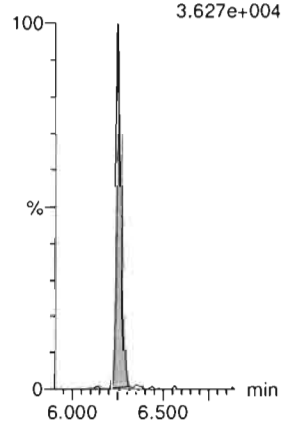
PFHxDA



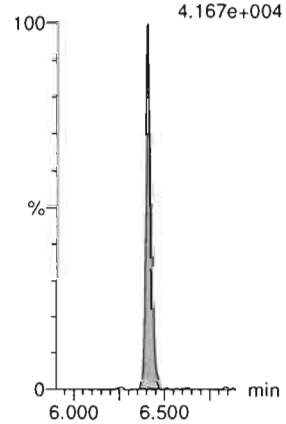
PFODA



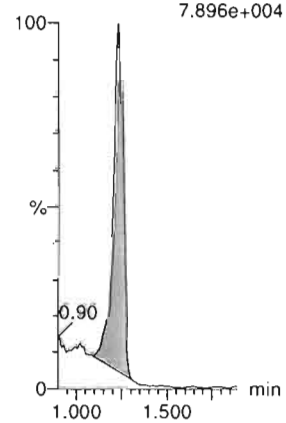
N-MeFOSE



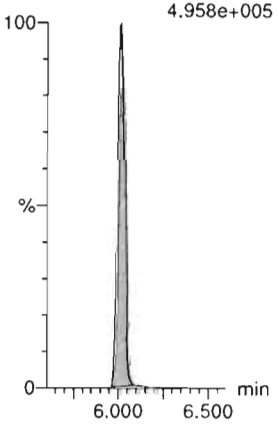
N-EtFOSE



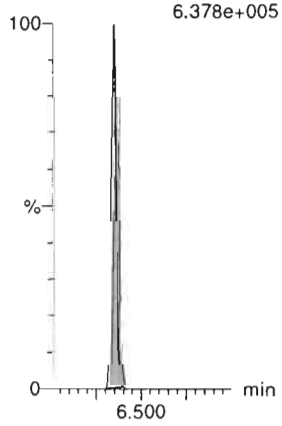
13C3-PFBA-RSD



d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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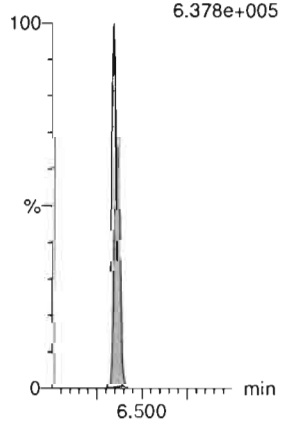
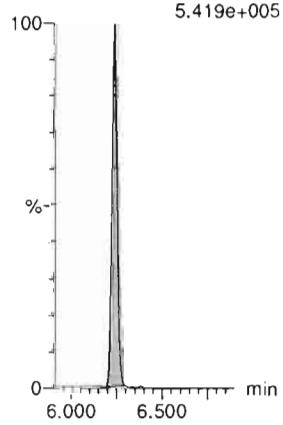
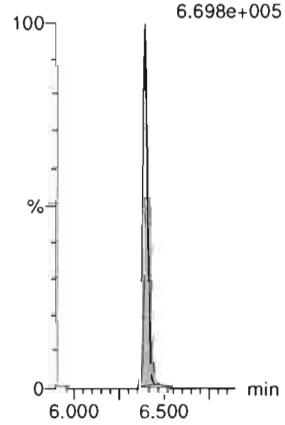


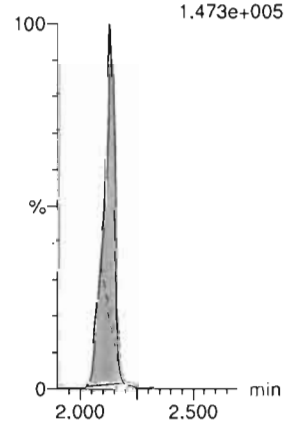
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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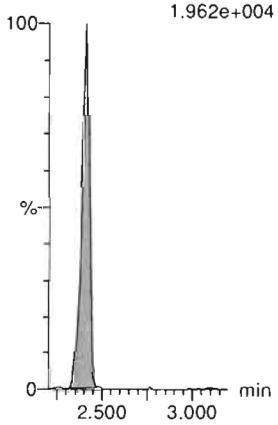
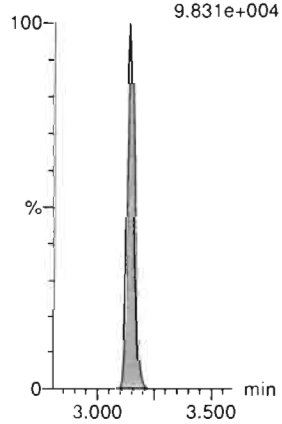
Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

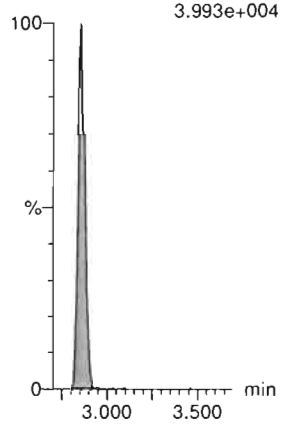
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.962e+004



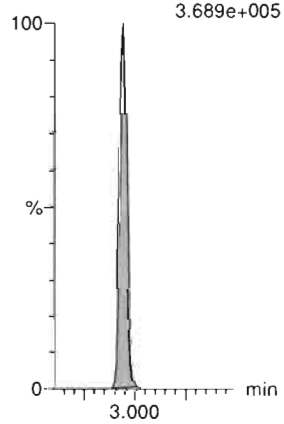
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.831e+004



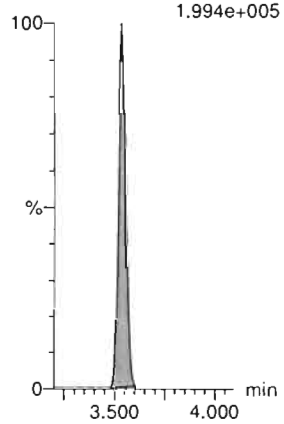
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.993e+004



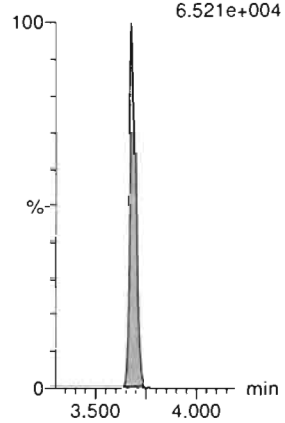
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.689e+005



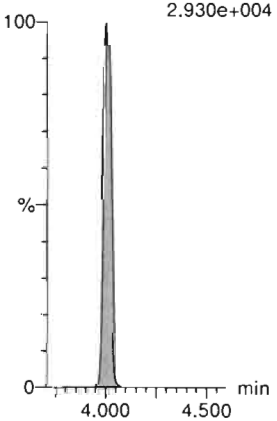
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
1.994e+005



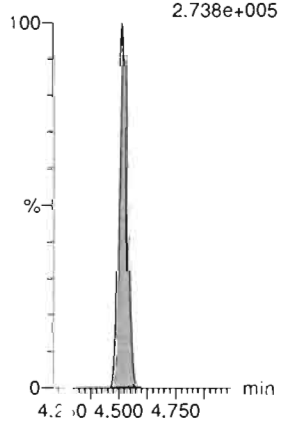
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.521e+004



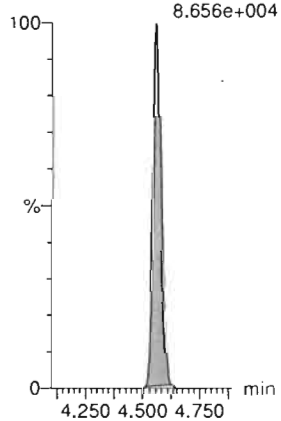
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
2.930e+004



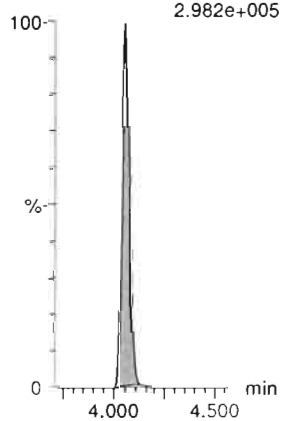
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.738e+005



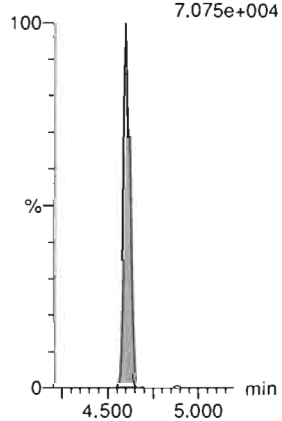
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.656e+004



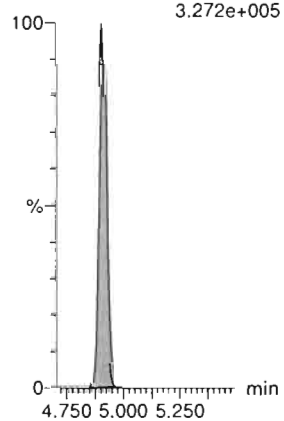
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
2.982e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.075e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.272e+005



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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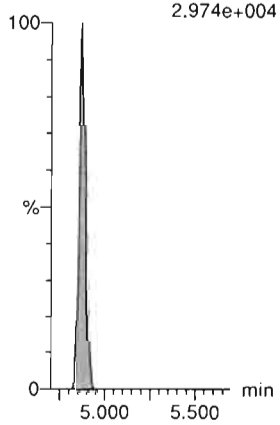
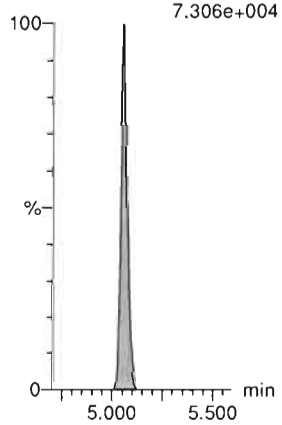
Name: 200304P2-6, Date: 04-Mar-2020, Time: 20:03:23, ID: ST200304P2-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

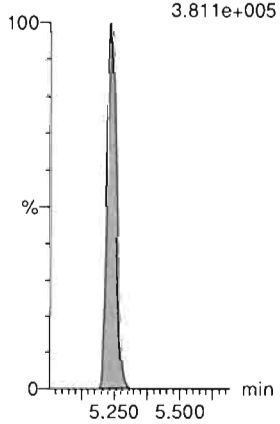
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.974e+004



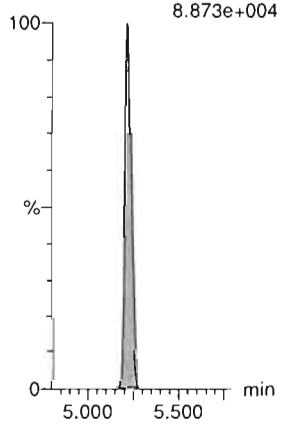
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.306e+004



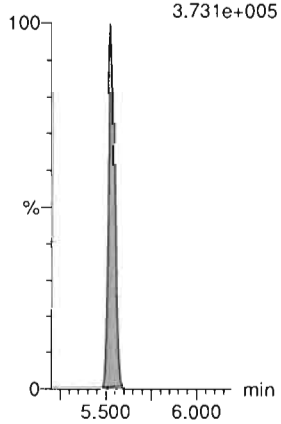
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.811e+005



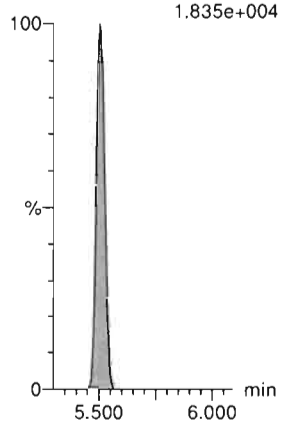
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.873e+004



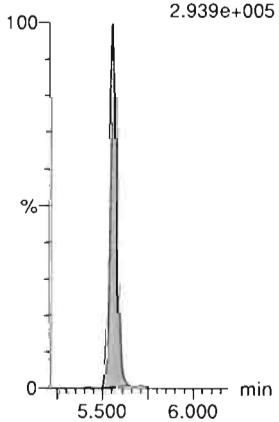
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.731e+005



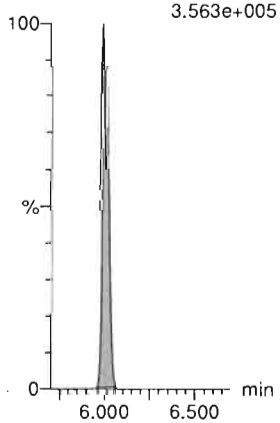
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.835e+004



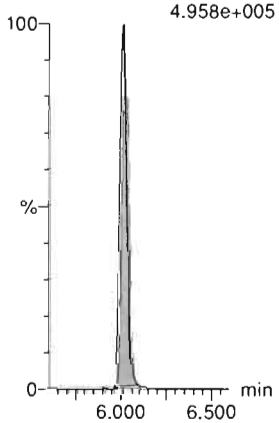
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.939e+005



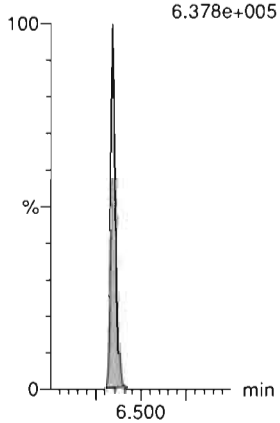
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.563e+005



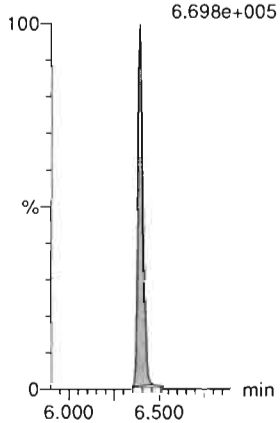
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.958e+005



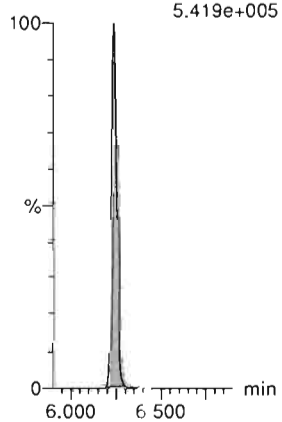
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.378e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.698e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.419e+005



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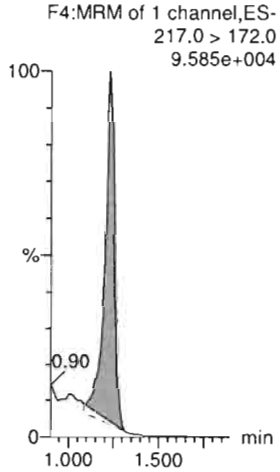
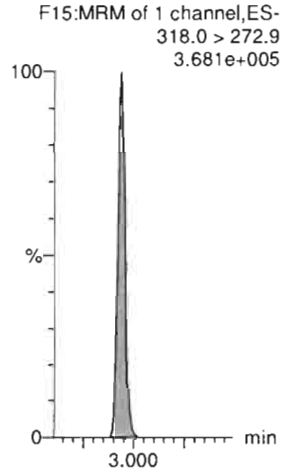
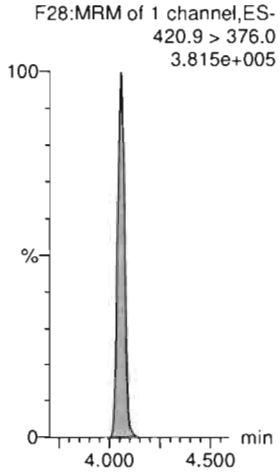
13C4-PFBA



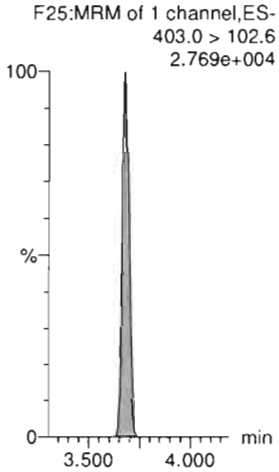
13C5-PFHxA



13C8-PFOA



18O2-PFHxS



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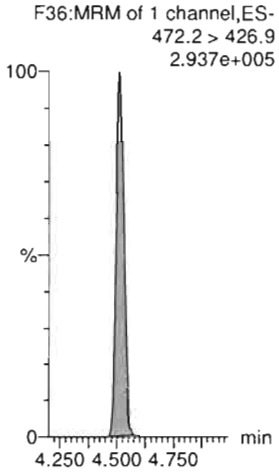

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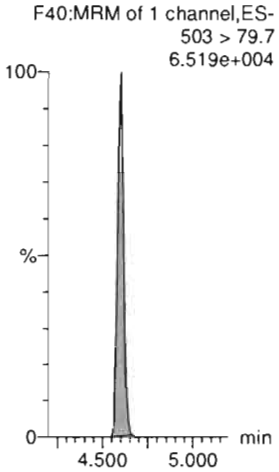

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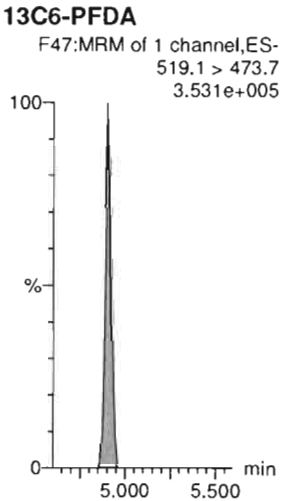

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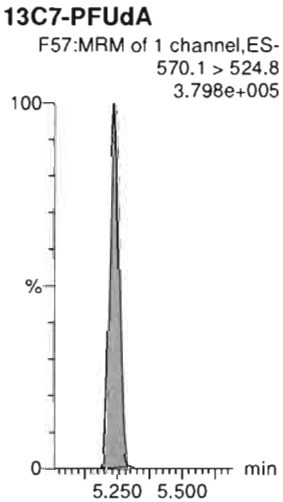

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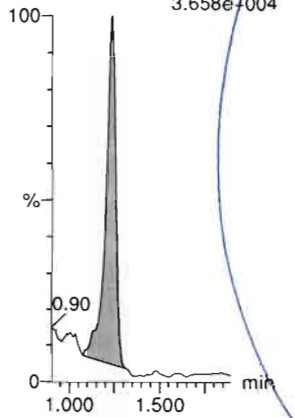
Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

PFBA



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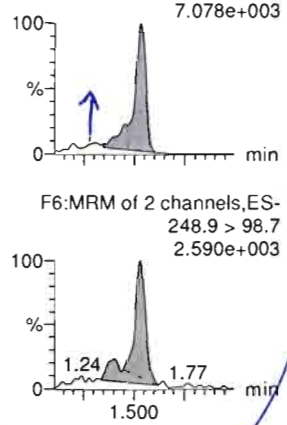
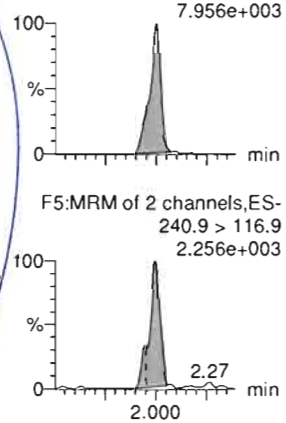


3:3 FTCA



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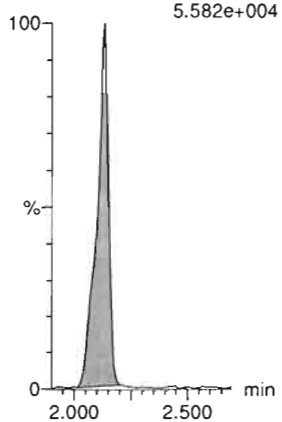

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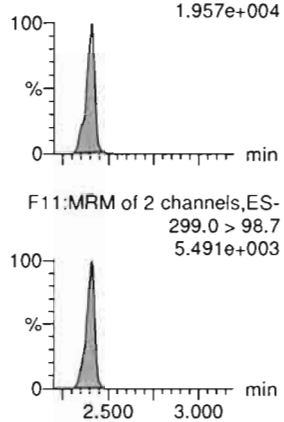
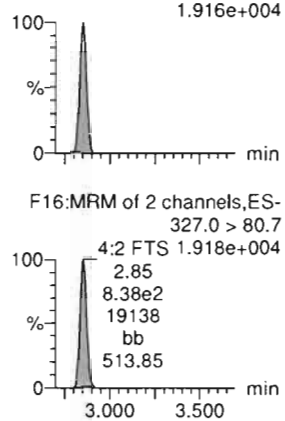


4:2 FTS



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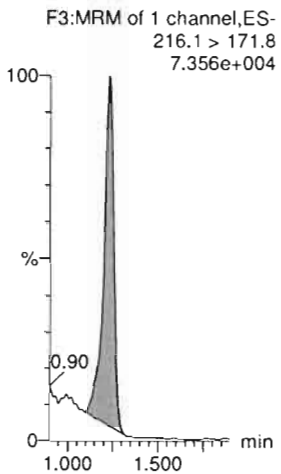

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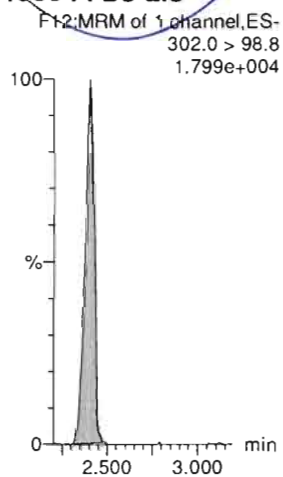

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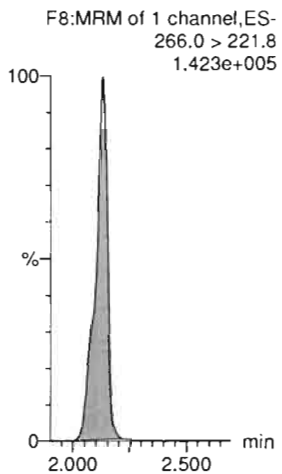

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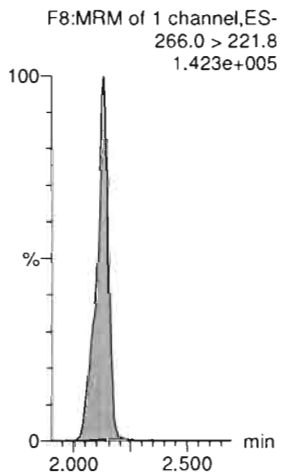

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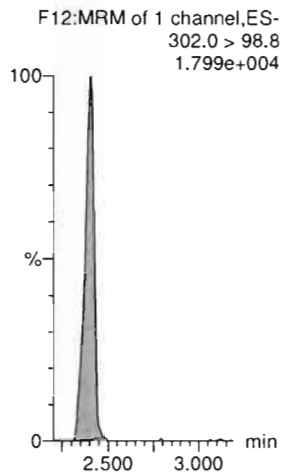

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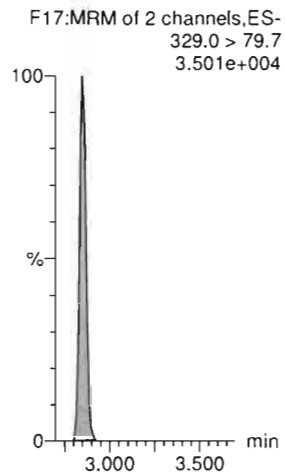

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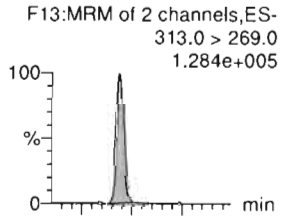
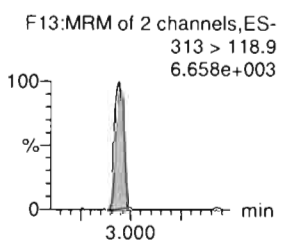
PFHxA





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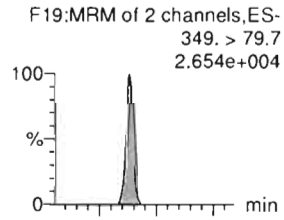
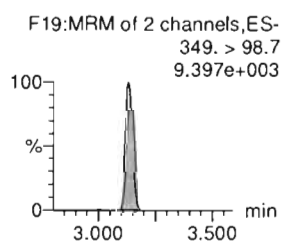
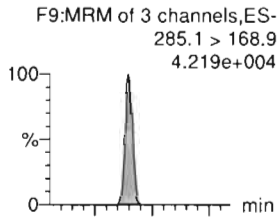
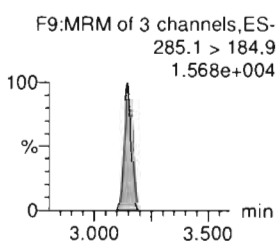


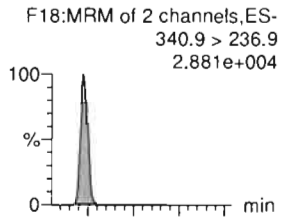


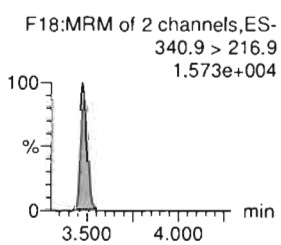
HFPO-DA





5:3 FTCA





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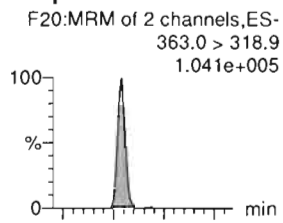

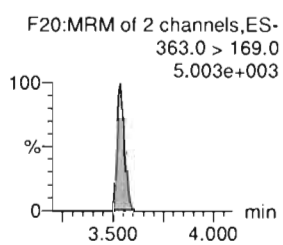

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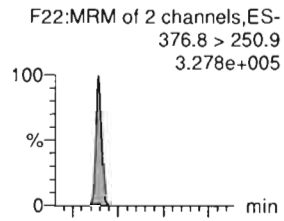

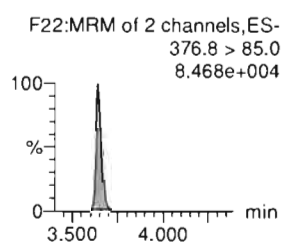

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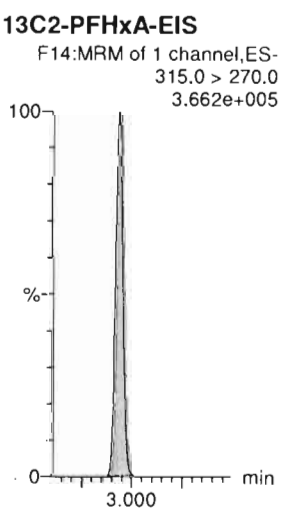
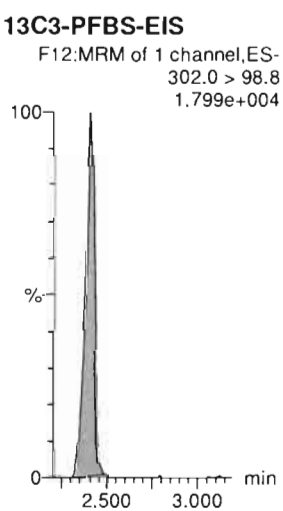
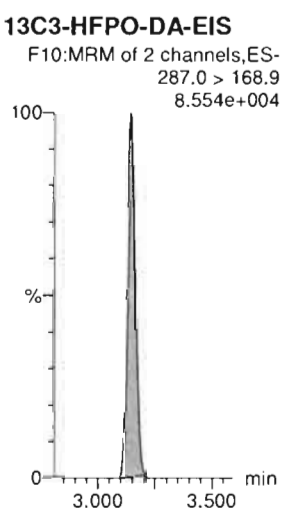


13C3-PFBS-EIS



13C3-HFPO-DA-EIS



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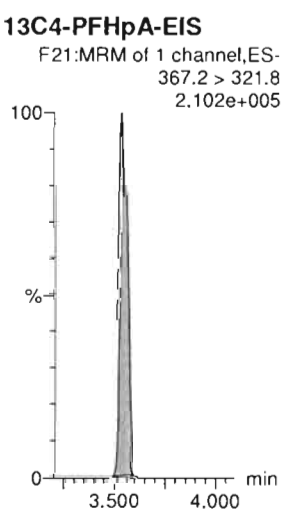

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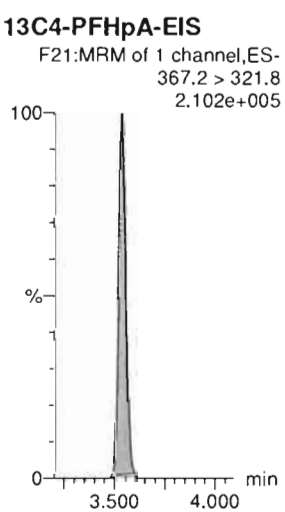

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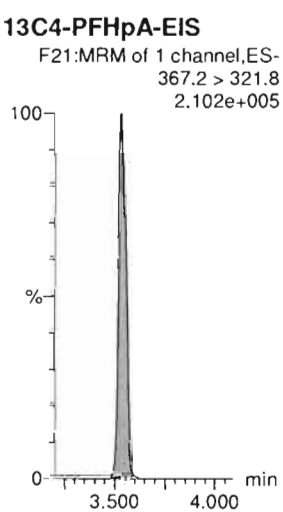

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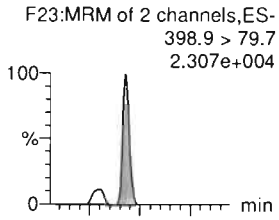
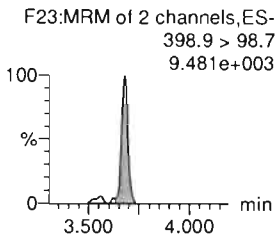
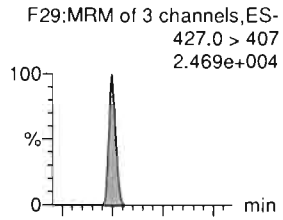
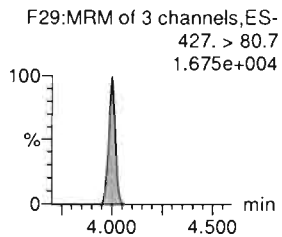
L-PFHxS



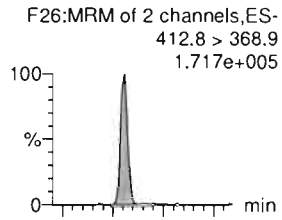


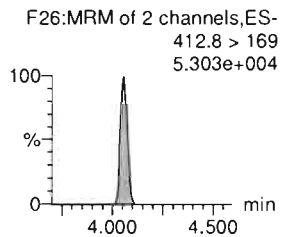
6:2 FTS





L-PFOA





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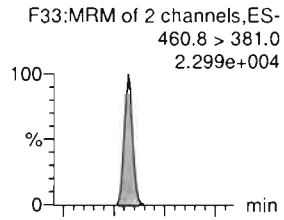

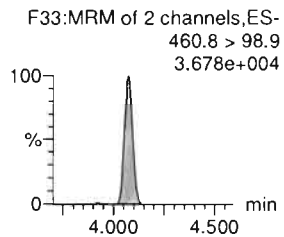

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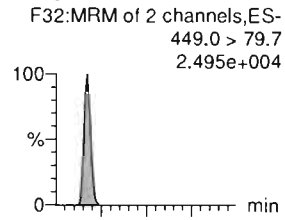

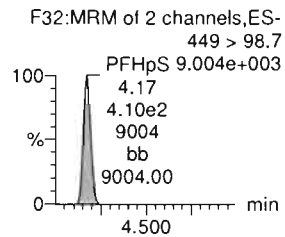

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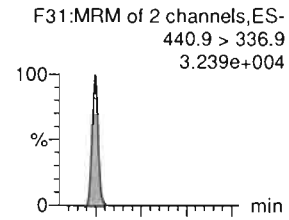
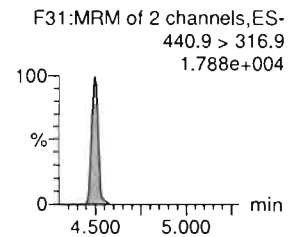
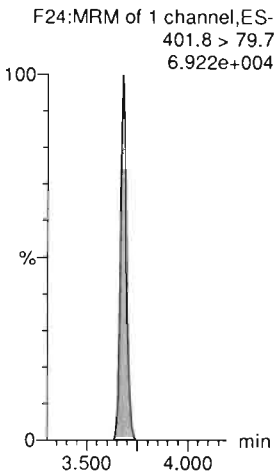
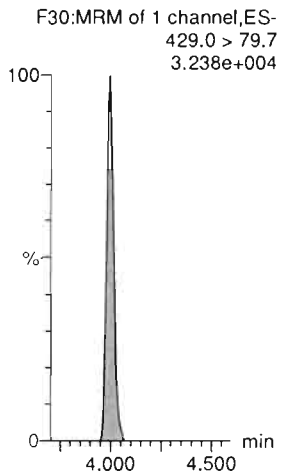




13C3-PFHxS-EIS



13C2-6:2 FTS-EIS



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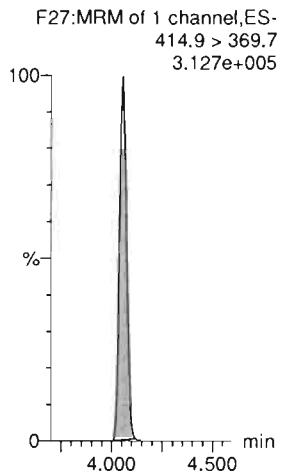

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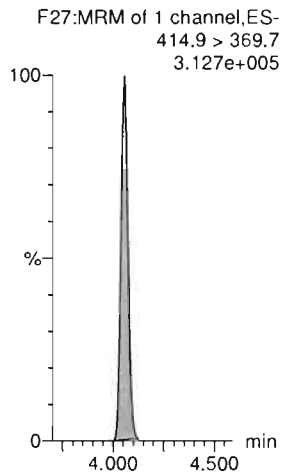
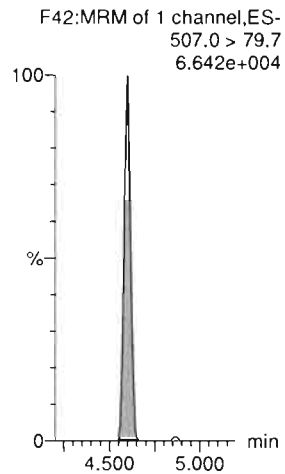
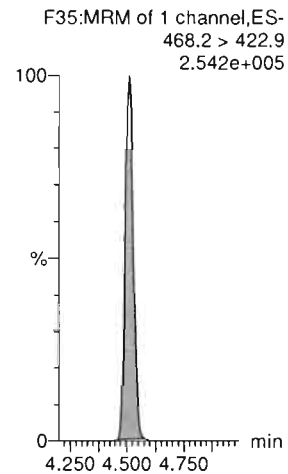


13C8-PFOS-EIS



13C5-PFNA-EIS



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Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

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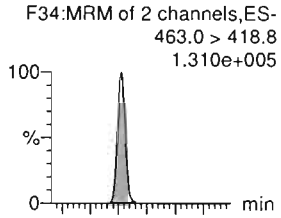

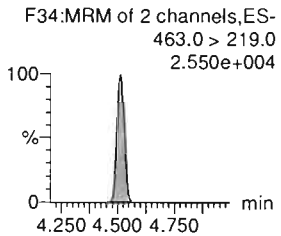

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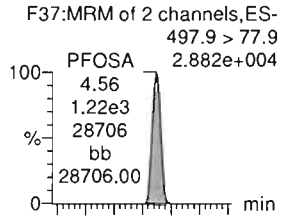

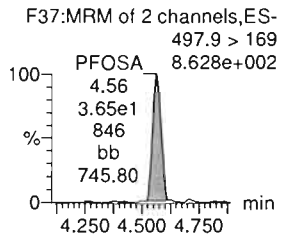

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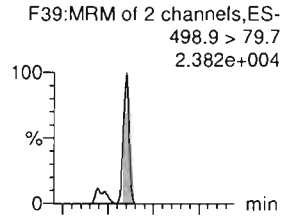

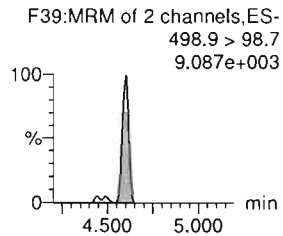

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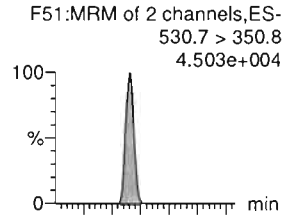

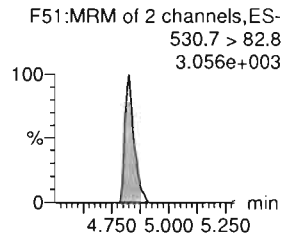

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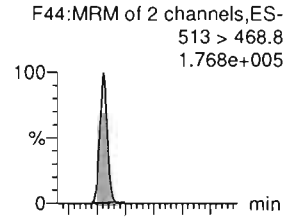

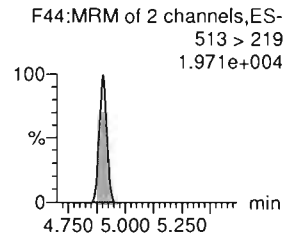

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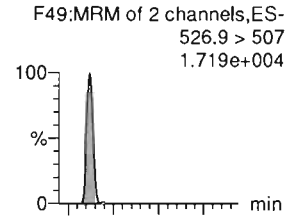

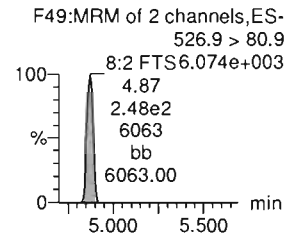

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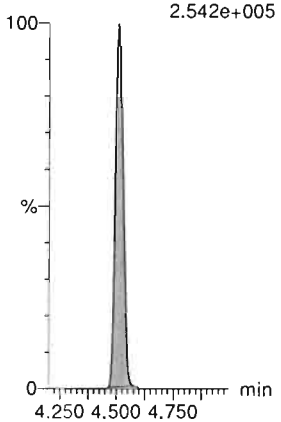
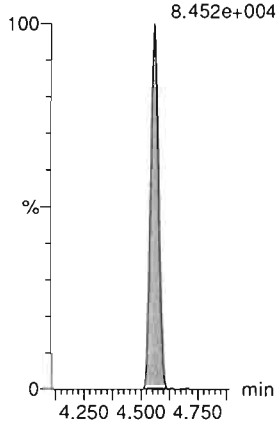


13C8-PFOSA-EIS



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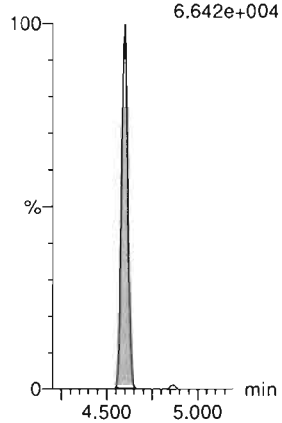

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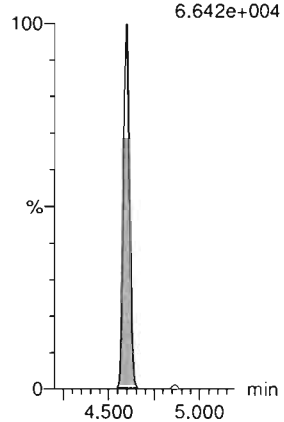

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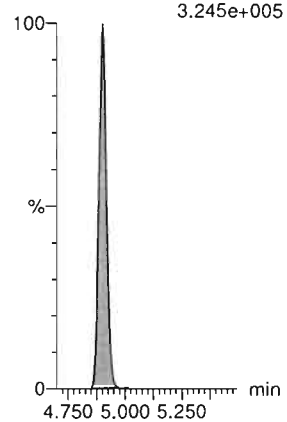

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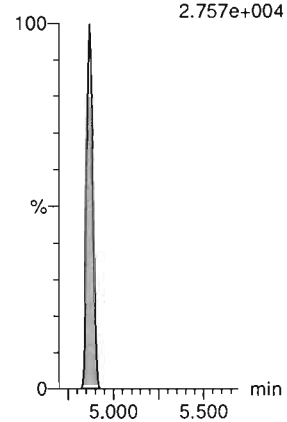

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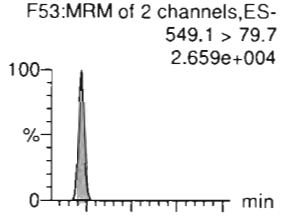

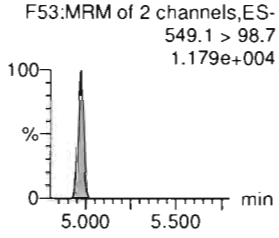

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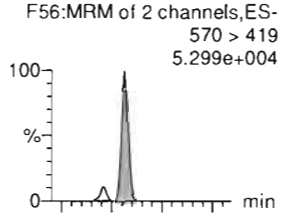

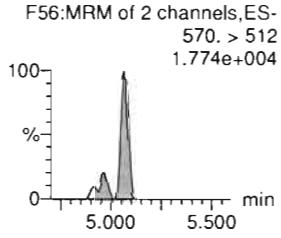

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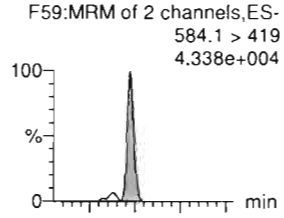

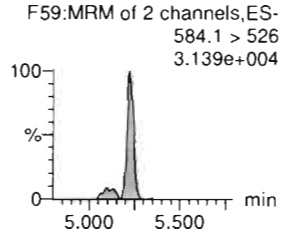

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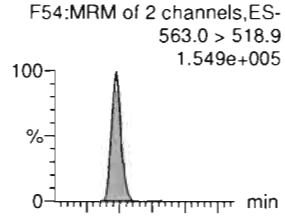

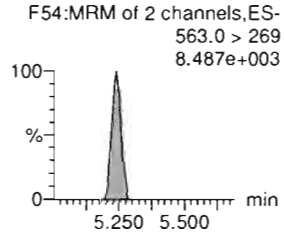

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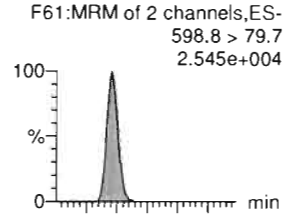

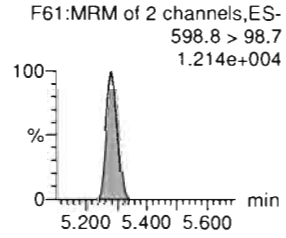

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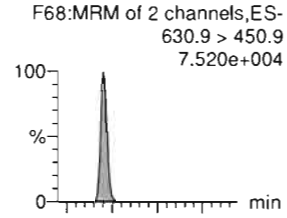

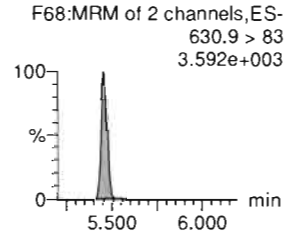

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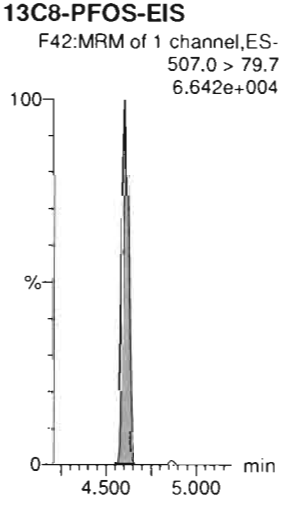

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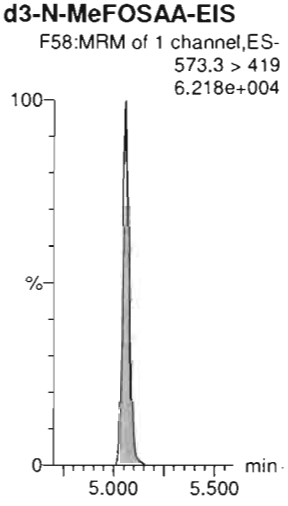

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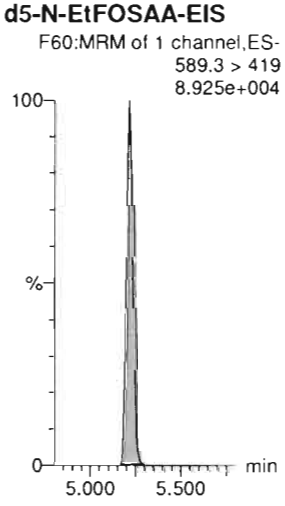
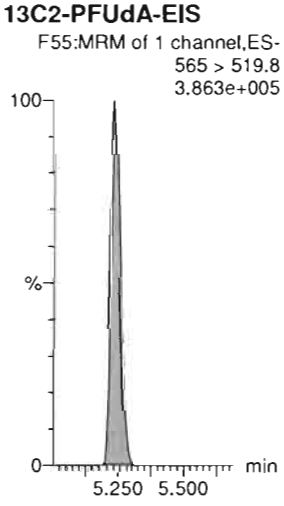


13C2-PFUdA-EIS



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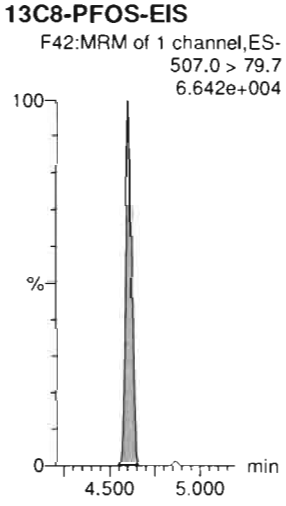

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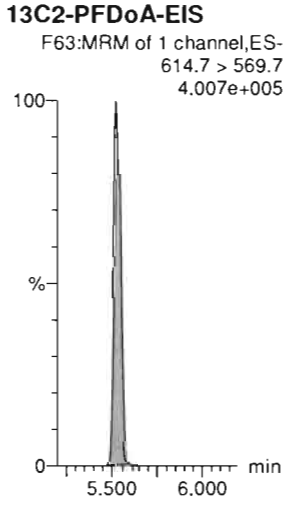

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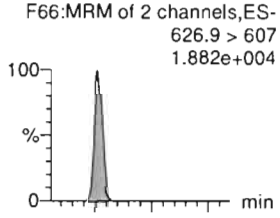
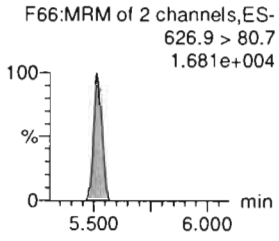
10:2 FTS





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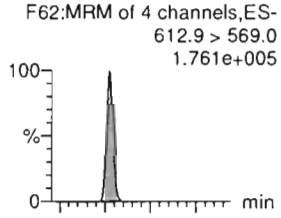

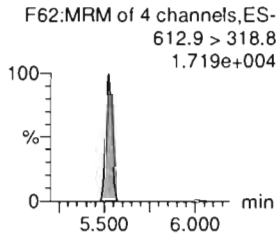

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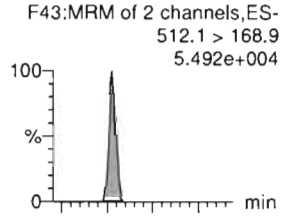

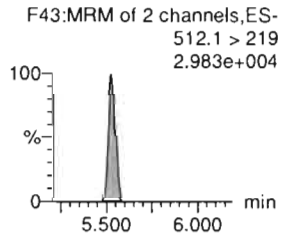

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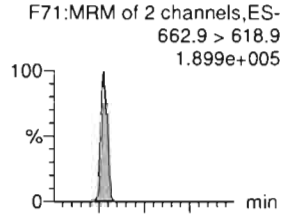

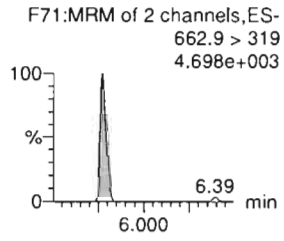

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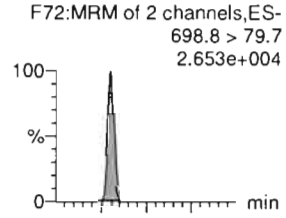

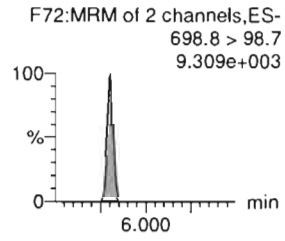

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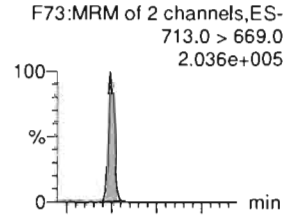

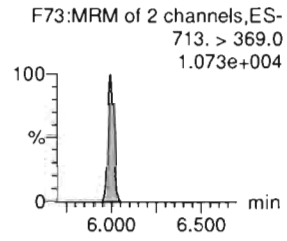

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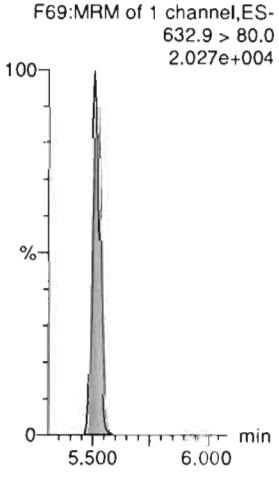

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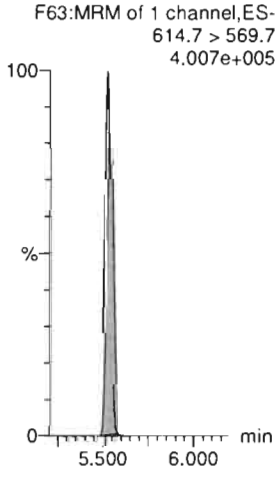
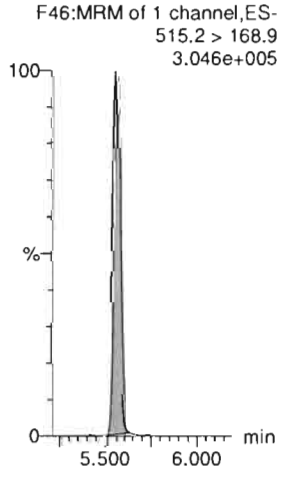


d3-N-MeFOSA-EIS



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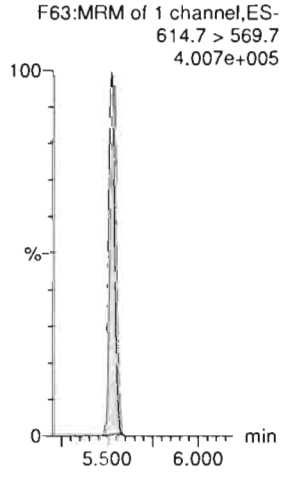
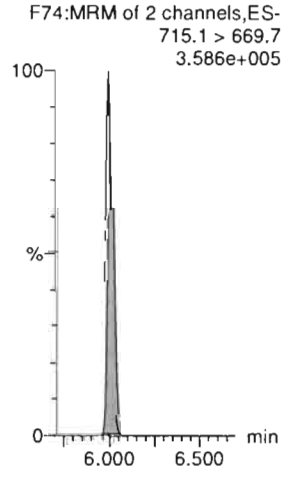


13C2-PFTeDA-EIS



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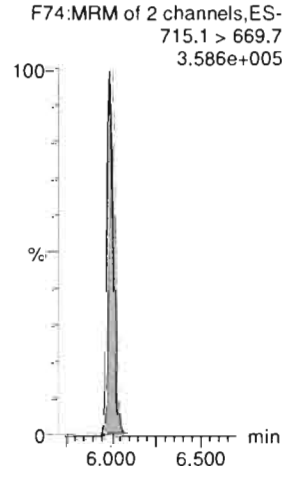

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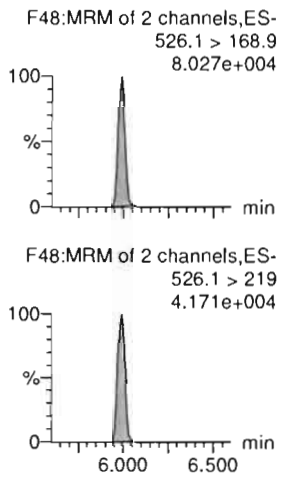
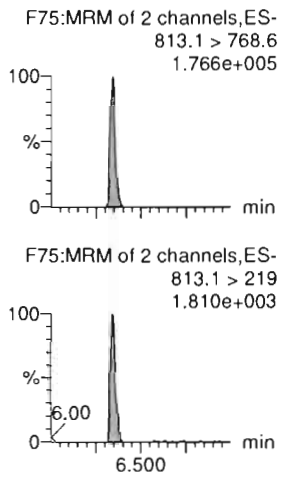
Printed: Thursday, March 05, 2020 09:35:09 Pacific Standard Time

Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

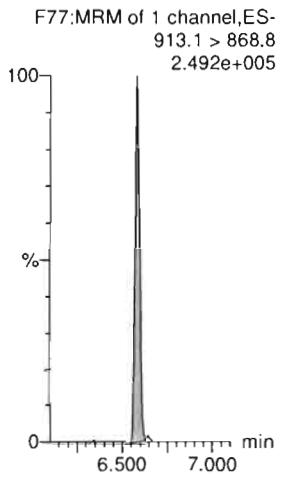
N-EtFOSA



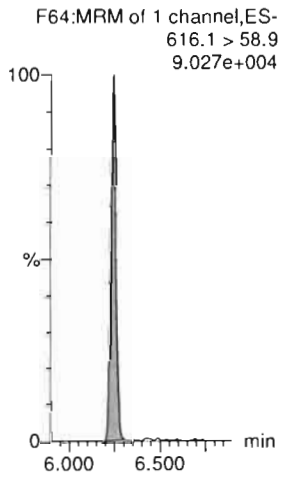
PFHxDA



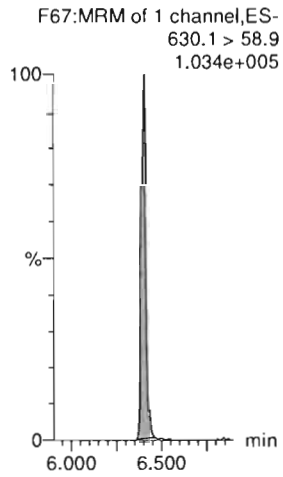
PFODA



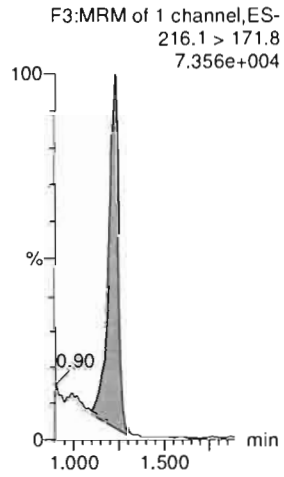
N-MeFOSE



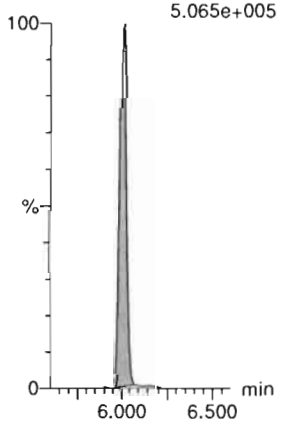
N-EtFOSE



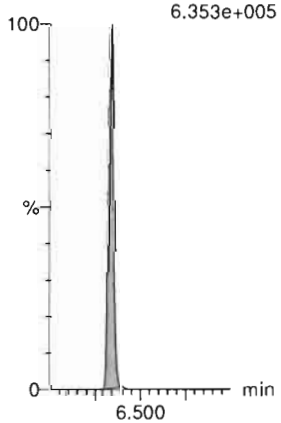
13C3-PFBA-RSD



d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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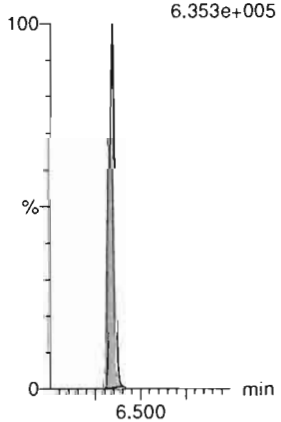
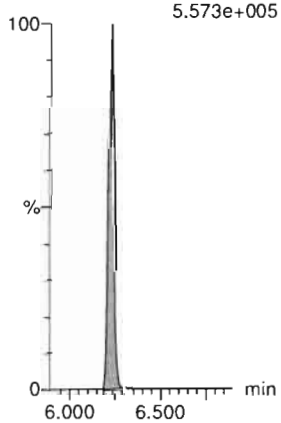
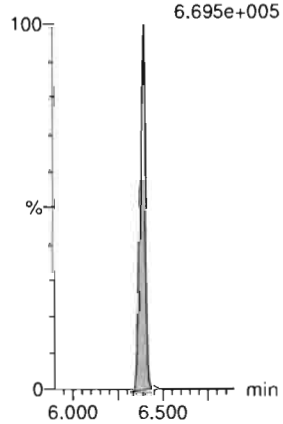


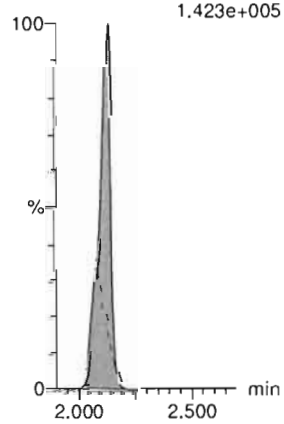
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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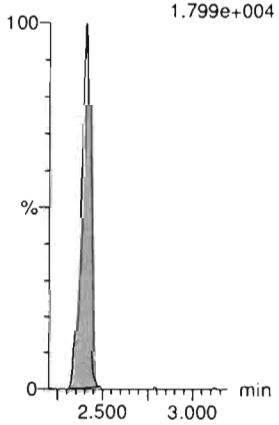
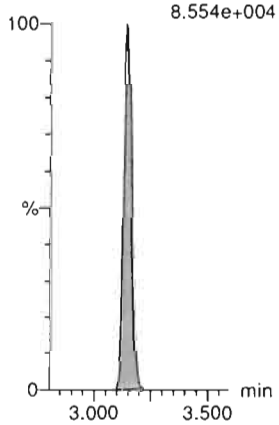
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

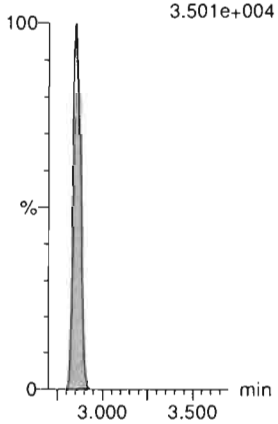
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.799e+004



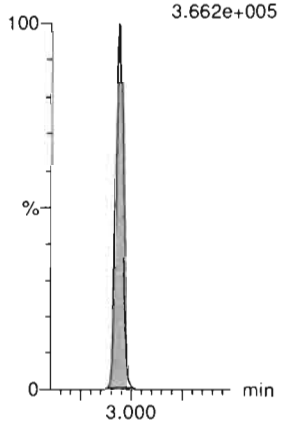
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
8.554e+004



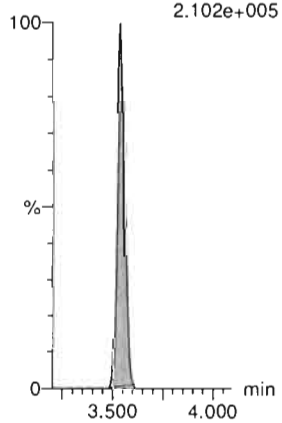
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.501e+004



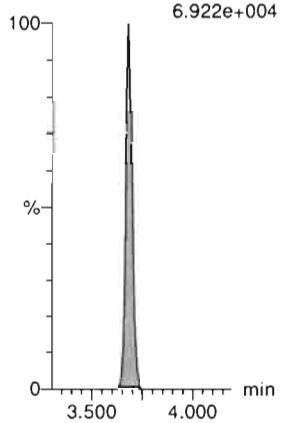
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.662e+005



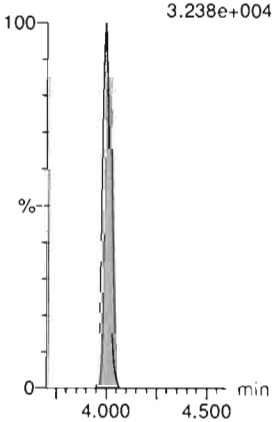
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.102e+005



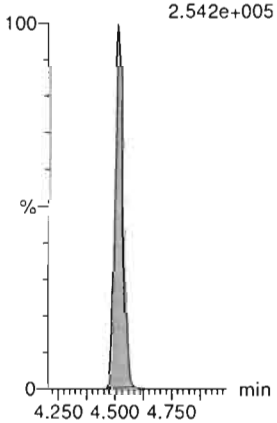
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.922e+004



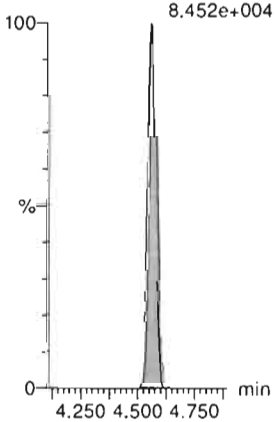
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.238e+004



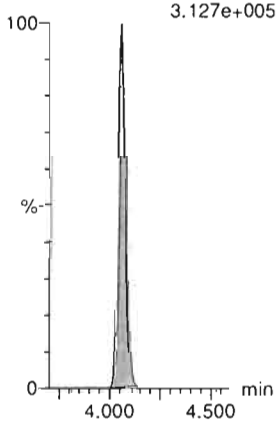
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.542e+005



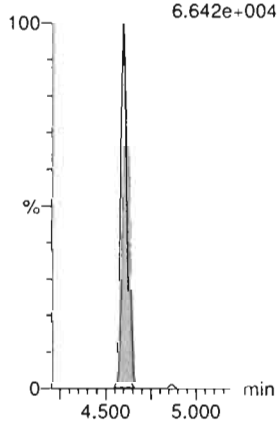
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.452e+004



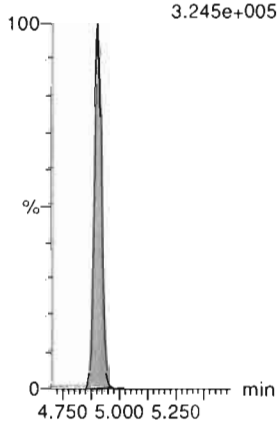
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.127e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.642e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.245e+005



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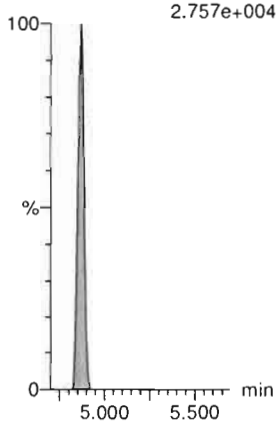
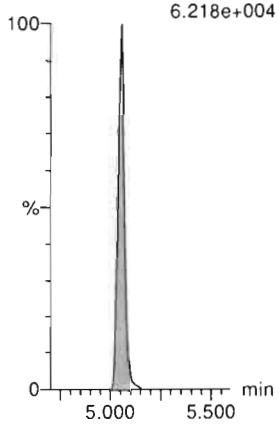
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

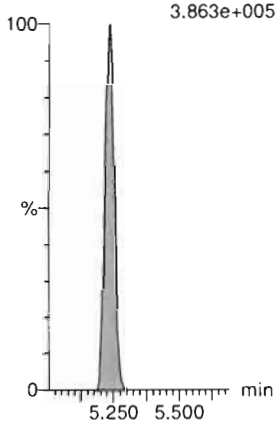
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.757e+004



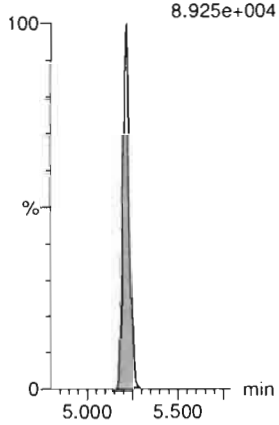
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.218e+004



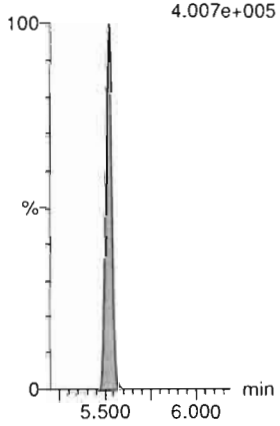
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.863e+005



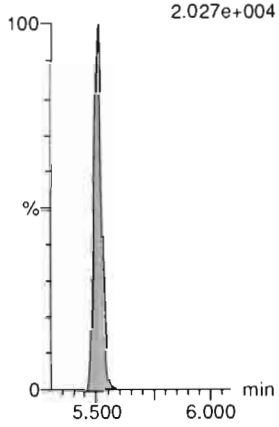
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.925e+004



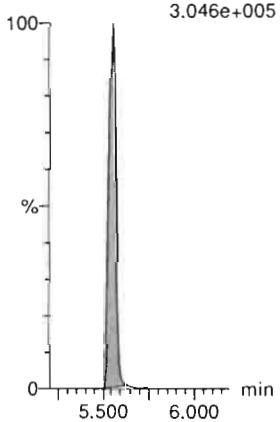
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.007e+005



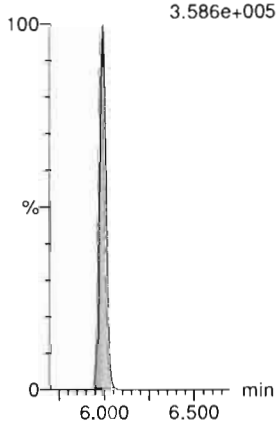
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.027e+004



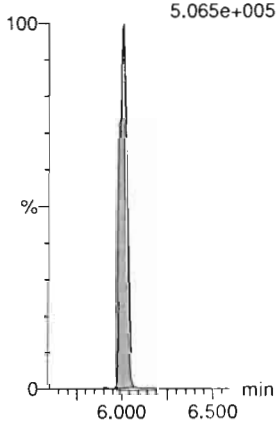
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.046e+005



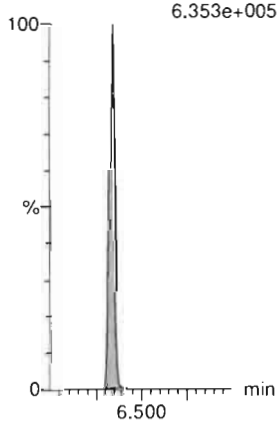
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.586e+005



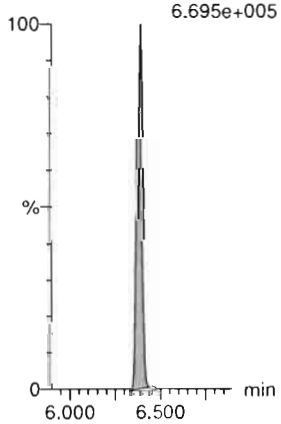
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.065e+005



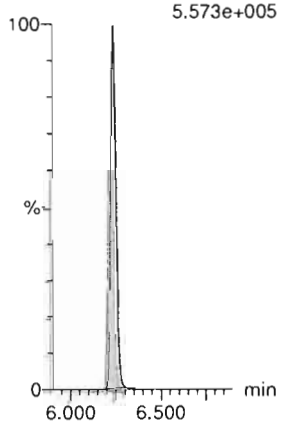
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.353e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.695e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.573e+005



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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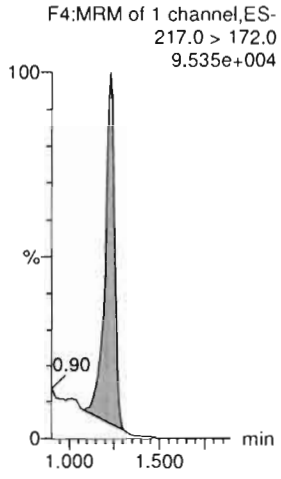
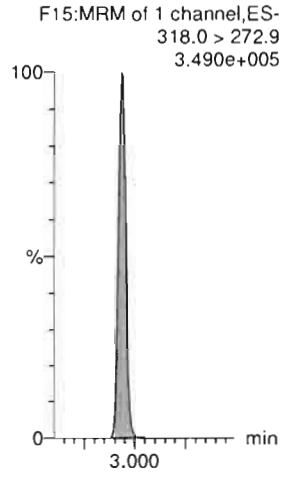
Name: 200304P2-7, Date: 04-Mar-2020, Time: 20:13:54, ID: ST200304P2-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

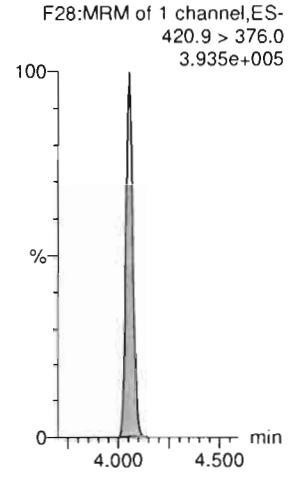
13C4-PFBA



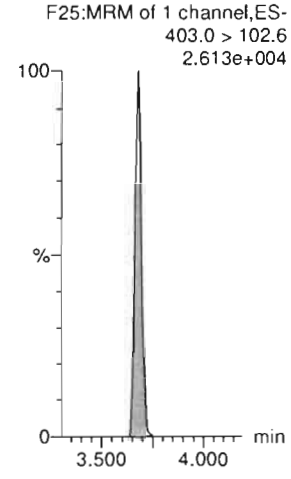
13C5-PFHxA



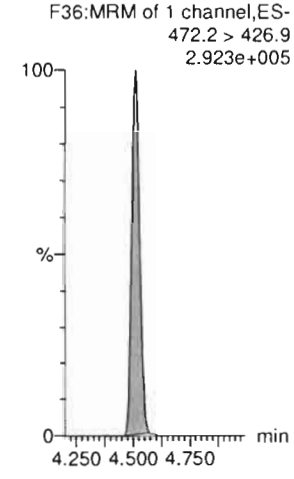
13C8-PFOA



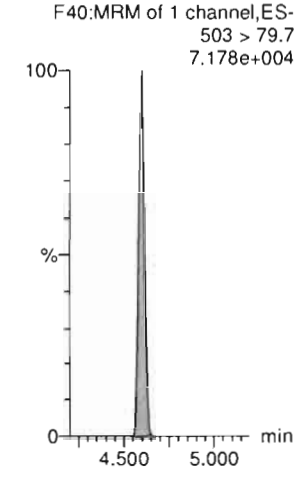
18O2-PFHxS



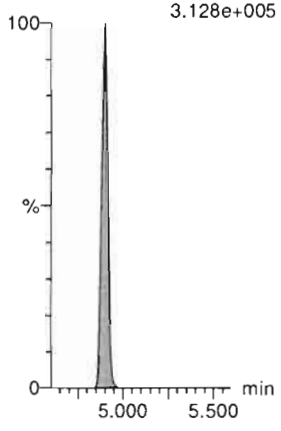
13C9-PFNA



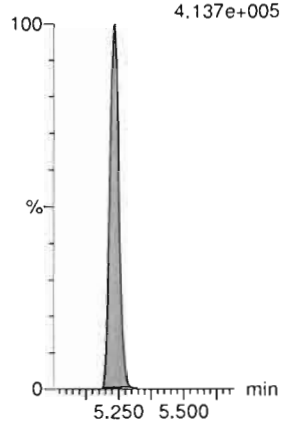
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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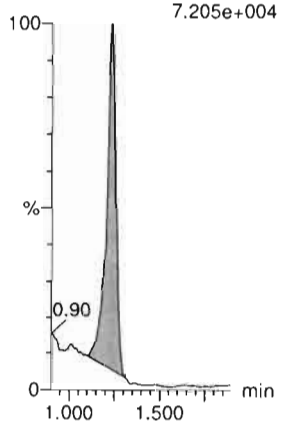
Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

PFBA



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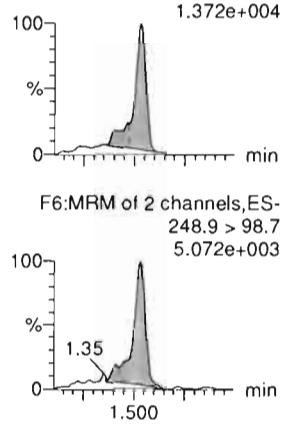
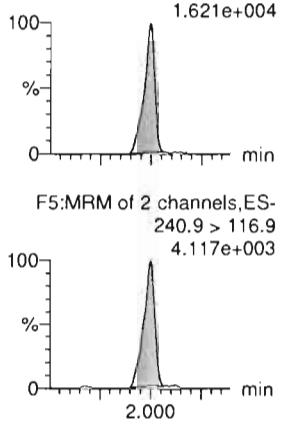


3:3 FTCA



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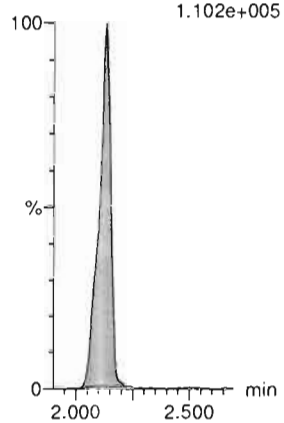

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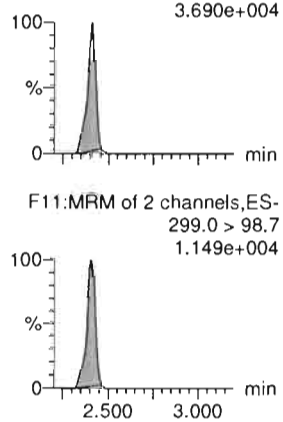

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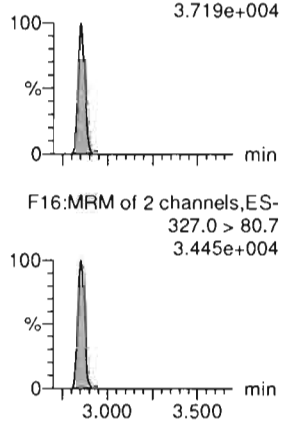

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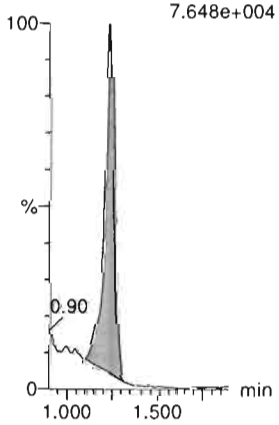

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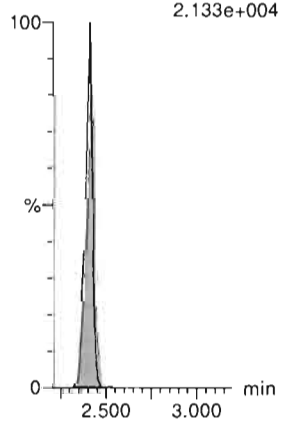

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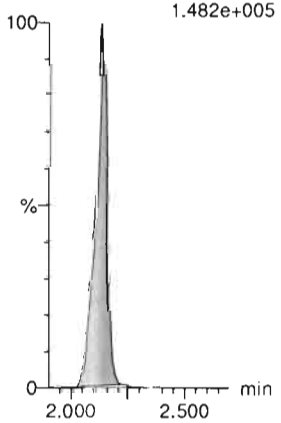

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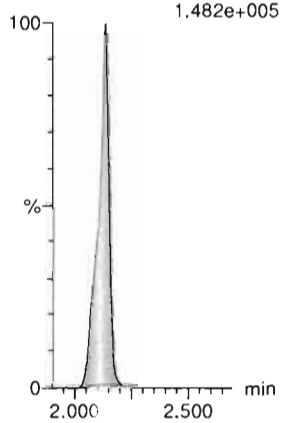

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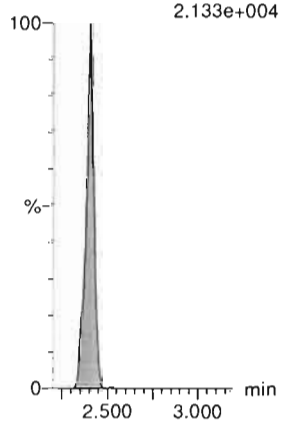
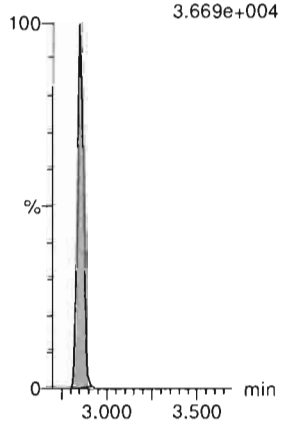


13C2-4:2 FTS-EIS



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Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

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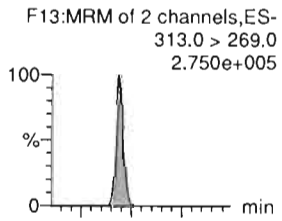

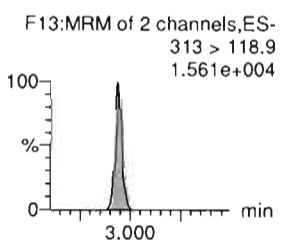

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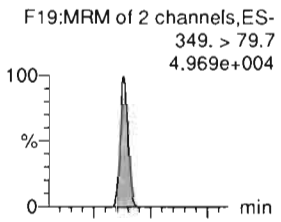

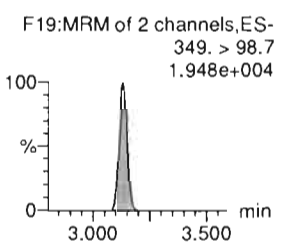

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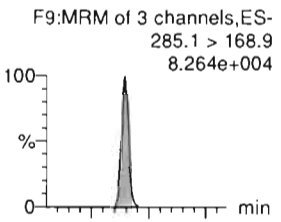

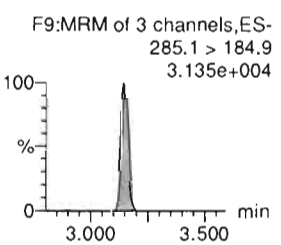

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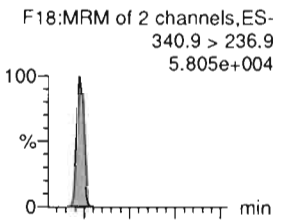

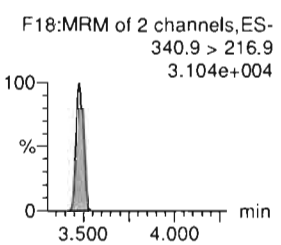

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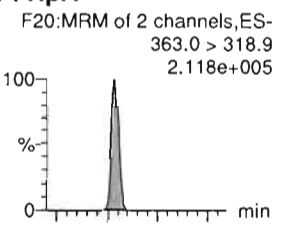

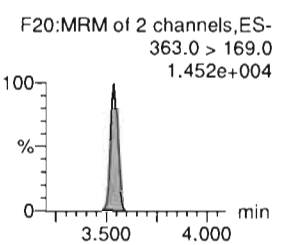

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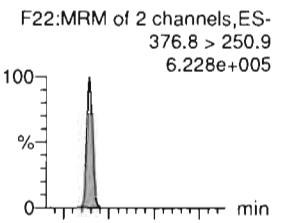

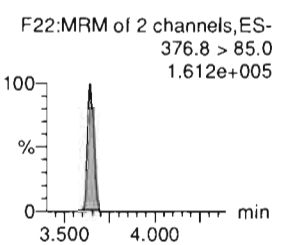

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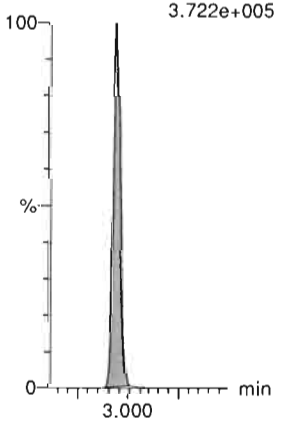

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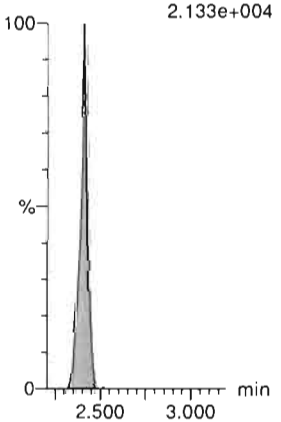

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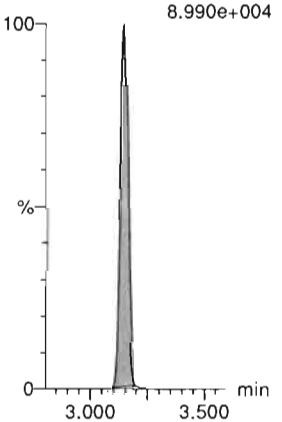

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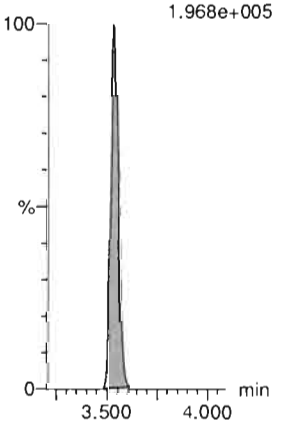

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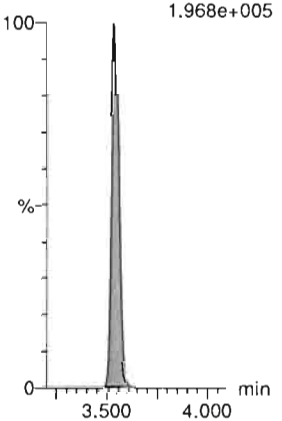

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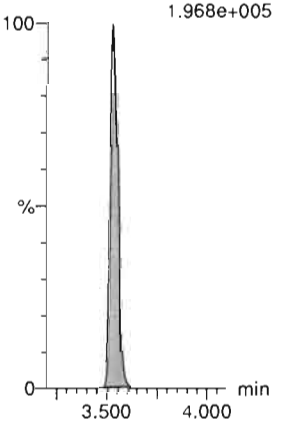

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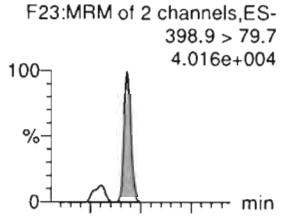
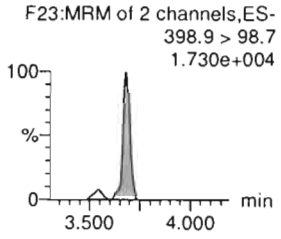
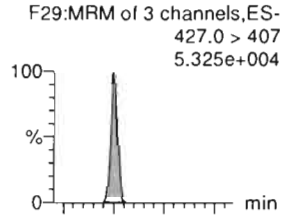
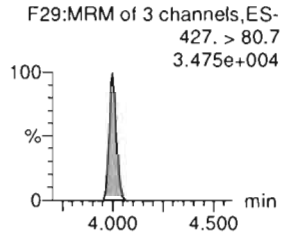
L-PFHxS





6:2 FTS





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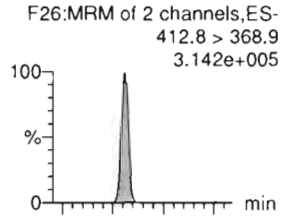

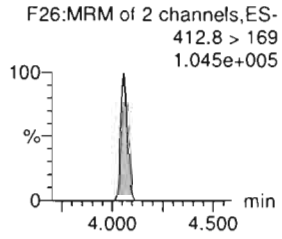

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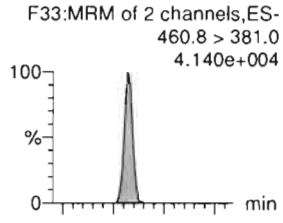

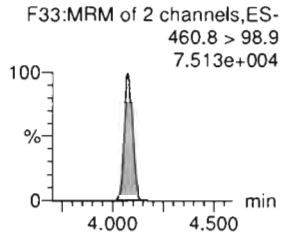

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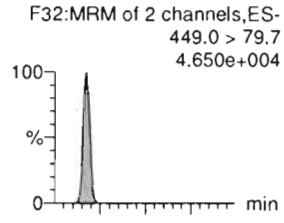

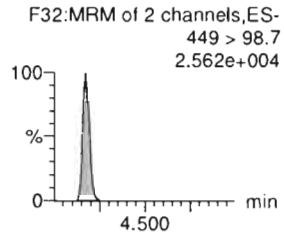

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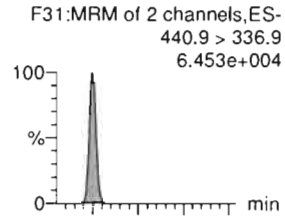

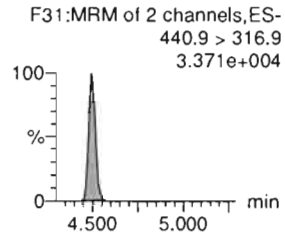

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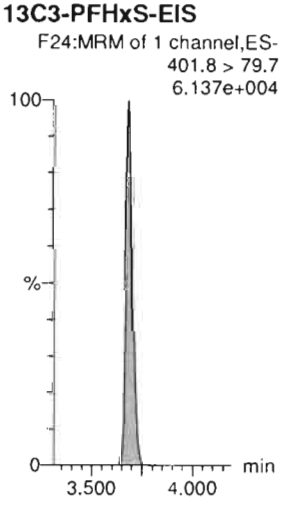

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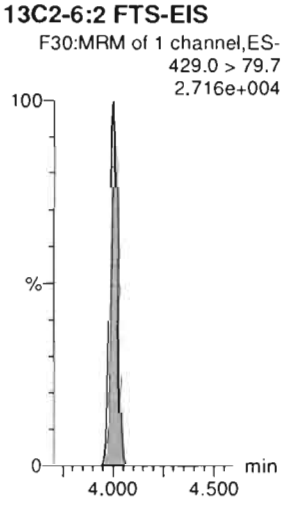

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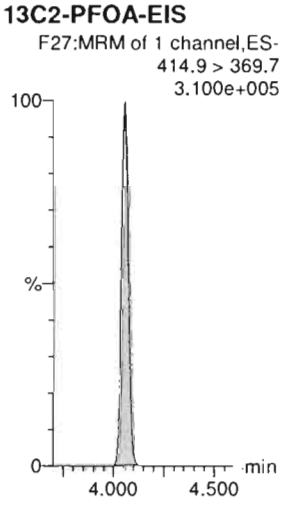

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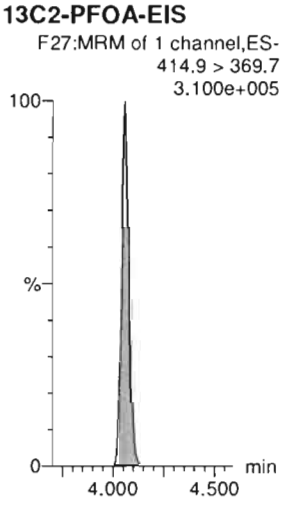
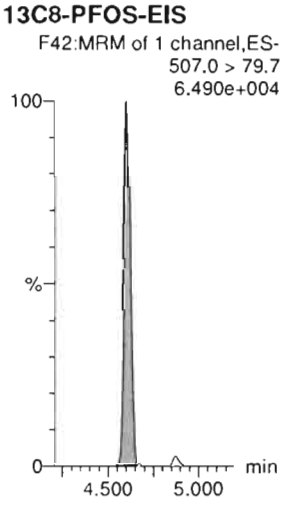


13C8-PFOS-EIS



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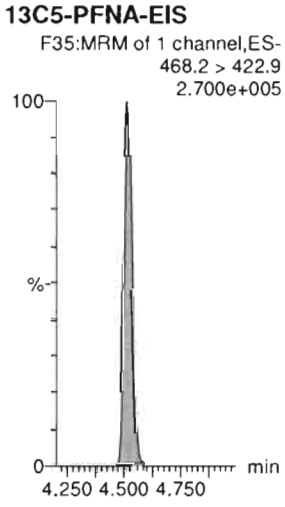

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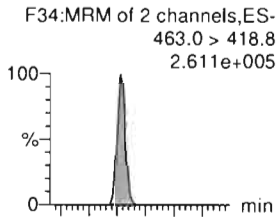

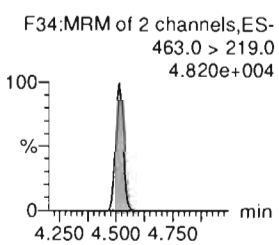

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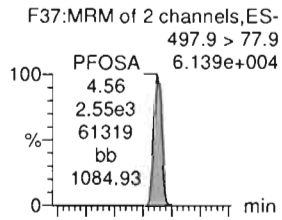

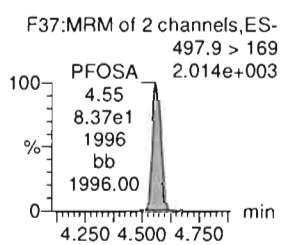

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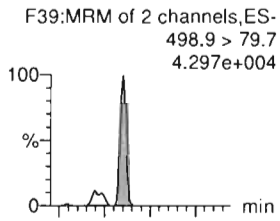
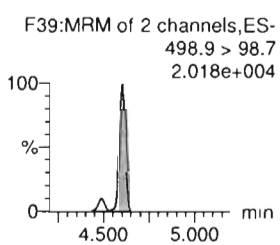
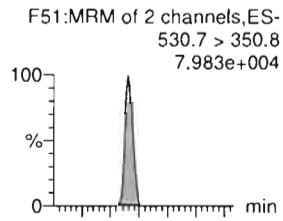
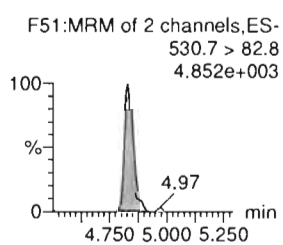




9Cl-PF30NS





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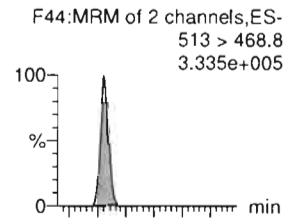

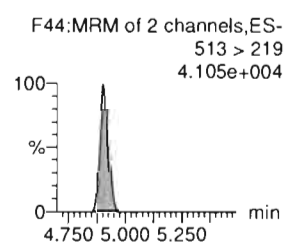

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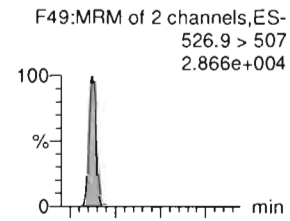
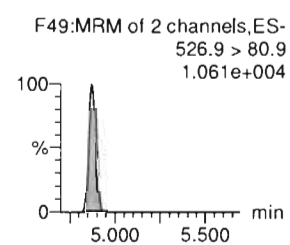
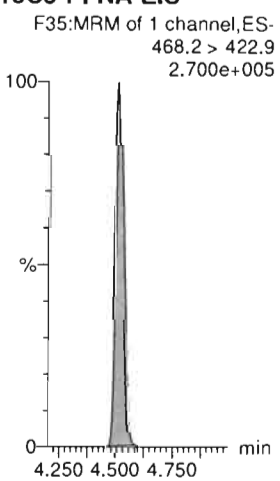
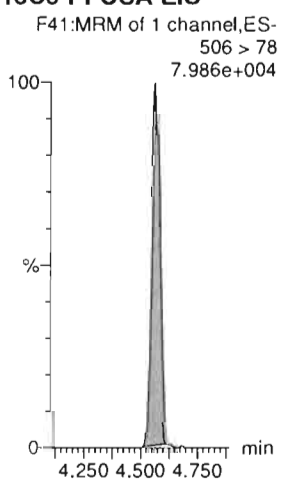




13C5-PFNA-EIS



13C8-PFOSA-EIS



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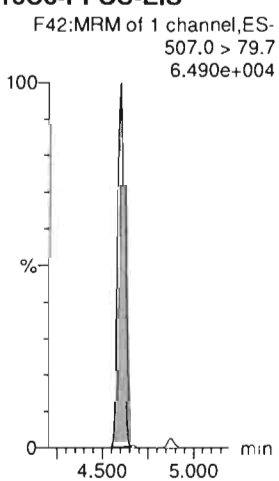

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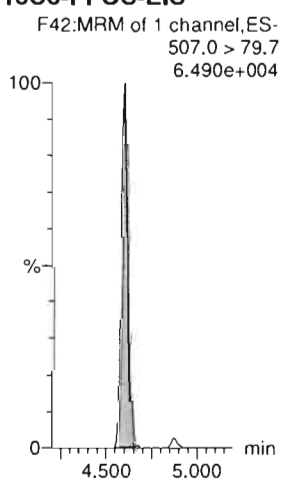

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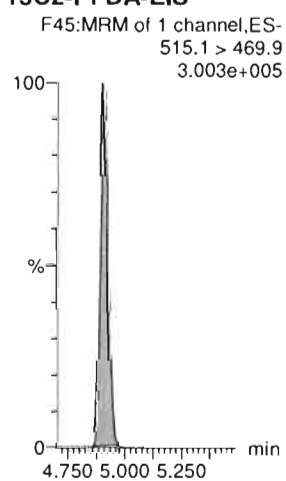
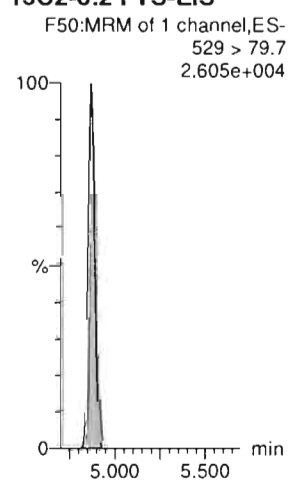


13C2-8:2 FTS-EIS



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Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

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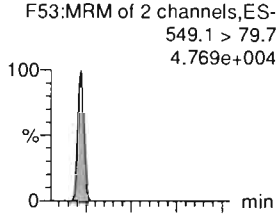

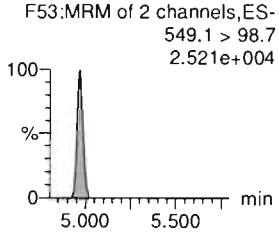

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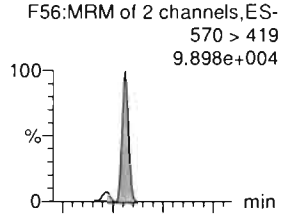

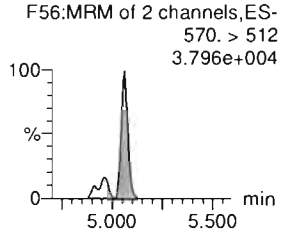

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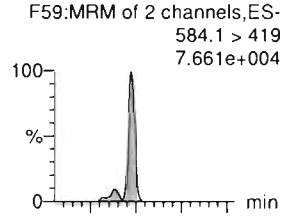

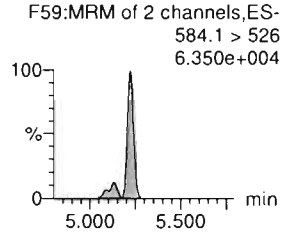

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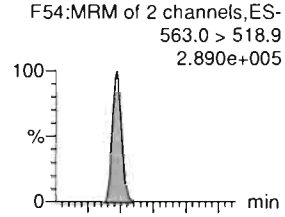

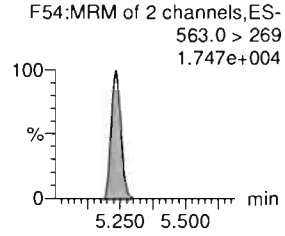

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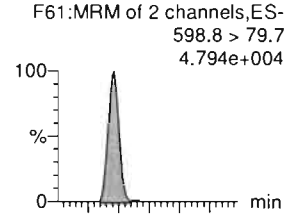

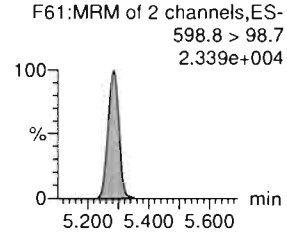

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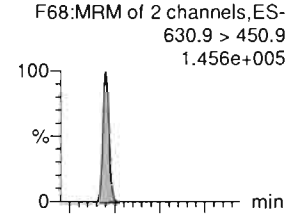

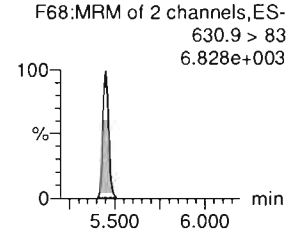

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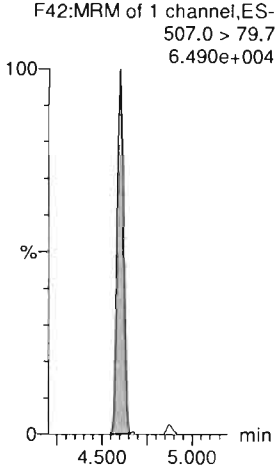

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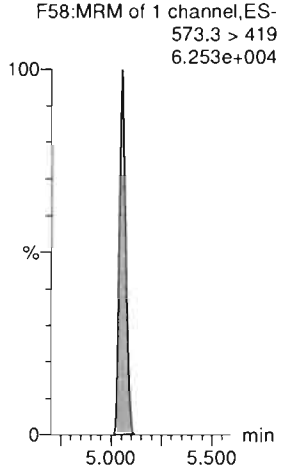

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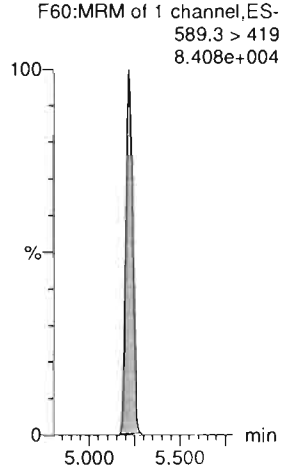

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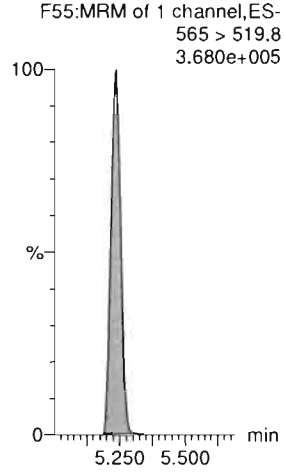

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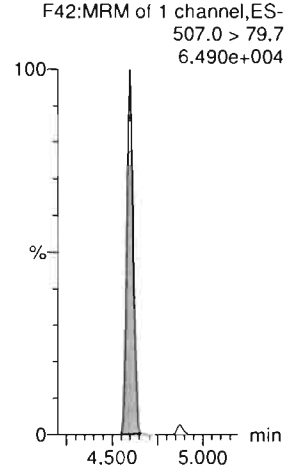

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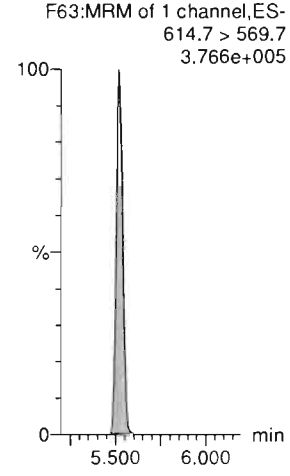

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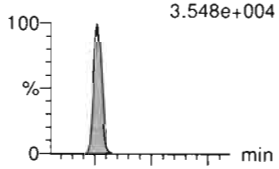
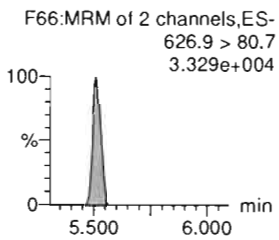
10:2 FTS





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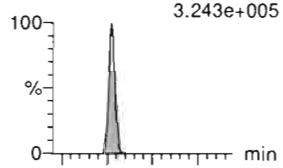
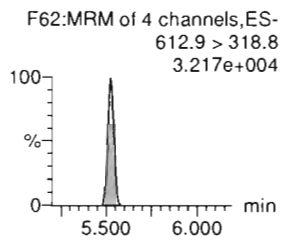
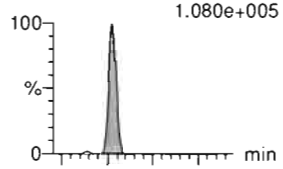
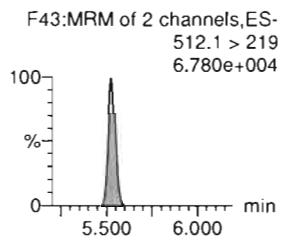




N-MeFOSA





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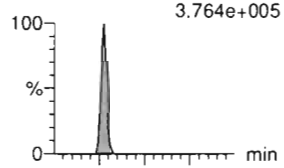

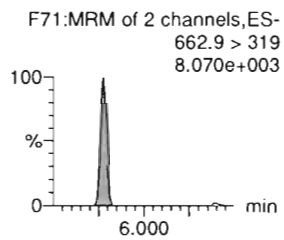

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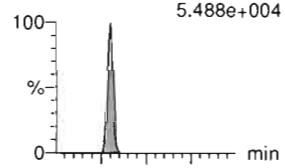

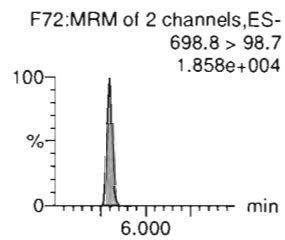

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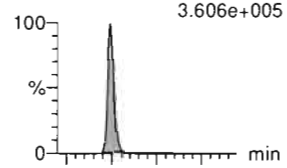

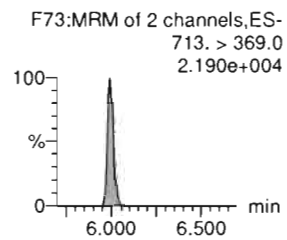

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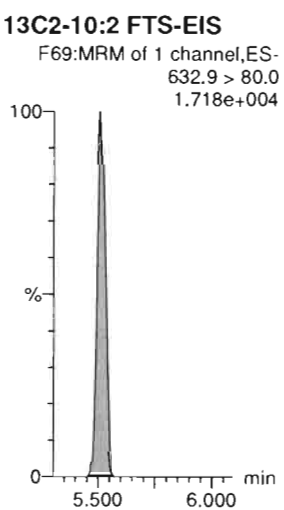

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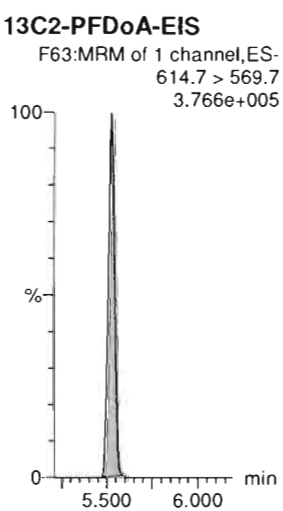
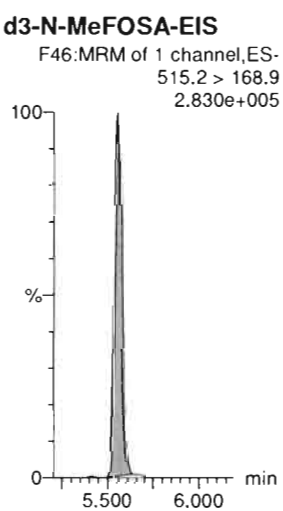


d3-N-MeFOSA-EIS



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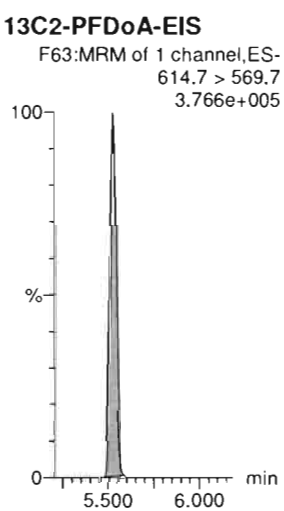

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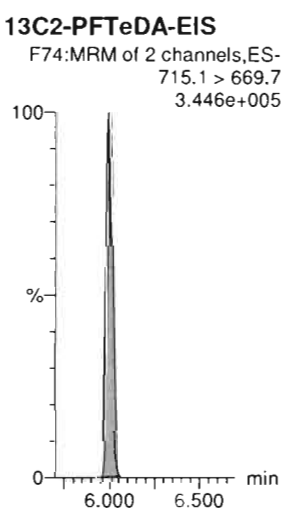

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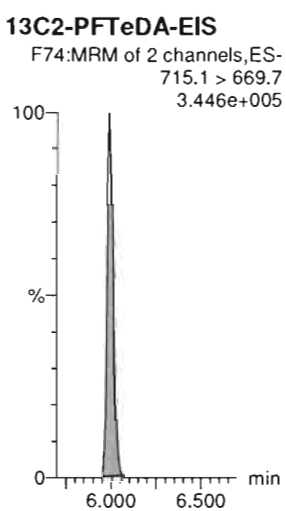

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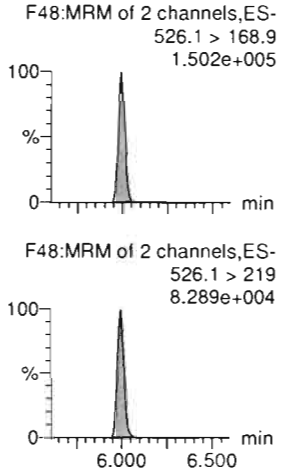
N-EtFOSA



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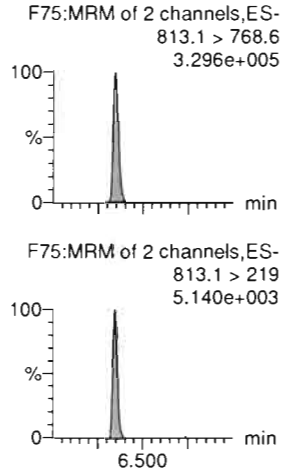

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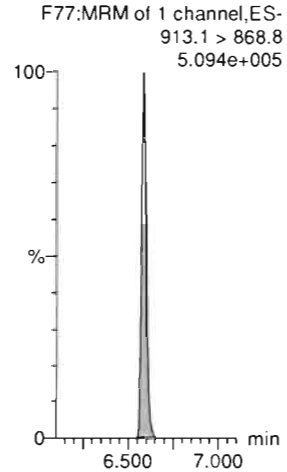
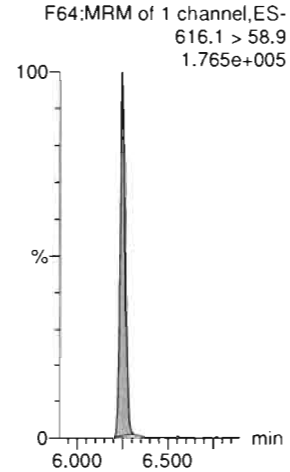
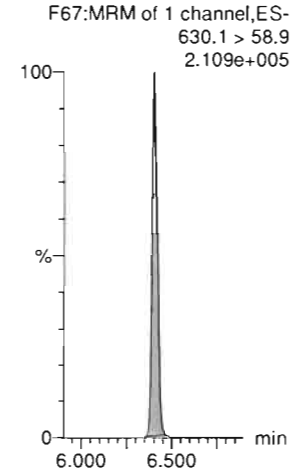


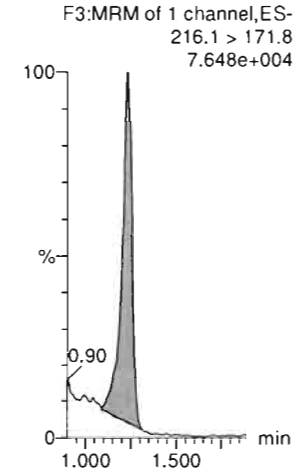
N-MeFOSE



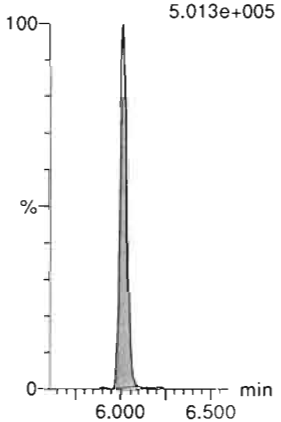
N-EtFOSE



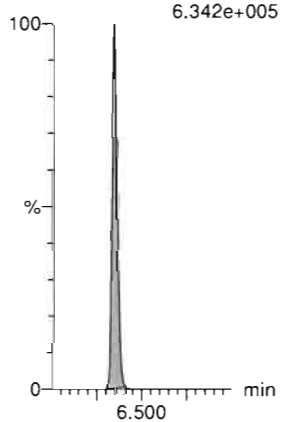
13C3-PFBA-RSD



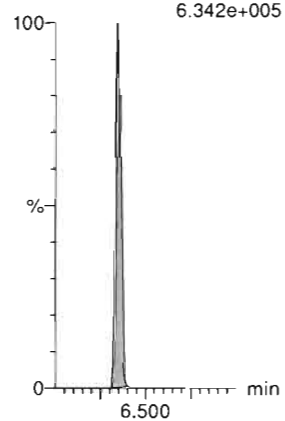
d5-N-ETFOSA-EIS



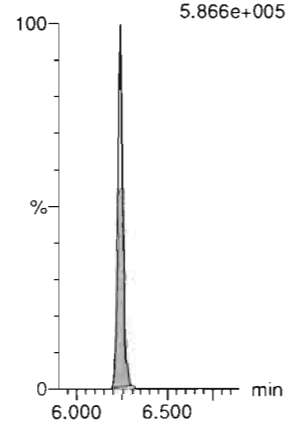
13C2-PFHxDA-EIS



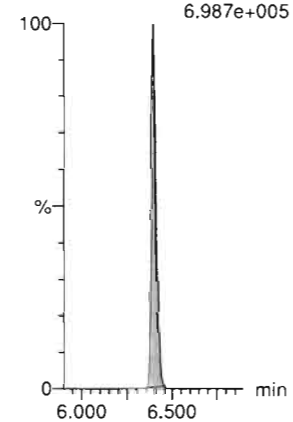
13C2-PFHxDA-EIS



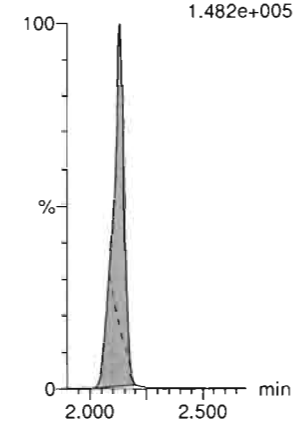
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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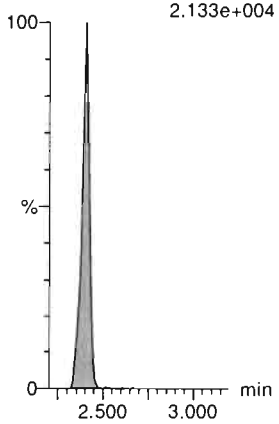
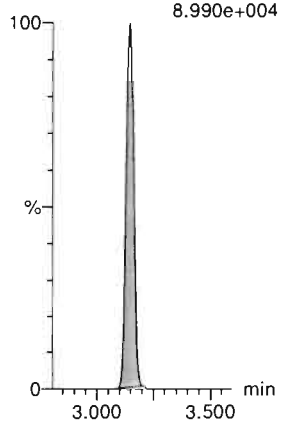
Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

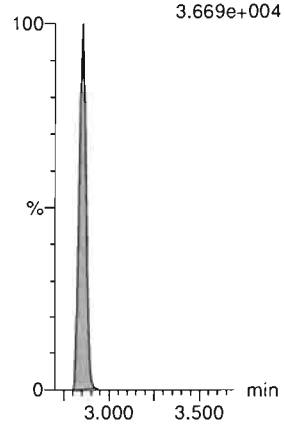
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.133e+004



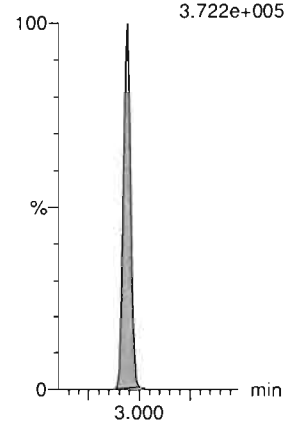
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
8.990e+004



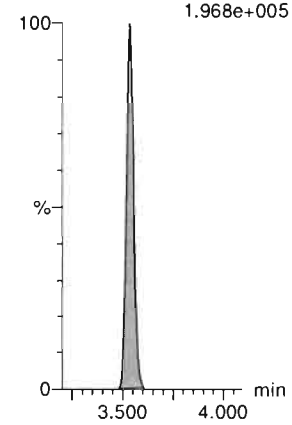
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.669e+004



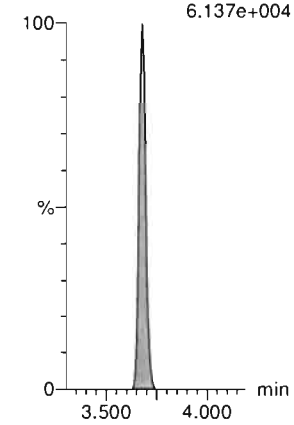
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.722e+005



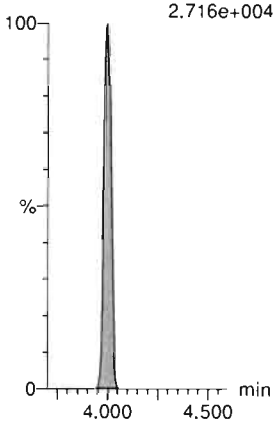
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
1.968e+005



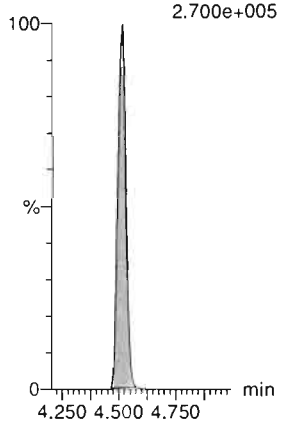
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.137e+004



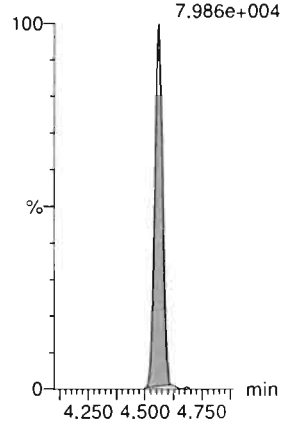
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
2.716e+004



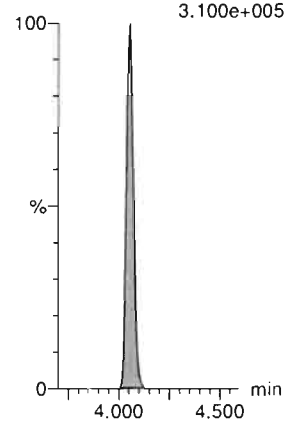
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.700e+005



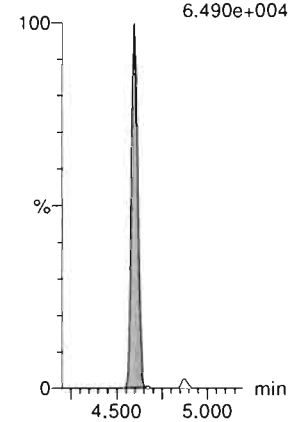
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
7.986e+004



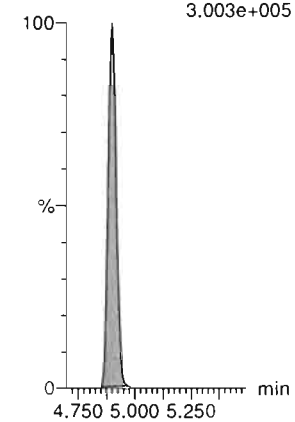
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.100e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.490e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.003e+005



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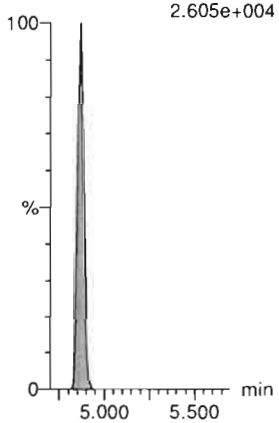
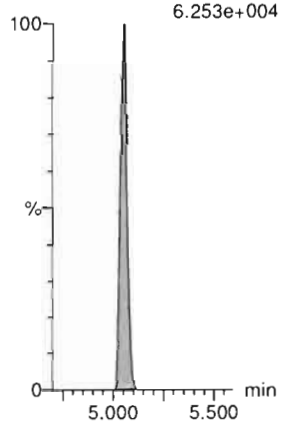
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

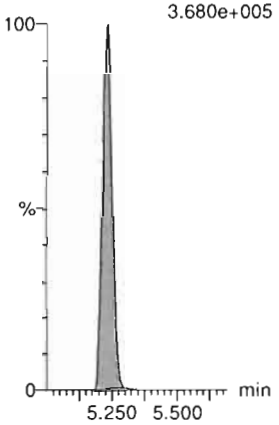
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.605e+004



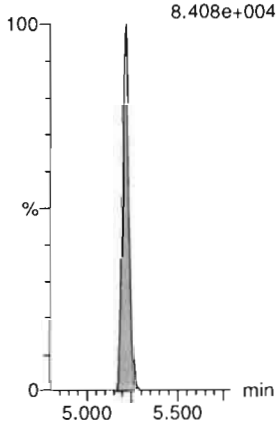
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.253e+004



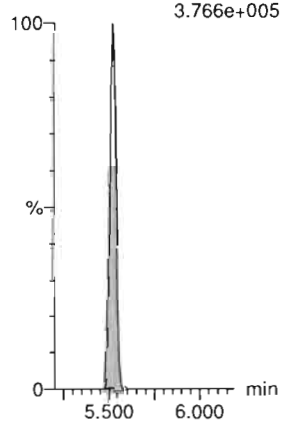
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.680e+005



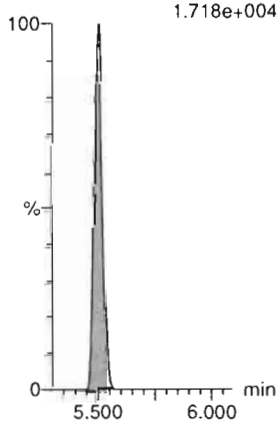
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.408e+004



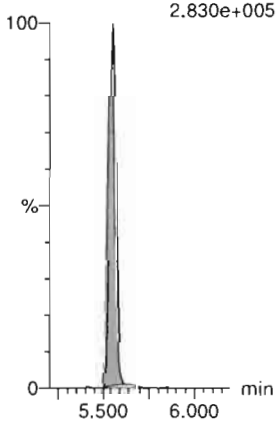
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.766e+005



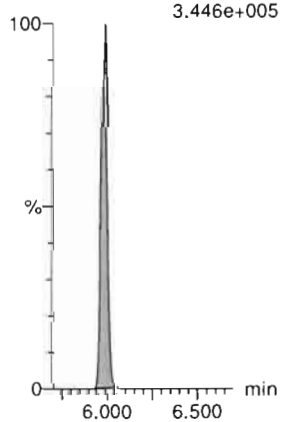
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.718e+004



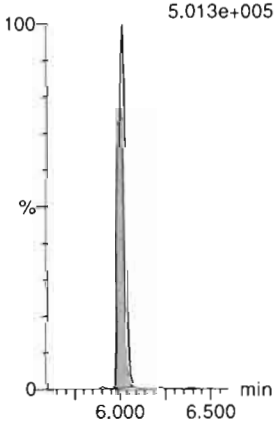
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.830e+005



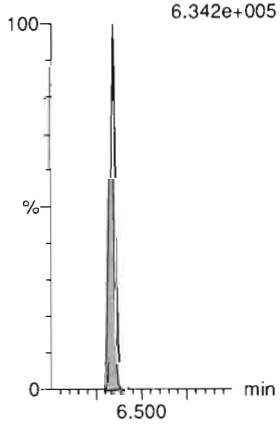
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.446e+005



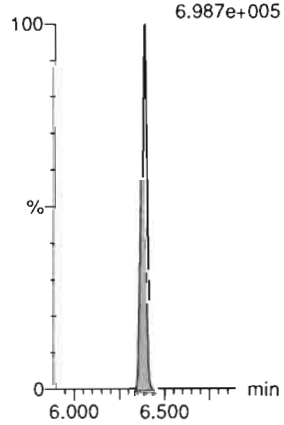
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.013e+005



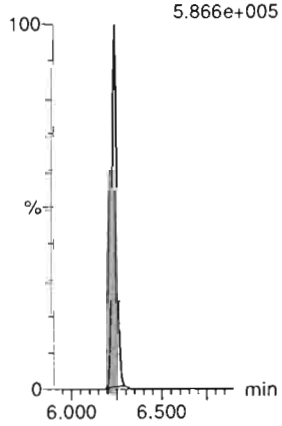
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.342e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.987e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.866e+005



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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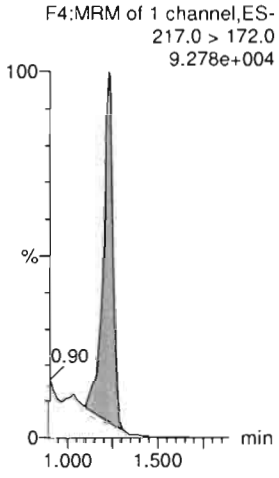
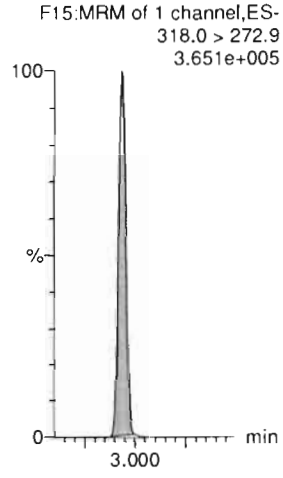
Name: 200304P2-8, Date: 04-Mar-2020, Time: 20:24:22, ID: ST200304P2-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

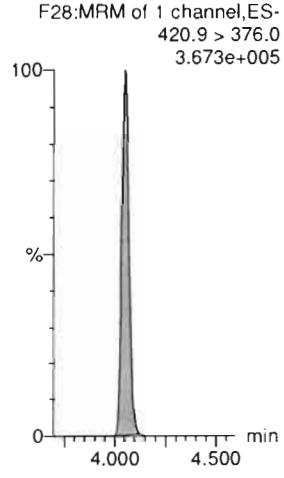
13C4-PFBA



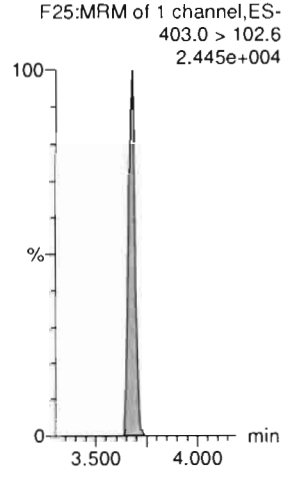
13C5-PFHxA



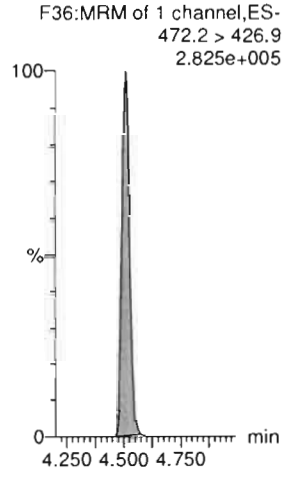
13C8-PFOA



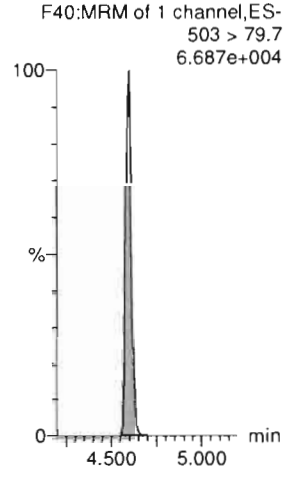
18O2-PFHxS



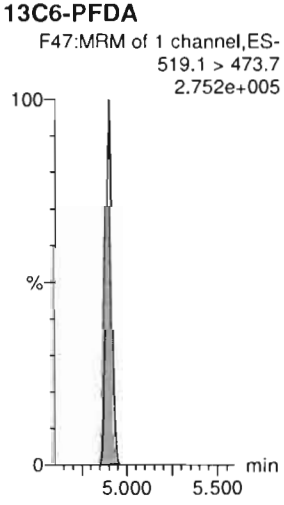
13C9-PFNA



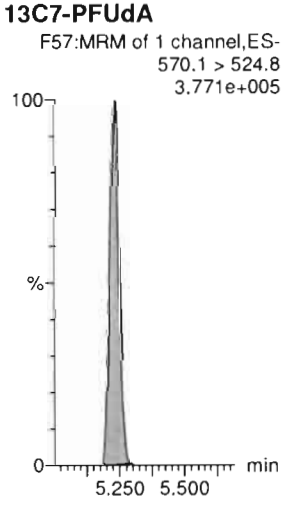
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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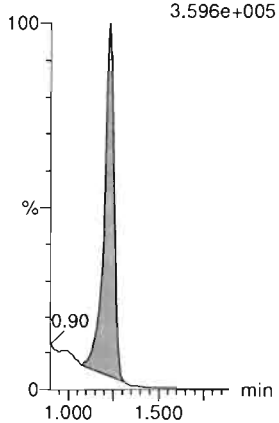
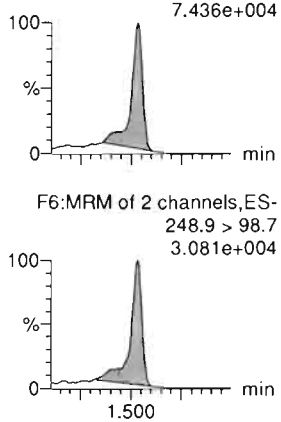
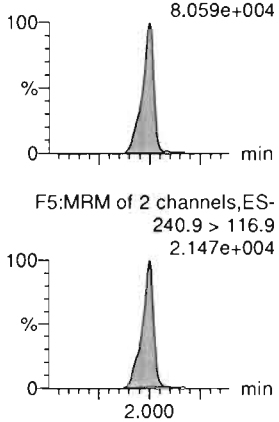
PFBA



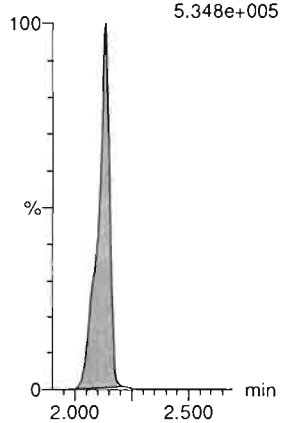
PFPrS



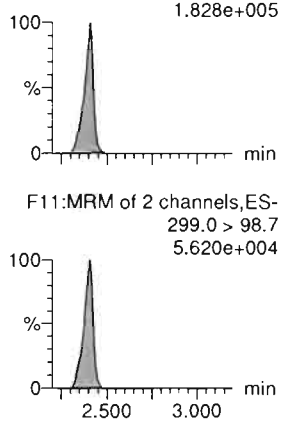
3:3 FTCA



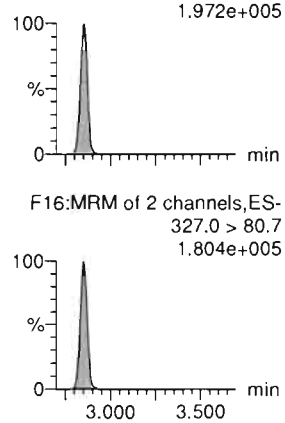
PFPeA



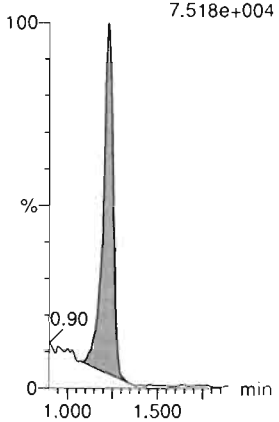
PFBS



4:2 FTS



13C3-PFBA-EIS



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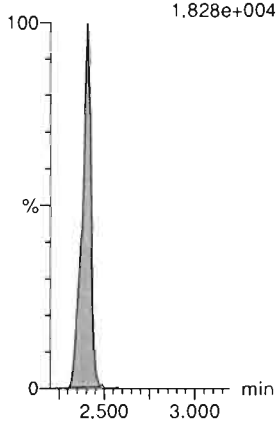

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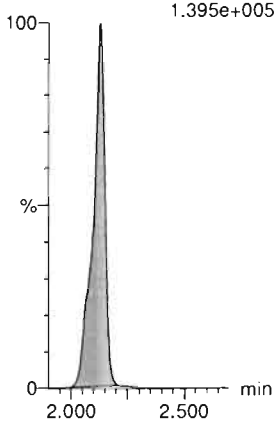

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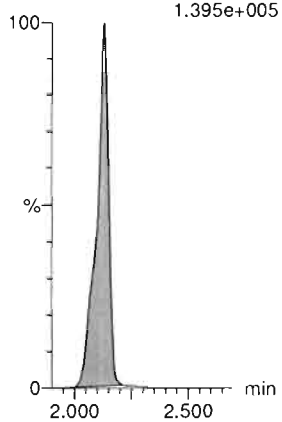

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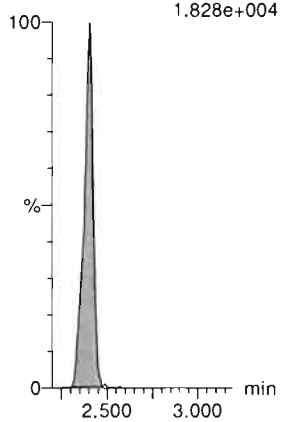

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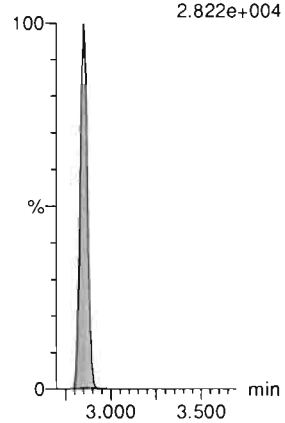

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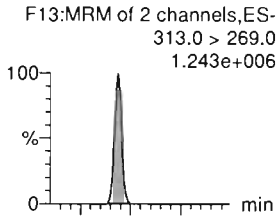
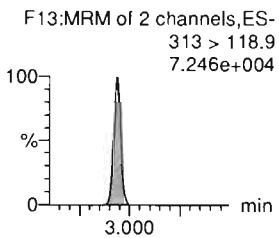
Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

PFHxA





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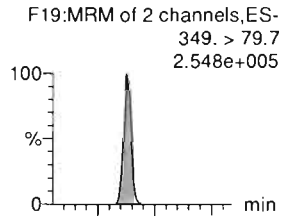
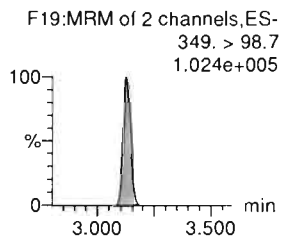
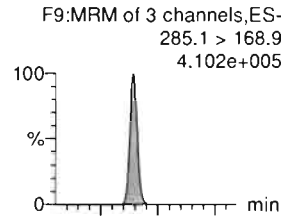
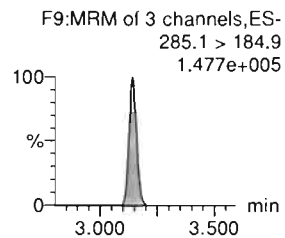




HFPO-DA





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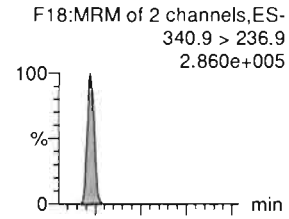

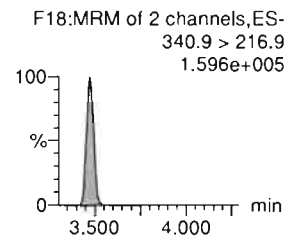

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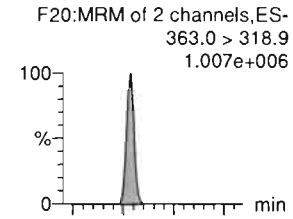

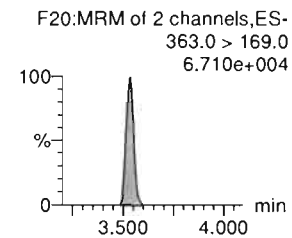

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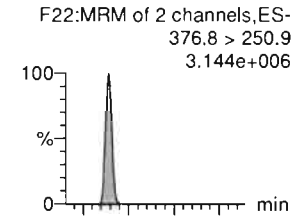

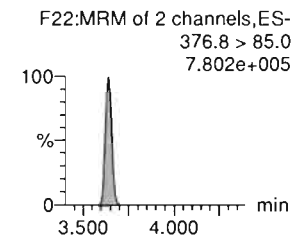

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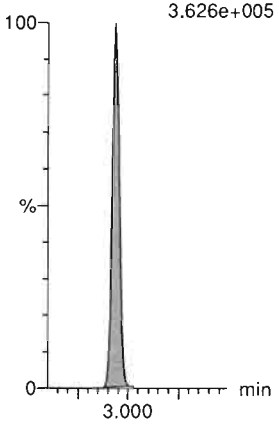

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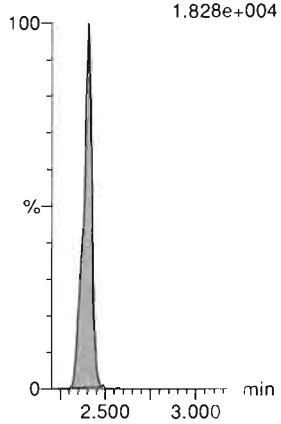

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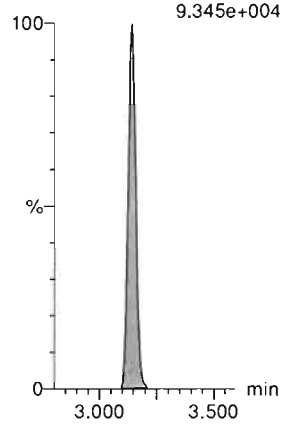

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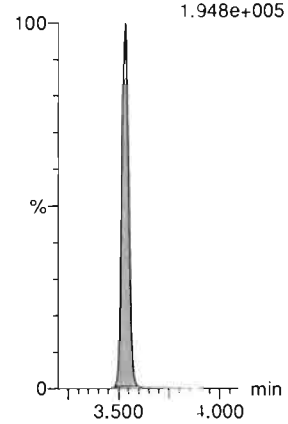

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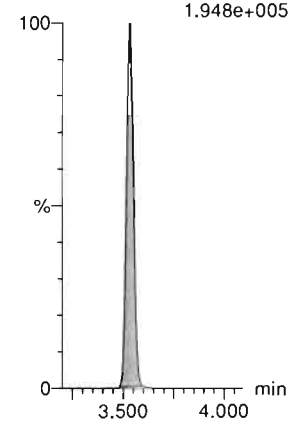

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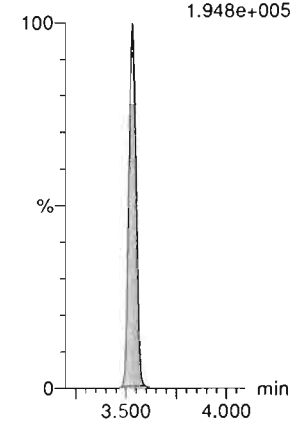

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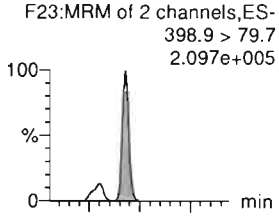
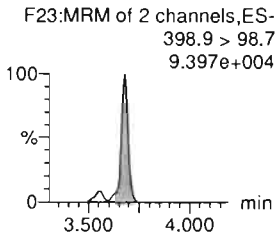
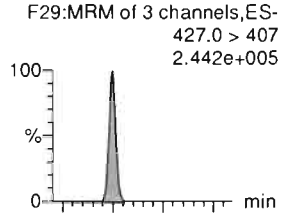
Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

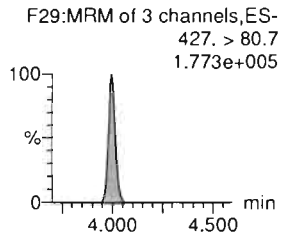
L-PFHxS





6:2 FTS





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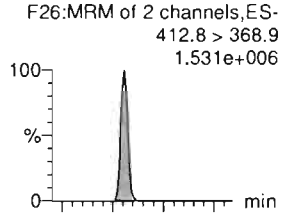

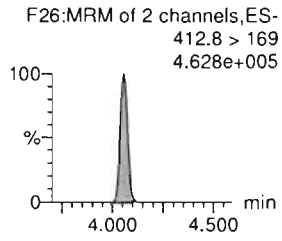

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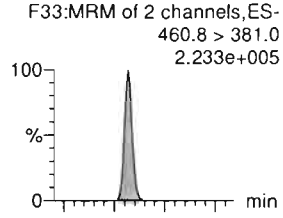

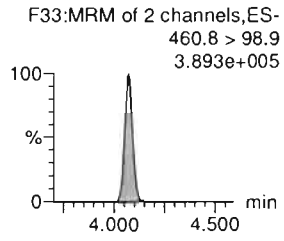

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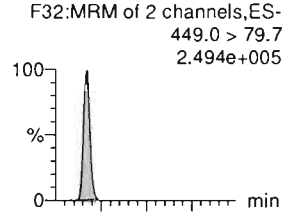
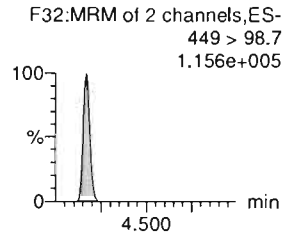
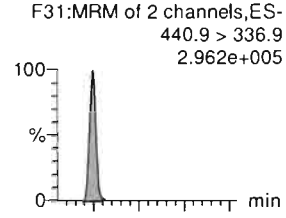
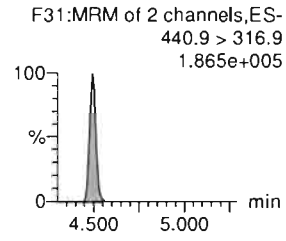




7:3 FTCA





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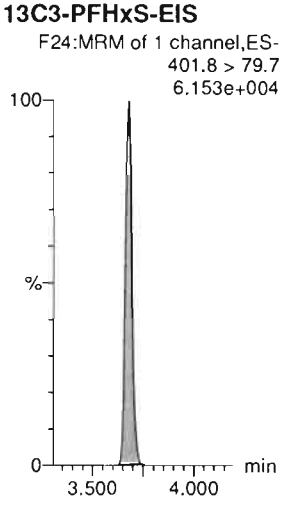
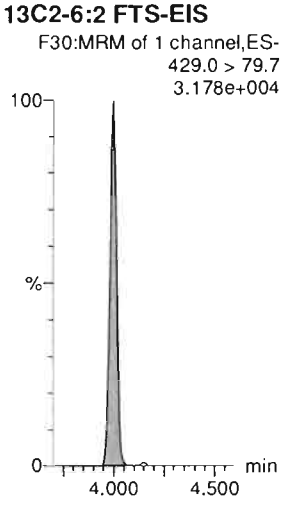


13C2-6:2 FTS-EIS



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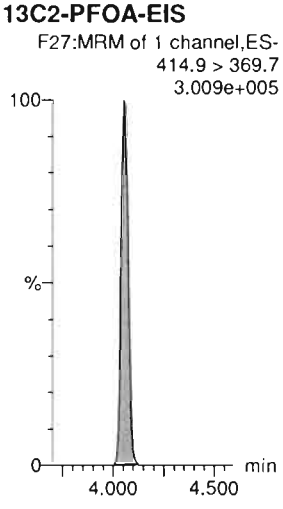

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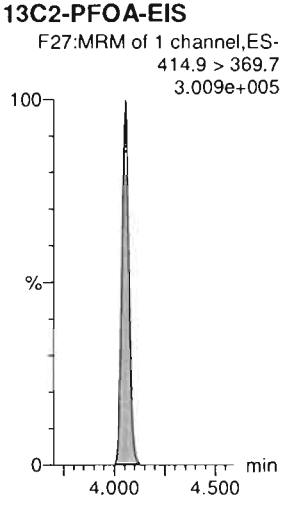

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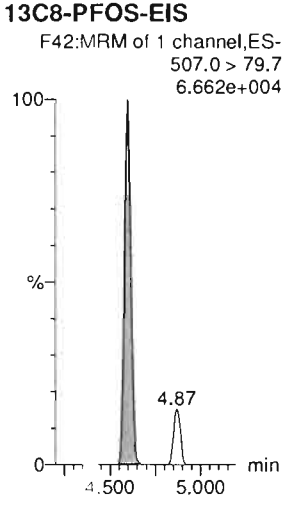

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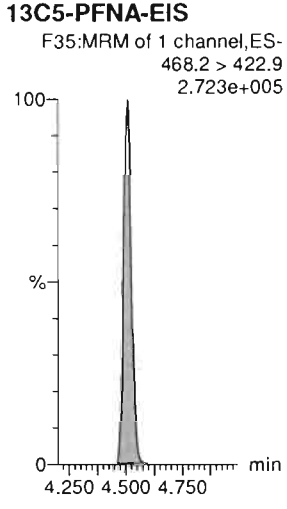

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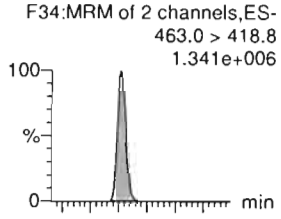

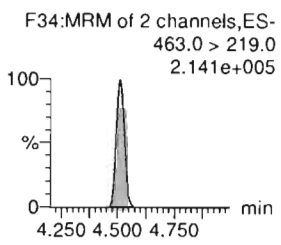

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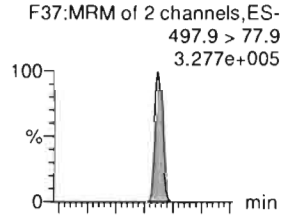
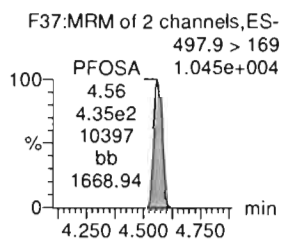
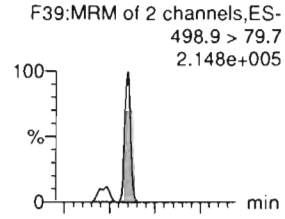
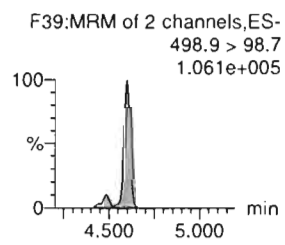




L-PFOS





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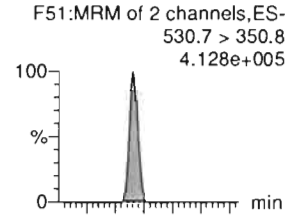

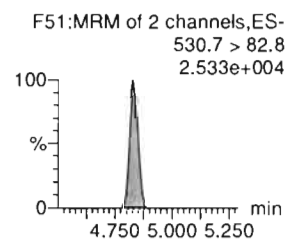

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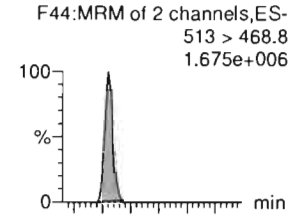
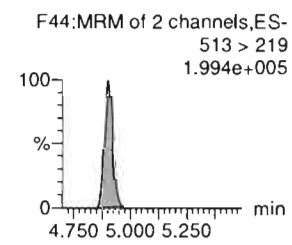
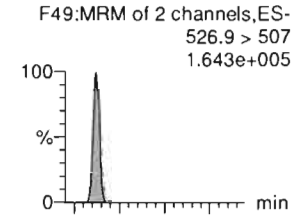
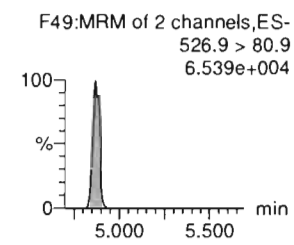


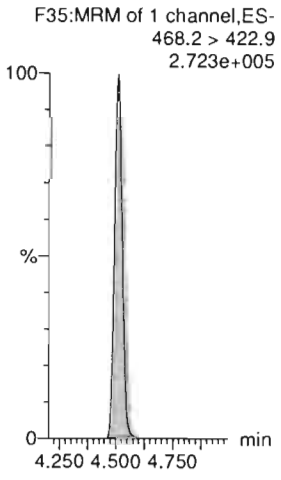


8:2 FTS

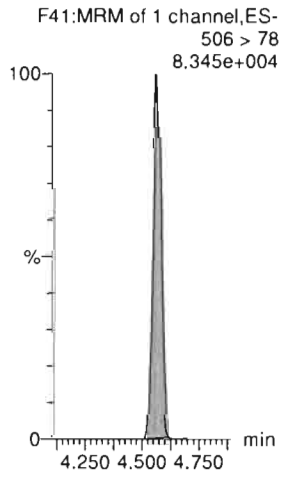




13C5-PFNA-EIS



13C8-PFOSA-EIS



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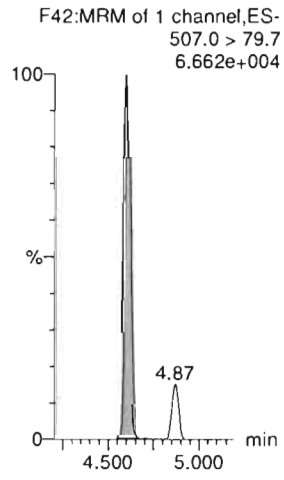

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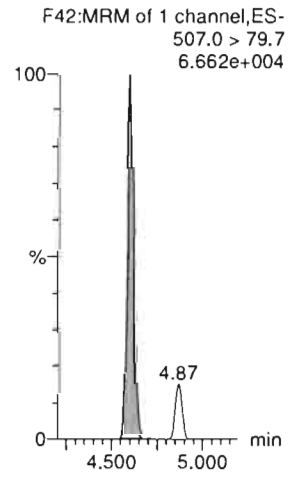
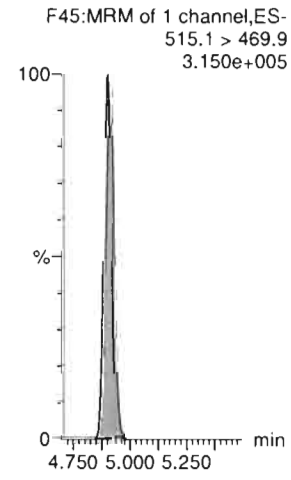
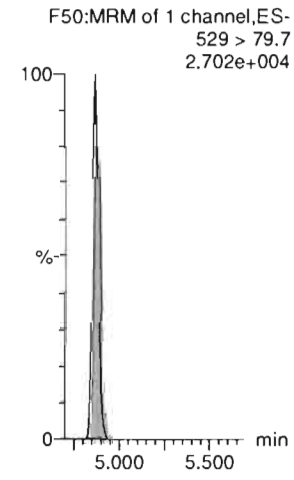


13C2-PFDA-EIS



13C2-8:2 FTS-EIS



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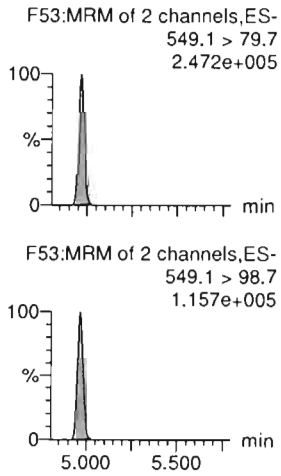
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

PFNS



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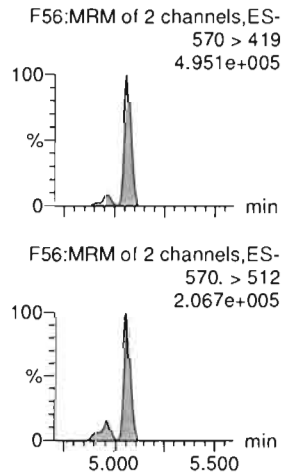

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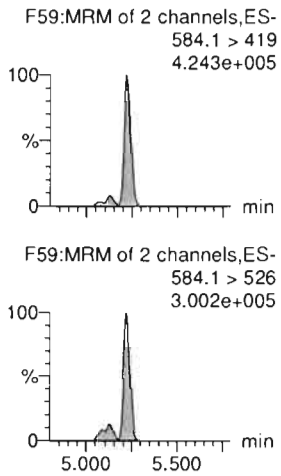
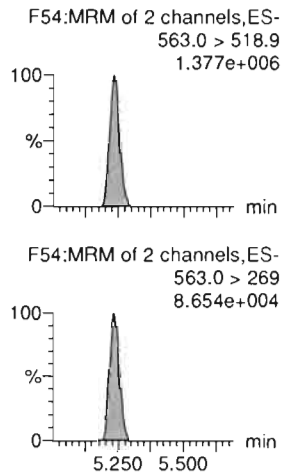
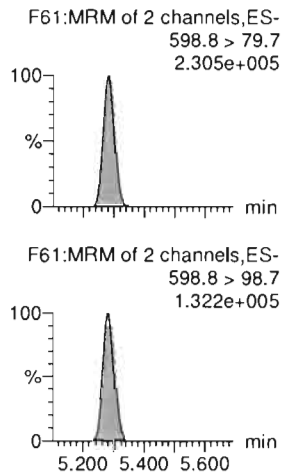


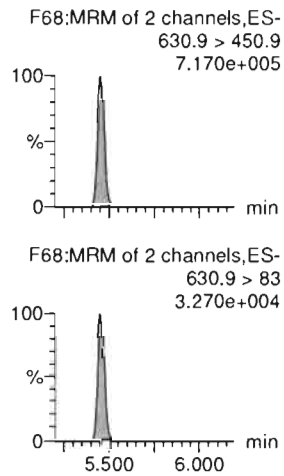
PFUdA



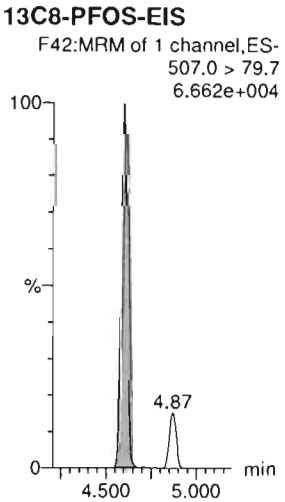
PFDS



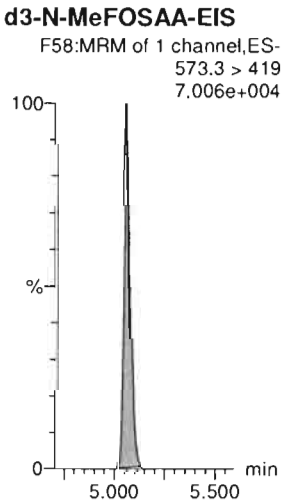
11Cl-PF30UdS



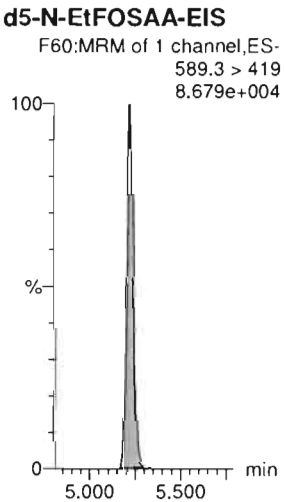
13C8-PFOS-EIS



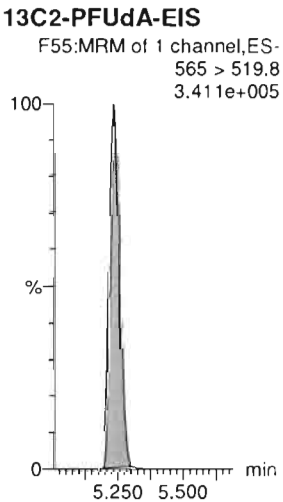
d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



13C2-PFUdA-EIS



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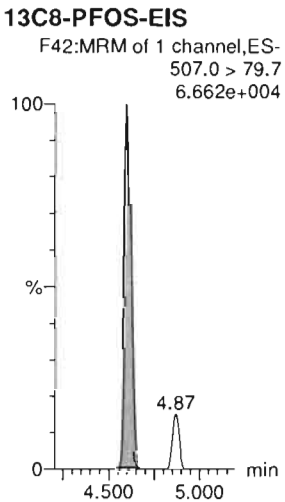
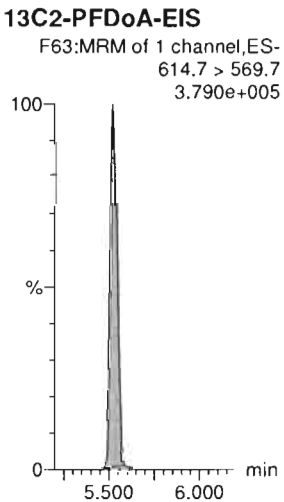


13C2-PFDoA-EIS



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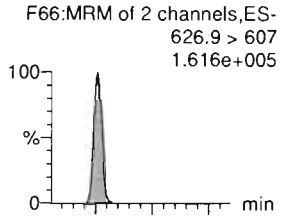
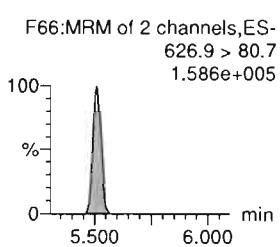
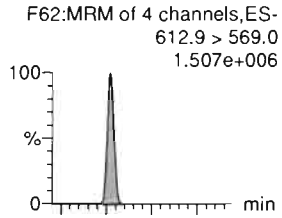
Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

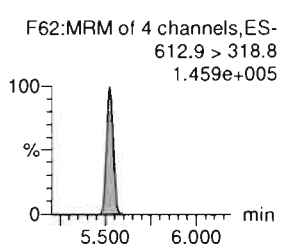
10:2 FTS



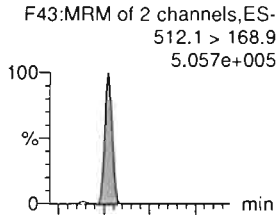


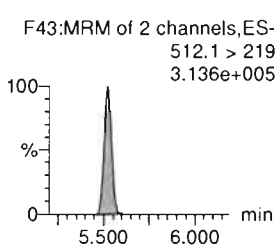
PFDoA





N-MeFOSA





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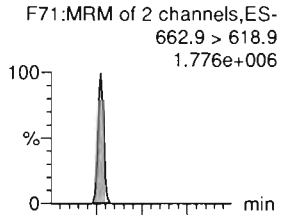

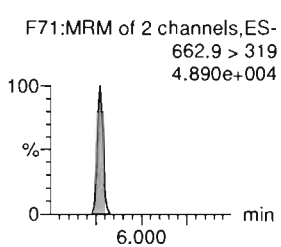

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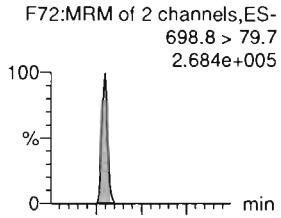

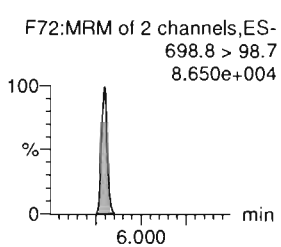

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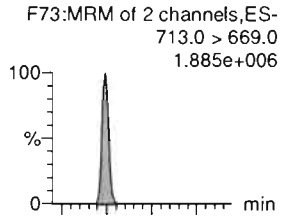
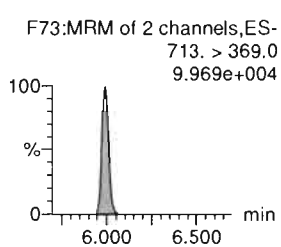
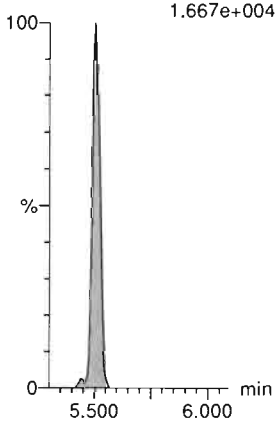
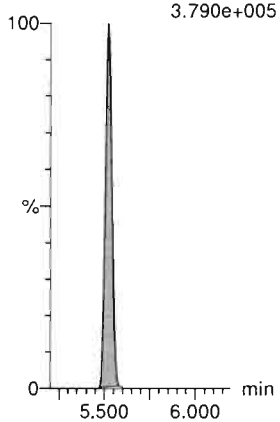




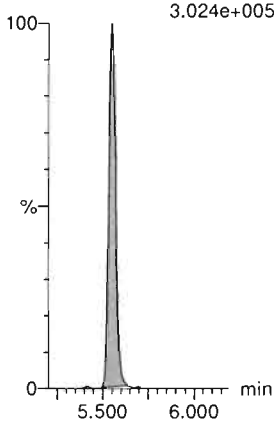
13C2-10:2 FTS-EIS



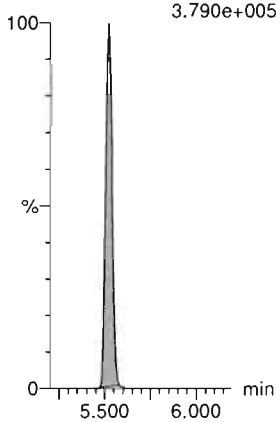
13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



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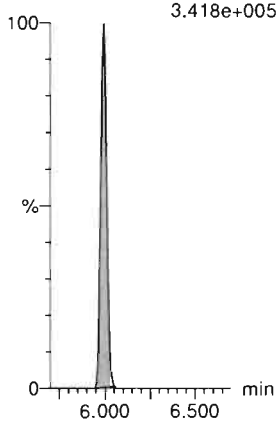

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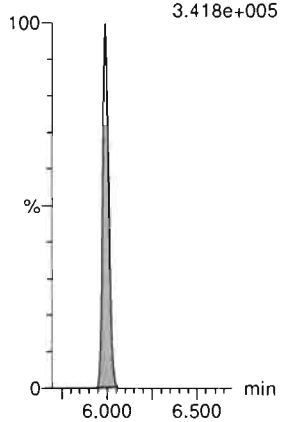

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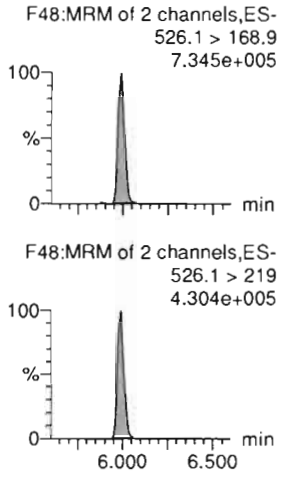
Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

N-EtFOSA



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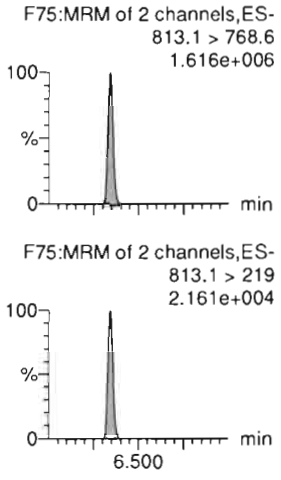

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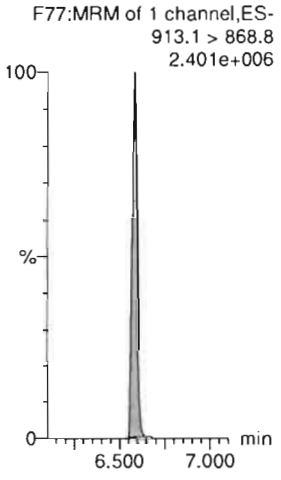
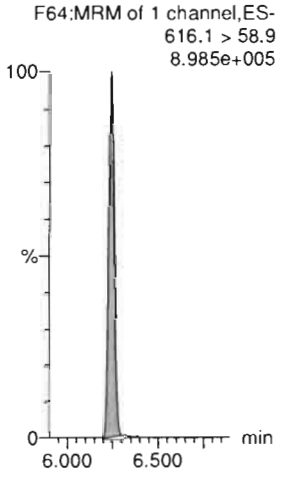
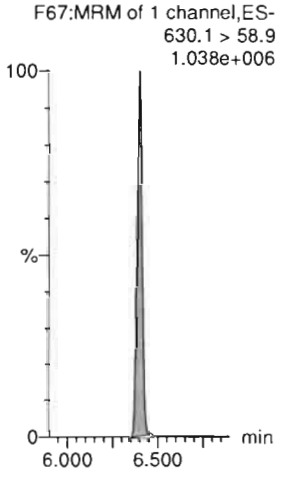


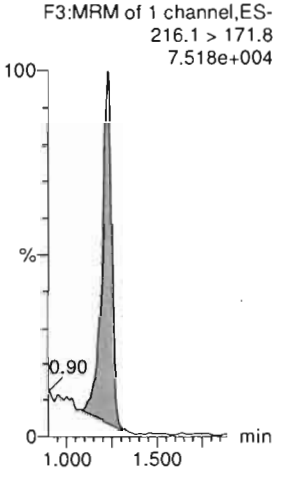
N-MeFOSE



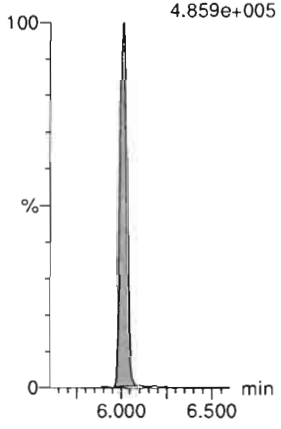
N-EtFOSE



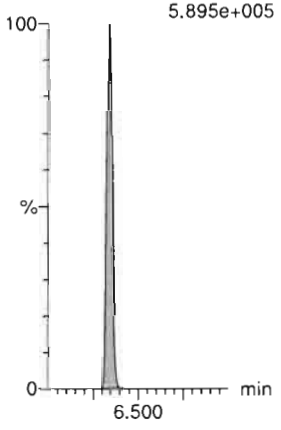
13C3-PFBA-RSD



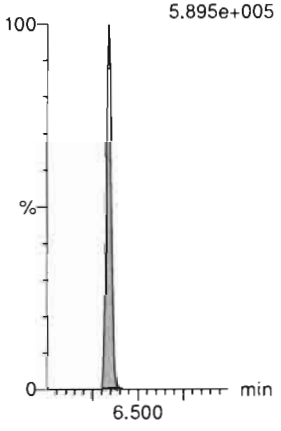
d5-N-ETFOSA-EIS



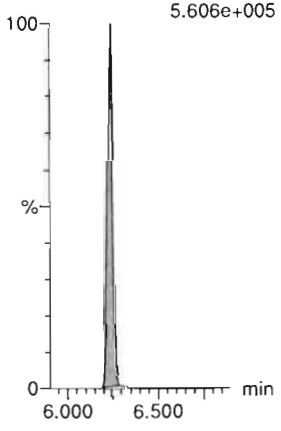
13C2-PFHxDA-EIS



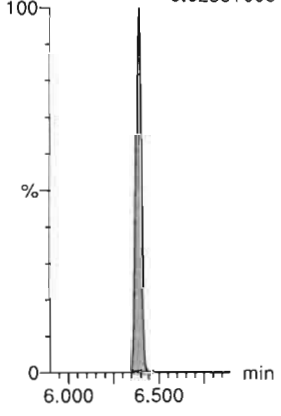
13C2-PFHxDA-EIS



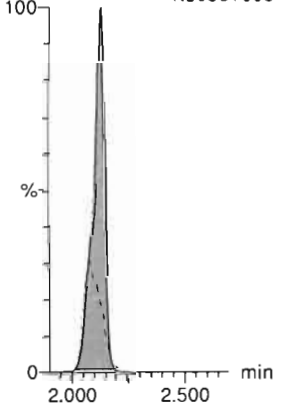
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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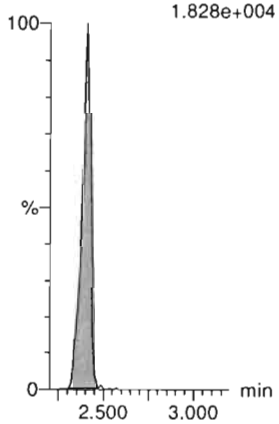
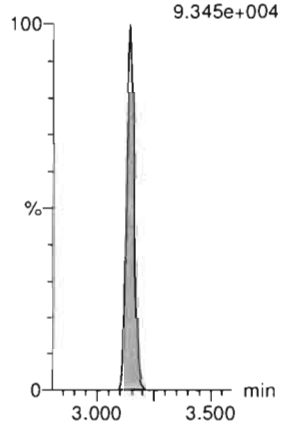
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

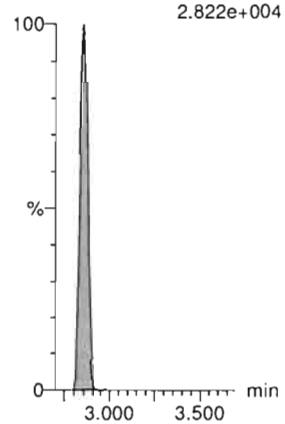
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.828e+004



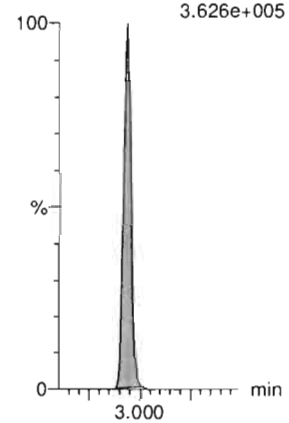
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.345e+004



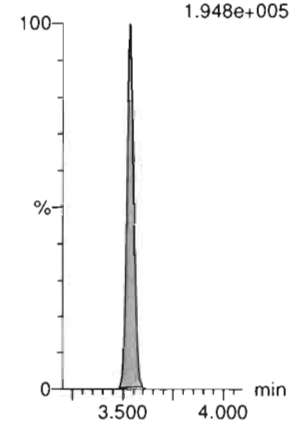
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
2.822e+004



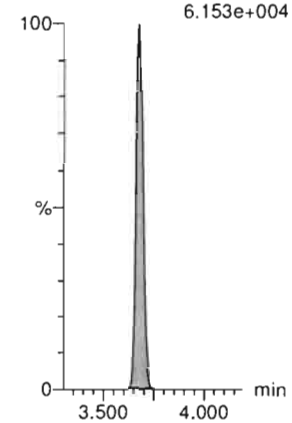
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.626e+005



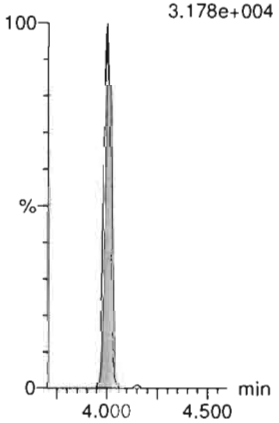
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
1.948e+005



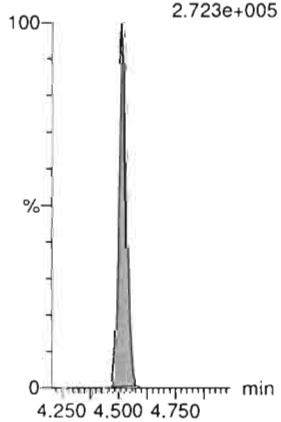
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.153e+004



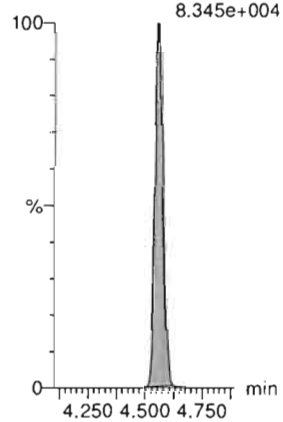
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.178e+004



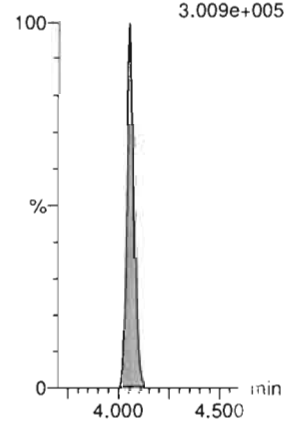
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
2.723e+005



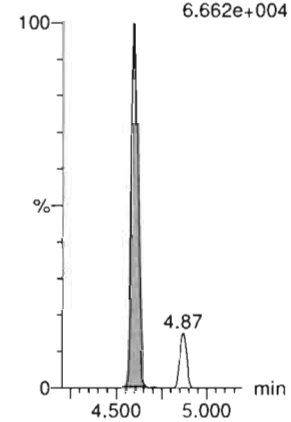
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.345e+004



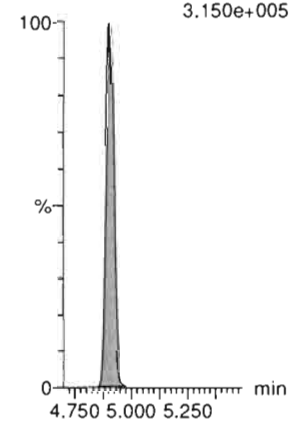
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.009e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.662e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.150e+005



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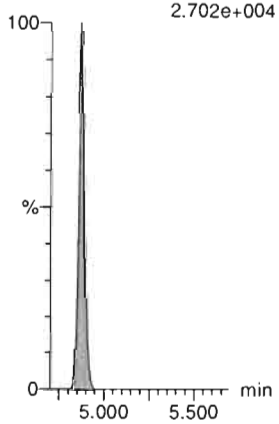
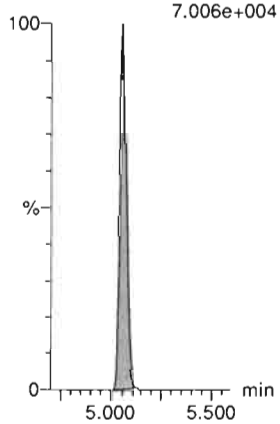
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

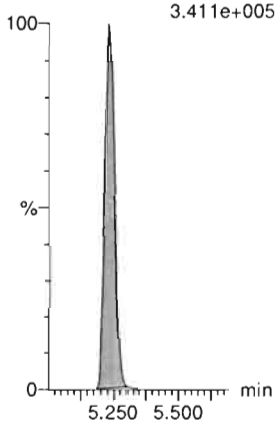
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.702e+004



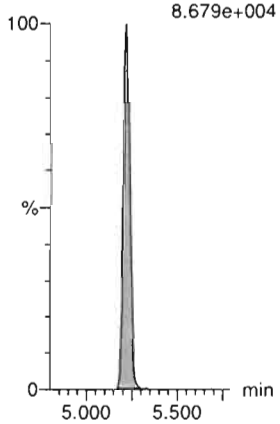
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.006e+004



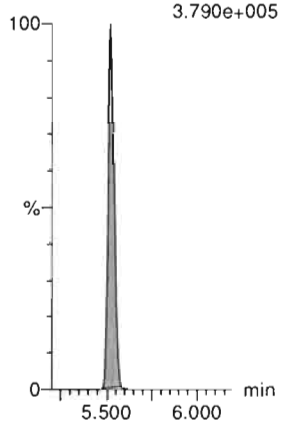
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.411e+005



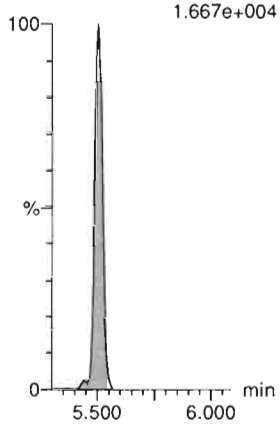
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.679e+004



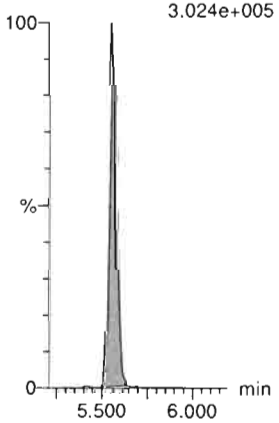
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.790e+005



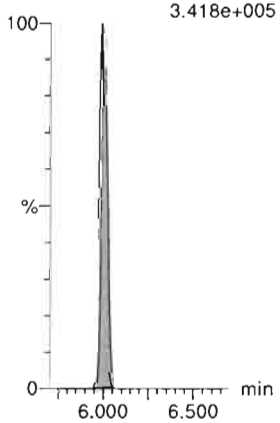
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.667e+004



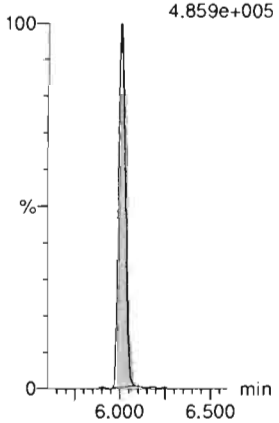
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.024e+005



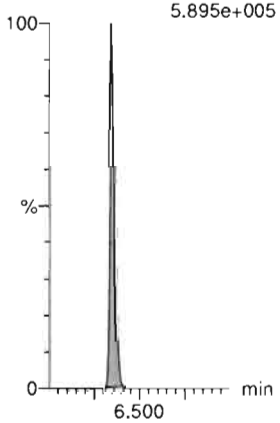
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.418e+005



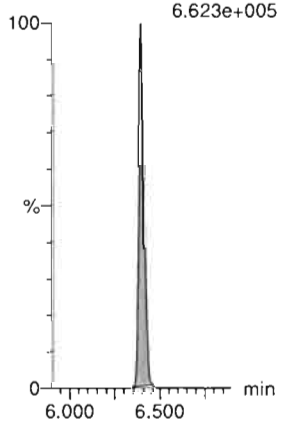
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.859e+005



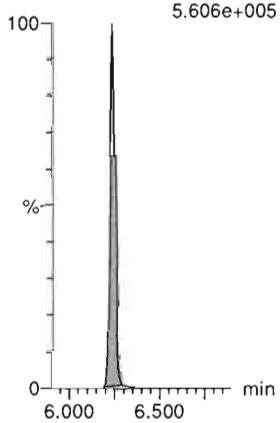
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
5.895e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.623e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.606e+005



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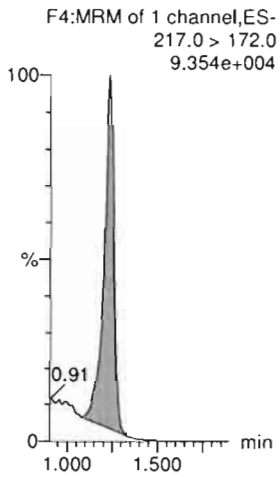
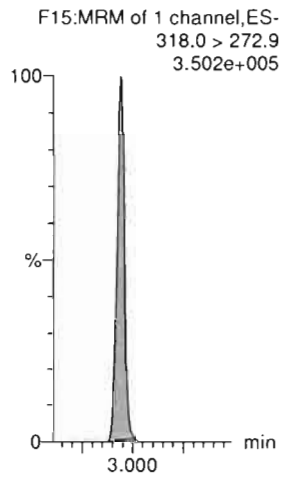
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-9, Date: 04-Mar-2020, Time: 20:34:54, ID: ST200304P2-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

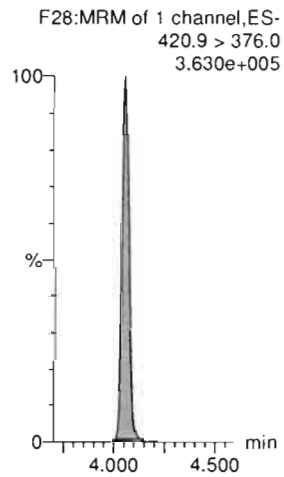
13C4-PFBA



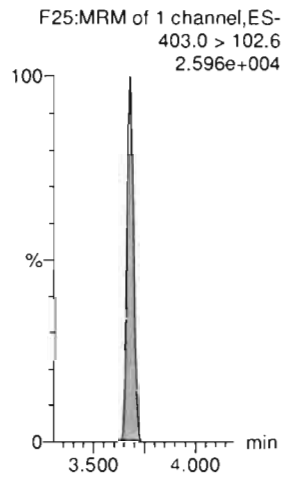
13C5-PFHxA



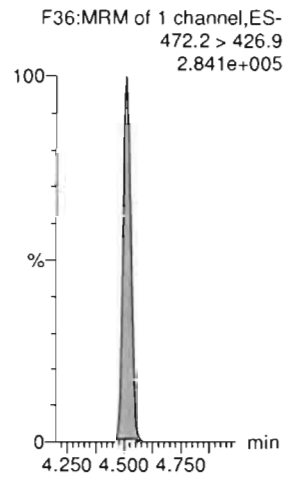
13C8-PFOA



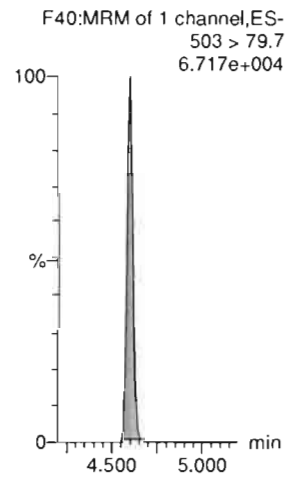
18O2-PFHxS



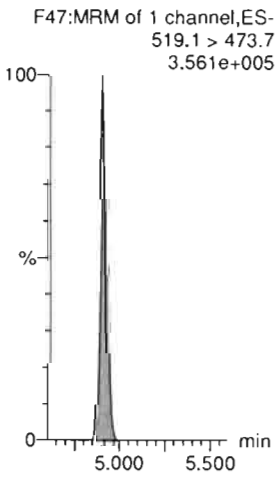
13C9-PFNA



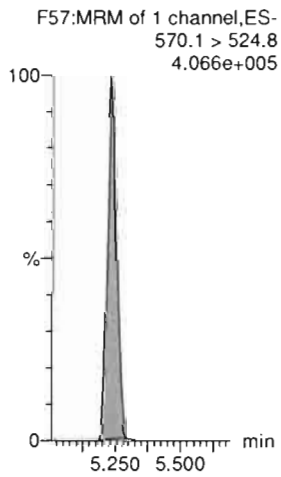
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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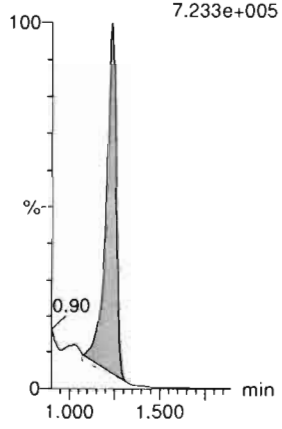
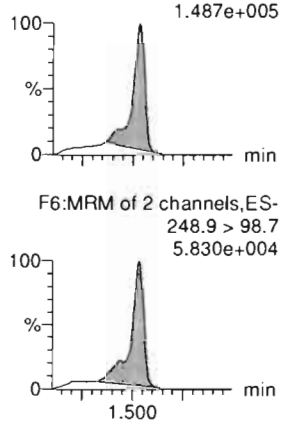
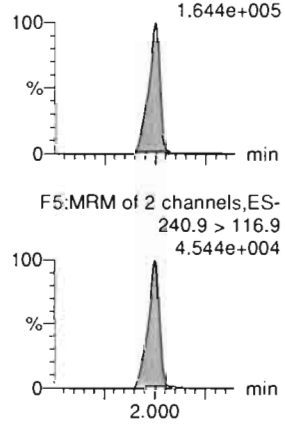
PFBA



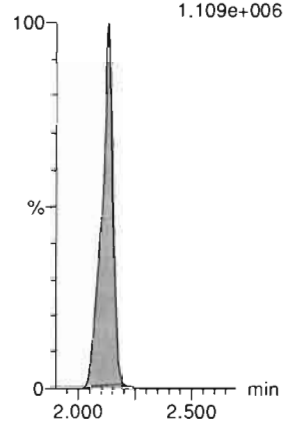
PFPrS



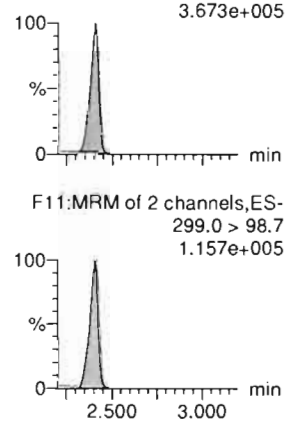
3:3 FTCA



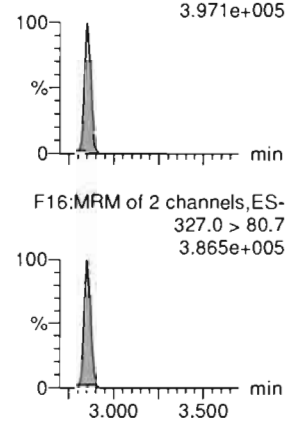
PFPeA



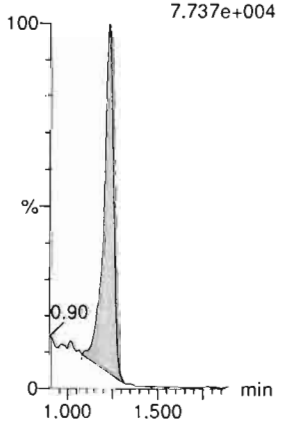
PFBS



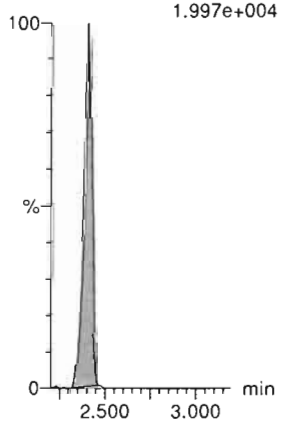
4:2 FTS



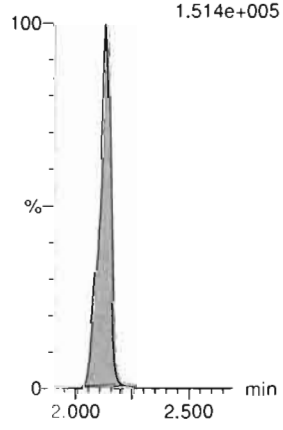
13C3-PFBA-EIS



13C3-PFBS-EIS



13C3-PFPeA-EIS



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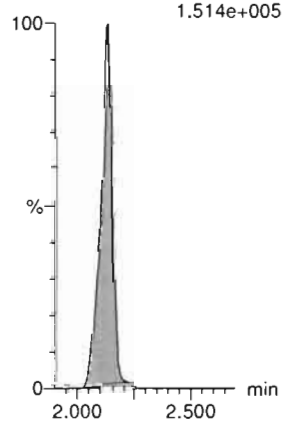

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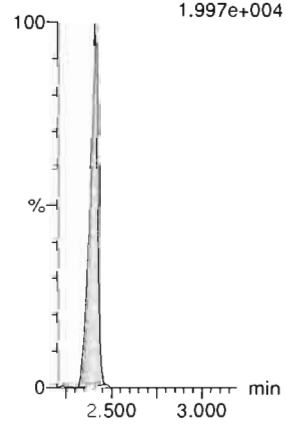
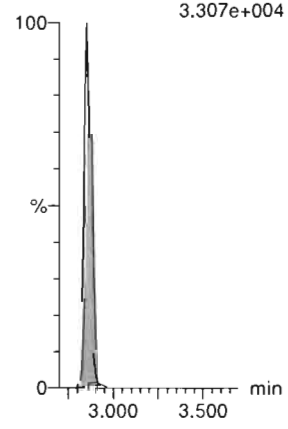


13C2-4:2 FTS-EIS



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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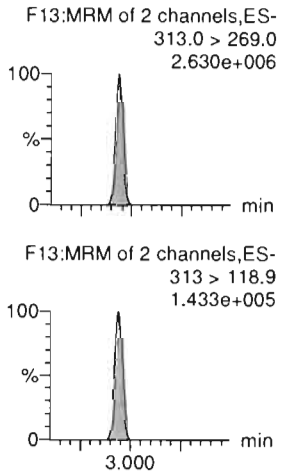
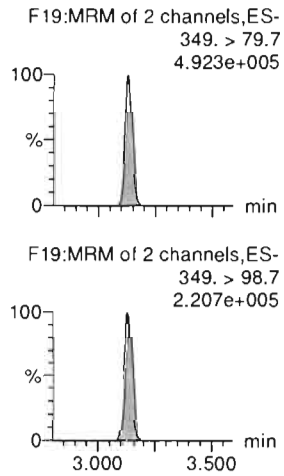
Name: 200304P2-10, Date: 04-Mar-2020, Time: 20:45:22, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

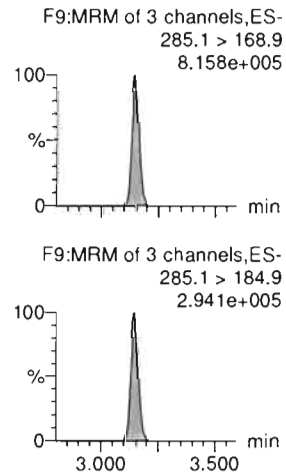
PFHxA



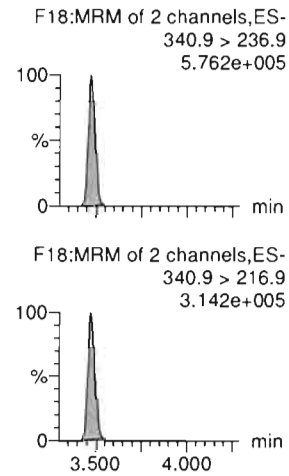
PFPeS



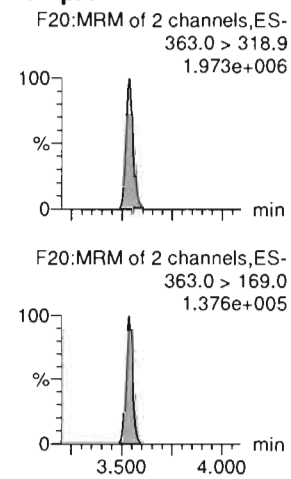
HFPO-DA



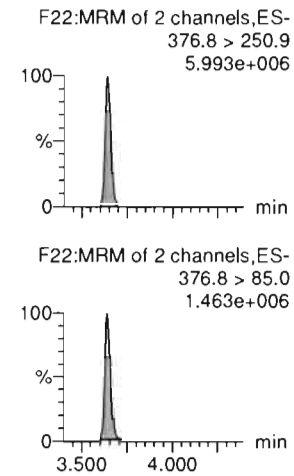
5:3 FTCA



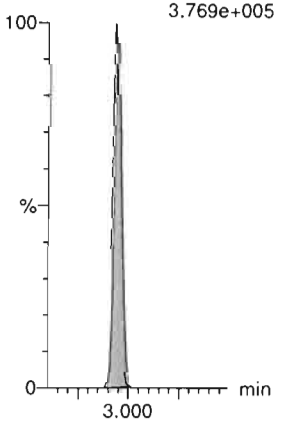
PFHpA



ADONA



13C2-PFHxA-EIS



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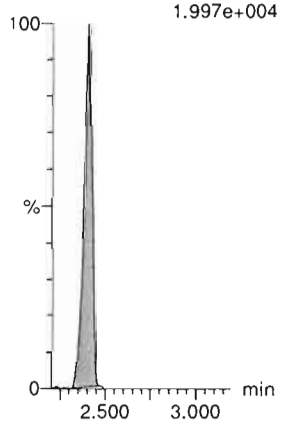

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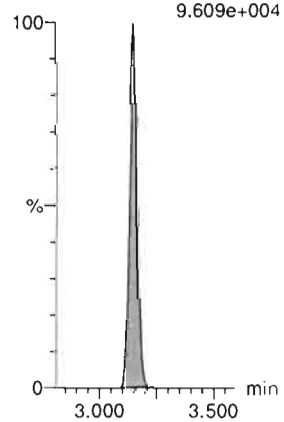

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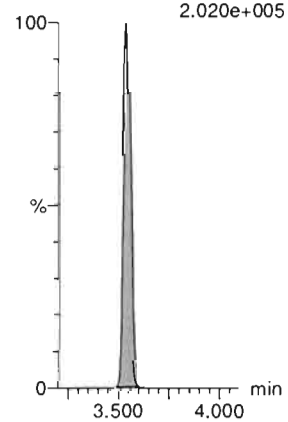

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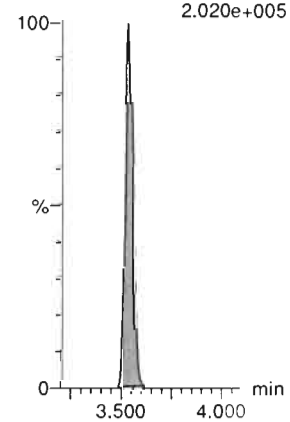

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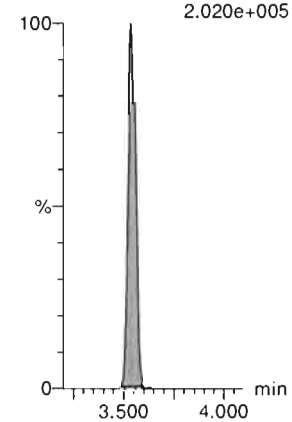

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Name: 200304P2-10, Date: 04-Mar-2020, Time: 20:45:22, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

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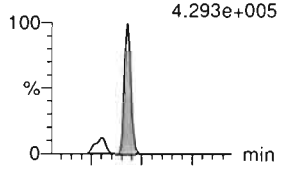

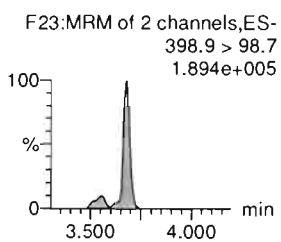

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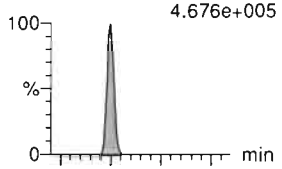

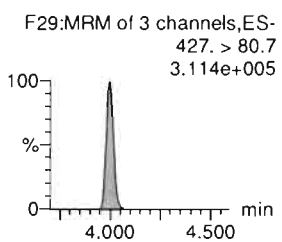

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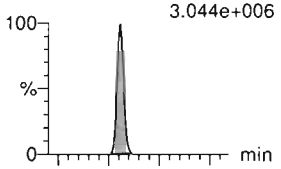

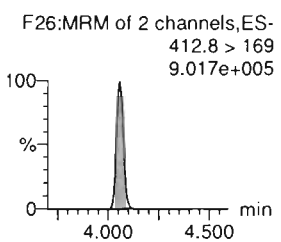

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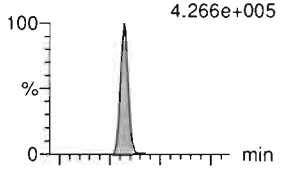

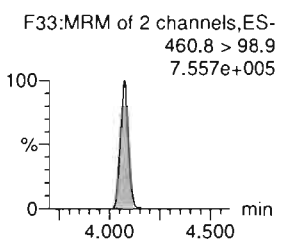

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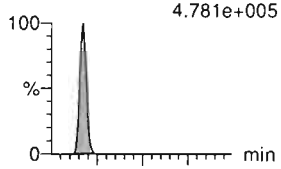

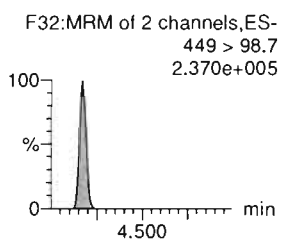

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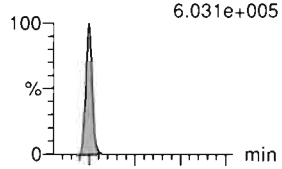

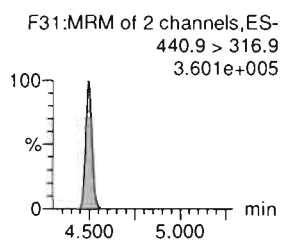

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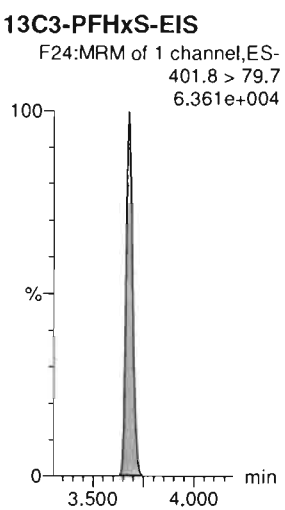

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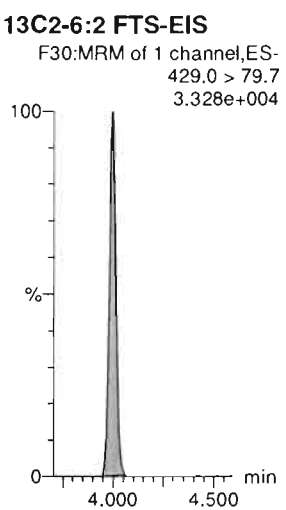

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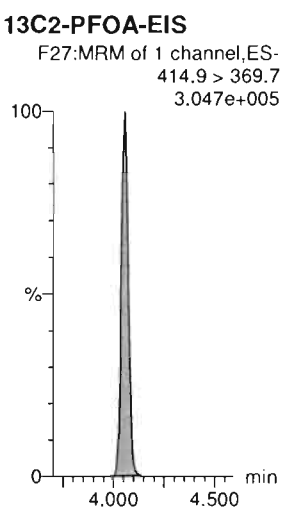

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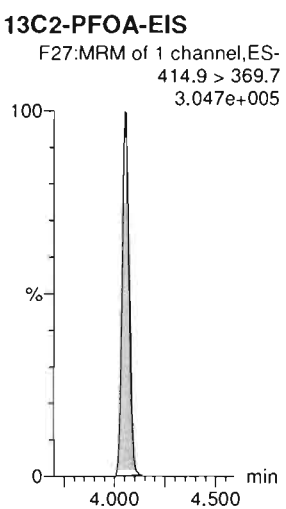

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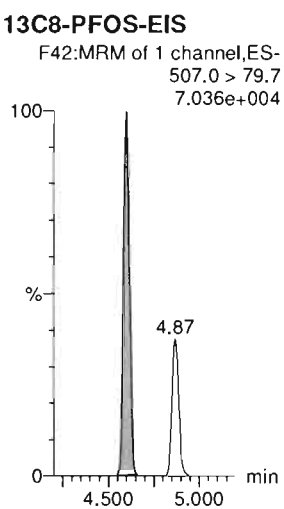

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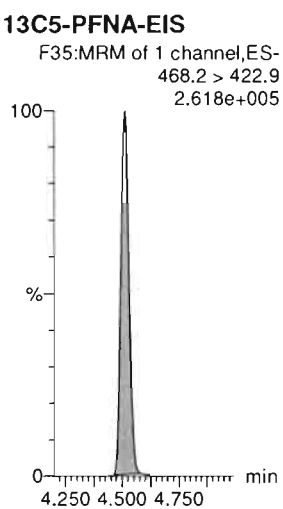

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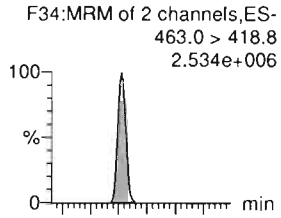

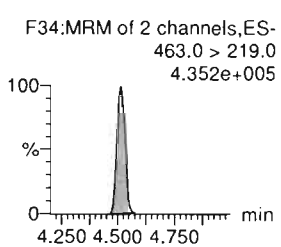

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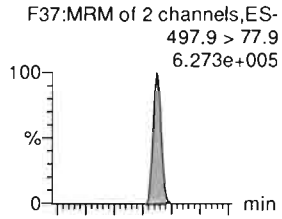

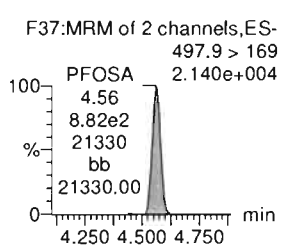

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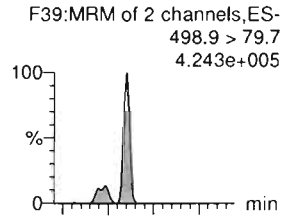

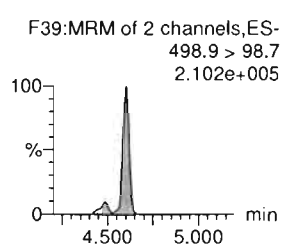

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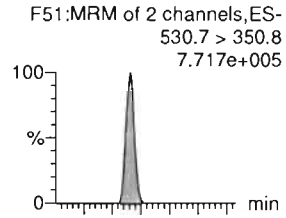

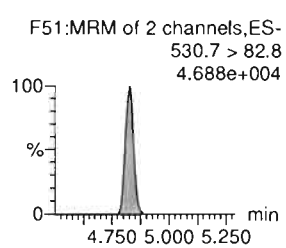

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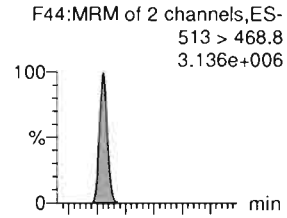

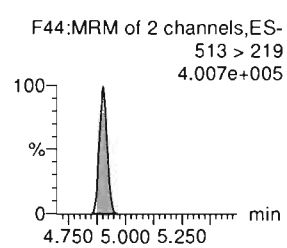

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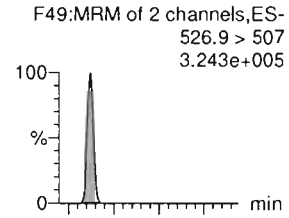

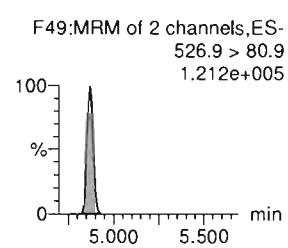

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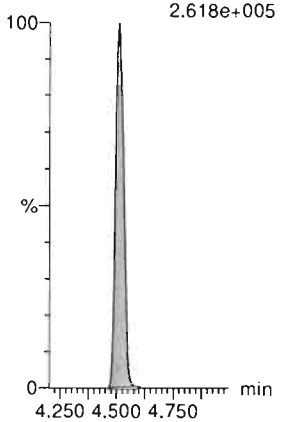

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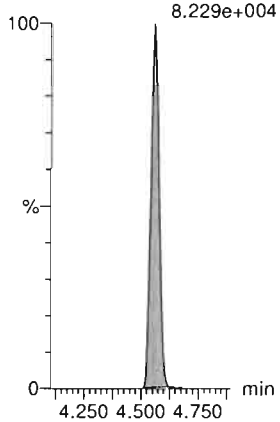

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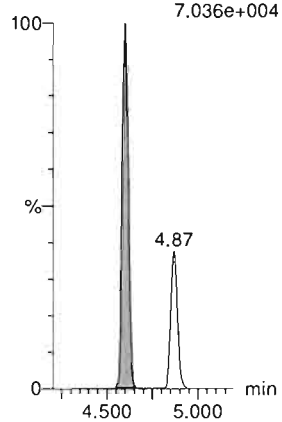

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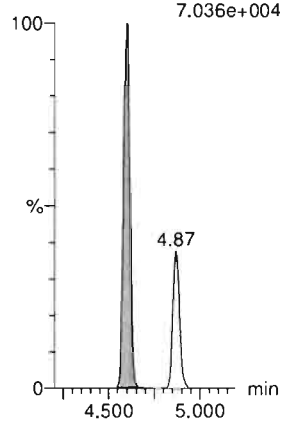

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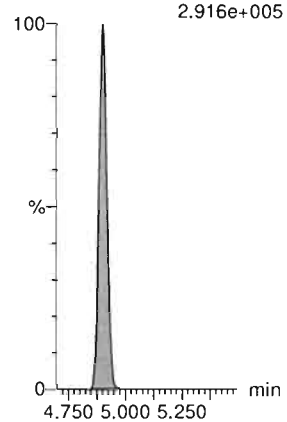

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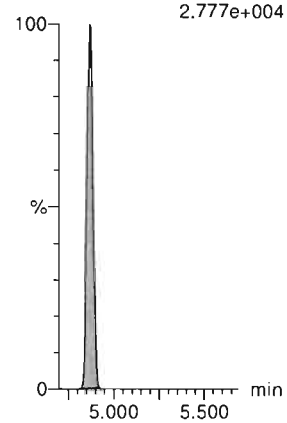

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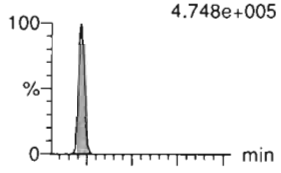

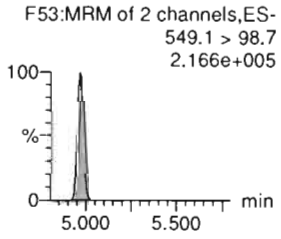

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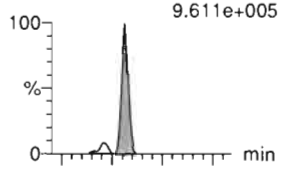

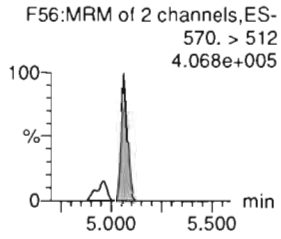

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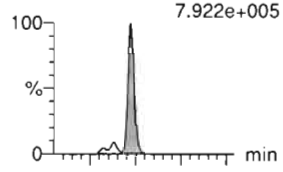

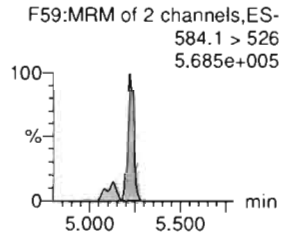

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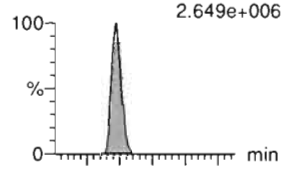

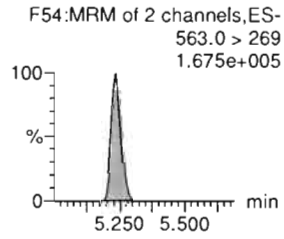

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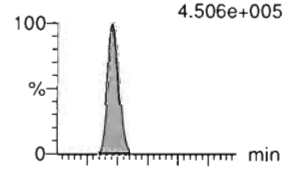

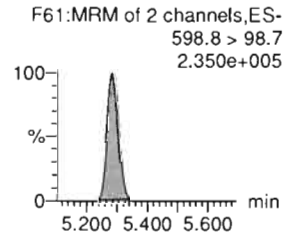

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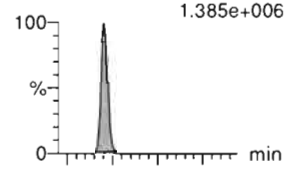
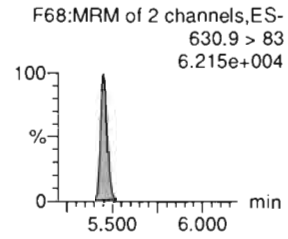
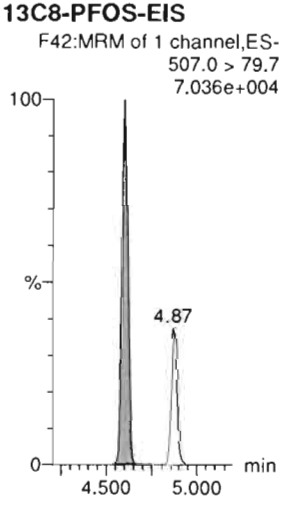
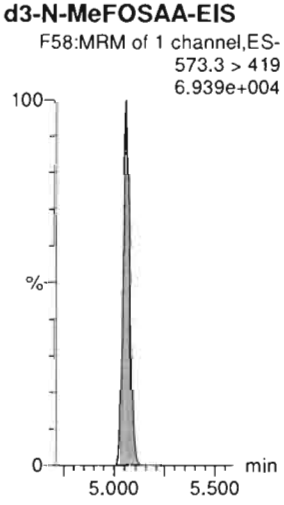




13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



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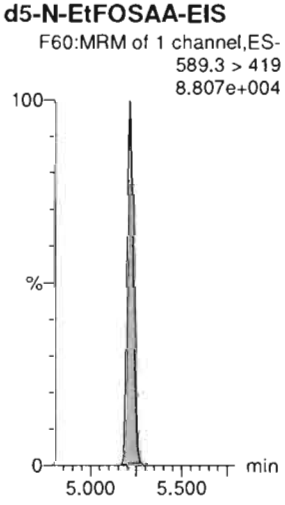
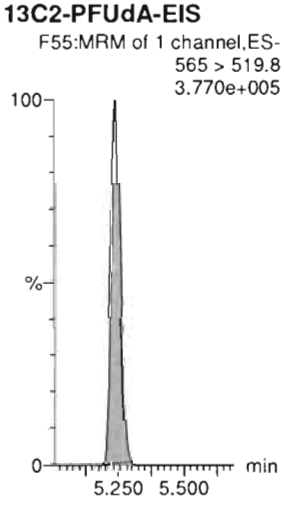


13C2-PFUdA-EIS



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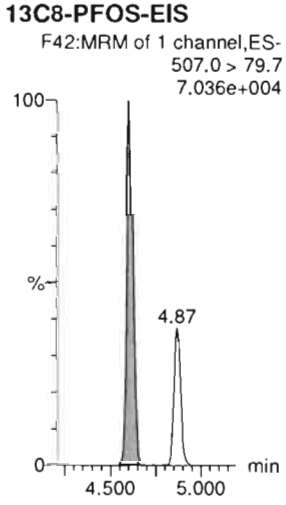

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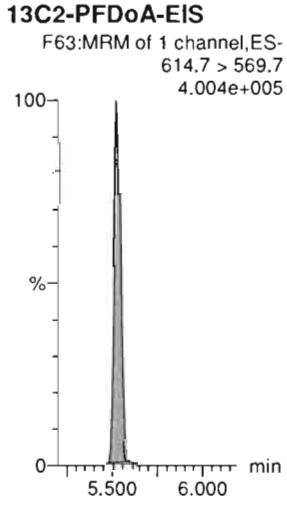

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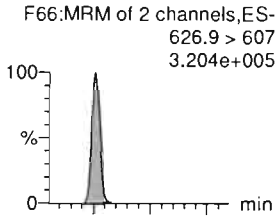
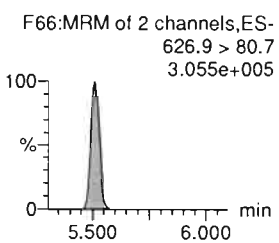
Name: 200304P2-10, Date: 04-Mar-2020, Time: 20:45:22, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

10:2 FTS





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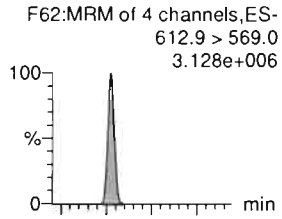
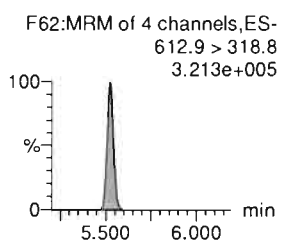
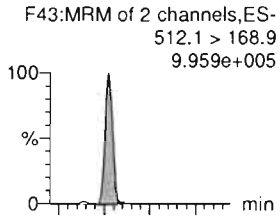
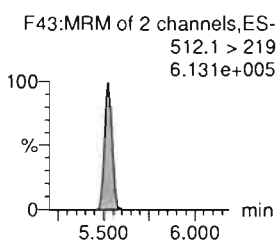


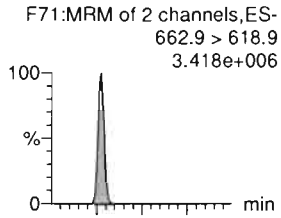


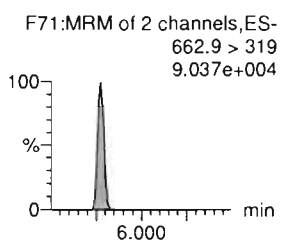
N-MeFOSA





PFTrDA





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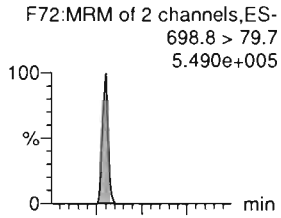

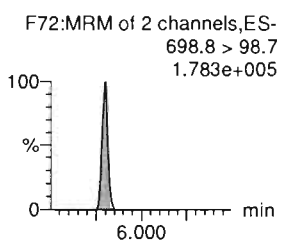

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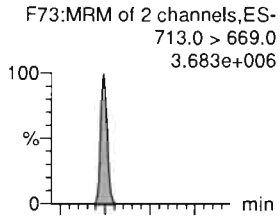
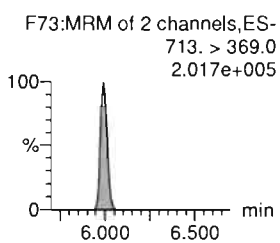
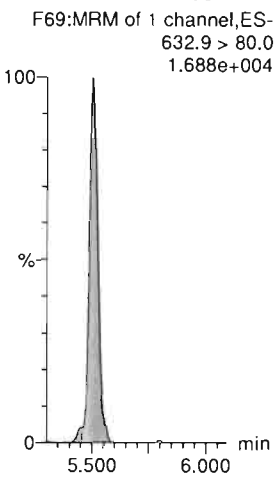
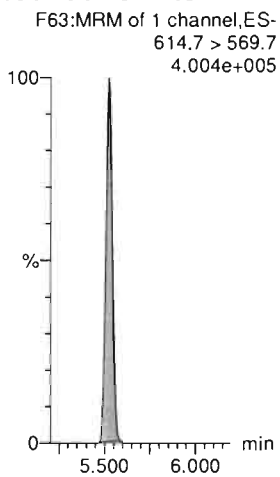




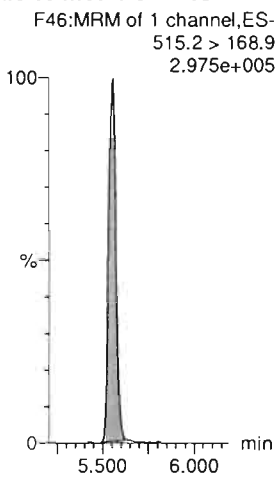
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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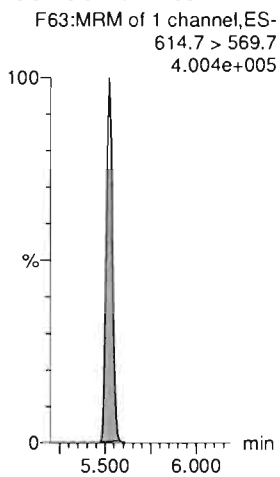

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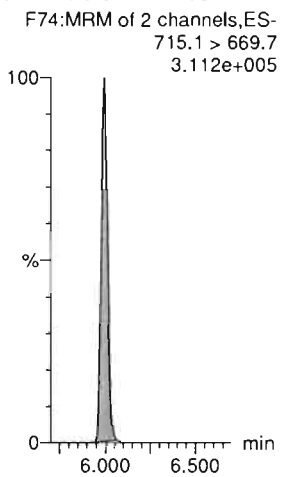

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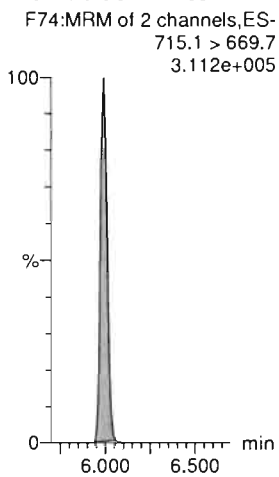

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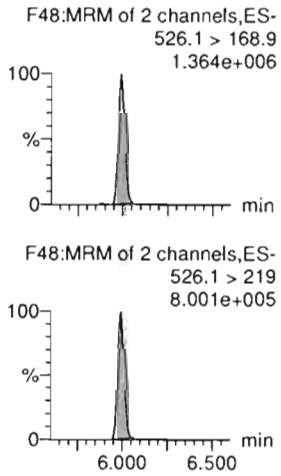
Name: 200304P2-10, Date: 04-Mar-2020, Time: 20:45:22, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

N-EtFOSA



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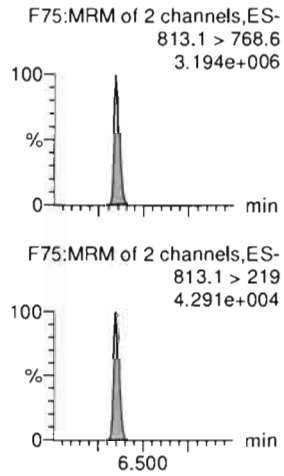

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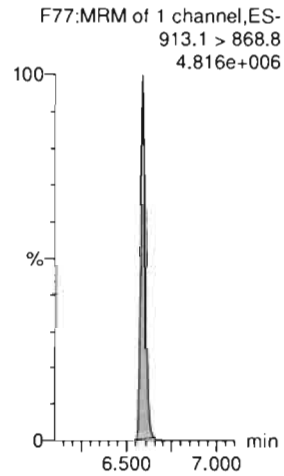
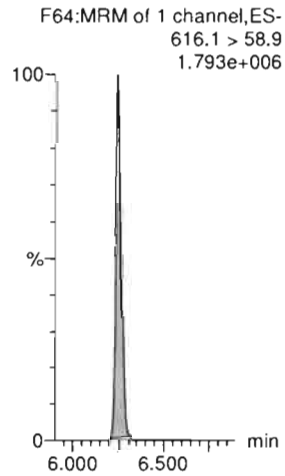


N-MeFOSE



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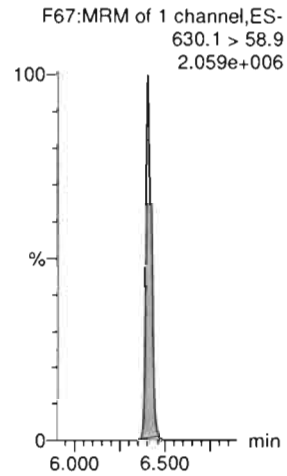

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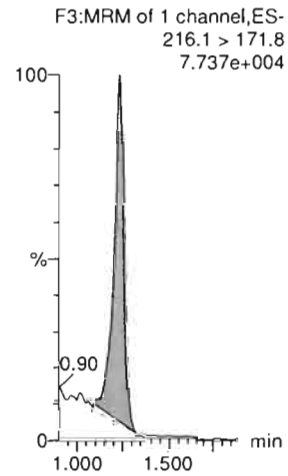
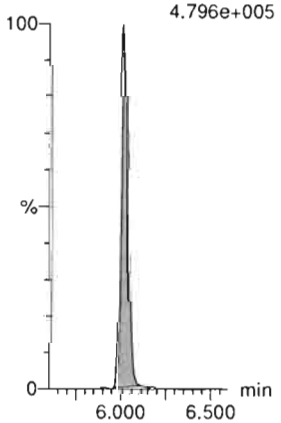


d5-N-ETFOSA-EIS



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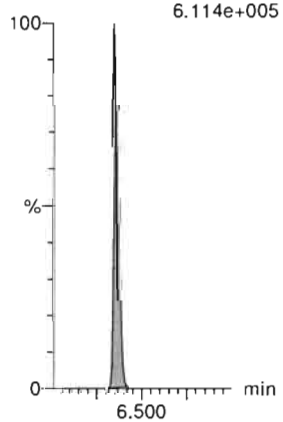

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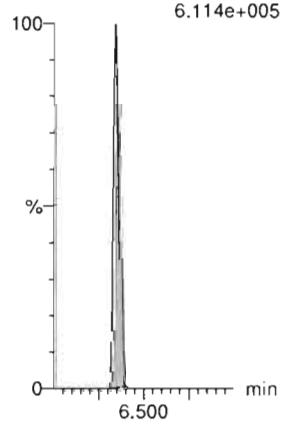
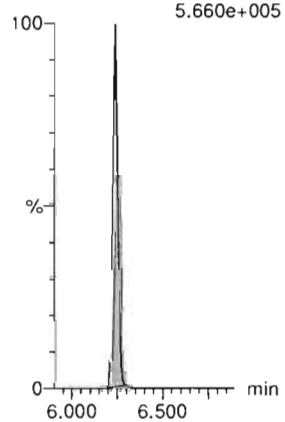


d7-N-MeFOSE-EIS



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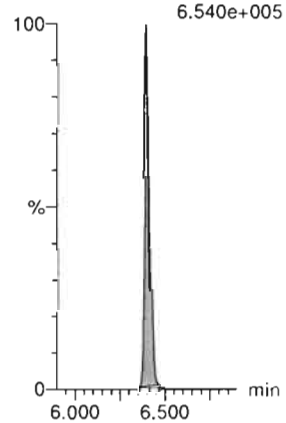

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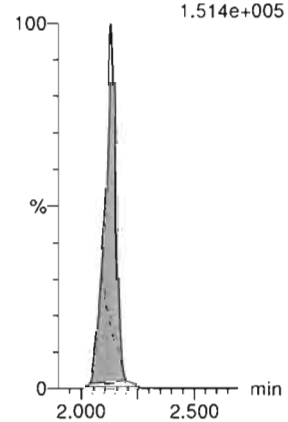

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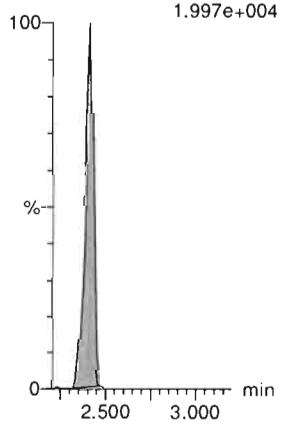
13C3-PFBS-RSD



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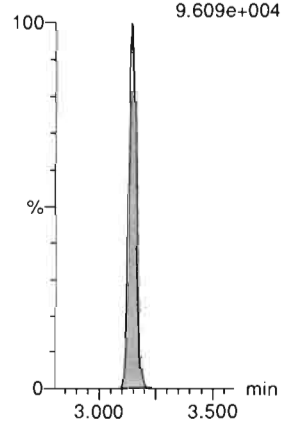

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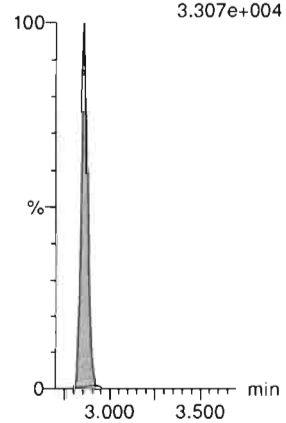
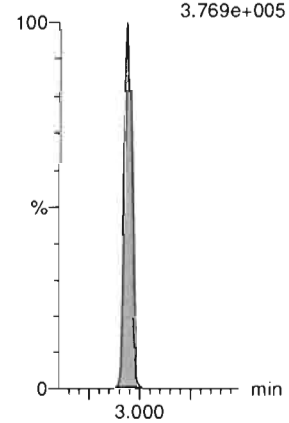


13C2-PFHxA-RSD



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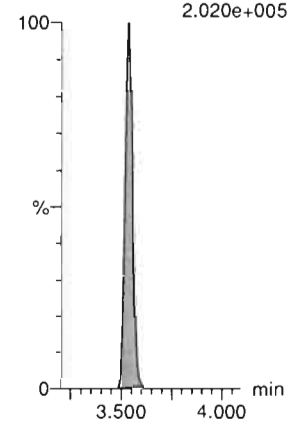

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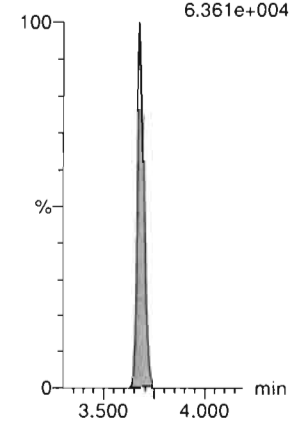

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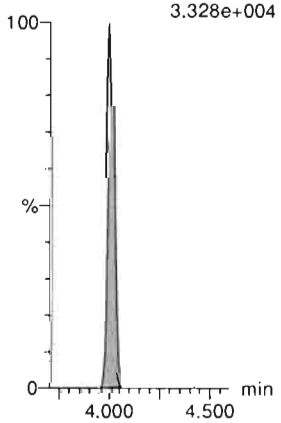
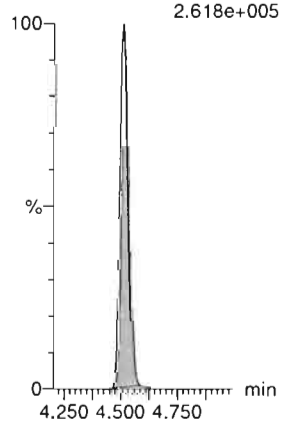


13C5-PFNA-RSD



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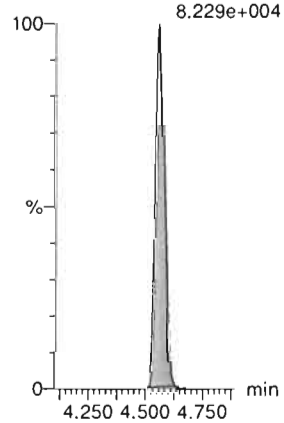

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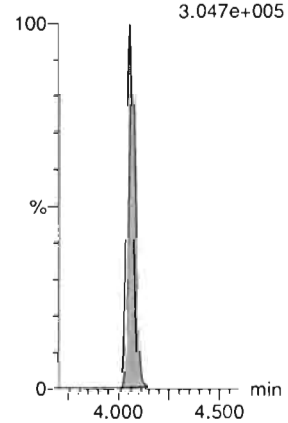

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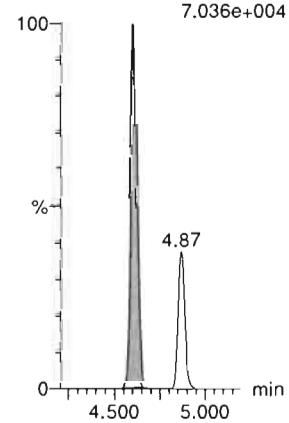
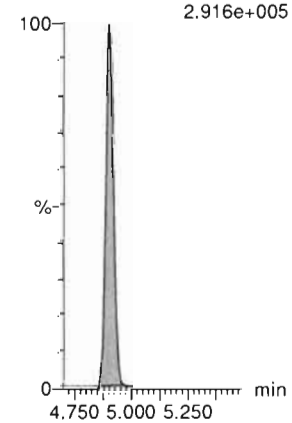


13C2-PFDA-RSD



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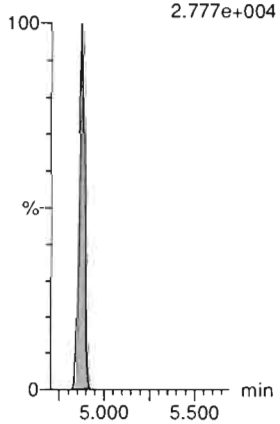
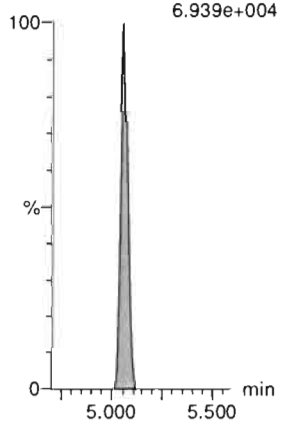
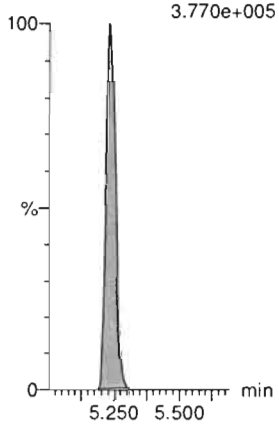
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.777e+004



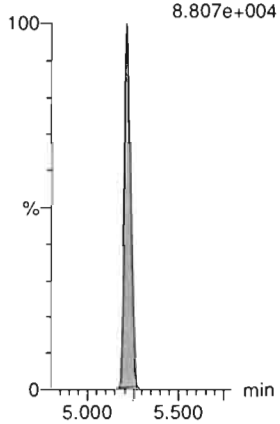
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.939e+004



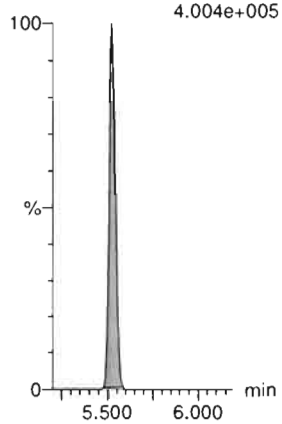
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.770e+005



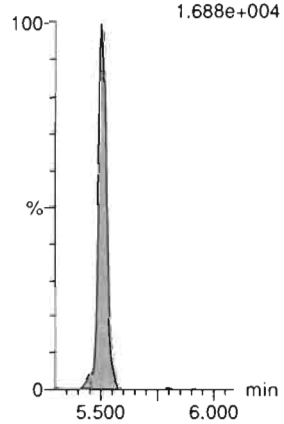
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.807e+004



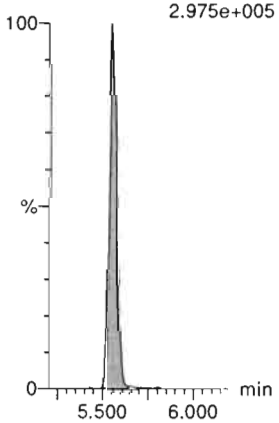
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.004e+005



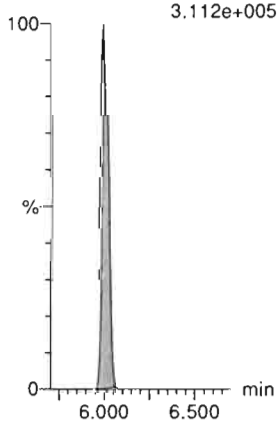
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.688e+004



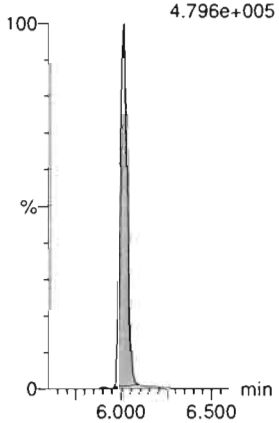
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.975e+005



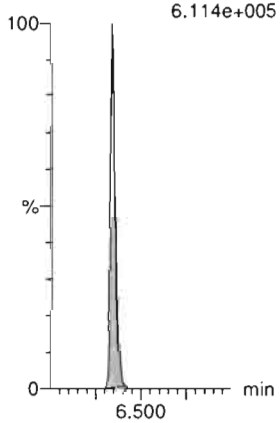
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.112e+005



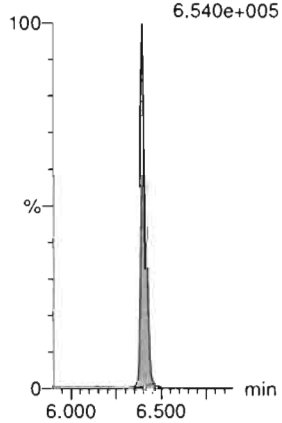
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.796e+005



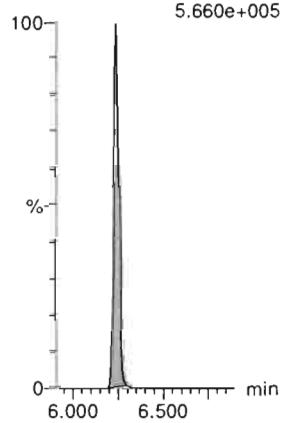
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.114e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.540e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.660e+005



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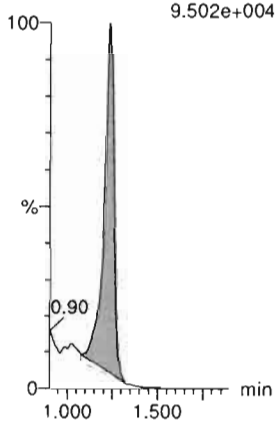
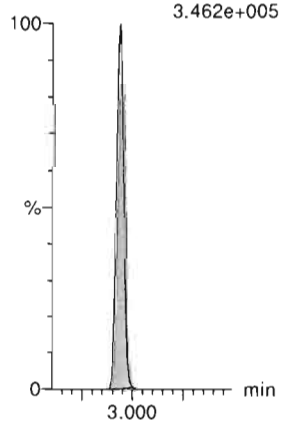
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-10, Date: 04-Mar-2020, Time: 20:45:22, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

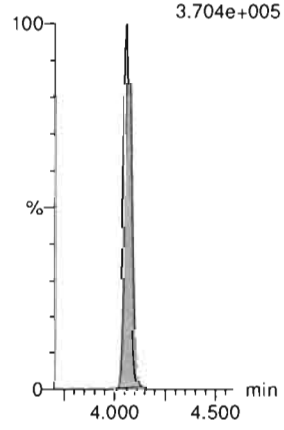
13C4-PFBA



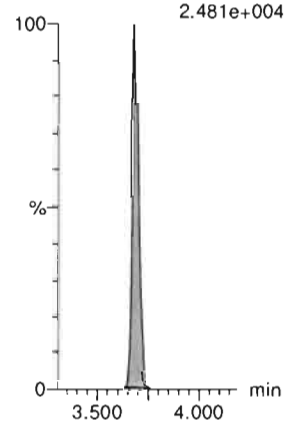
13C5-PFHxA



13C8-PFOA



18O2-PFHxS



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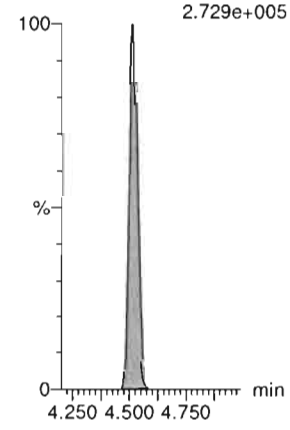
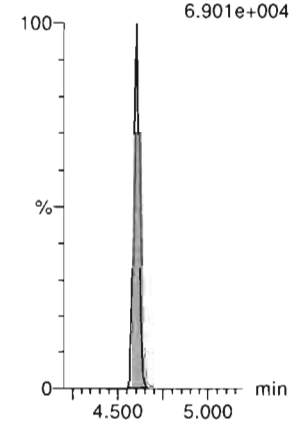
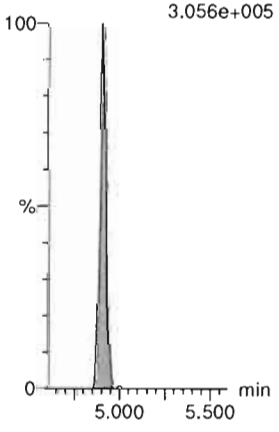


13C4-PFOS



13C6-PFDA



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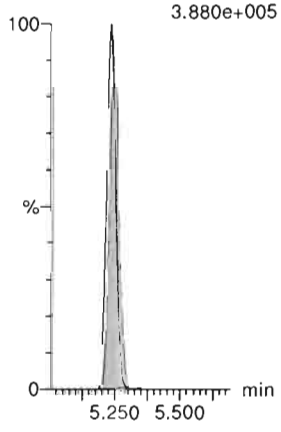

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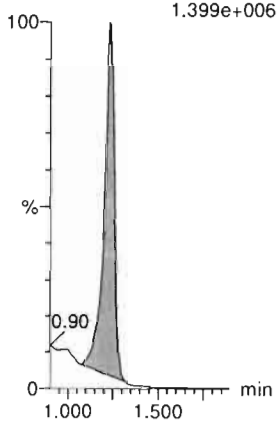
Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

PFBA



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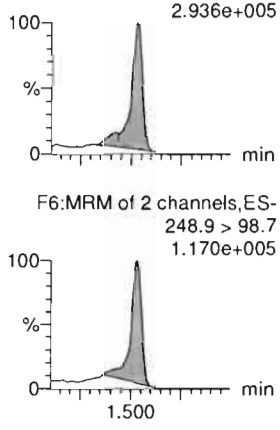
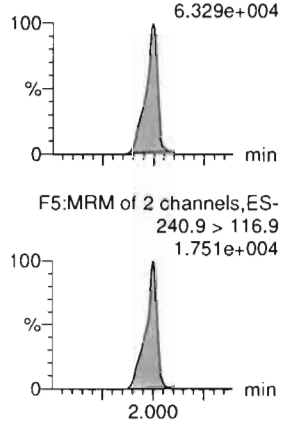


3:3 FTCA



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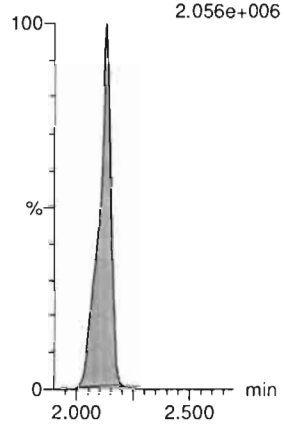
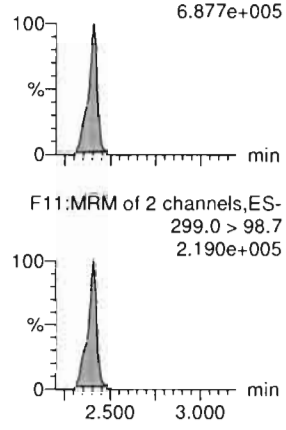
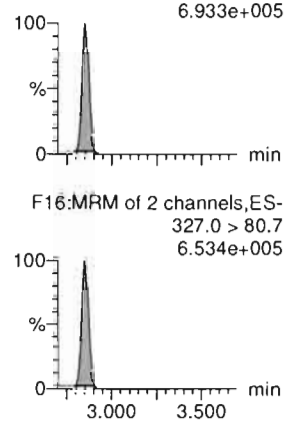


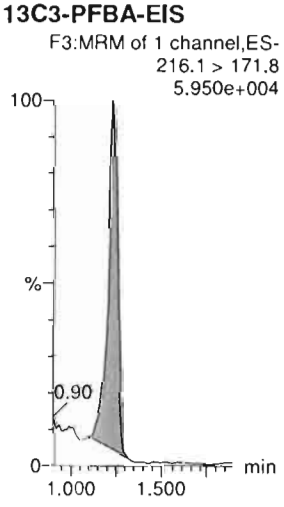
PFBS



4:2 FTS



13C3-PFBA-EIS



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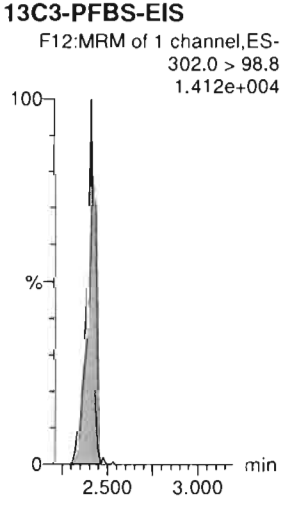

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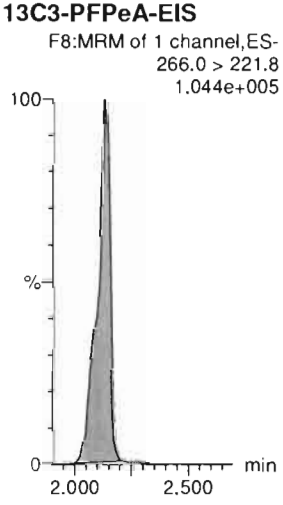

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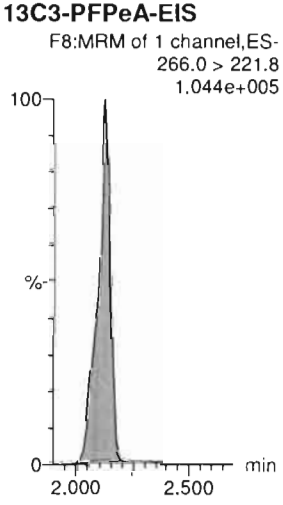

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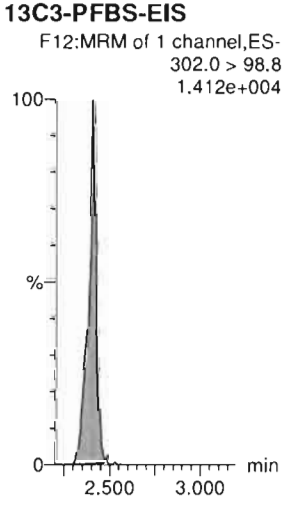
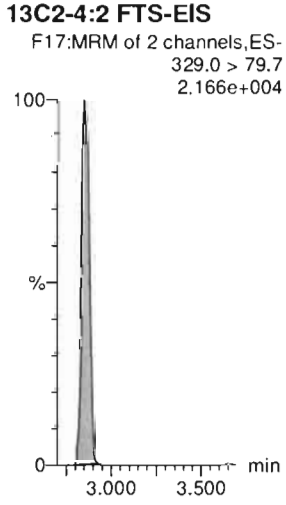


13C2-4:2 FTS-EIS



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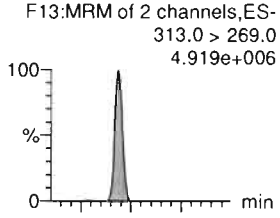
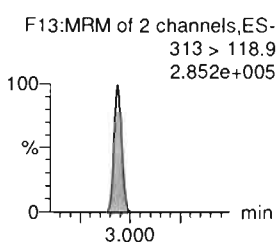
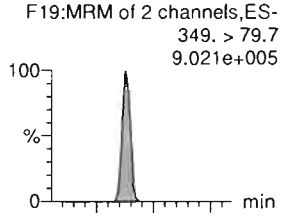
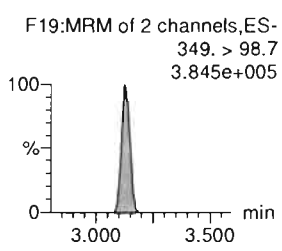
PFHxA



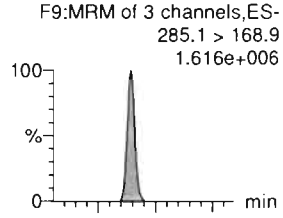


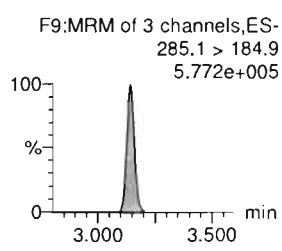
PFPeS



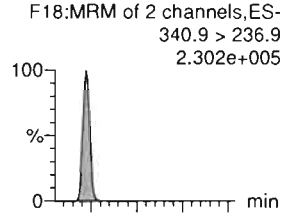


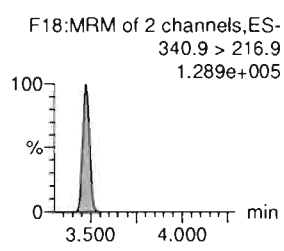
HFPO-DA



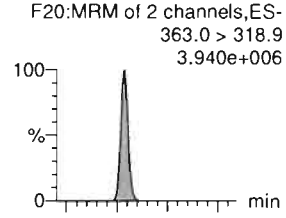


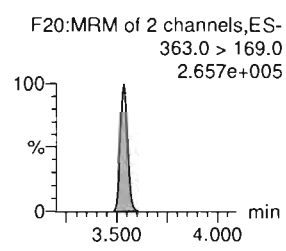
5:3 FTCA



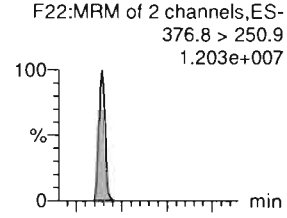


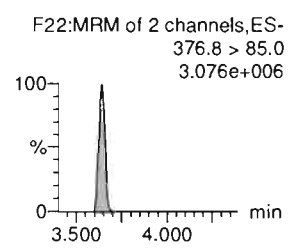
PFHpA



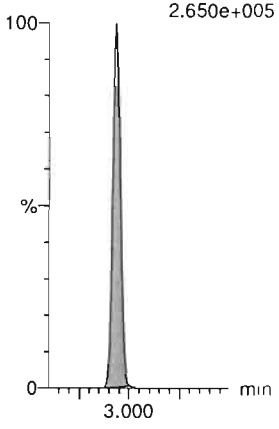


ADONA

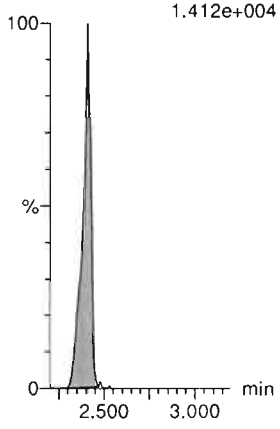




13C2-PFHxA-EIS



13C3-PFBS-EIS



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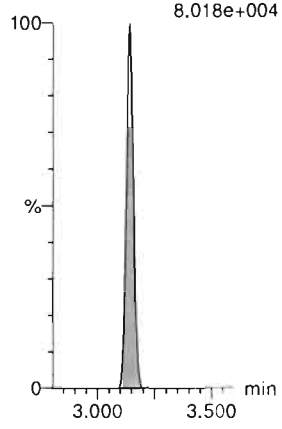
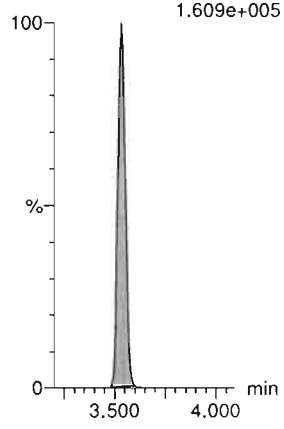
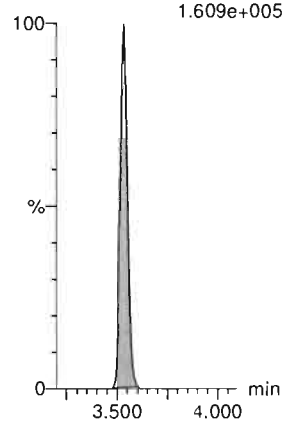


13C4-PFHpA-EIS



13C4-PFHpA-EIS



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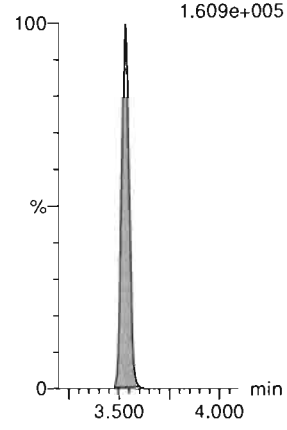

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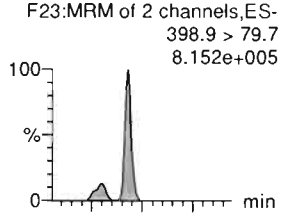
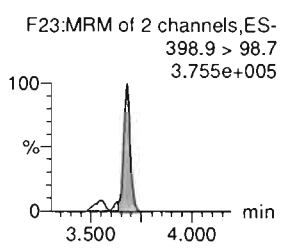
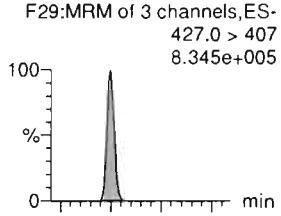
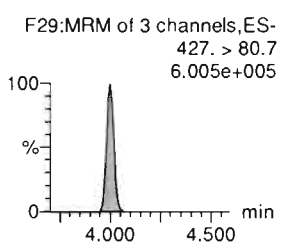
L-PFHxS



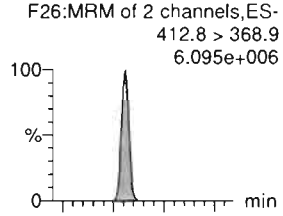


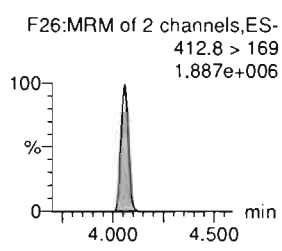
6:2 FTS



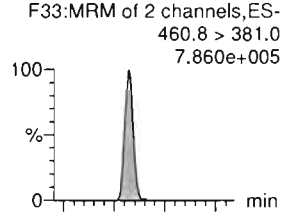


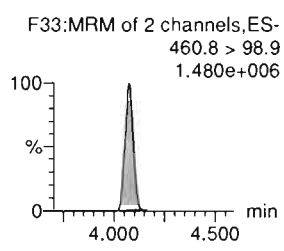
L-PFOA





PFECHS





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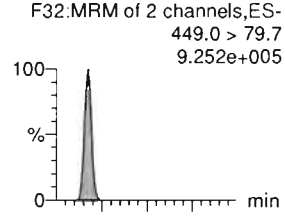
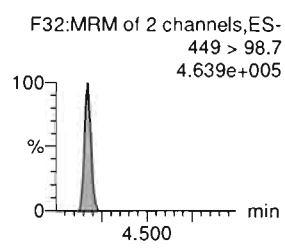
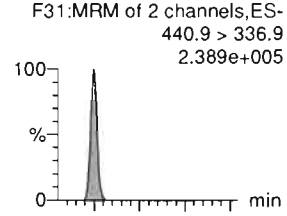
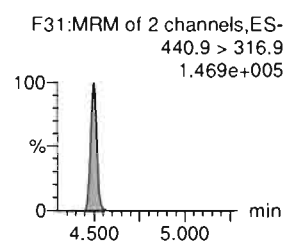




7:3 FTCA





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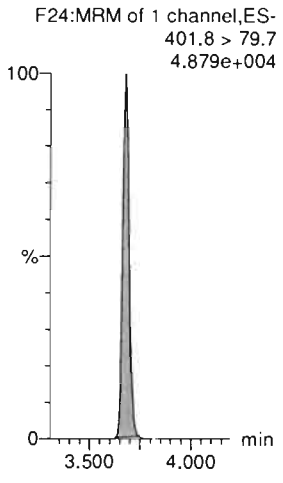
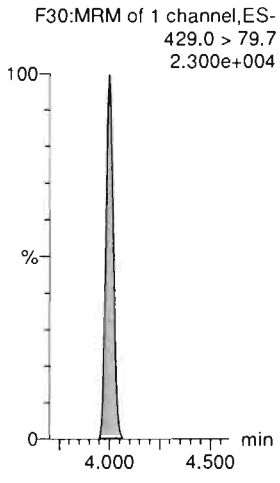


13C2-6:2 FTS-EIS



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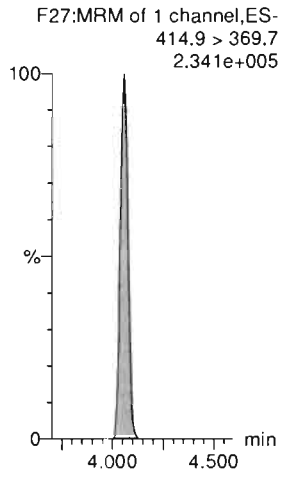

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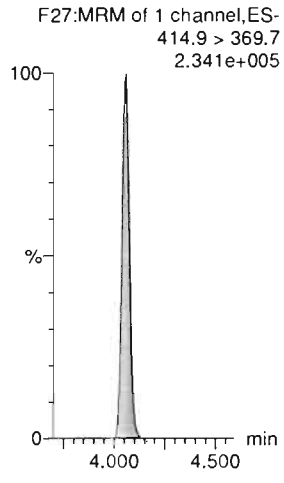
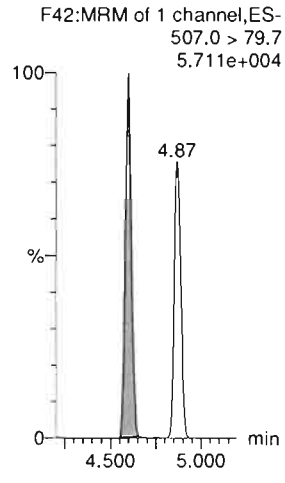
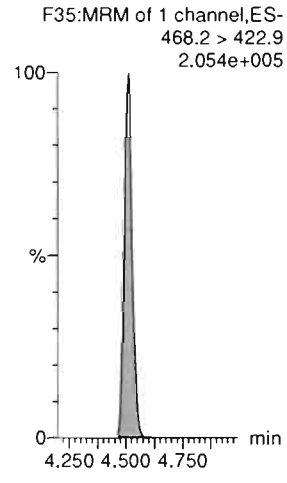


13C8-PFOS-EIS



13C5-PFNA-EIS



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Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

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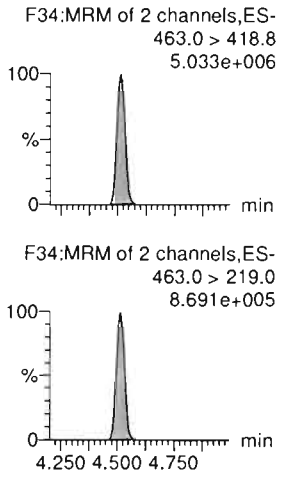

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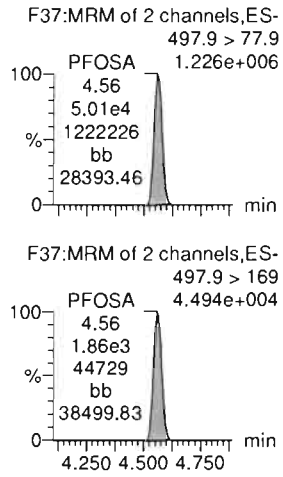

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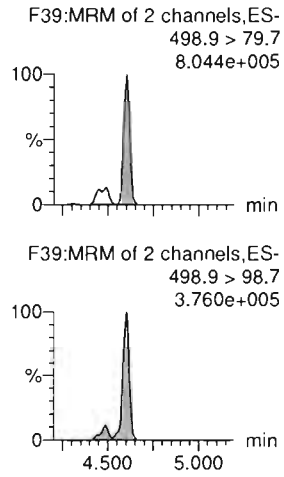

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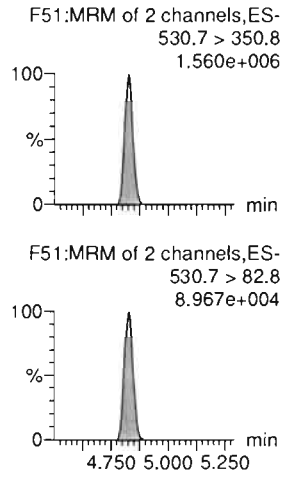

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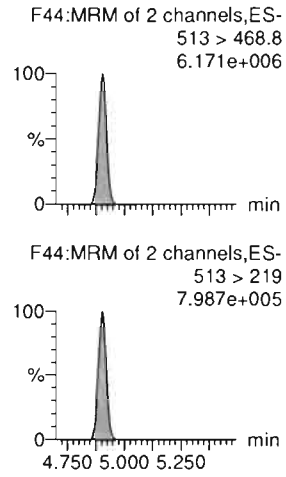
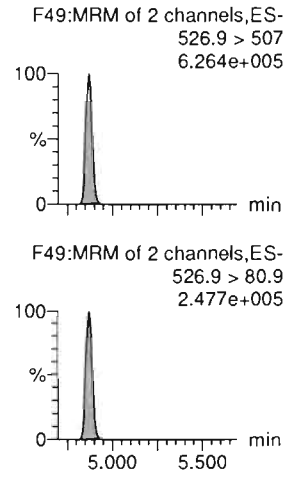


8:2 FTS



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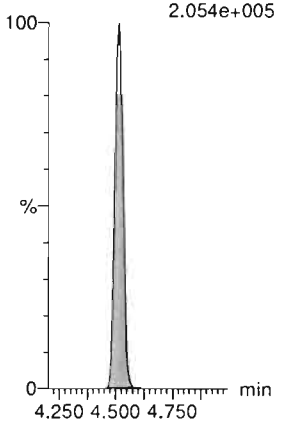
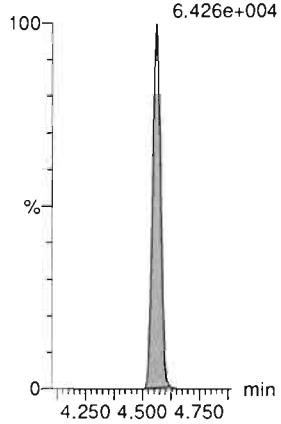


13C8-PFOSA-EIS



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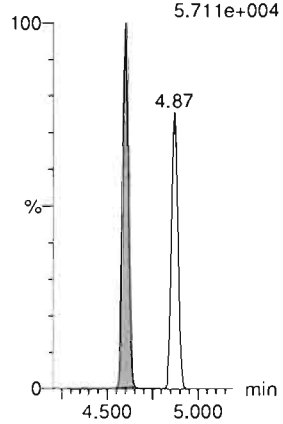

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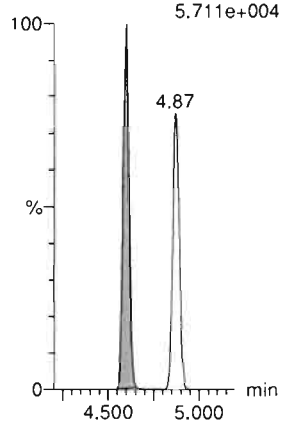

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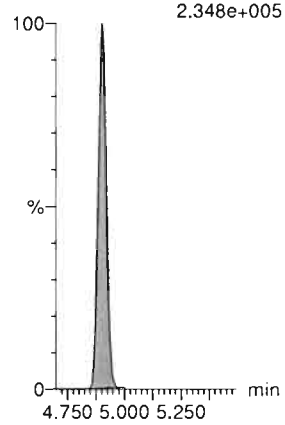

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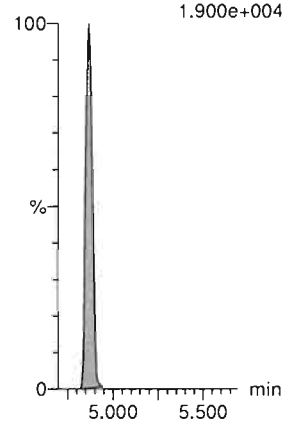

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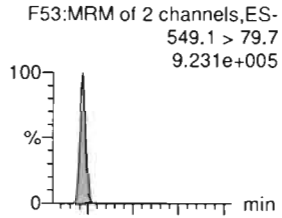
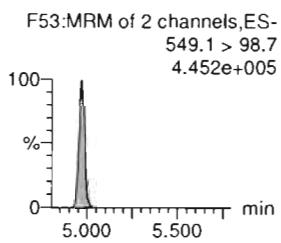
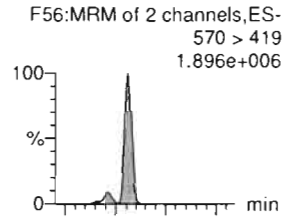
Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

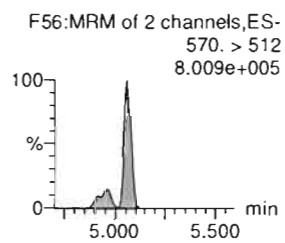
PFNS





L-MeFOSAA





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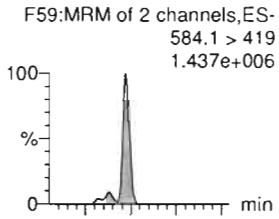

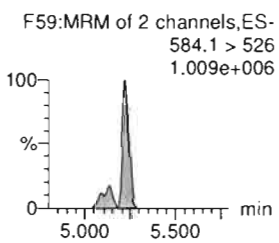

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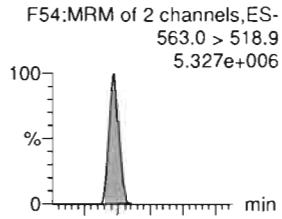

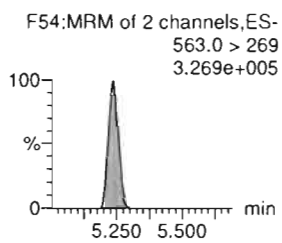

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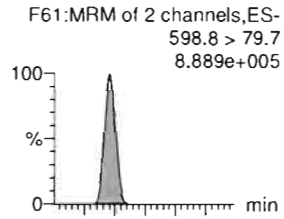
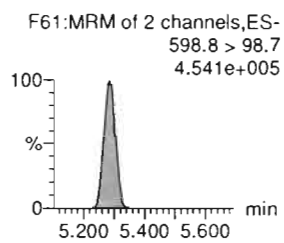
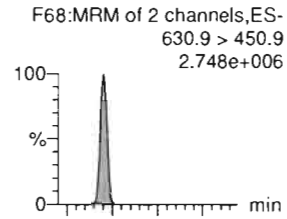
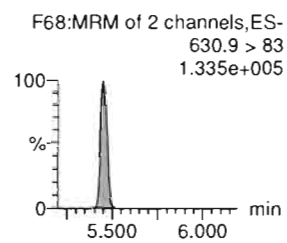


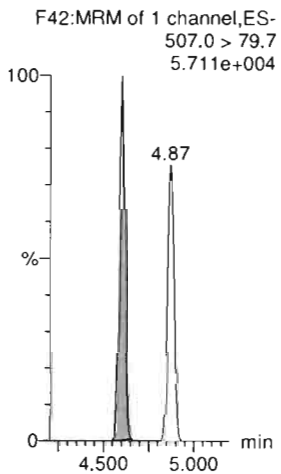


11Cl-PF30UdS

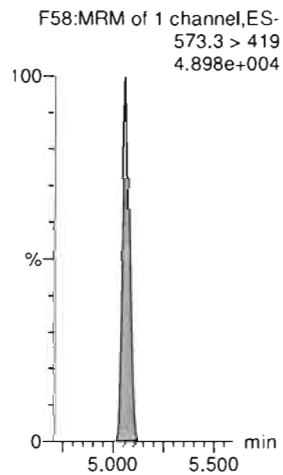




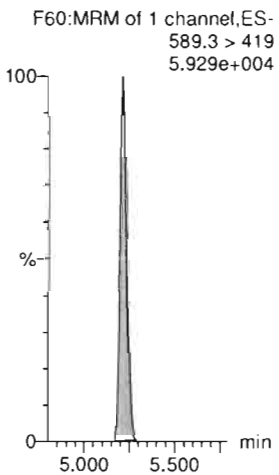
13C8-PFOS-EIS



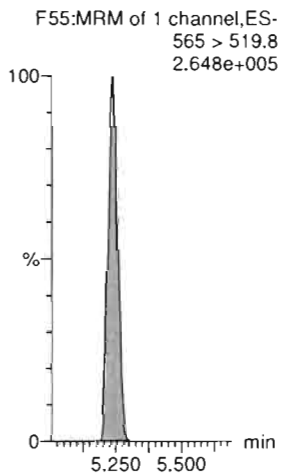
d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



13C2-PFUdA-EIS



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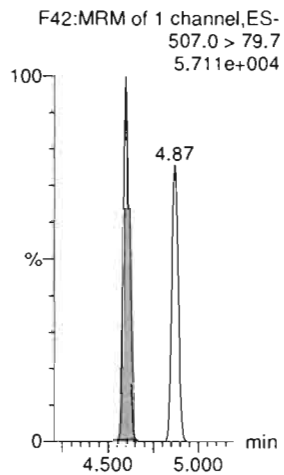

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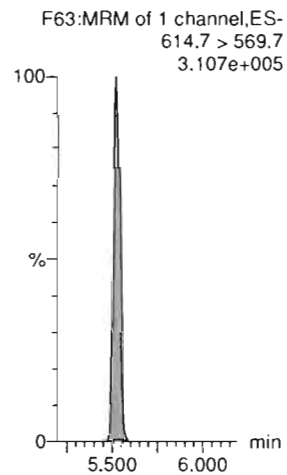

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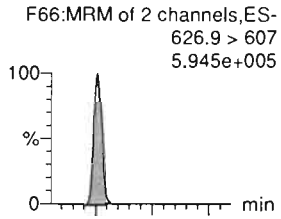
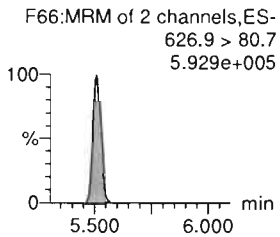
10:2 FTS





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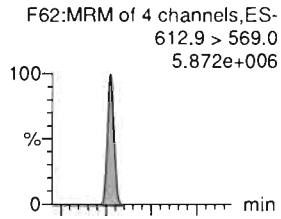
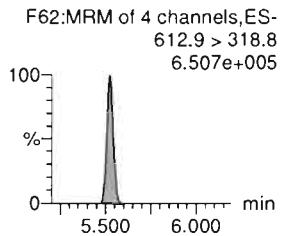
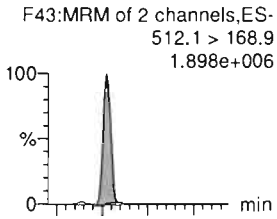
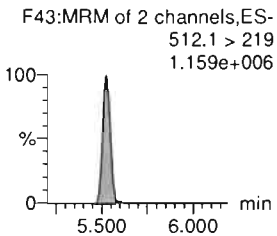




N-MeFOSA





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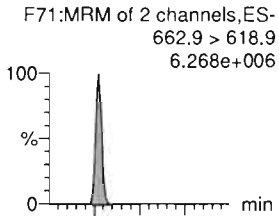
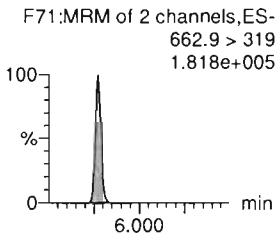
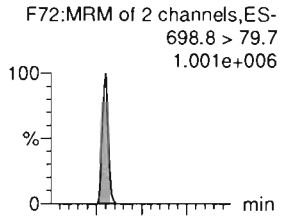
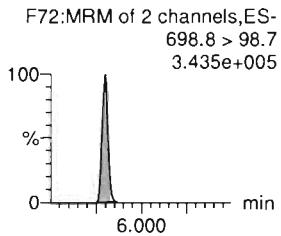


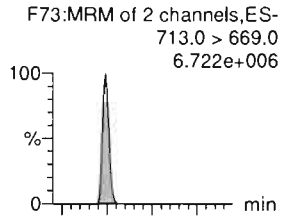


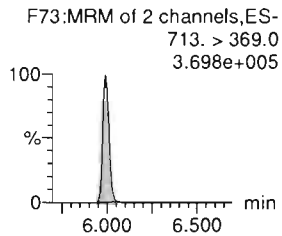
PFDoS



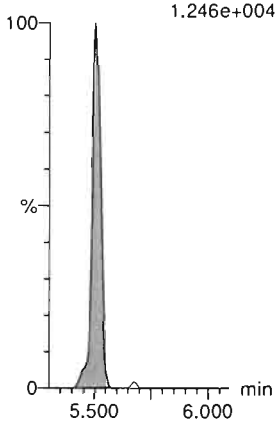


PFTeDA

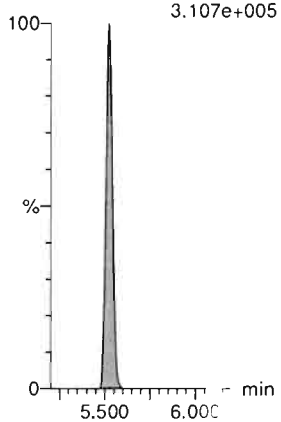




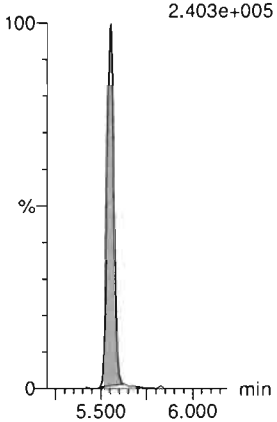
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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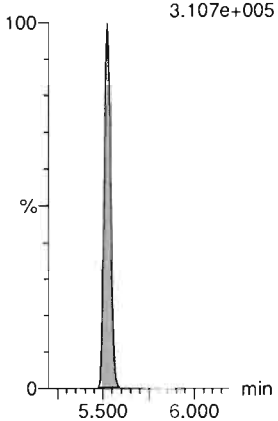

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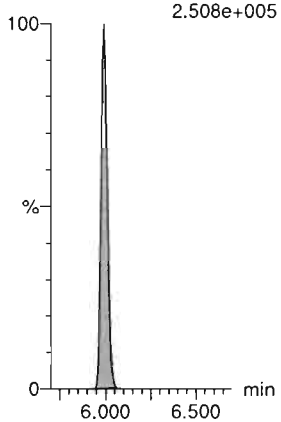
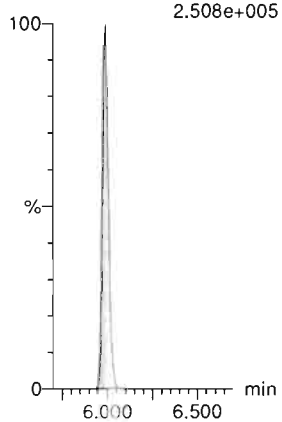


13C2-PFTeDA-EIS



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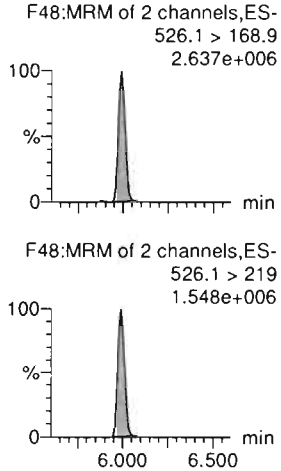
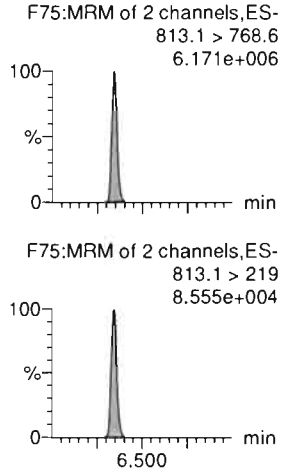
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

N-EtFOSA



PFHxDA



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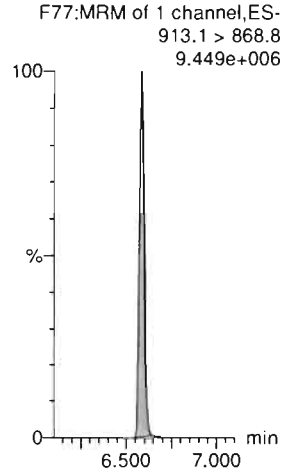
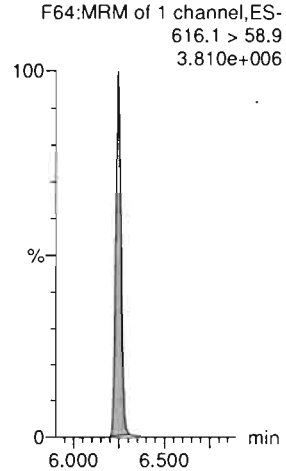
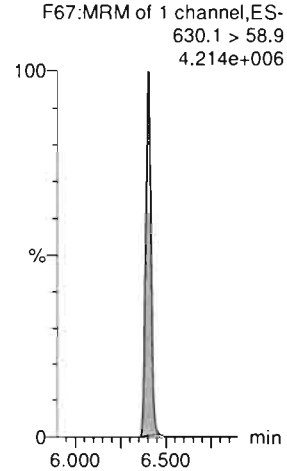


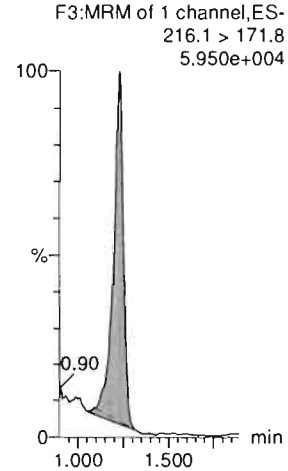
N-MeFOSE



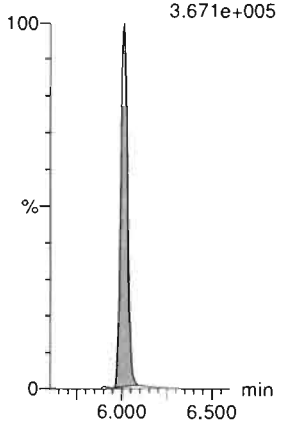
N-EtFOSE



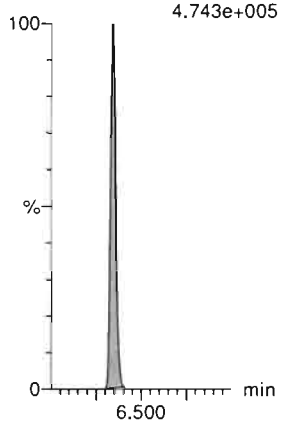
13C3-PFBA-RSD



d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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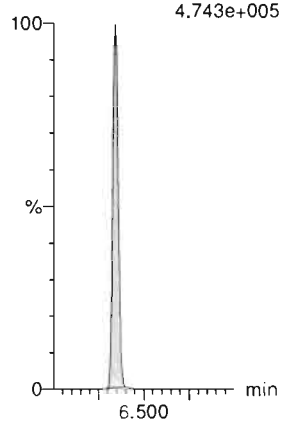
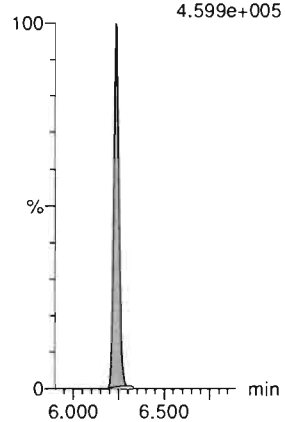
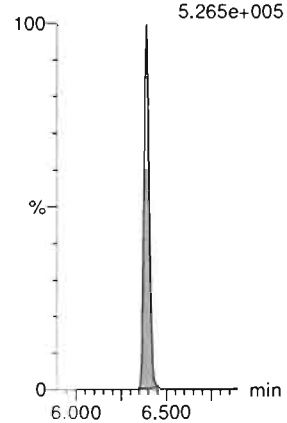


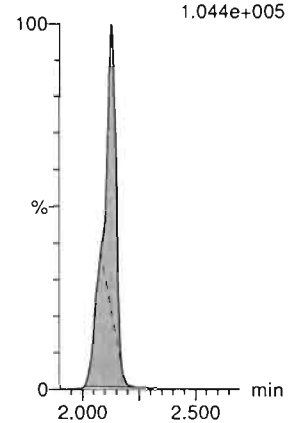
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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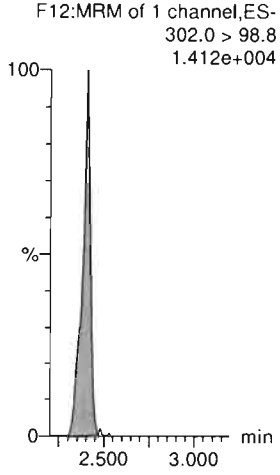
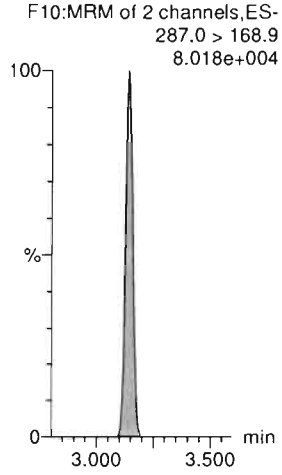
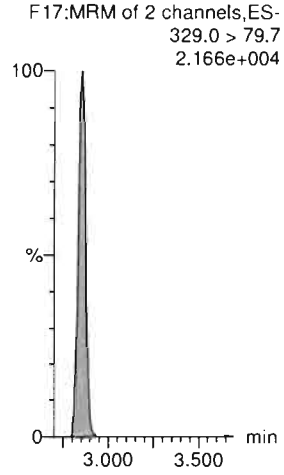
13C3-PFBS-RSD



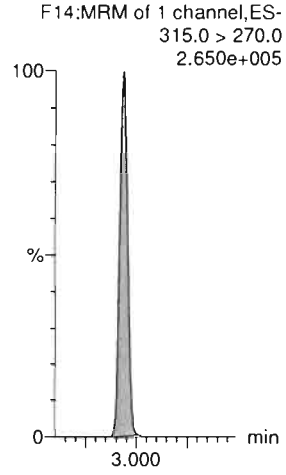
13C3-HFPO-DA-RSD



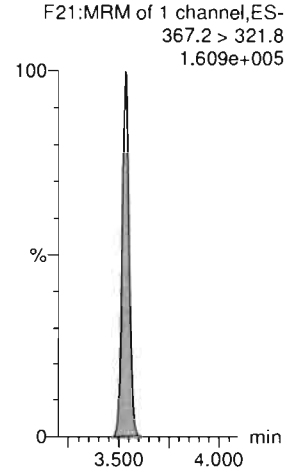
13C2-4:2 FTS-RSD



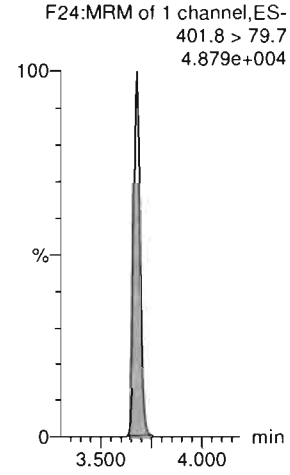
13C2-PFHxA-RSD



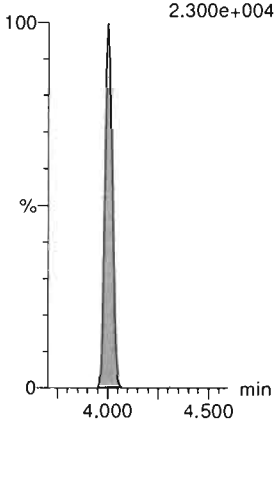
13C4-PFHpA-RSD



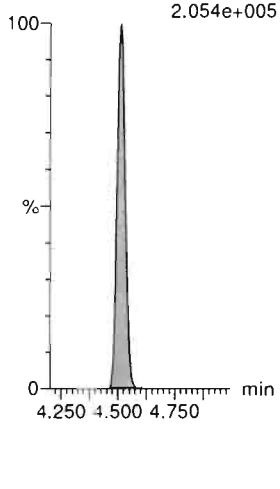
13C3-PFHxS-RSD



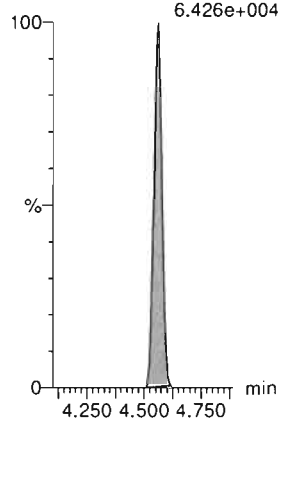
13C2-6:2 FTS-RSD



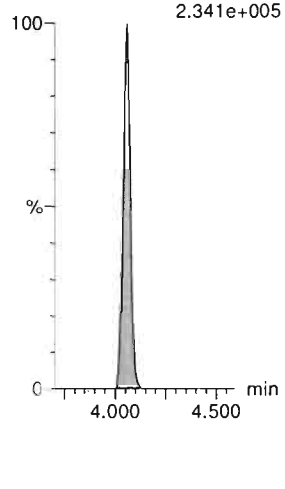
13C5-PFNA-RSD



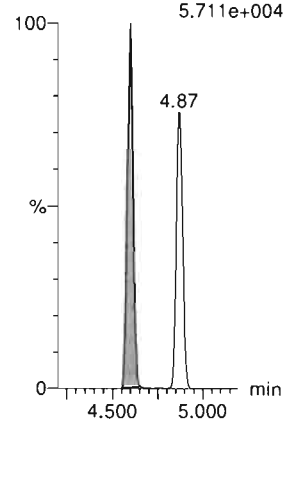
13C8-PFOSA-RSD



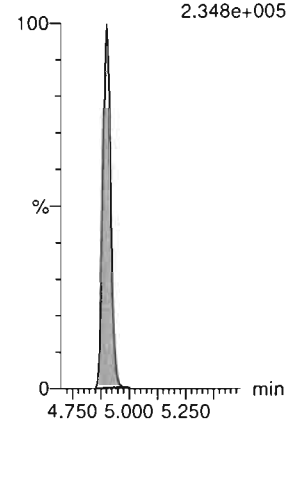
13C2-PFOA-RSD



13C8-PFOS-RSD



13C2-PFDA-RSD



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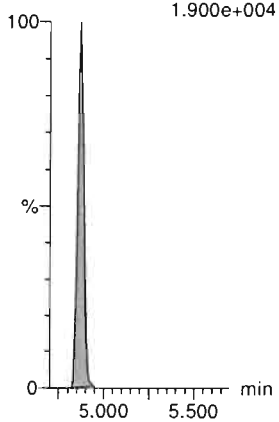
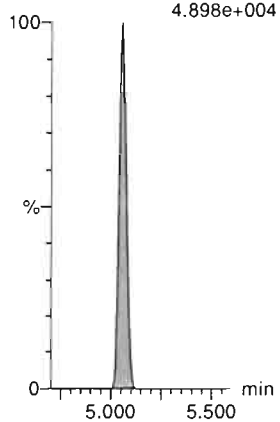
Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

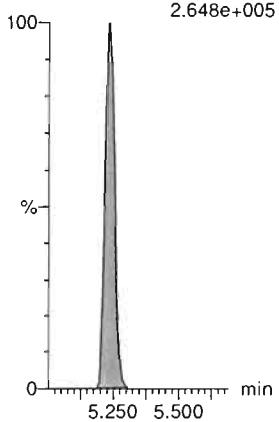
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
1.900e+004



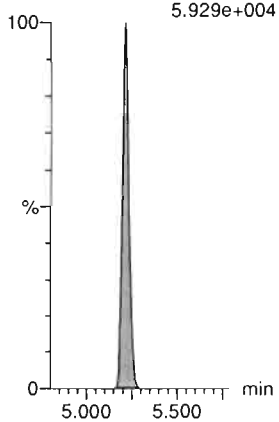
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
4.898e+004



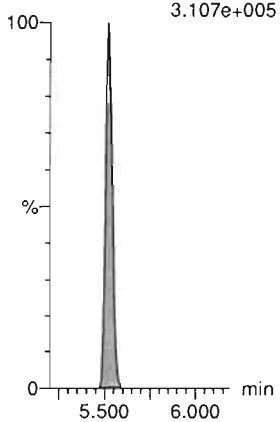
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
2.648e+005



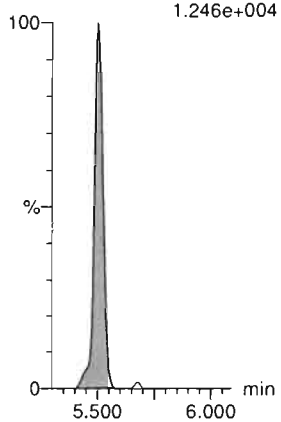
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
5.929e+004



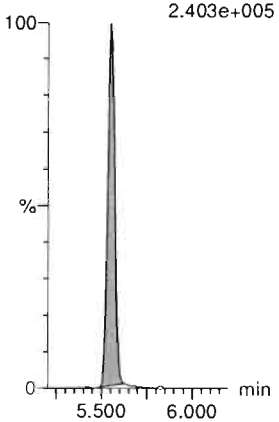
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.107e+005



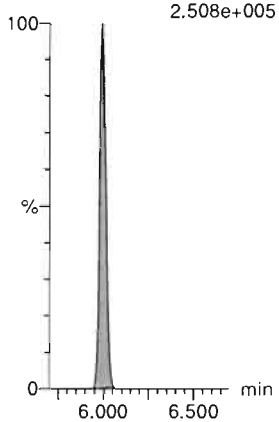
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.246e+004



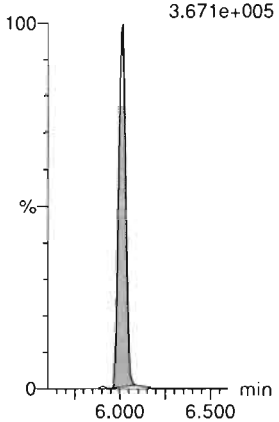
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.403e+005



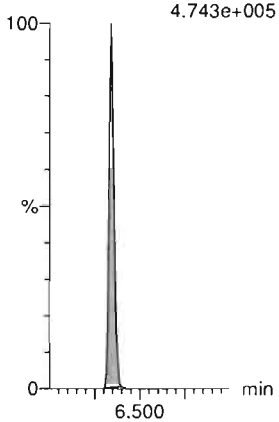
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
2.508e+005



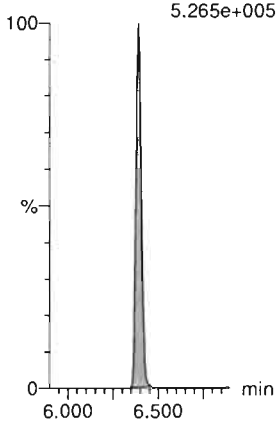
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
3.671e+005



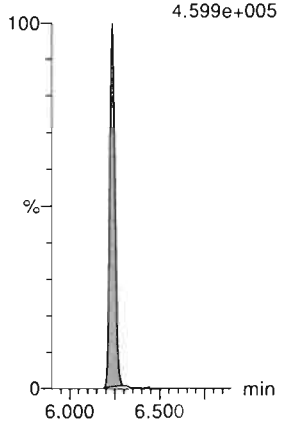
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
4.743e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
5.265e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
4.599e+005



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Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
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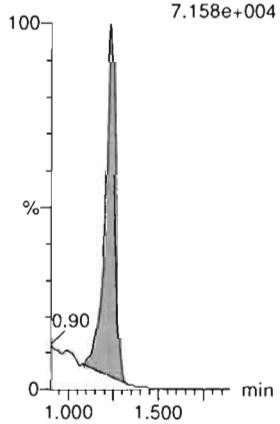
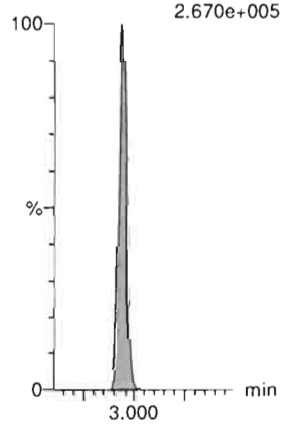
Name: 200304P2-11, Date: 04-Mar-2020, Time: 20:55:55, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

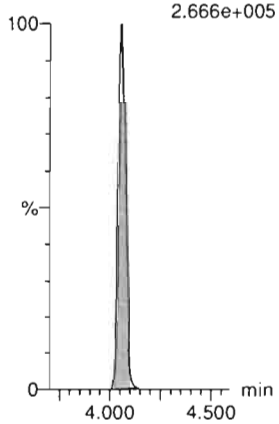
13C4-PFBA



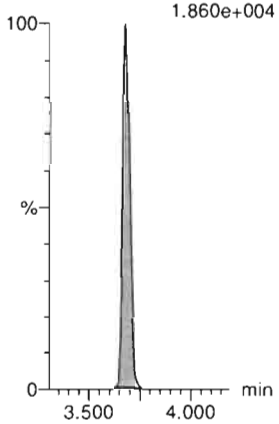
13C5-PFHxA



13C8-PFOA



18O2-PFHxS



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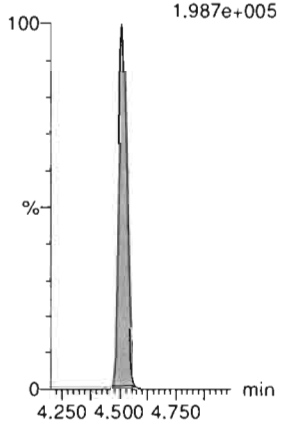

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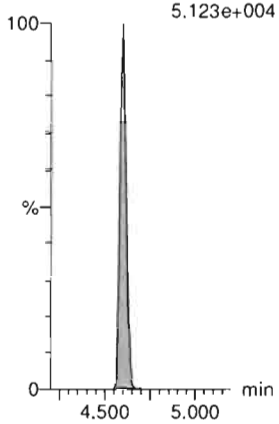

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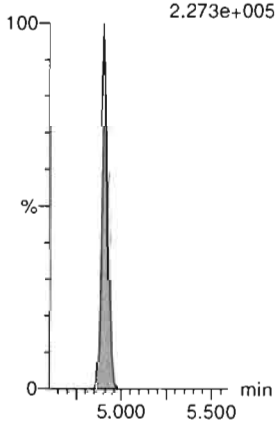

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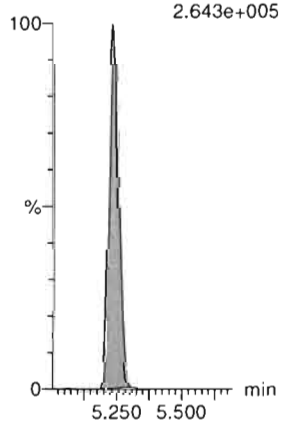

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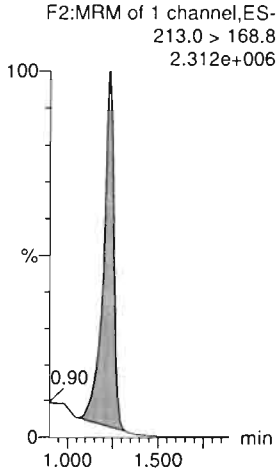
PFBA



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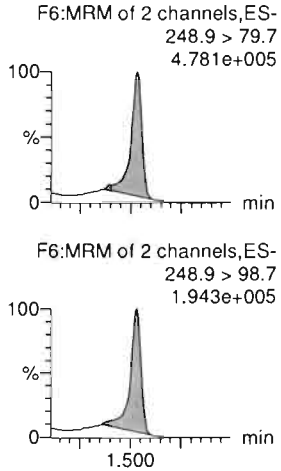
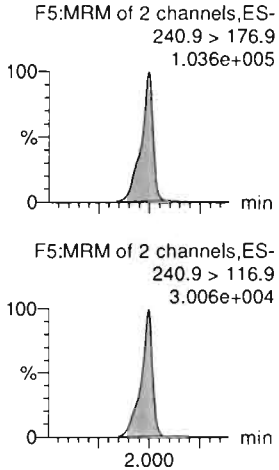


3:3 FTCA



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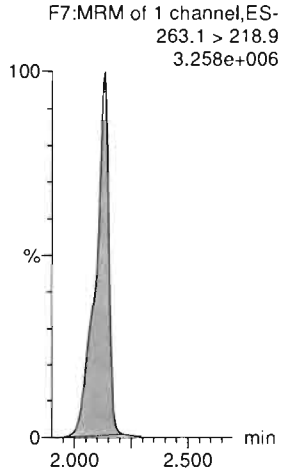

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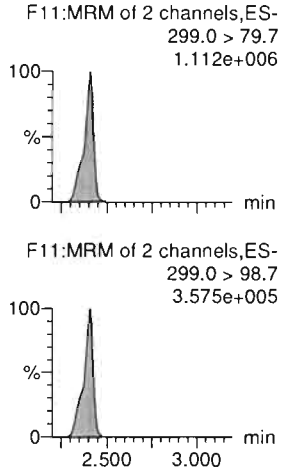
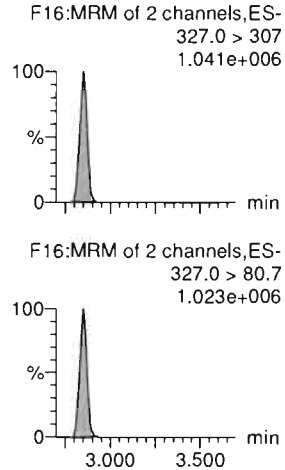


4:2 FTS



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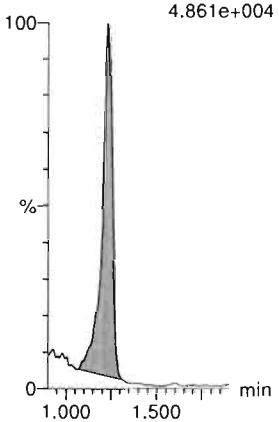

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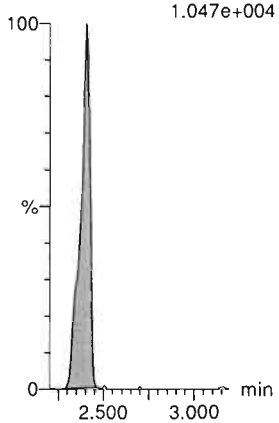

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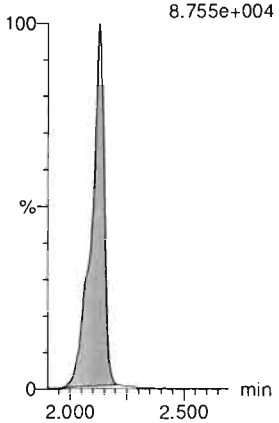

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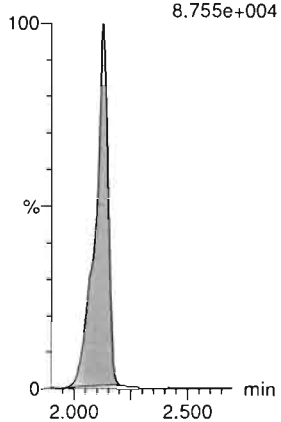

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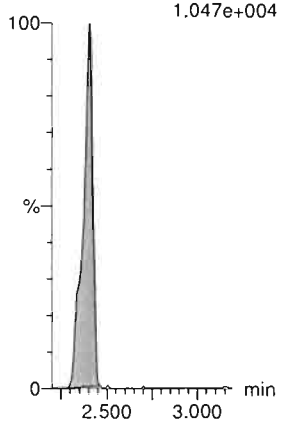
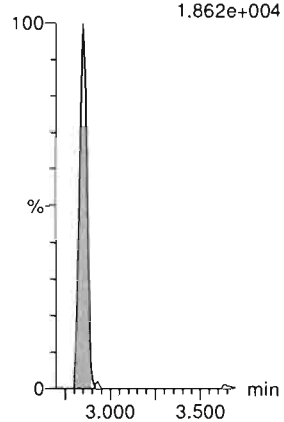


13C2-4:2 FTS-EIS



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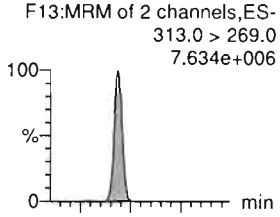
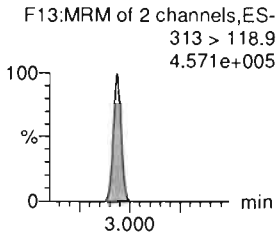
PFHxA





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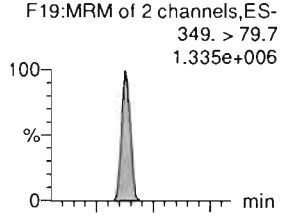
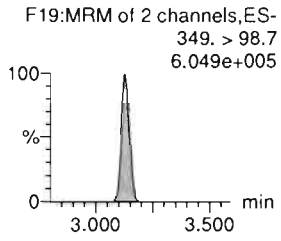
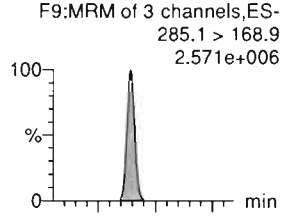
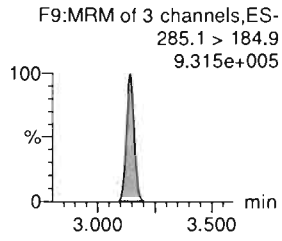


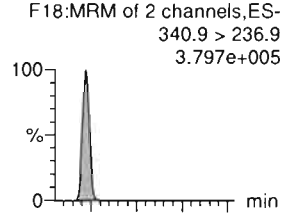


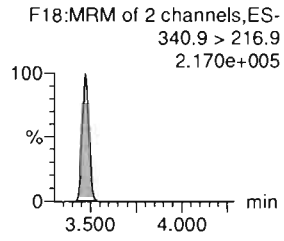
HFPO-DA





5:3 FTCA





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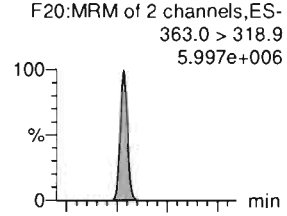

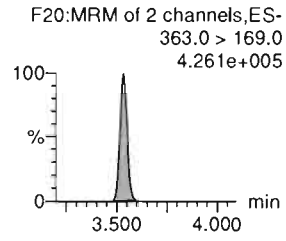

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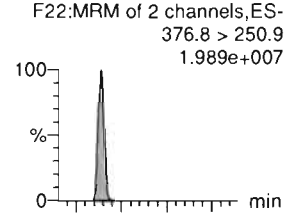

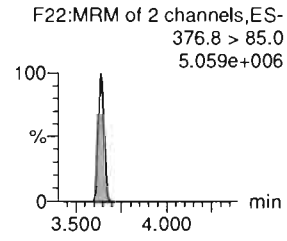

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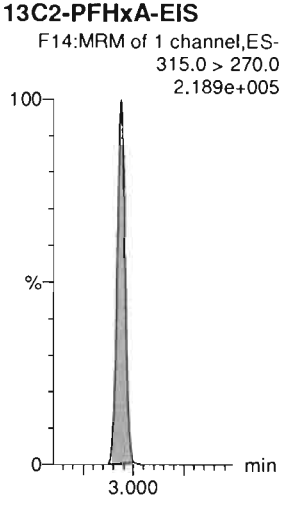
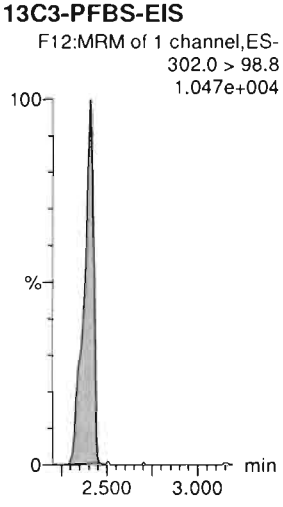


13C3-PFBS-EIS



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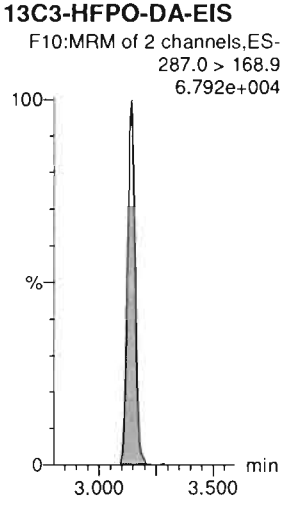
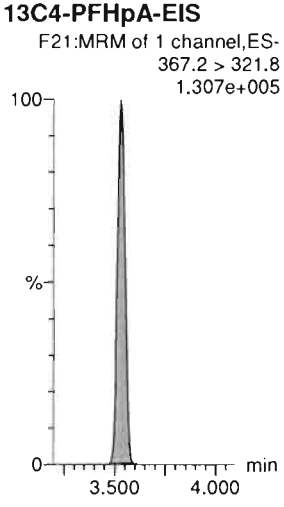


13C4-PFHpA-EIS



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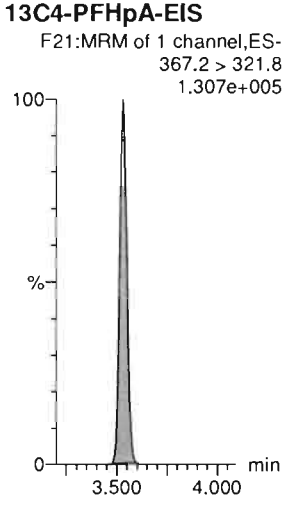

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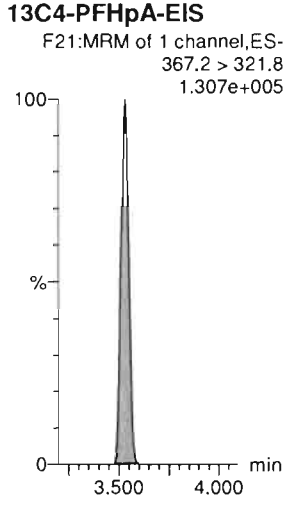

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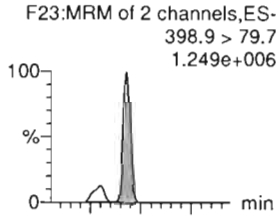
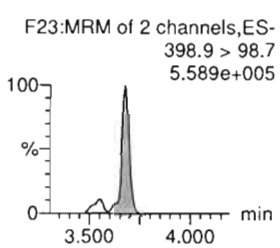
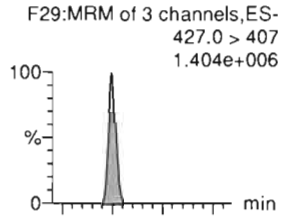
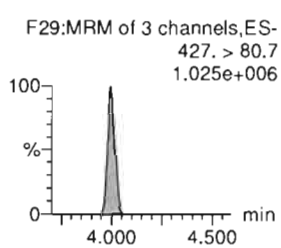
L-PFHxS



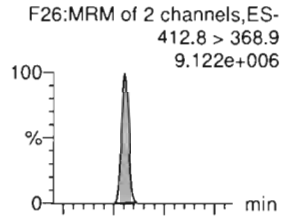


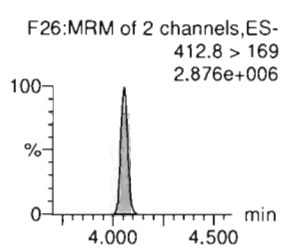
6:2 FTS





L-PFOA





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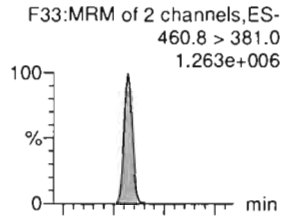

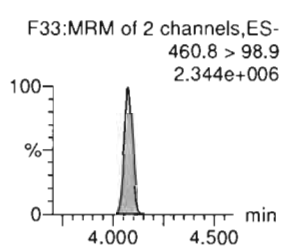

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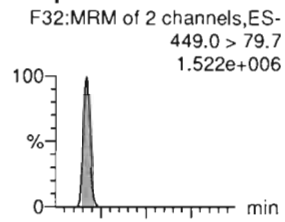
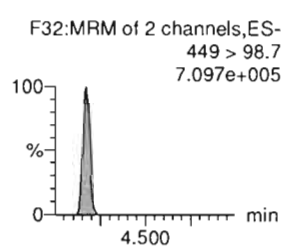
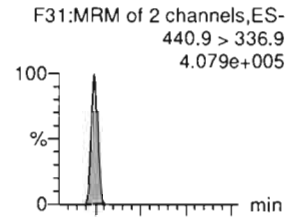
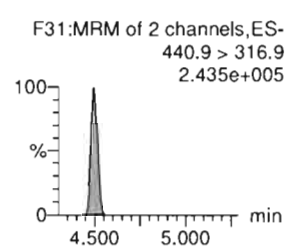


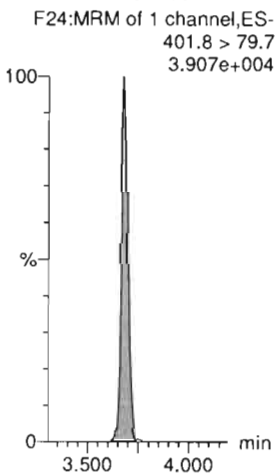


7:3 FTCA

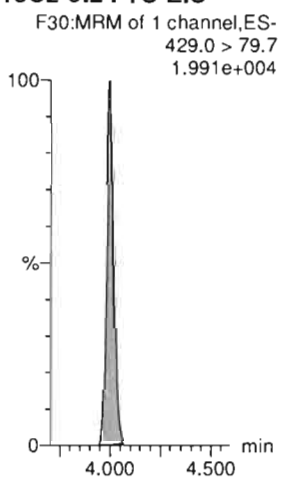




13C3-PFHxS-EIS



13C2-6:2 FTS-EIS



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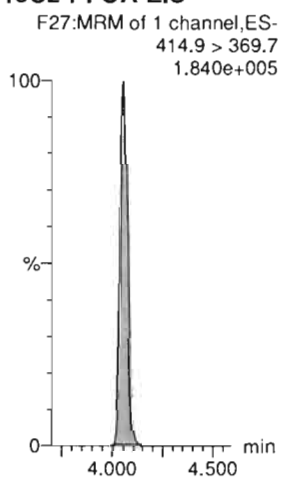

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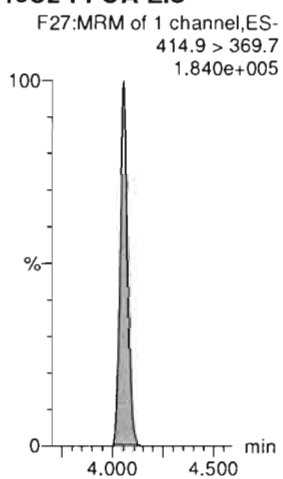

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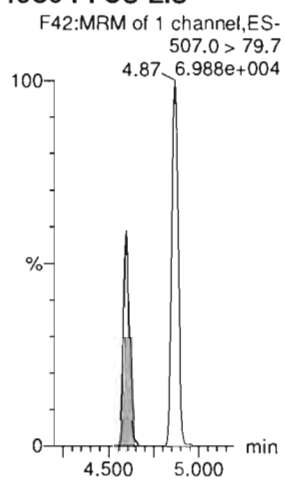
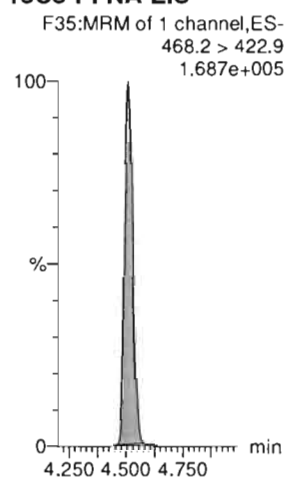


13C5-PFNA-EIS



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Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

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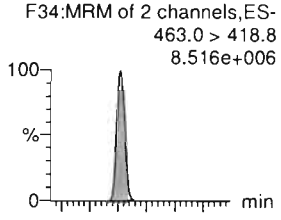

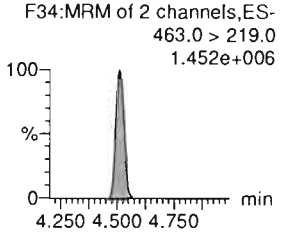

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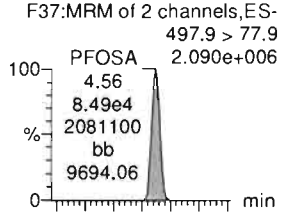

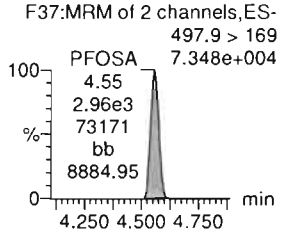

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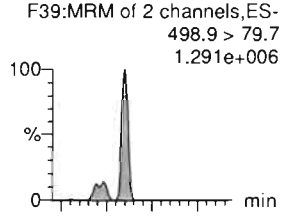

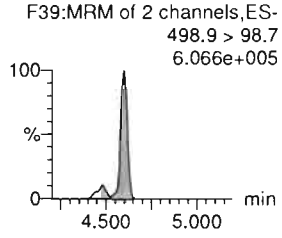

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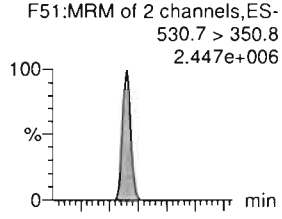

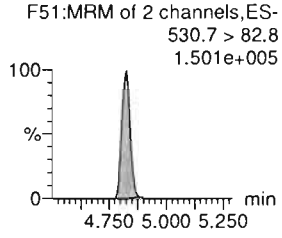

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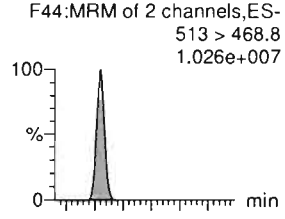

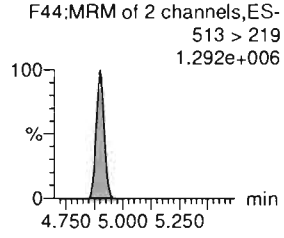

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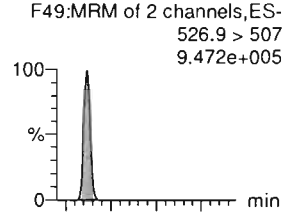

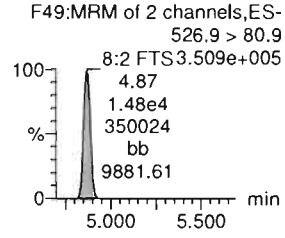

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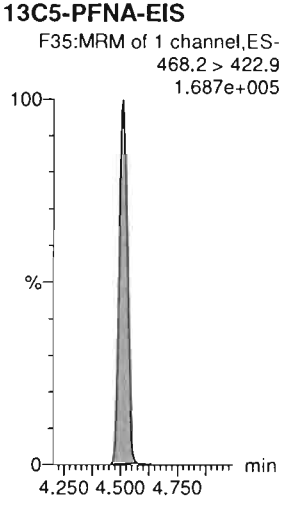

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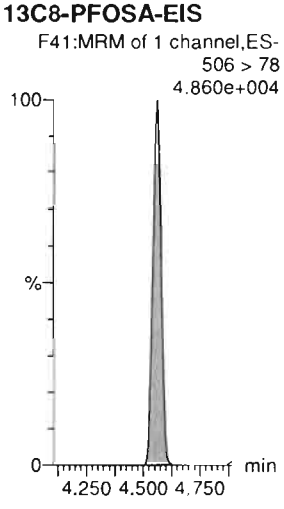

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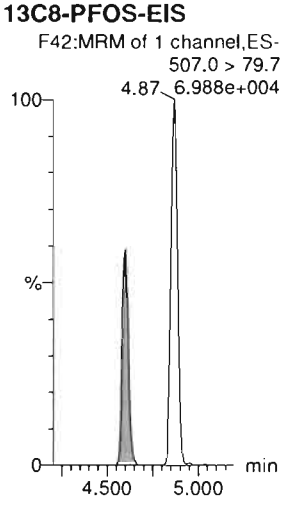

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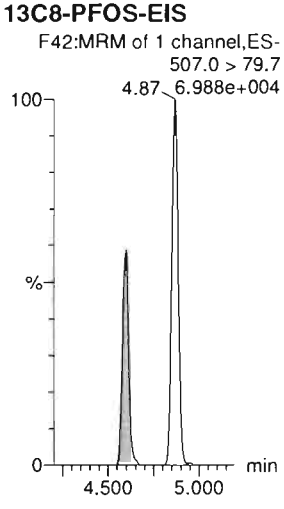

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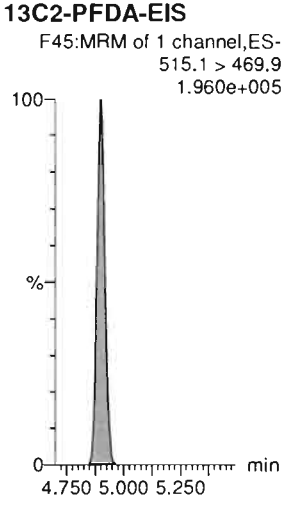

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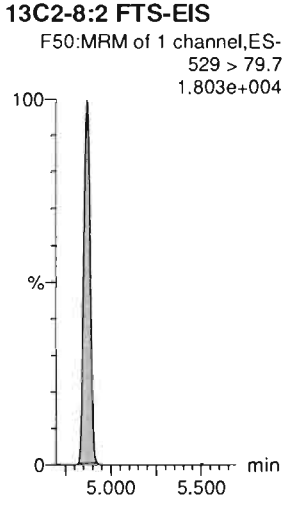

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Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

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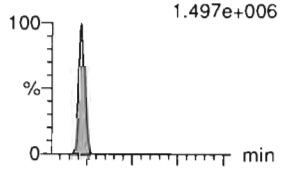

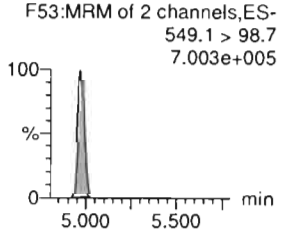

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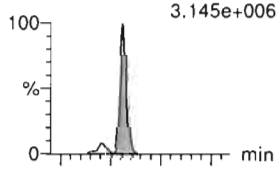

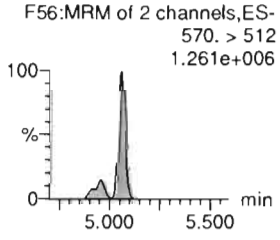

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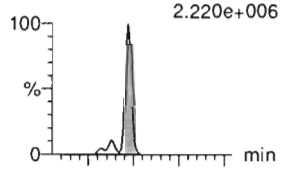

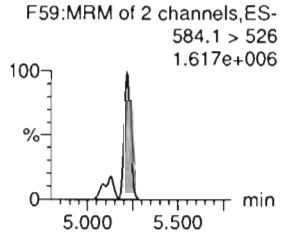

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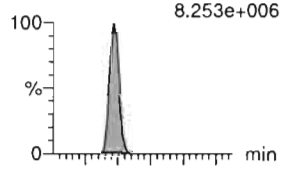

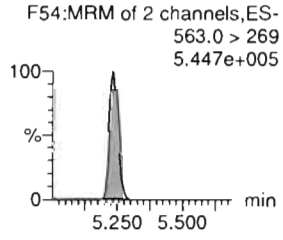

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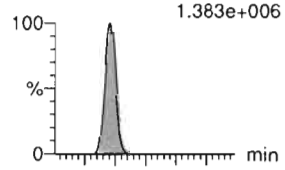

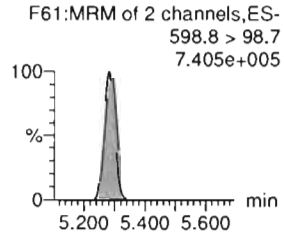

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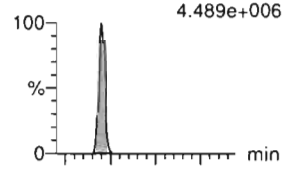

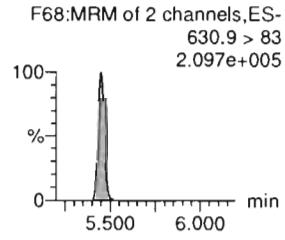

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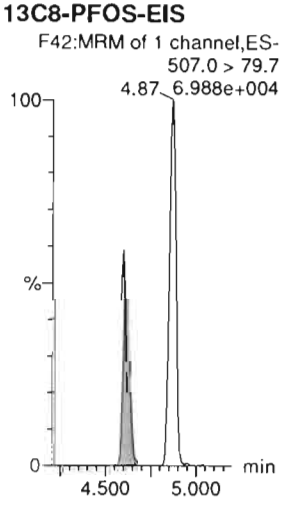

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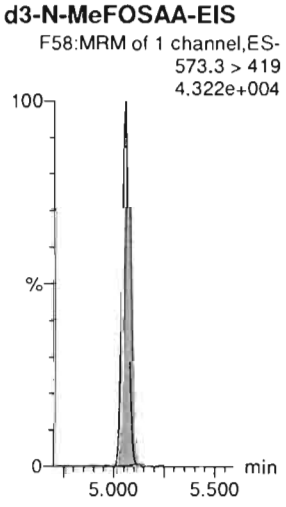

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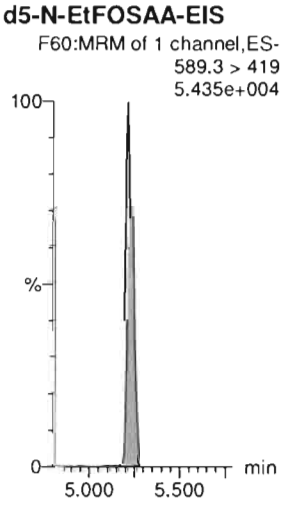

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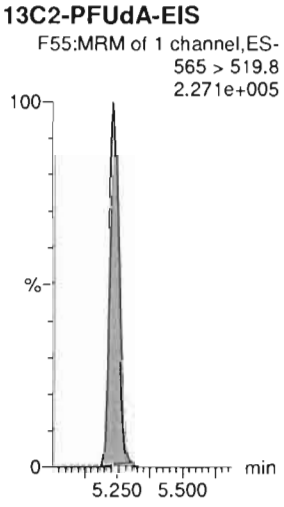

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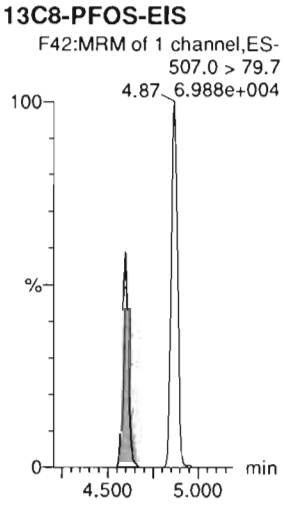

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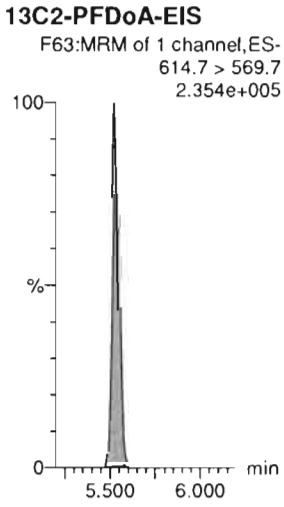

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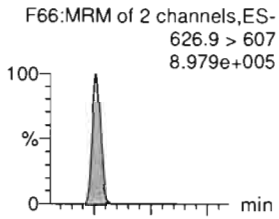
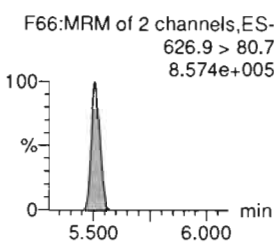
10:2 FTS





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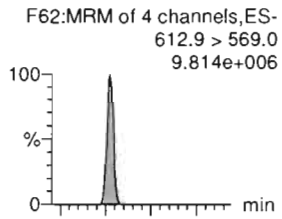
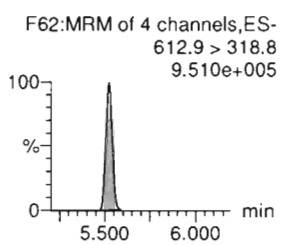
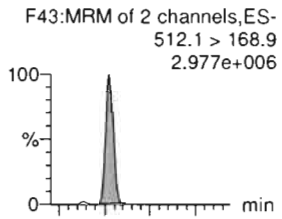
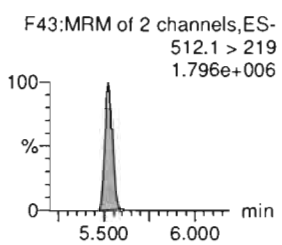




N-MeFOSA





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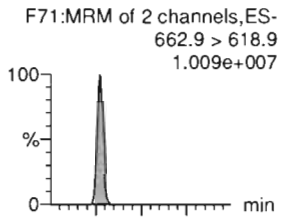

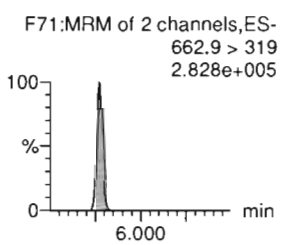

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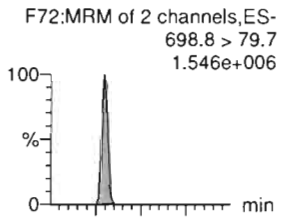

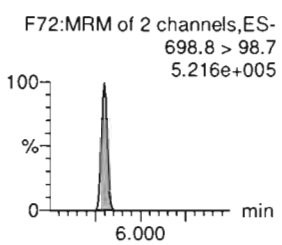

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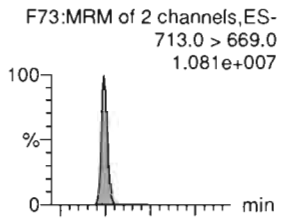

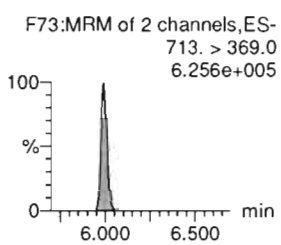

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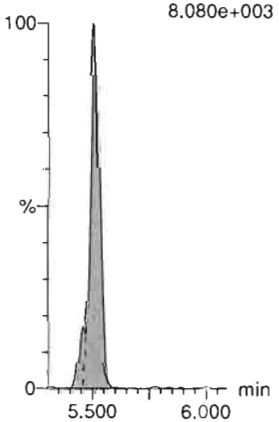

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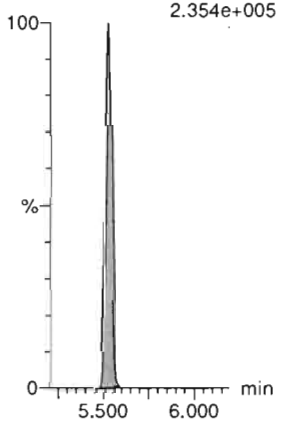

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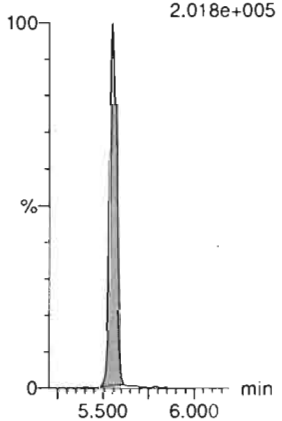

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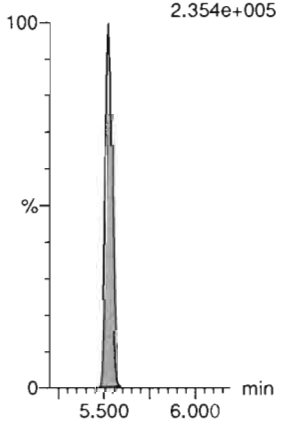
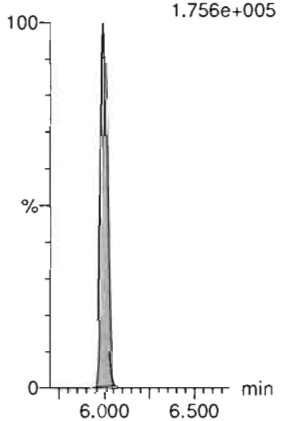


13C2-PFTeDA-EIS



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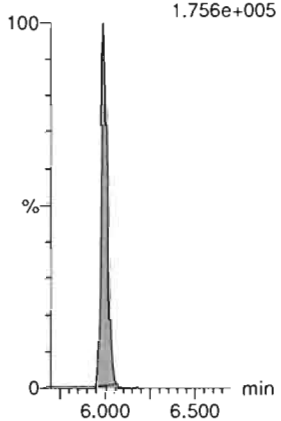

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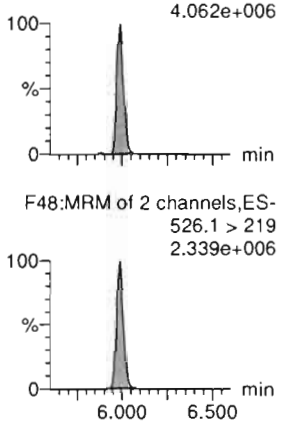
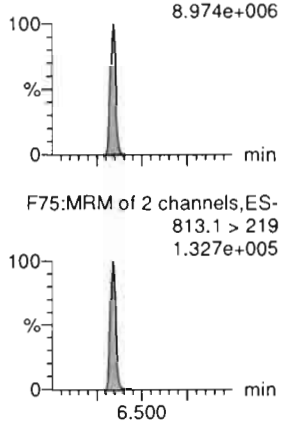
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

N-EtFOSA



PFHxDA



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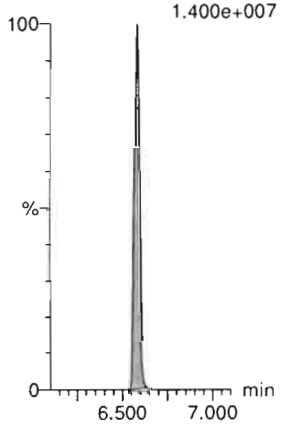
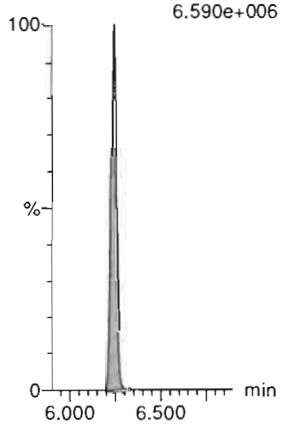


N-MeFOSE



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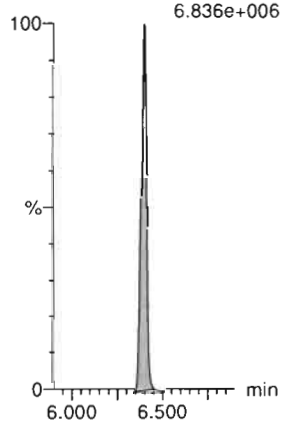
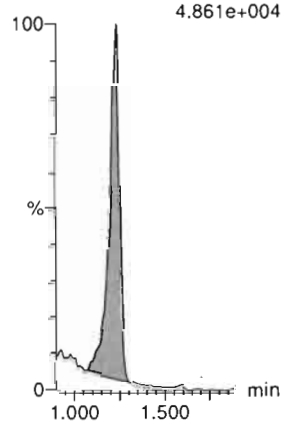
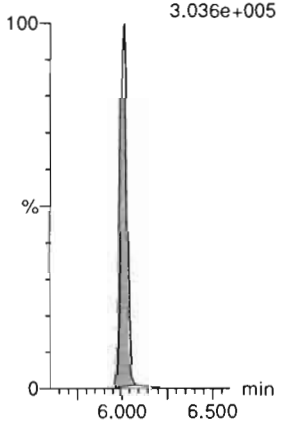


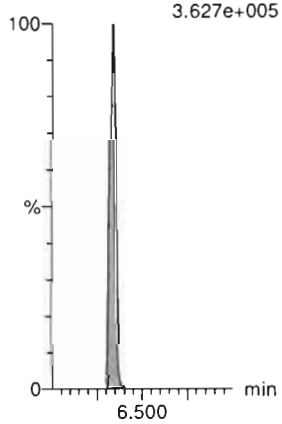
13C3-PFBA-RSD



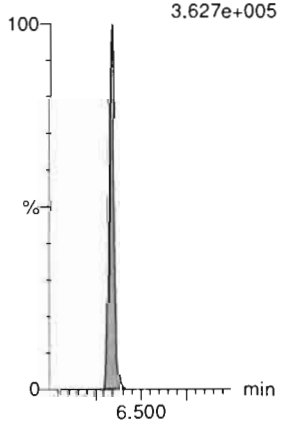
d5-N-ETFOSA-EIS



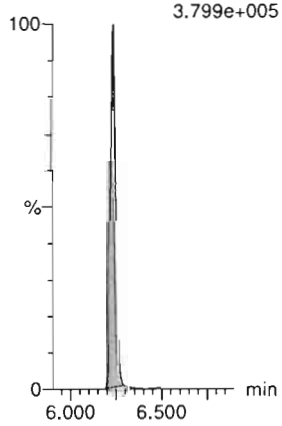
13C2-PFHxDA-EIS



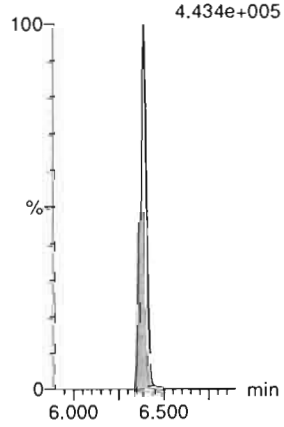
13C2-PFHxDA-EIS



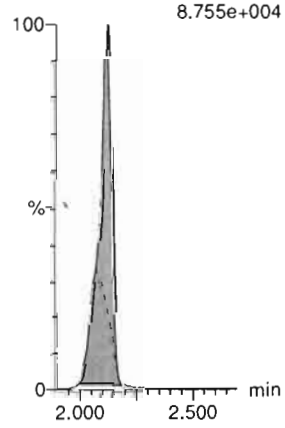
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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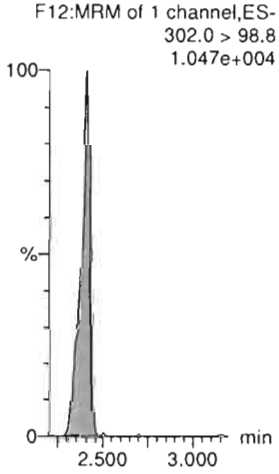
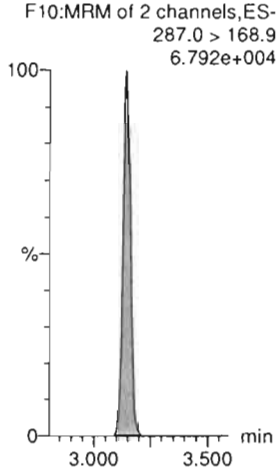
Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

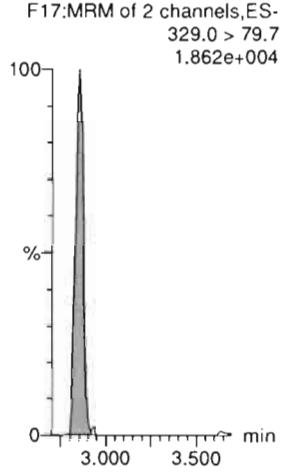
13C3-PFBS-RSD



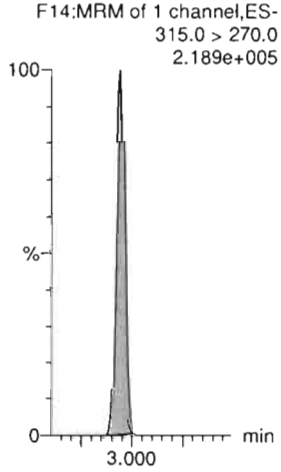
13C3-HFPO-DA-RSD



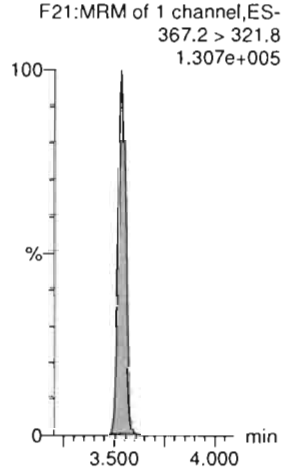
13C2-4:2 FTS-RSD



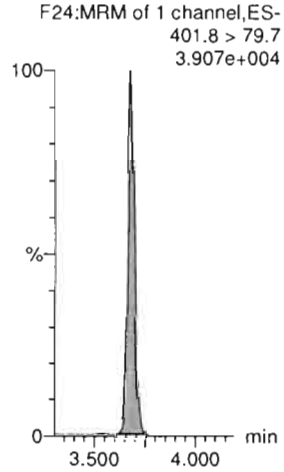
13C2-PFHxA-RSD



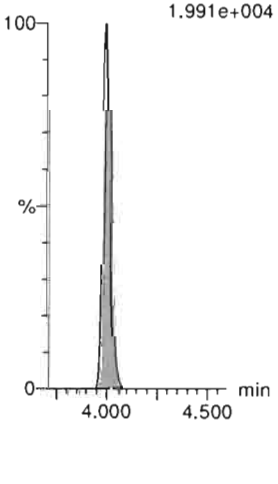
13C4-PFHpA-RSD



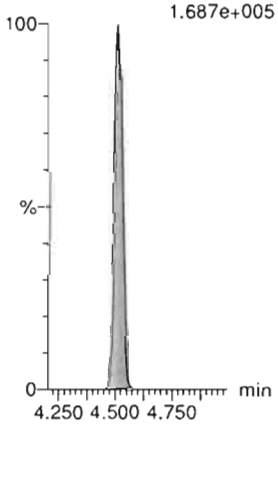
13C3-PFHxS-RSD



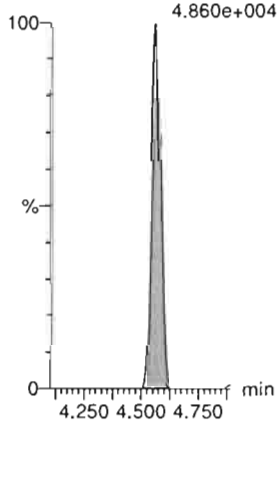
13C2-6:2 FTS-RSD



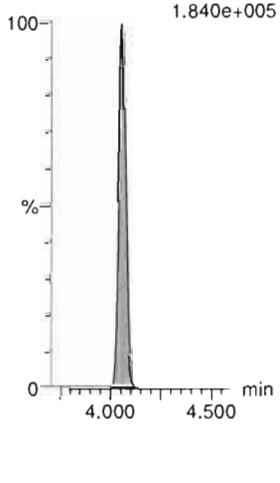
13C5-PFNA-RSD



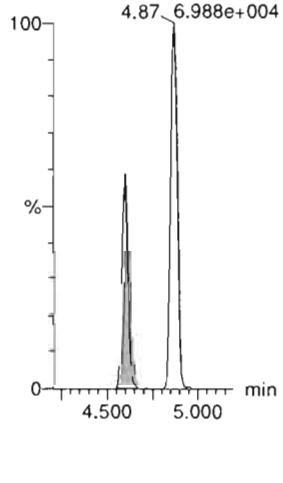
13C8-PFOSA-RSD



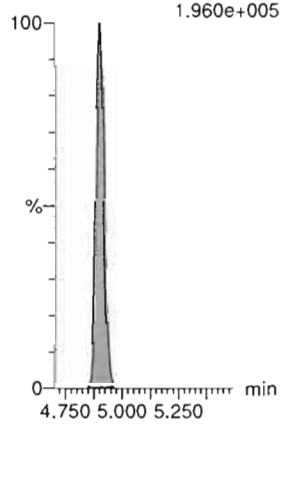
13C2-PFOA-RSD



13C8-PFOS-RSD



13C2-PFDA-RSD



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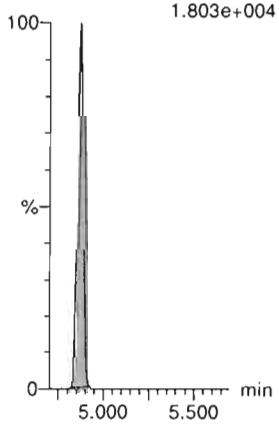
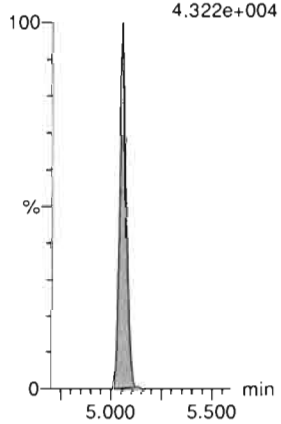
Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

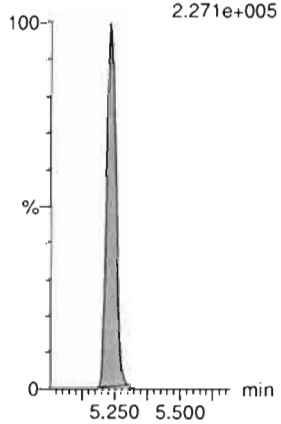
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
1.803e+004



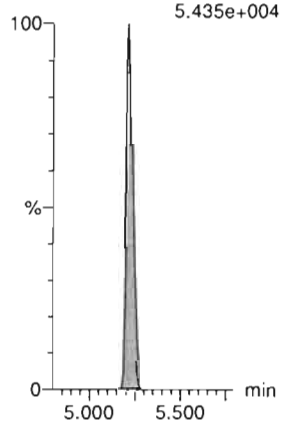
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
4.322e+004



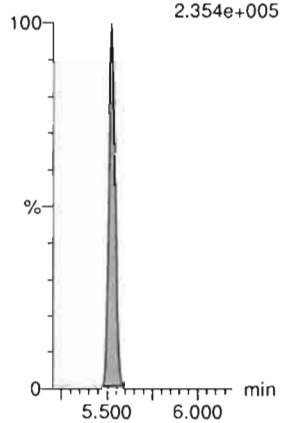
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
2.271e+005



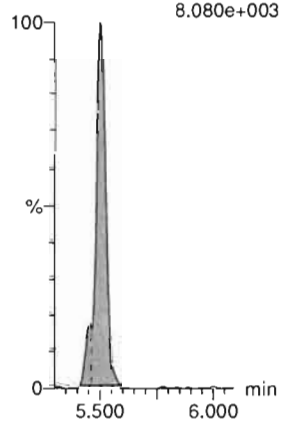
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
5.435e+004



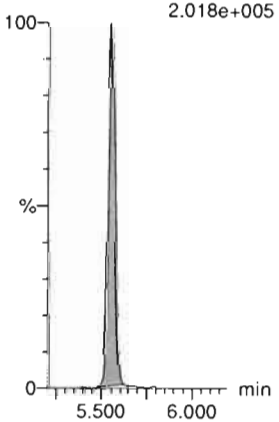
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
2.354e+005



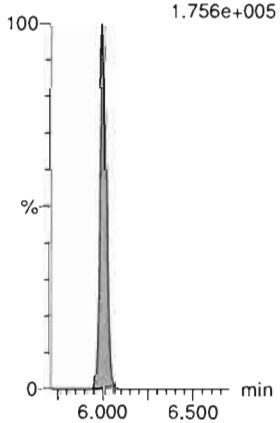
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
8.080e+003



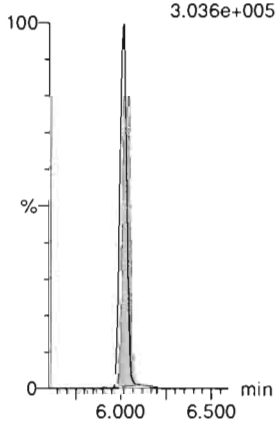
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.018e+005



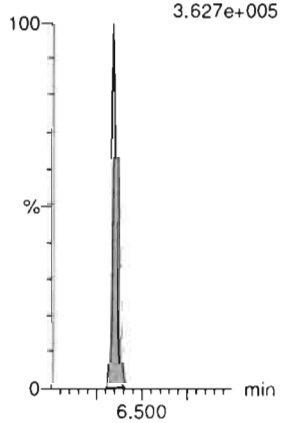
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
1.756e+005



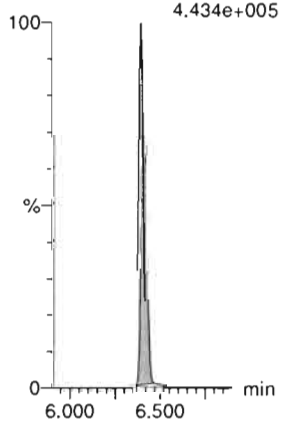
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
3.036e+005



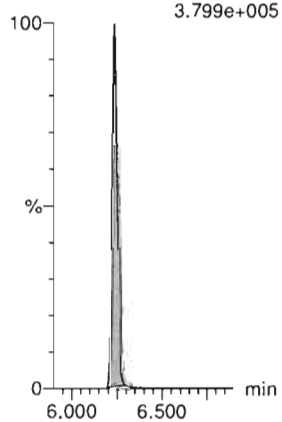
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
3.627e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
4.434e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
3.799e+005



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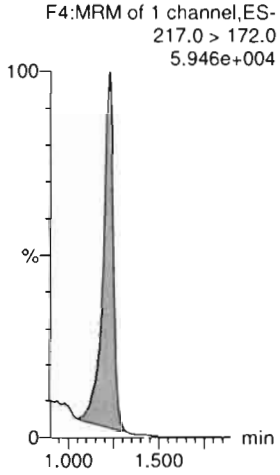
Last Altered: Thursday, March 05, 2020 08:40:10 Pacific Standard Time
Printed: Thursday, March 05, 2020 08:44:24 Pacific Standard Time

Name: 200304P2-12, Date: 04-Mar-2020, Time: 21:06:25, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

13C4-PFBA



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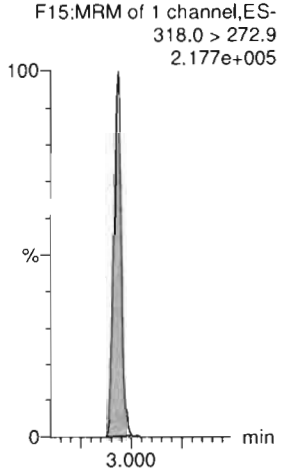
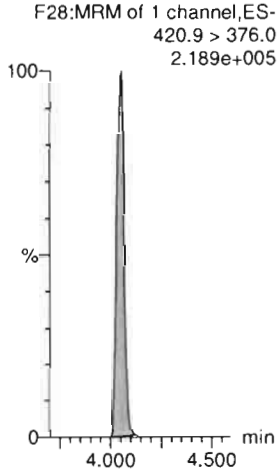
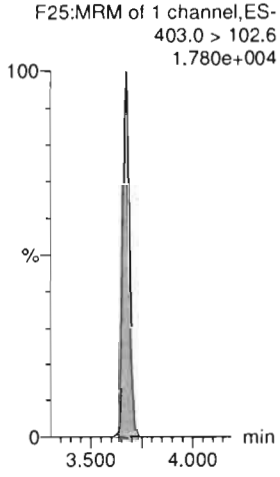


13C8-PFOA



18O2-PFHxS



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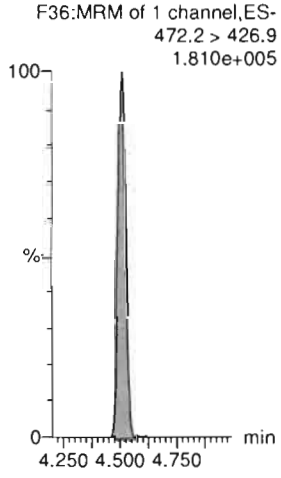

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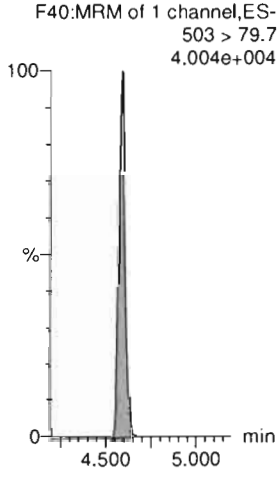
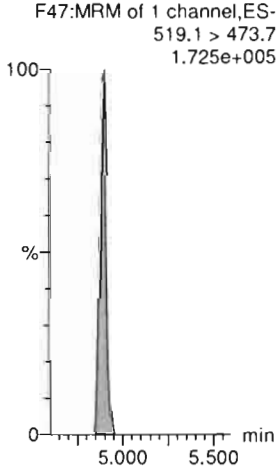
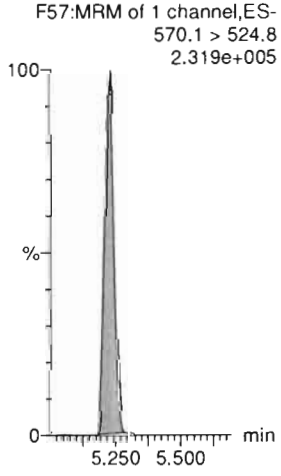


13C6-PFDA



13C7-PFUdA



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Last Altered: Thursday, March 05, 2020 10:28:13 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:28:44 Pacific Standard Time

(A) not in ICV

✓ opv 03/05/20

Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4846.730	8843.477	1.00	1.23	13.701	10.000	11.2	111.9	NO		
2	2	PFPrS	248.9 > 79.7		1993.945	1.00			10.000		(A)	NO		YES
3	3	3:3 FTCA	240.9 > 176.9		16274.889	1.00			10.000		↓	NO		YES
4	4	PFPeA	263.1 > 218.9	7013.480	16274.889	1.00	2.13	10.773	10.000	11.4	113.6	NO		
5	5	PFBS	299.0 > 79.7	1796.328	1993.945	1.00	2.41	22.522	8.840	8.74	98.9	NO	3.345	NO
6	6	4:2 FTS	327.0 > 307	1785.622	2861.121	1.00	2.85	15.602	9.360	10.0	107.4	NO	1.061	NO
7	47	13C3-PFBA-EIS	216.1 > 171.8	8843.477		1.00	1.23	8843.477	25.000	23.8	95.2	NO		
8	51	13C3-PFBS-EIS	302.0 > 98.8	1993.945		1.00	2.41	1993.945	25.000	24.1	96.5	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	16274.889		1.00	2.13	16274.889	25.000	23.9	95.6	NO		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	16274.889		1.00	2.13	16274.889	25.000	23.9	95.6	NO		
11	51	13C3-PFBS-EIS	302.0 > 98.8	1993.945		1.00	2.41	1993.945	25.000	24.1	96.5	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	2861.121		1.00	2.85	2861.121	25.000	23.7	94.7	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	11567.250	28789.484	1.00	2.94	10.045	10.000	11.4	113.8	NO	16.676	NO
15	8	PFPeS	349.>79.7	1835.387	1993.945	1.00	3.13	23.012	9.360	9.92	105.9	NO	2.395	NO
16	9	HFPO-DA	285.1 > 168.9	3271.699	6886.888	1.00	3.14	11.877	10.000	10.7	107.2	NO	2.709	NO
17	10	5:3 FTCA	340.9 > 236.9		15876.997	1.00			10.000		(A)	NO		YES
18	11	PFHpA	363.0 > 318.9	8709.093	15876.997	1.00	3.54	13.713	10.000	11.4	113.7	NO	18.393	NO
19	12	ADONA	376.8 > 250.9	23915.359	15876.997	1.00	3.64	37.657	10.000	11.0	110.3	NO	4.022	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	28789.484		1.00	2.94	28789.484	25.000	23.7	94.9	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	1993.945		1.00	2.41	1993.945	25.000	24.1	96.5	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	6886.888		1.00	3.14	6886.888	25.000	24.6	98.3	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	15876.997		1.00	3.53	15876.997	25.000	23.5	93.9	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	15876.997		1.00	3.53	15876.997	25.000	23.5	93.9	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	15876.997		1.00	3.53	15876.997	25.000	23.5	93.9	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	2049.885	4471.988	1.00	3.68	11.460	9.120	11.2	123.0	NO	2.612	NO
28	15	6:2 FTS	427.0 > 407	2072.394	2247.370	1.00	3.99	23.054	9.480	12.1	127.3	NO	1.387	NO
29	16	L-PFOA	412.8 > 368.9	13899.606	23227.346	1.00	4.06	14.960	10.000	11.7	117.0	NO	3.284	NO
30	18	PFecHS	460.8 > 381.0		23227.346	1.00			10.000		(A)	NO		YES
31	19	PFHpS	449.0 > 79.7	2061.009	5226.666	1.00	4.17	9.858	9.480	10.8	114.2	NO	1.911	NO
32	20	7:3 FTCA	440.9 > 336.9		21351.789	1.00			10.000		(A)	NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	4471.988		1.00	3.68	4471.988	25.000	23.5	94.1	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	2247.370		1.00	4.00	2247.370	25.000	24.9	99.7	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	23227.346		1.00	4.06	23227.346	25.000	22.8	91.4	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	23227.346		1.00	4.06	23227.346	25.000	22.8	91.4	NO		

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Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	21351.789		1.00	4.51	21351.789	25.000	24.6	98.5	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	11804.804	21351.789	1.00	4.51	13.822	10.000	11.1	110.5	NO	5.590	NO
41	22	PFOSA	497.9 > 77.9	2929.788	6494.078	1.00	4.56	11.279	10.000	12.0	119.7	NO	27.040	NO
42	23	L-PFOS	498.9 > 79.7	1966.829	5226.666	1.00	4.60	9.408	9.280	10.1	108.6	NO	2.085	NO
43	25	9Cl-PF30NS	530.7 > 350.8	3203.077	5226.666	1.00	4.82	15.321	9.280	9.80	105.6	NO	23.492	YES
44	26	PFDA	513 > 468.8	14485.595	24027.895	1.00	4.90	15.072	10.000	11.2	112.4	NO	8.366	NO
45	27	8:2 FTS	526.9 > 507	1292.757	2132.564	1.00	4.87	15.155	9.600	9.28	96.6	NO	2.675	YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	21351.789		1.00	4.51	21351.789	25.000	24.6	98.5	NO		
47	67	13C8-PFOSA-EIS	506 > 78	6494.078		1.00	4.56	6494.078	25.000	25.4	101.7	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	24027.895		1.00	4.90	24027.895	25.000	25.4	101.7	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	2132.564		1.00	4.87	2132.564	25.000	24.4	97.8	NO		
52	-1													
53	28	PFNS	549.1 > 79.7	1886.766	5226.666	1.00	4.96	9.025	9.600	10.2	106.6	NO	2.017	NO
54	29	L-MeFOSAA	570 > 419	4301.010	4946.553	1.00	5.06	21.737	10.000	10.4	104.2	NO	2.182	NO
55	31	L-EtFOSAA	584.1 > 419	4117.972	6847.058	1.00	5.22	15.036	10.000	11.4	114.1	NO	1.255	NO
56	33	PFUdA	563.0 > 518.9	12461.508	28279.691	1.00	5.23	11.016	10.000	11.7	117.2	NO	19.600	NO
57	34	PFDS	598.8 > 79.7	2036.403	5226.666	1.00	5.28	9.740	9.600	11.0	114.2	NO	2.231	NO
58	35	11Cl-PF30UdS	630.9 > 450.9	5703.446	28596.172	1.00	5.45	4.986	9.440	11.0	116.9	NO	21.081	NO
59	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	4946.553		1.00	5.06	4946.553	25.000	25.4	101.4	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	6847.058		1.00	5.21	6847.058	25.000	23.8	95.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	28279.691		1.00	5.23	28279.691	25.000	23.1	92.2	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	28596.172		1.00	5.52	28596.172	25.000	23.6	94.4	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		1508.487	1.00			10.000		(A)	NO		YES
67	37	PFDoA	612.9 > 569.0	13264.363	28596.172	1.00	5.52	11.596	10.000	11.6	115.9	NO	9.457	NO
68	38	N-MeFOSA	512.1 > 168.9		12513.086	1.00			9.600		(A)	NO		YES
69	39	PFTrDA	662.9 > 618.9	15035.329	28596.172	1.00	5.77	13.145	10.000	12.5	125.3	NO	39.742	NO
70	40	PFDoS	698.8 > 79.7		25665.590	1.00			10.000		(A)	NO		YES
71	41	PFTeDA	713.0 > 669.0	16597.982	25665.590	1.00	5.99	16.168	10.000	11.3	113.4	NO	18.604	NO
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	1508.487		1.00	5.50	1508.487	25.000	26.4	105.5	NO		

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Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	28596.172		1.00	5.52	28596.172	25.000	23.6	94.4	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	12513.086		1.00	5.55	12513.086	149.200	149	99.8	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	28596.172		1.00	5.52	28596.172	25.000	23.6	94.4	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	25665.590		1.00	5.99	25665.590	25.000	24.0	96.0	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	25665.590		1.00	5.99	25665.590	25.000	24.0	96.0	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9		19972.426	1.00			9.600			NO		YES
80	43	PFHxDA	813.1 > 768.6		37662.957	1.00			10.000			NO		YES
81	44	PFODA	913.1 > 868.8		37662.957	1.00			10.000			NO		
82	45	N-MeFOSE	616.1 > 58.9		17645.016	1.00			9.600			NO		
83	46	N-EtFOSE	630.1 > 58.9		20209.619	1.00			9.600			NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	19972.426		1.00	6.01	19972.426	149.200	137	92.1	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	37662.957		1.00	6.34	37662.957	25.000	22.4	89.5	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	37662.957		1.00	6.34	37662.957	25.000	22.4	89.5	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	17645.016		1.00	6.24	17645.016	149.200	132	88.2	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	20209.619		1.00	6.39	20209.619	149.200	133	89.3	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	5226.666		1.00	4.60	5226.666	25.000	25.1	100.5	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	8843.477	5700.873	1.00	1.23	19.391	25.000	24.3	97.3	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	15986.589	14223.045	1.00	2.13	14.050	25.000	24.7	98.8	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	1993.945	921.679	1.00	2.41	27.042	25.000	26.9	107.5	NO		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	6886.888	14223.045	1.00	3.14	6.053	25.000	24.7	98.7	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	2861.121	921.679	1.00	2.85	38.803	25.000	25.6	102.2	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	28789.484	14223.045	1.00	2.94	25.302	25.000	24.6	98.3	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	15876.997	14223.045	1.00	3.53	13.954	25.000	24.7	98.7	NO		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	4471.988	921.679	1.00	3.68	60.650	25.000	25.3	101.3	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	2247.370	2639.062	1.00	4.00	10.645	25.000	22.2	88.7	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	21351.789	11092.197	1.00	4.51	24.062	25.000	25.8	103.0	NO		
101	68	13C8-PFOSA-RSD	506 > 78	6494.078	15913.266	1.00	4.56	5.101	25.000	24.2	96.8	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	23227.346	15304.393	1.00	4.06	18.971	25.000	23.1	92.4	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	5226.666	2639.062	1.00	4.60	24.756	25.000	25.0	100.1	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	24027.895	11202.074	1.00	4.90	26.812	25.000	27.3	109.2	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	2132.564	2639.062	1.00	4.87	10.101	25.000	24.7	98.8	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	4946.553	15913.266	1.00	5.06	3.886	25.000	24.1	96.3	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	28279.691	15913.266	1.00	5.23	22.214	25.000	23.0	92.1	NO		

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Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	6847.058	15913.266	1.00	5.21	5.378	25.000	23.6	94.4	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	28596.172	11202.074	1.00	5.52	31.909	25.000	25.6	102.2	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	1508.487	2639.062	1.00	5.50	7.145	25.000	25.0	100.1	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	12513.086	15913.266	1.00	5.55	9.829	149.200	138	92.5	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	25665.590	15913.266	1.00	5.99	20.161	25.000	24.0	96.0	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	19972.426	15913.266	1.00	6.01	15.689	149.200	137	92.0	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	37662.957	15913.266	1.00	6.34	29.585	25.000	22.4	89.7	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	17645.016	15913.266	1.00	6.24	13.860	149.200	133	89.0	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	20209.619	15913.266	1.00	6.39	15.875	149.200	133	89.0	NO		
119	99	13C4-PFBA	217.0 > 172.0	5700.873	5700.873	1.00	1.23	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	14223.045	14223.045	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	15304.393	15304.393	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	921.679	921.679	1.00	3.68	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	11092.197	11092.197	1.00	4.51	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	2639.062	2639.062	1.00	4.60	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	11202.074	11202.074	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	15913.266	15913.266	1.00	5.23	12.500	12.500	12.5	100.0	NO		

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Method: D:\PFAS5.PRO\MethDB\PFAS_FULL_80C_030320_NEW_ICV.mdb 04 Mar 2020 10:29:05
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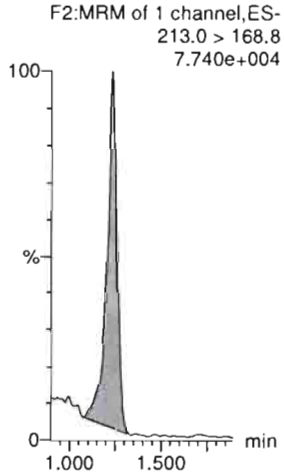
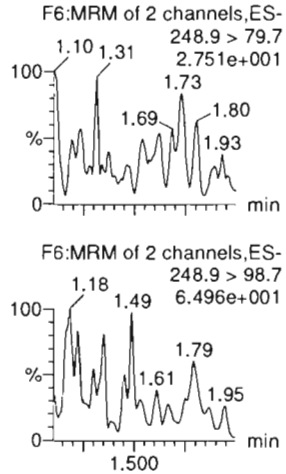
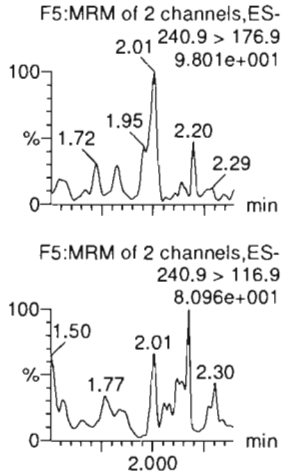
PFBA



PFPrS



3:3 FTCA



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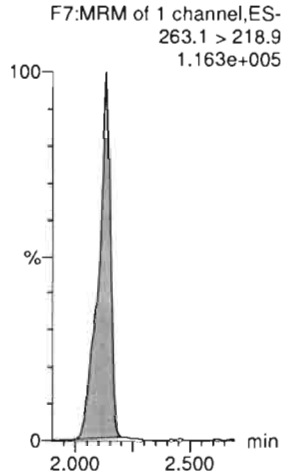
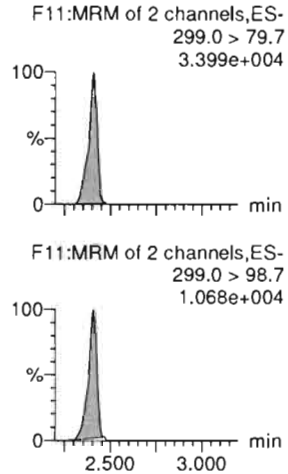
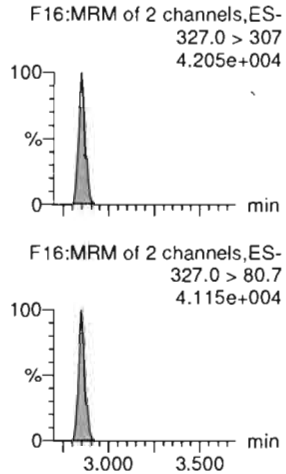


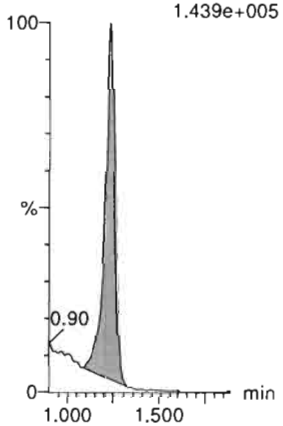
PFBS



4:2 FTS



13C3-PFBA-EIS



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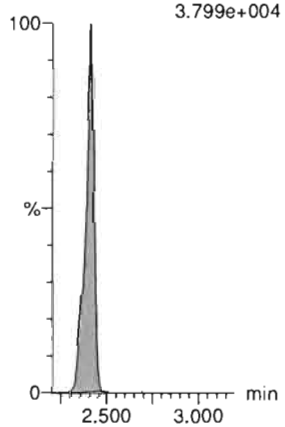

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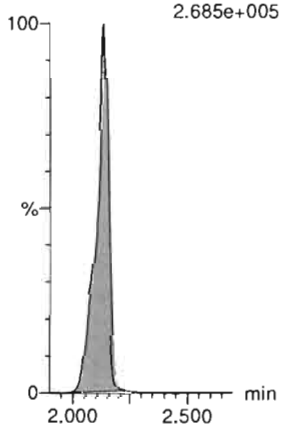

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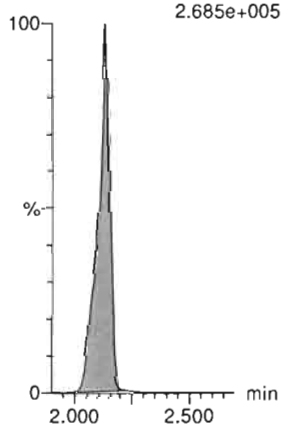

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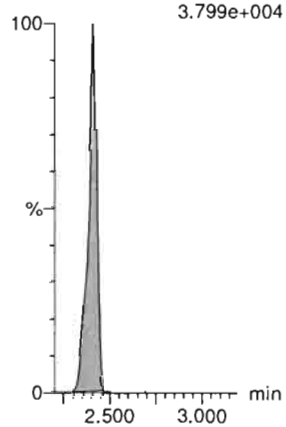

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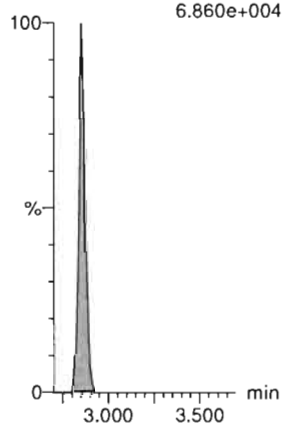

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Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

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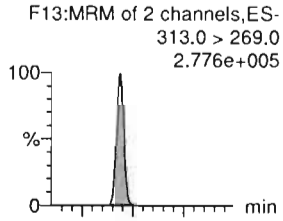

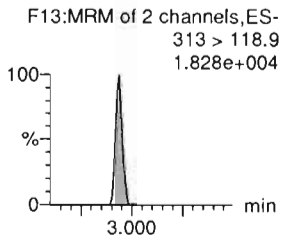

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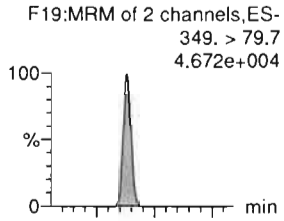

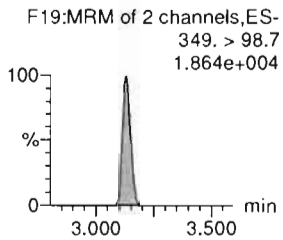

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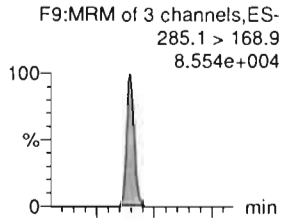

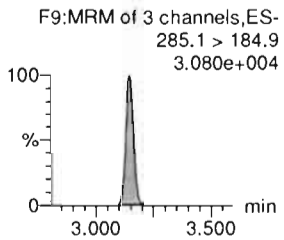

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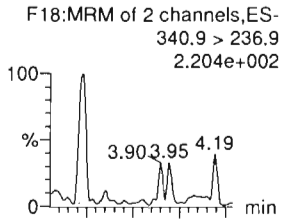

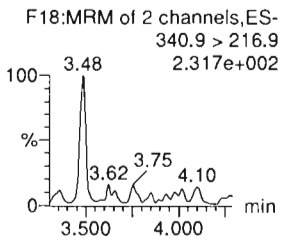

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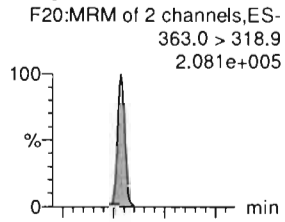

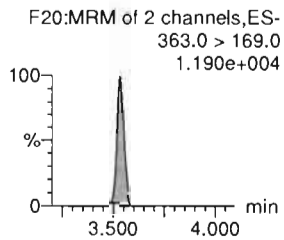

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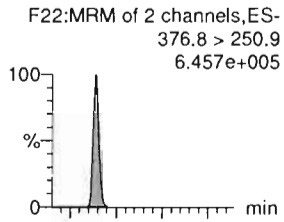

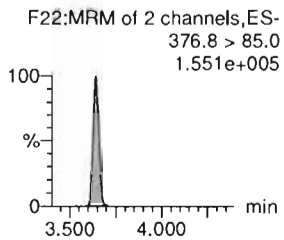

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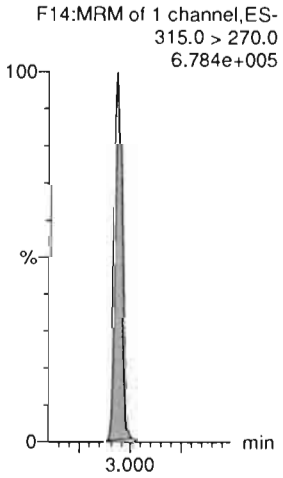

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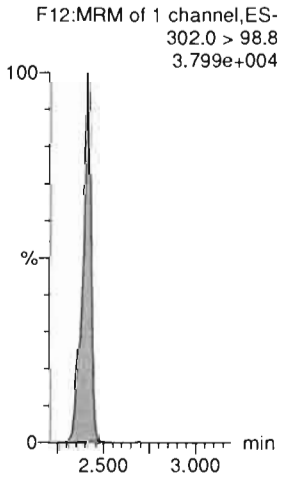

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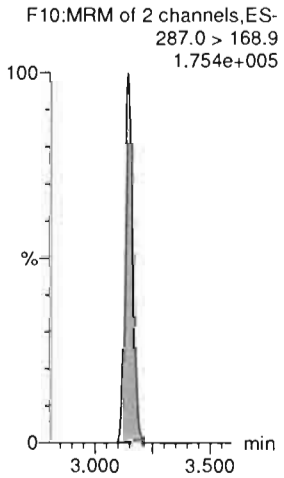

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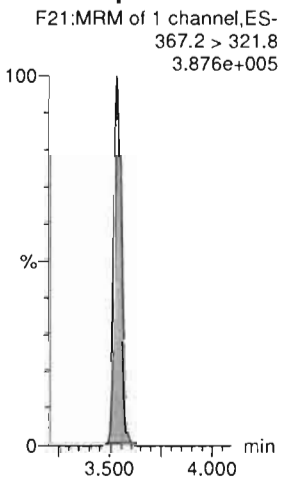

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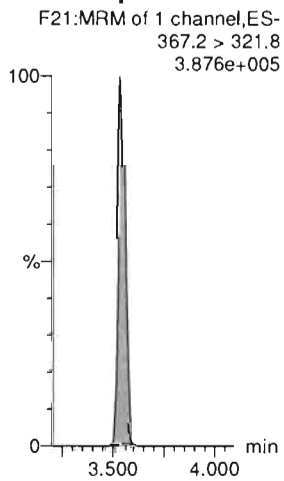

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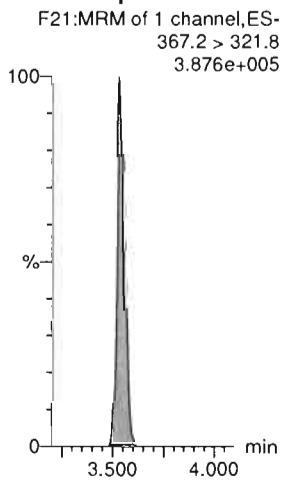

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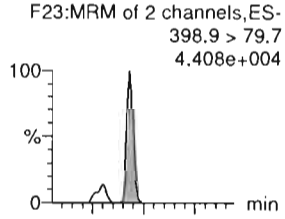
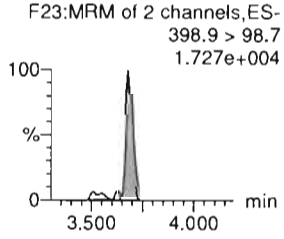
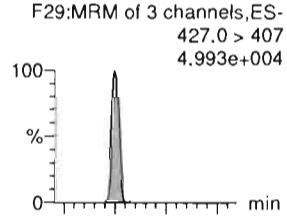
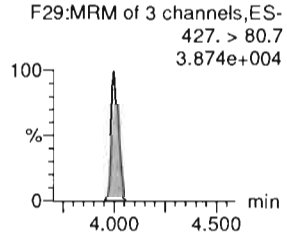




6:2 FTS





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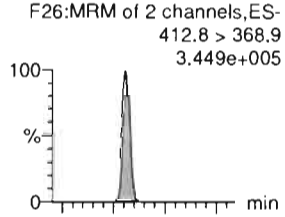

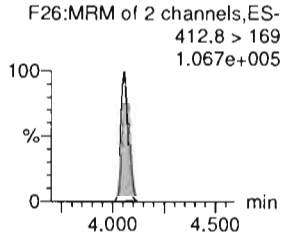

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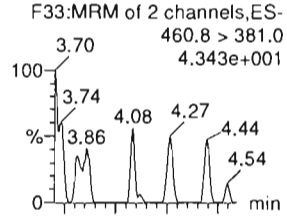

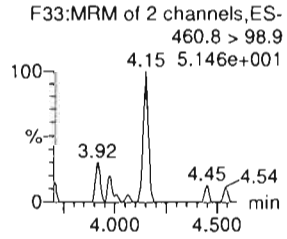

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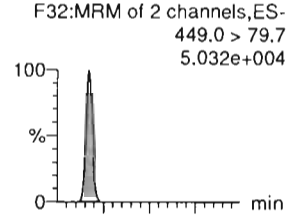

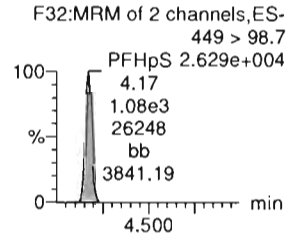

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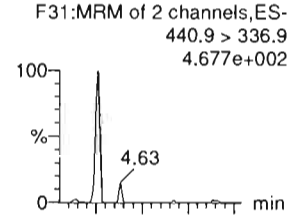

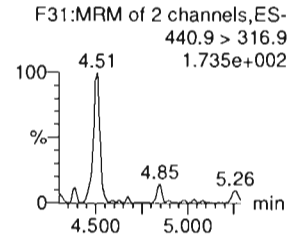

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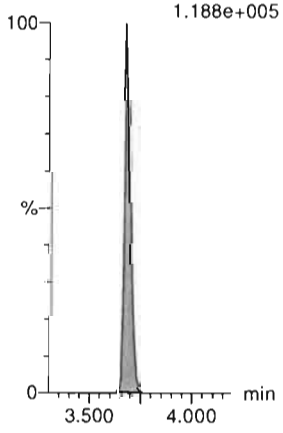

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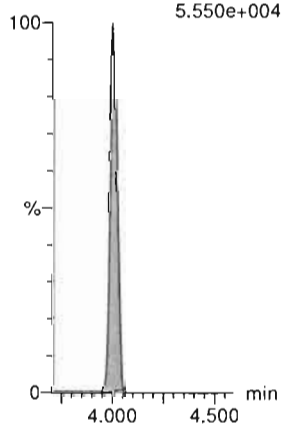

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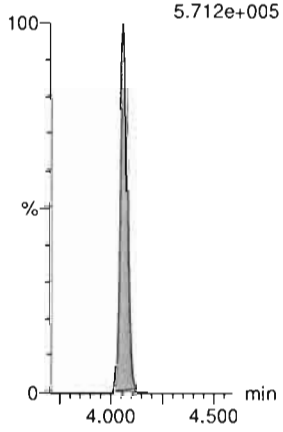

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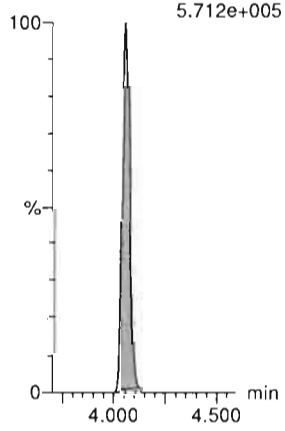

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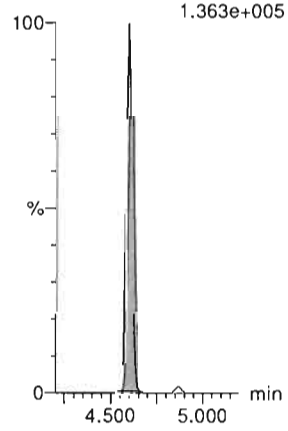

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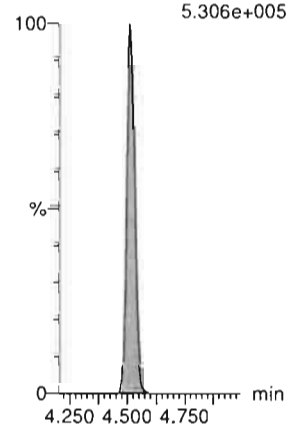

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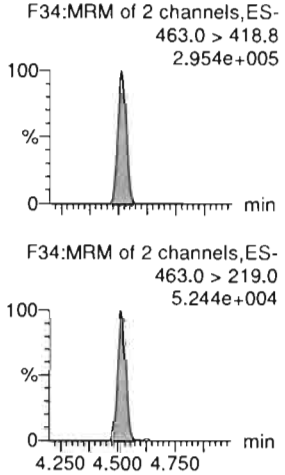

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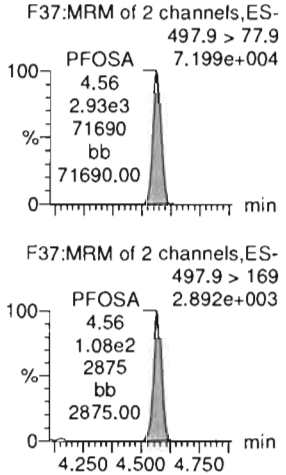
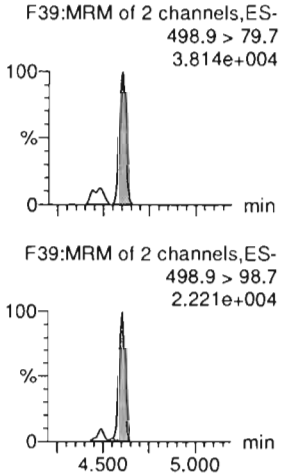


L-PFOS



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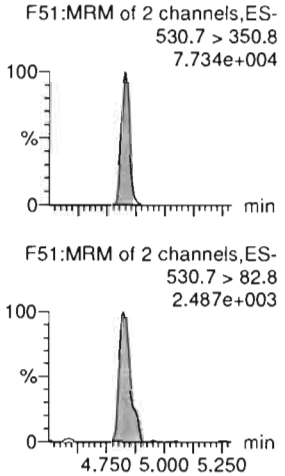
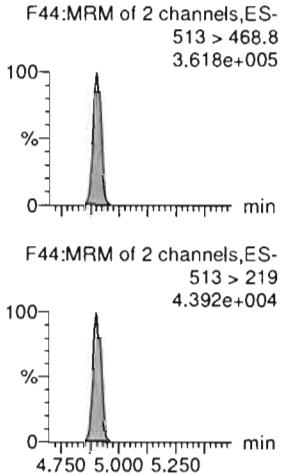
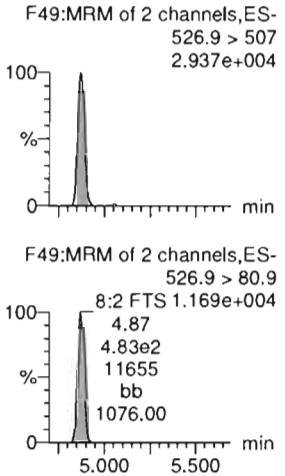


PFDA



8:2 FTS



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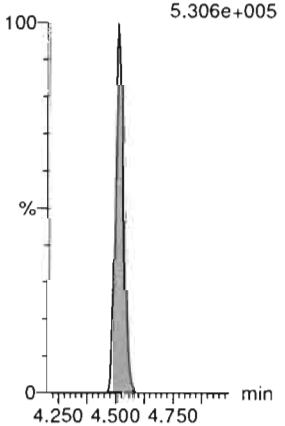

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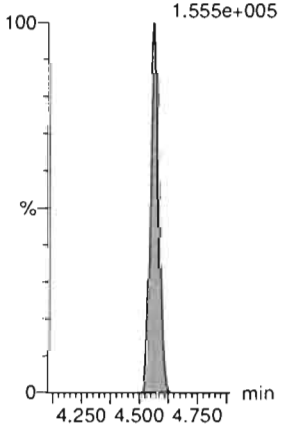

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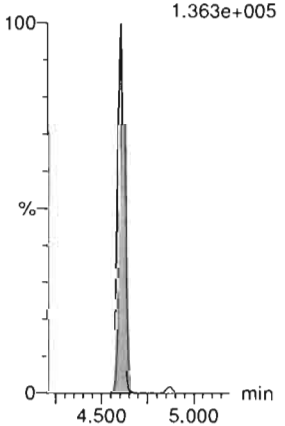
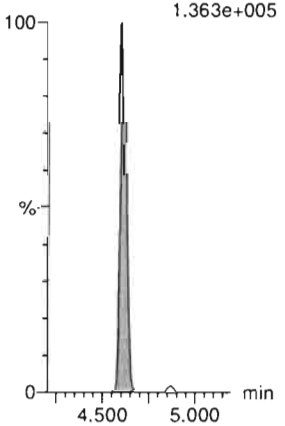
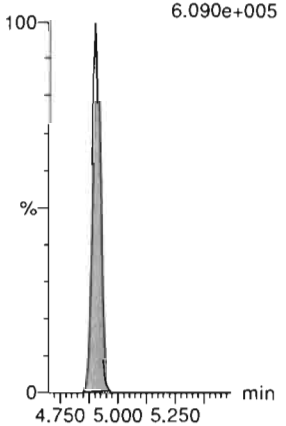


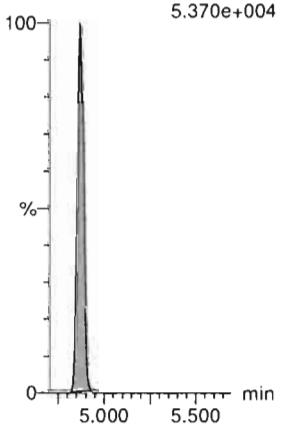
13C8-PFOS-EIS



13C2-PFDA-EIS



13C2-8:2 FTS-EIS



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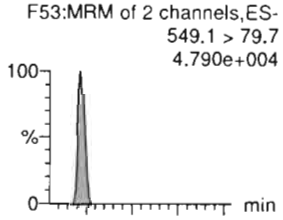
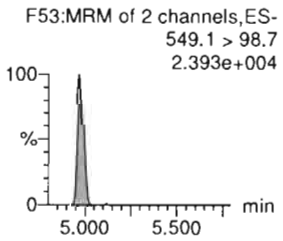
Last Altered: Thursday, March 05, 2020 10:28:13 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:28:44 Pacific Standard Time

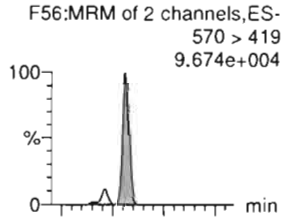
Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

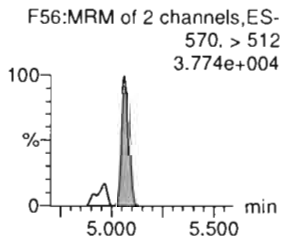
PFNS





L-MeFOSAA





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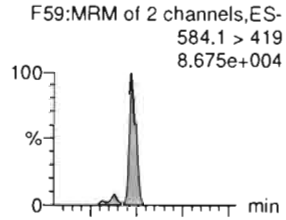
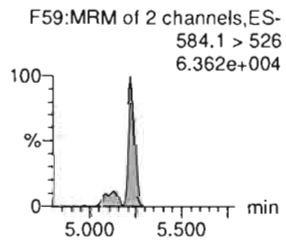
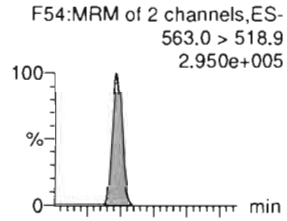
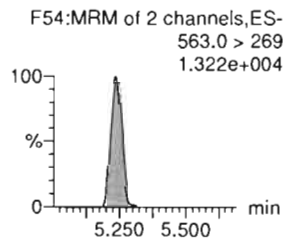




PFUdA





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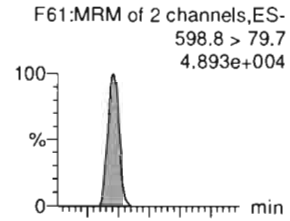

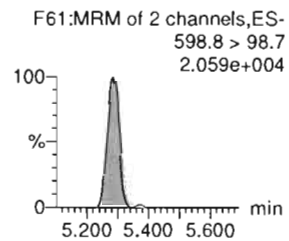

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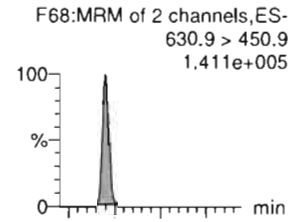
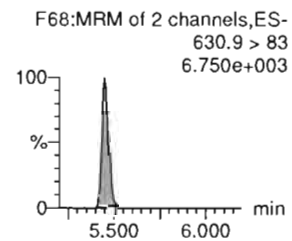
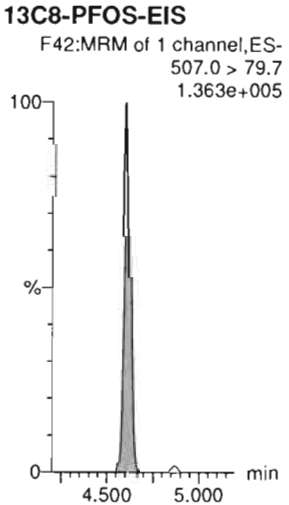
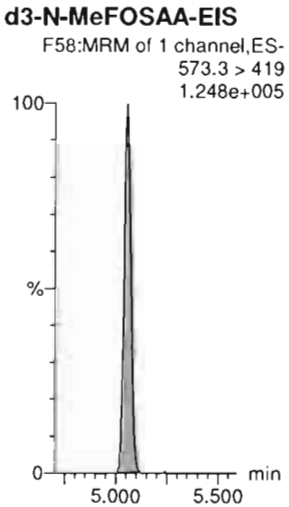




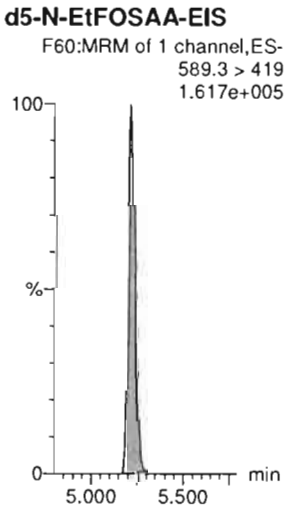
13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



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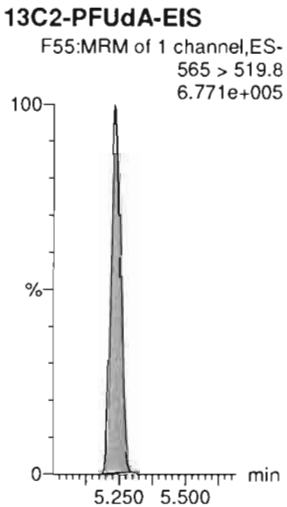

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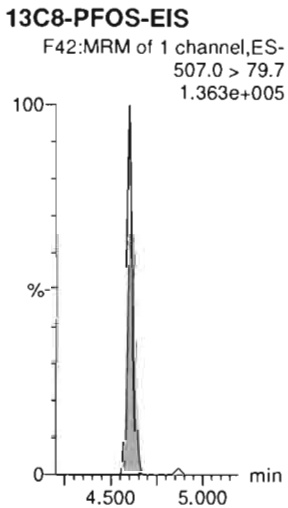
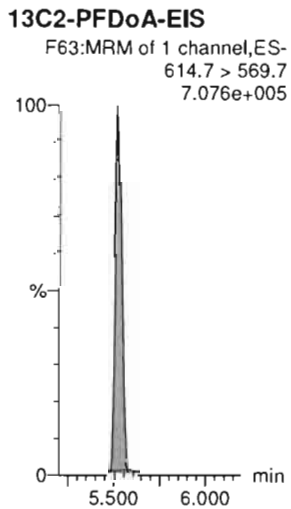


13C2-PFDoA-EIS



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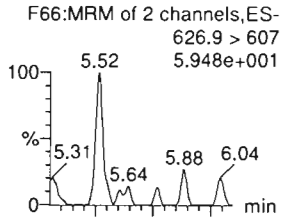
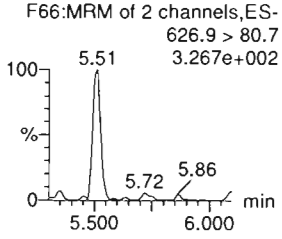
Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

10:2 FTS





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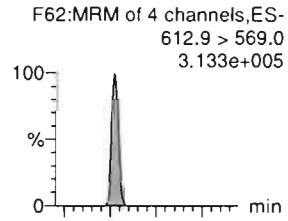
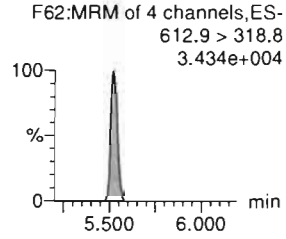
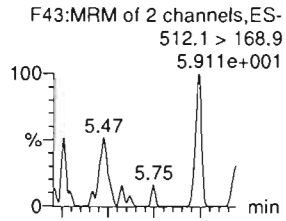
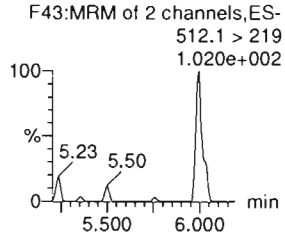




N-MeFOSA





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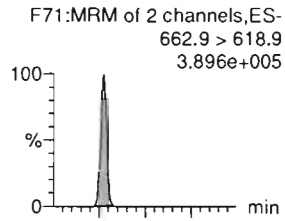

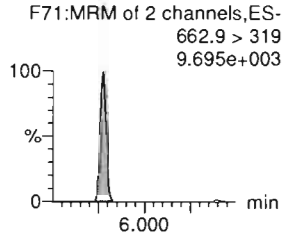

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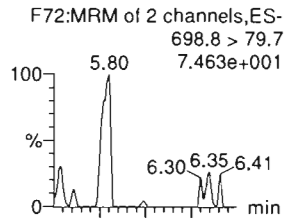

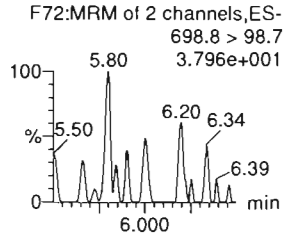

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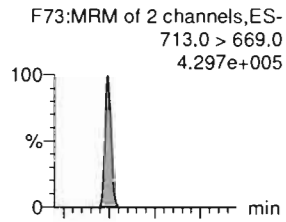
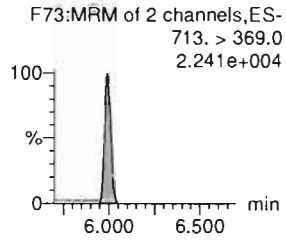
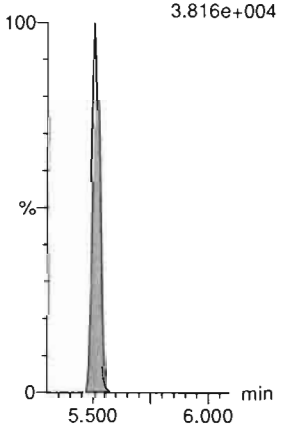
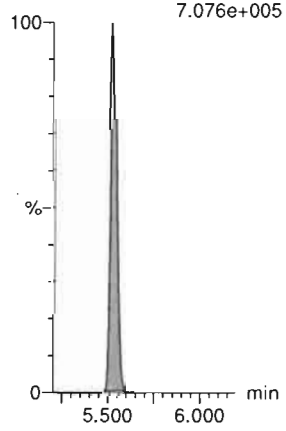




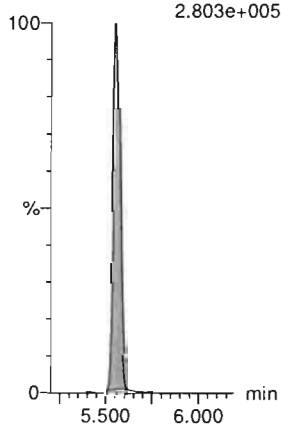
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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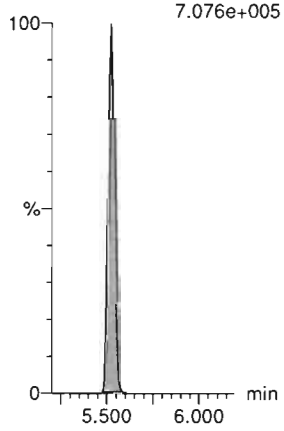

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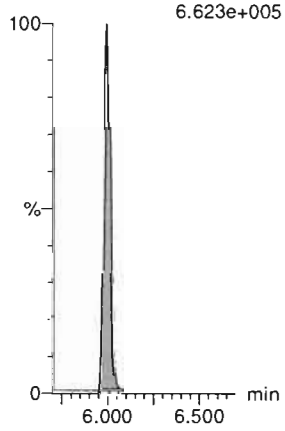

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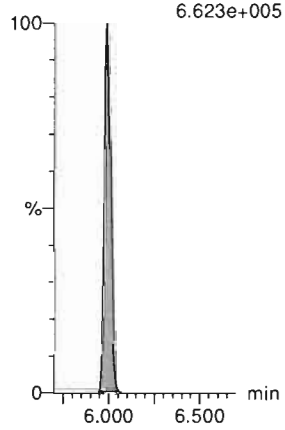

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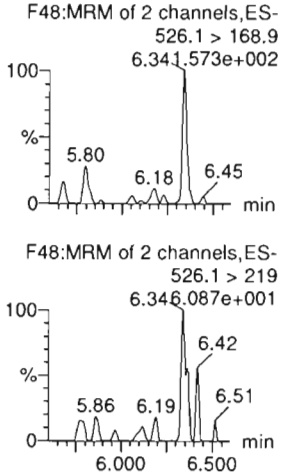
Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

N-EtFOSA



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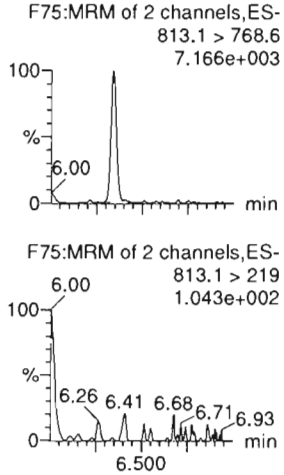
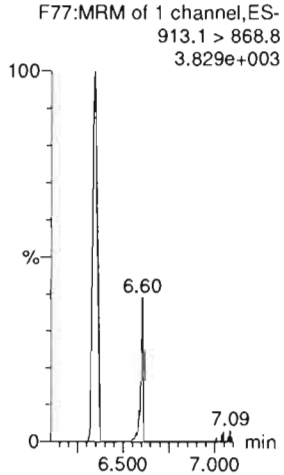
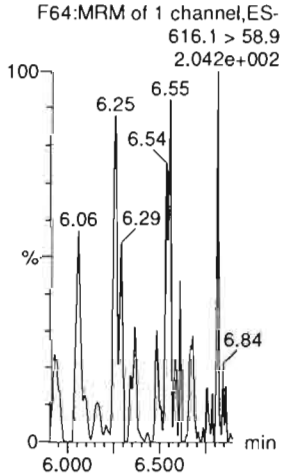


PFODA



N-MeFOSE



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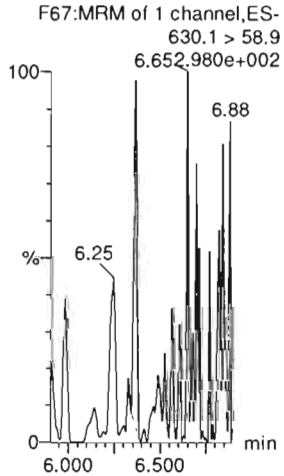
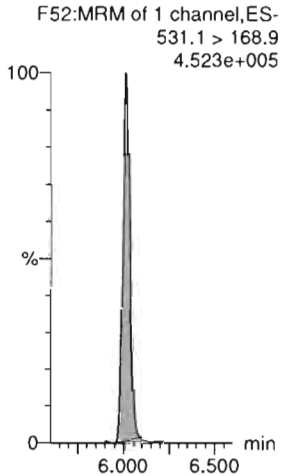
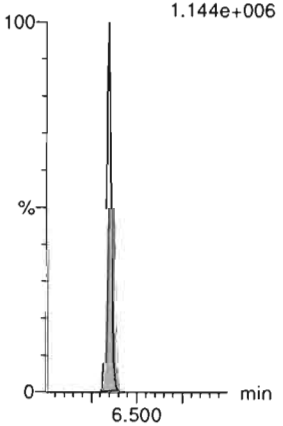


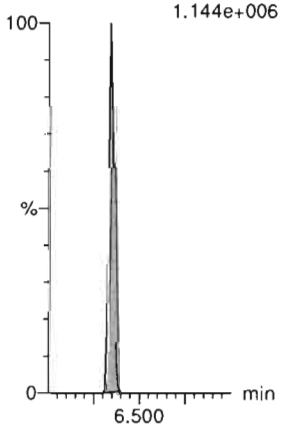
d5-N-ETFOSA-EIS



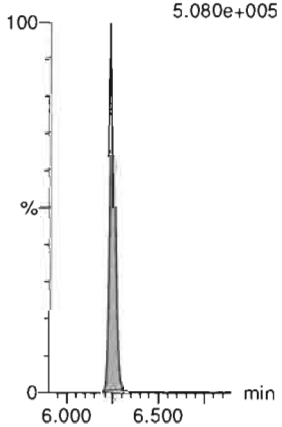
13C2-PFHxDA-EIS



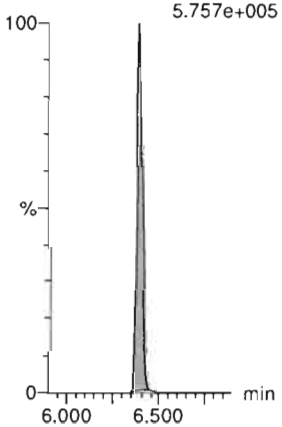
13C2-PFHxDA-EIS



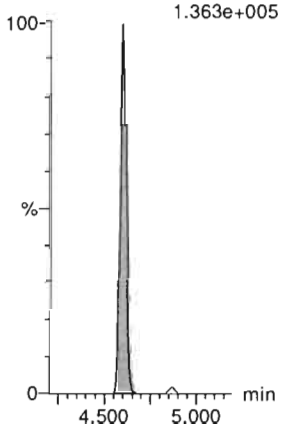
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



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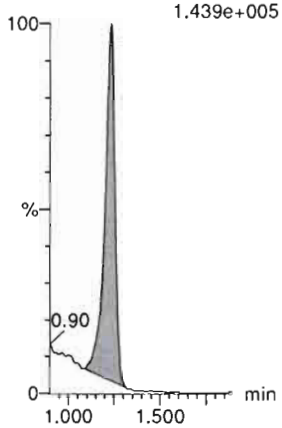
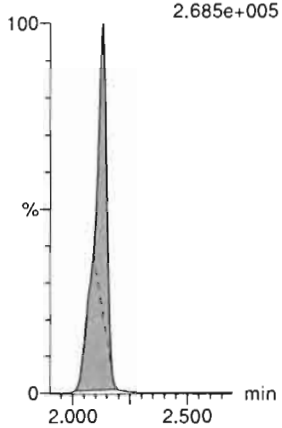
Printed: Thursday, March 05, 2020 10:28:44 Pacific Standard Time

Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

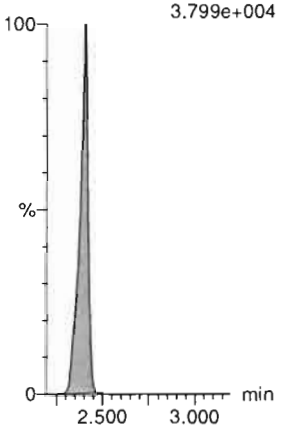
13C3-PFBA-RSD
F3:MRM of 1 channel,ES-
216.1 > 171.8
1.439e+005



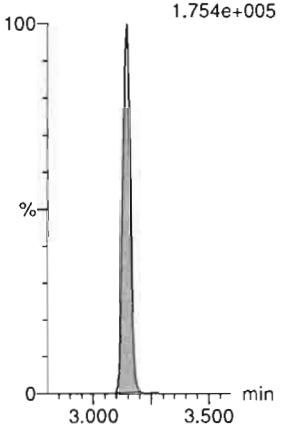
13C3-PFPeA-RSD
F8:MRM of 1 channel,ES-
266.0 > 221.8
2.685e+005



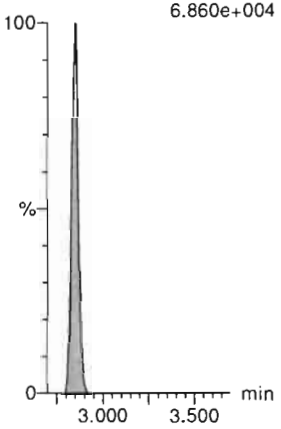
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
3.799e+004



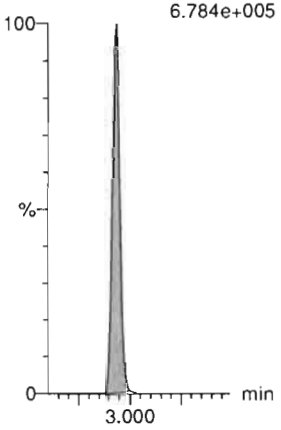
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
1.754e+005



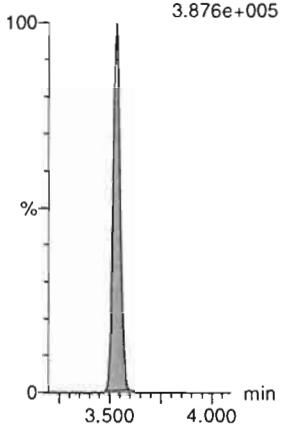
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
6.860e+004



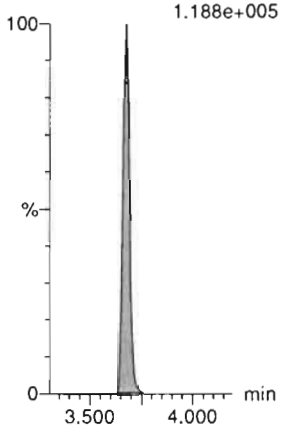
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
6.784e+005



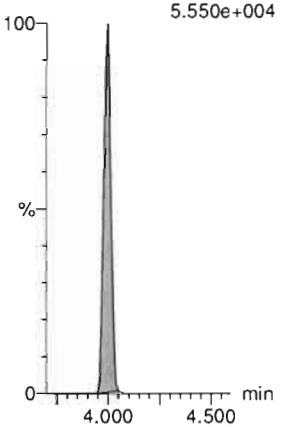
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
3.876e+005



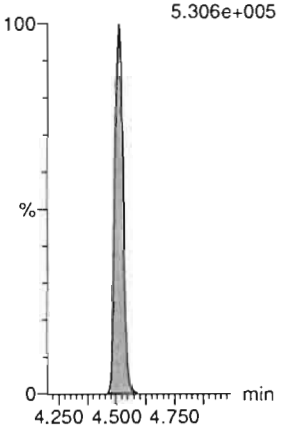
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
1.188e+005



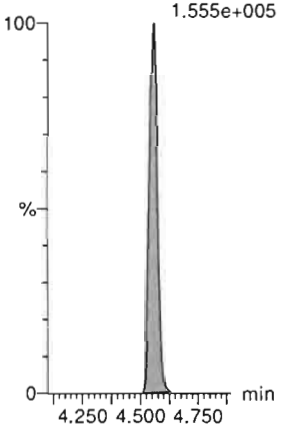
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
5.550e+004



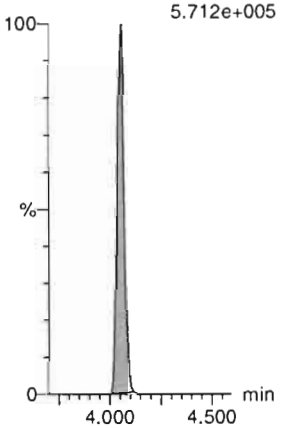
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
5.306e+005



13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
1.555e+005



13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
5.712e+005



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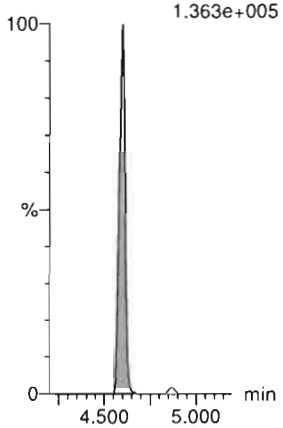
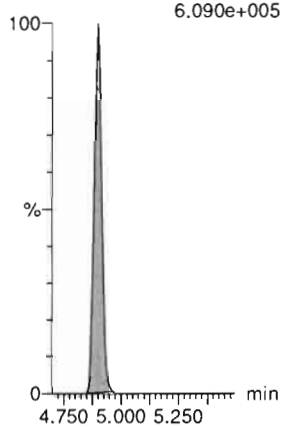
Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

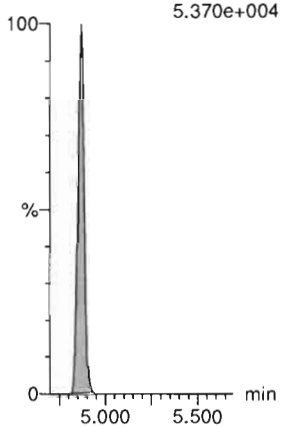
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
1.363e+005



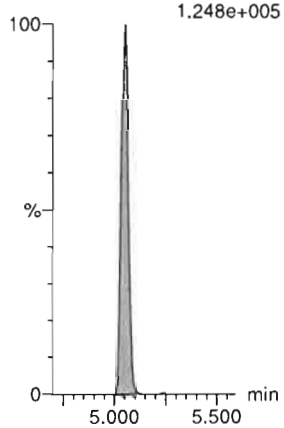
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
6.090e+005



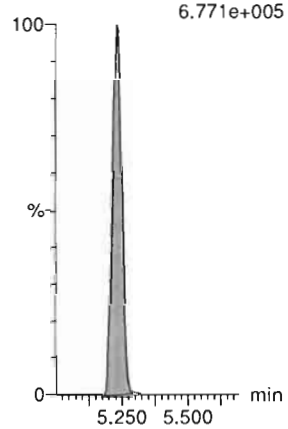
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
5.370e+004



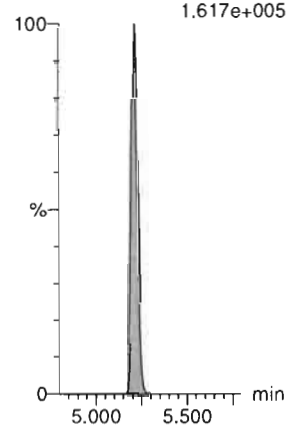
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
1.248e+005



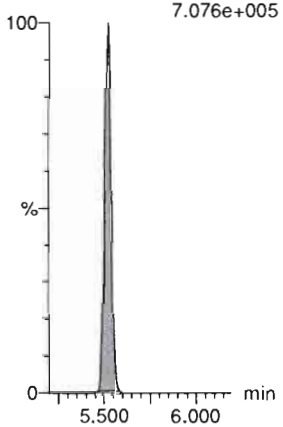
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
6.771e+005



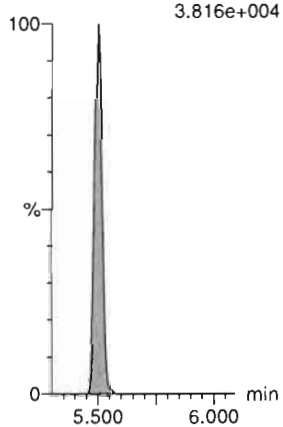
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
1.617e+005



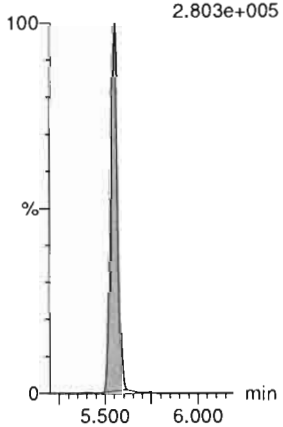
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
7.076e+005



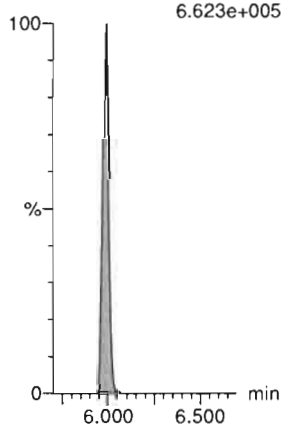
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
3.816e+004



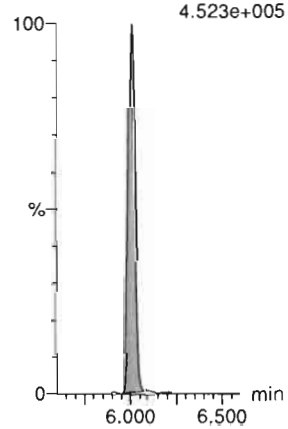
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.803e+005



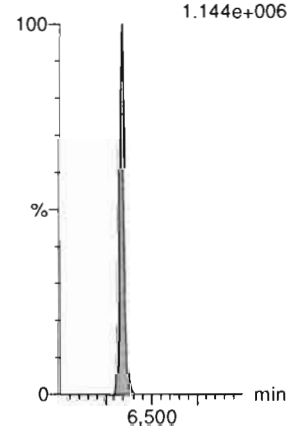
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
6.623e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.523e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
1.144e+006



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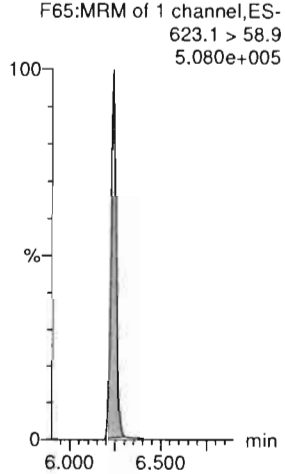
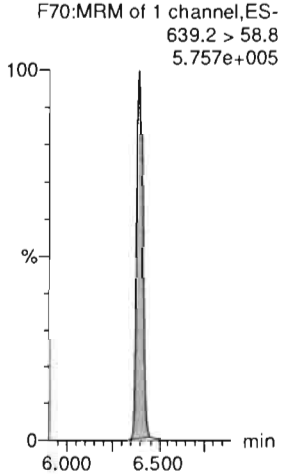
Printed: Thursday, March 05, 2020 10:28:44 Pacific Standard Time

Name: 200304P2-14, Date: 04-Mar-2020, Time: 21:27:24, ID: ICV200304P2-1 PFC ICV 20C0314, Description: PFC ICV 20B1112

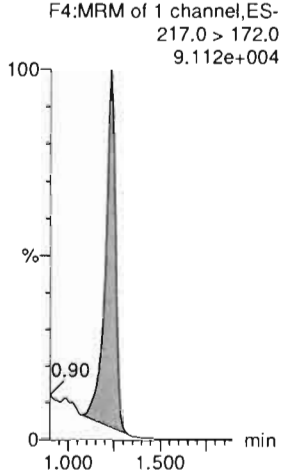
d7-N-MeFOSE-RSD



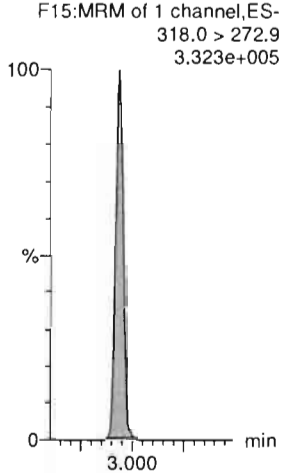
d9-N-EtFOSE-RSD



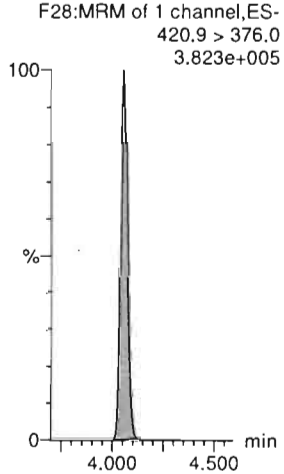
13C4-PFBA



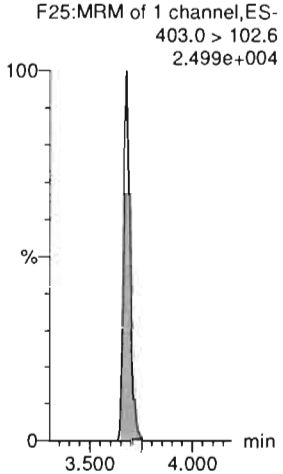
13C5-PFHxA



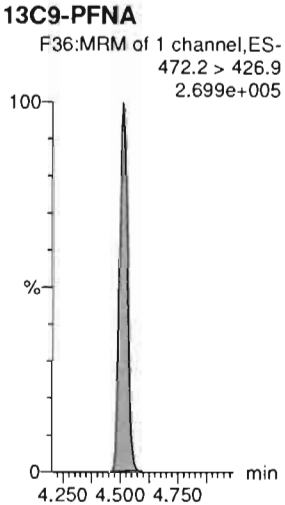
13C8-PFOA



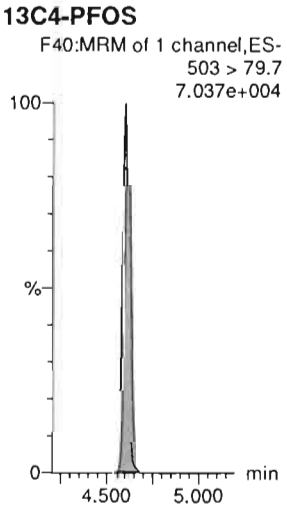
18O2-PFHxS



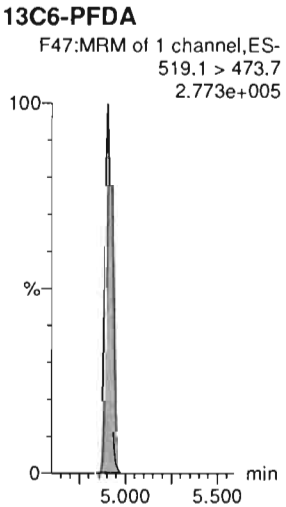
13C9-PFNA



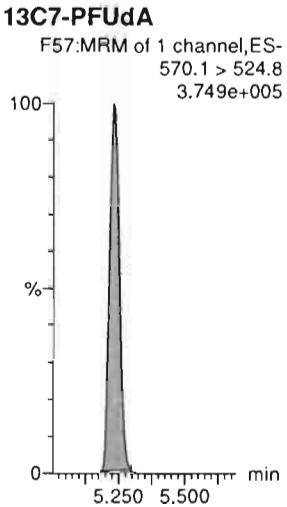
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-04-20.cdb 05 Mar 2020 10:00:36

Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

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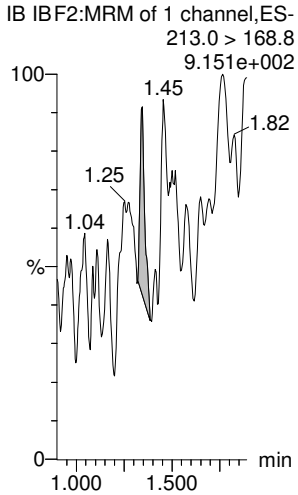
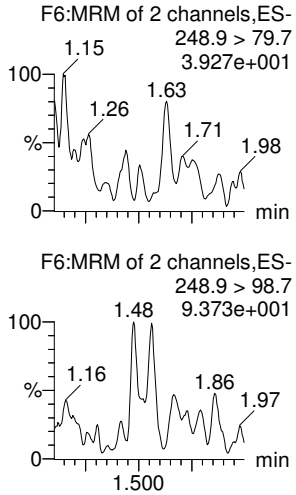
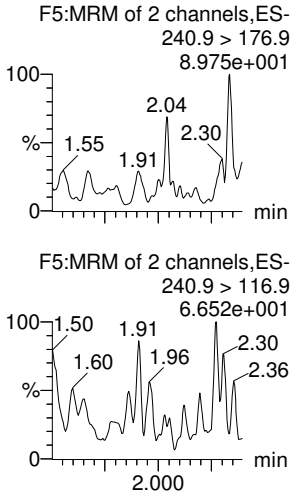


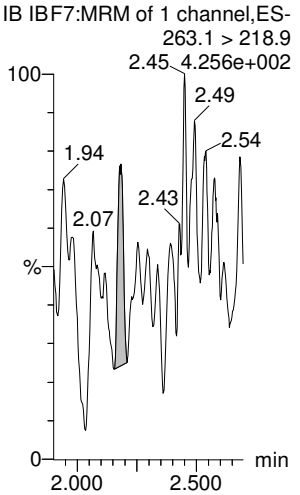
PFPrS



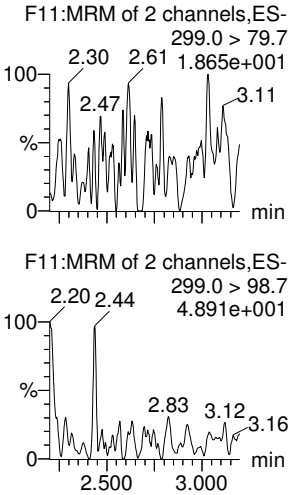
3:3 FTCA



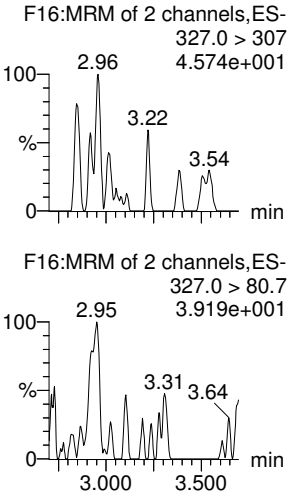
PFPeA



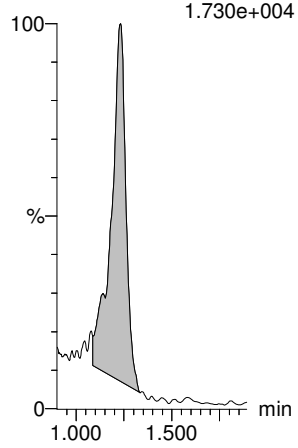
PFBS



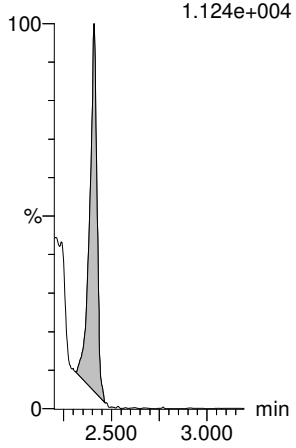
4:2 FTS



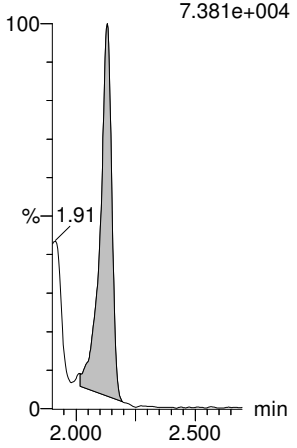
13C3-PFBA-EIS



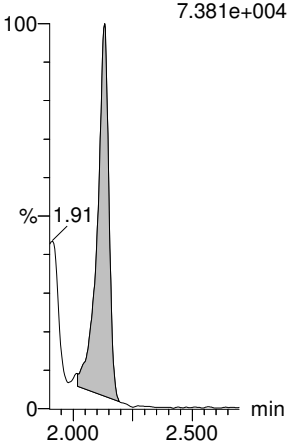
13C3-PFBS-EIS



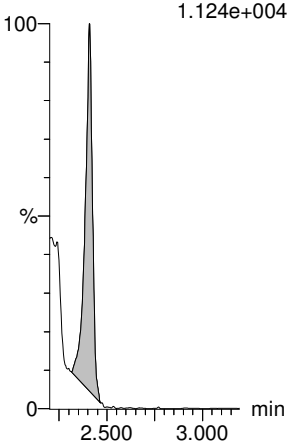
13C3-PFPeA-EIS



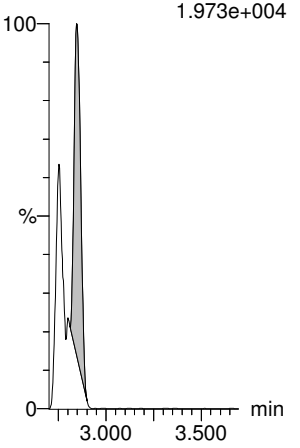
13C3-PFPeA-EIS



13C3-PFBS-EIS



13C2-4:2 FTS-EIS



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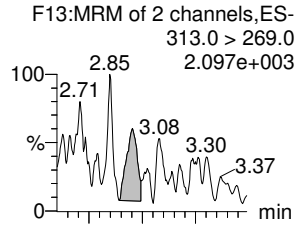
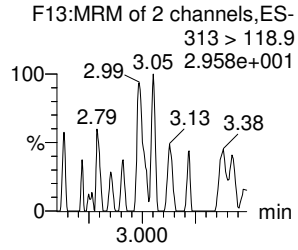
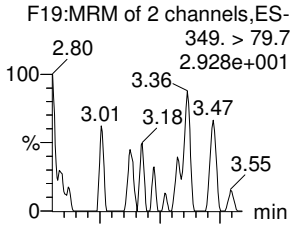
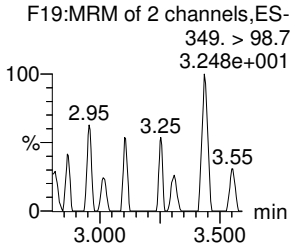
PFHxA





PFPeS





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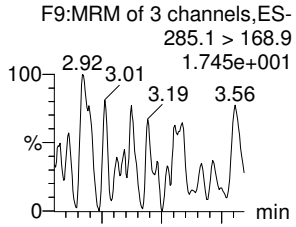

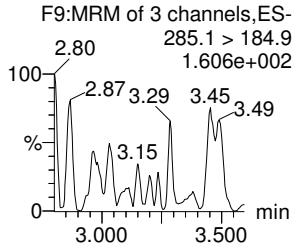

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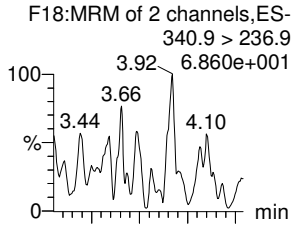

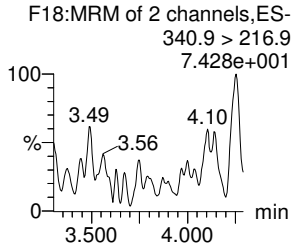

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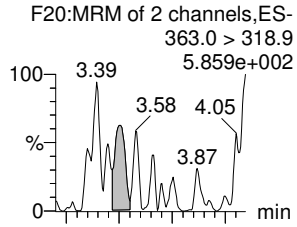

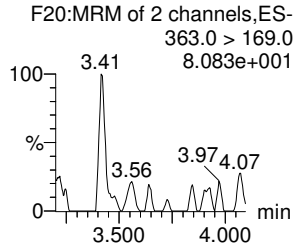

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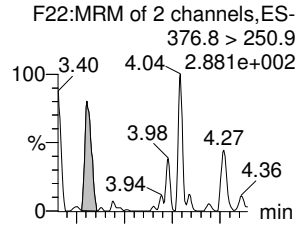

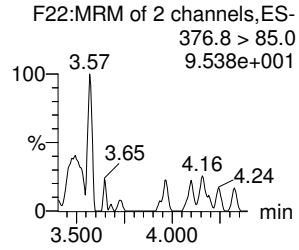

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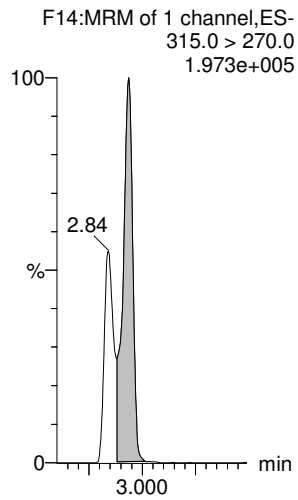

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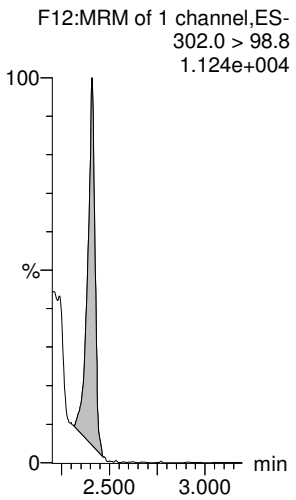

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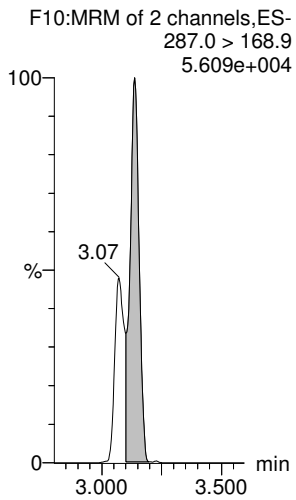

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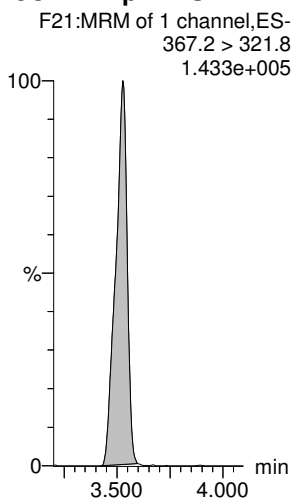

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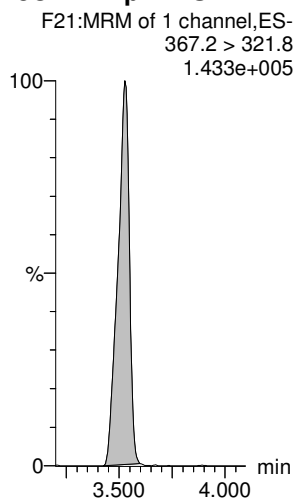

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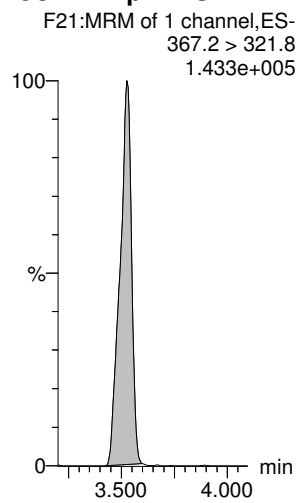

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Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

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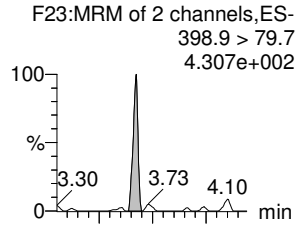
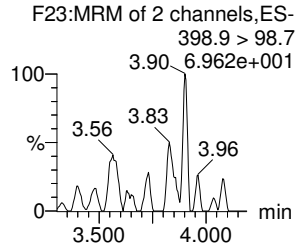
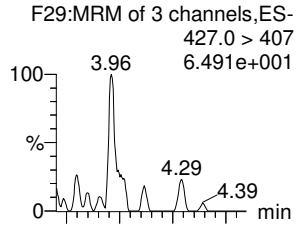
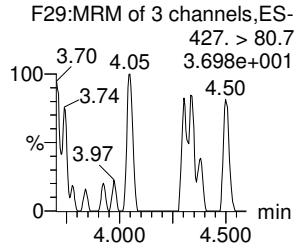




6:2 FTS





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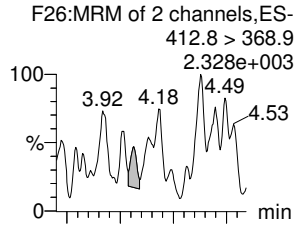

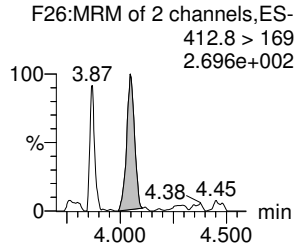

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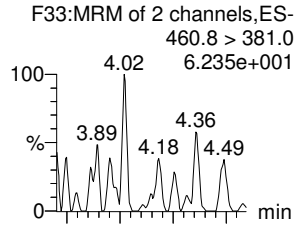

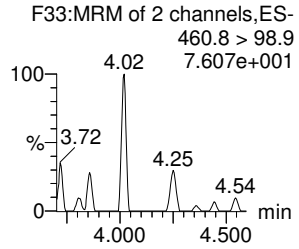

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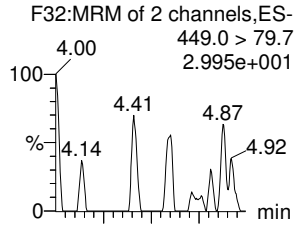

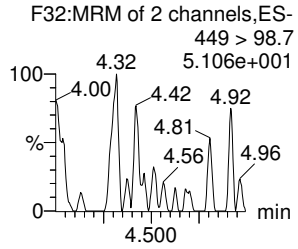

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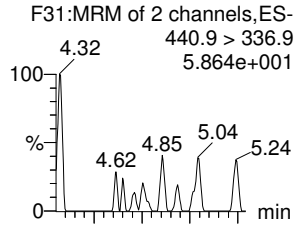

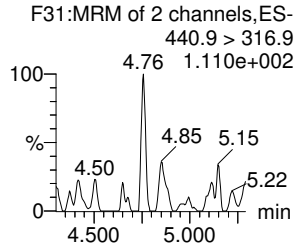

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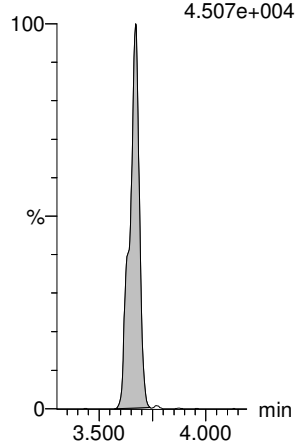

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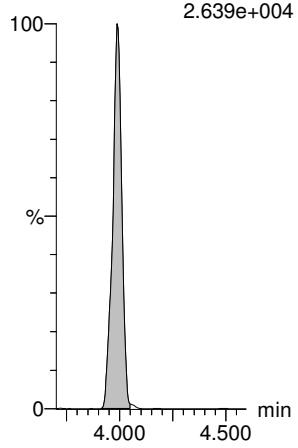

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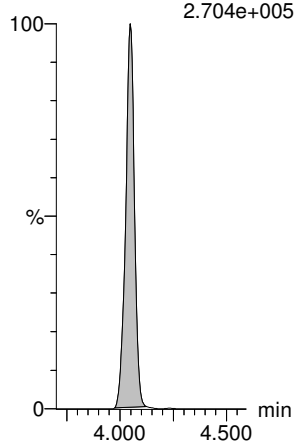

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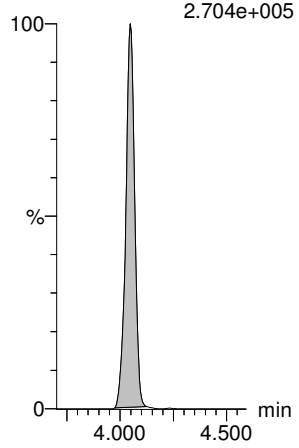

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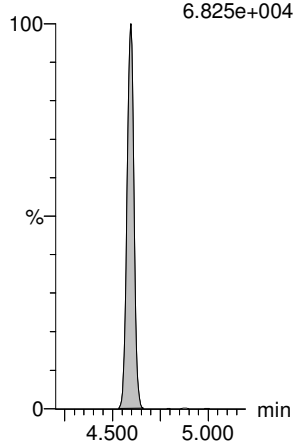
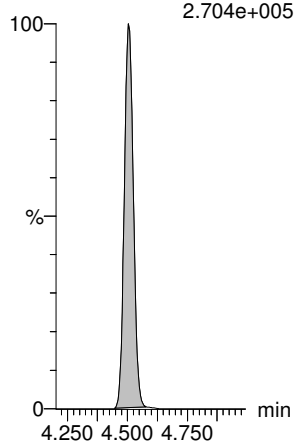


13C5-PFNA-EIS



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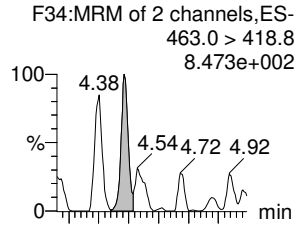

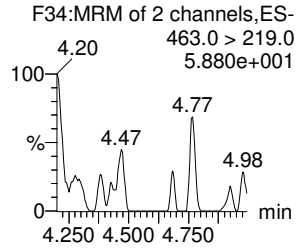

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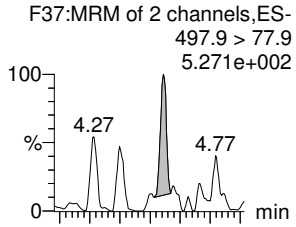

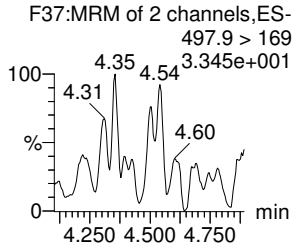

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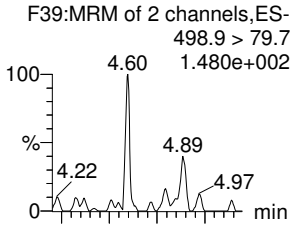

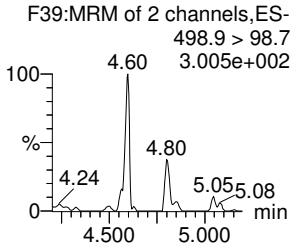

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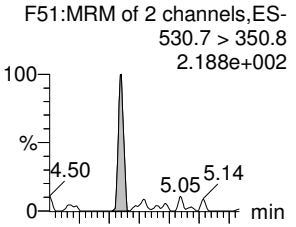

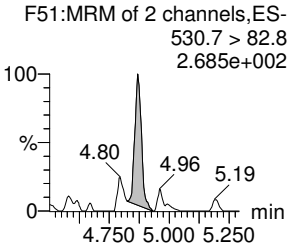

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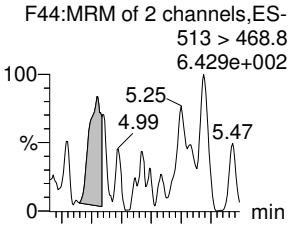

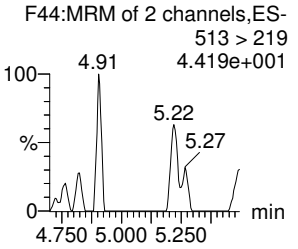

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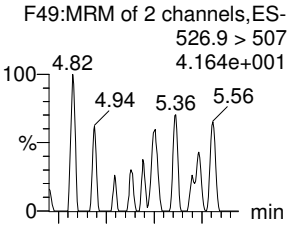

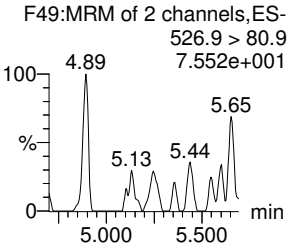

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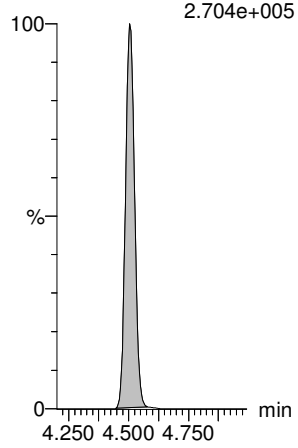

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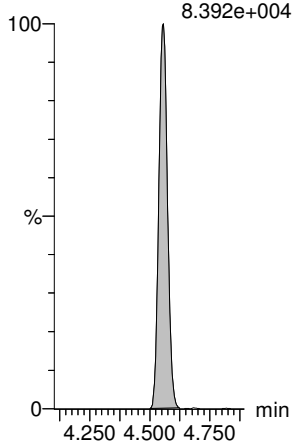

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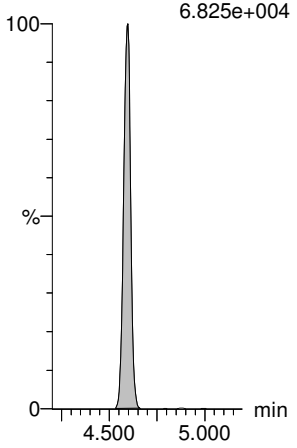

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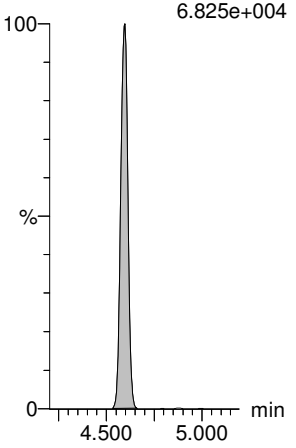

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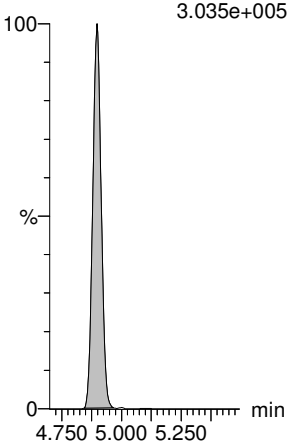

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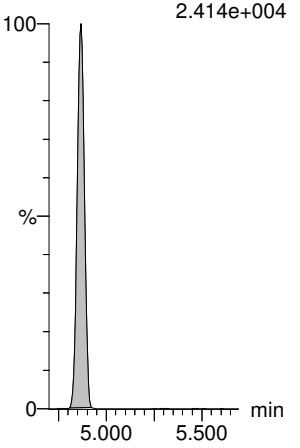

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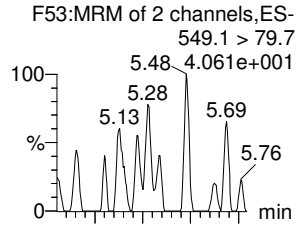
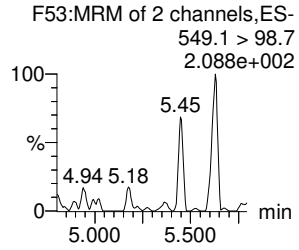
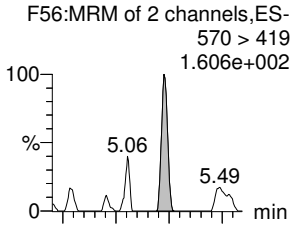
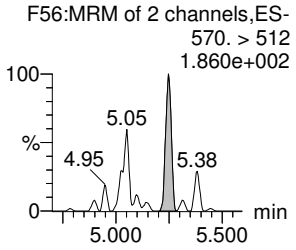




L-MeFOSAA





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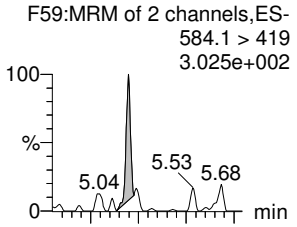

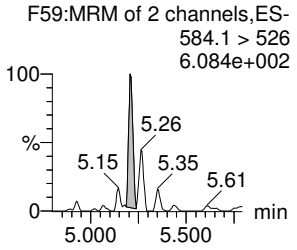

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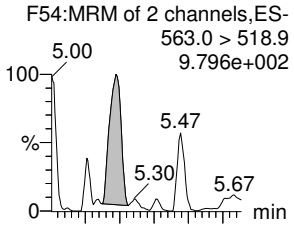

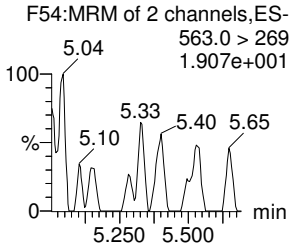

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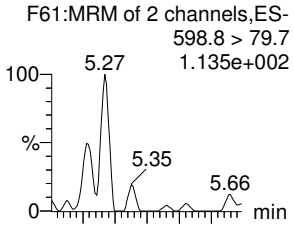

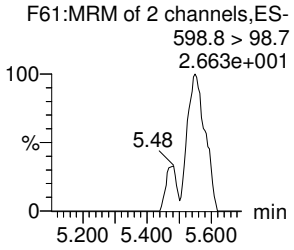

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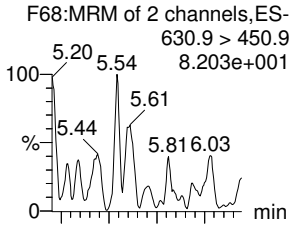

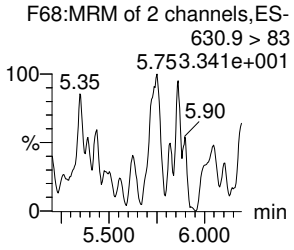

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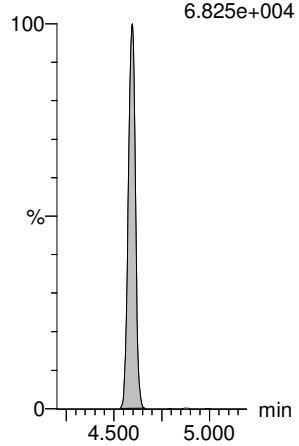

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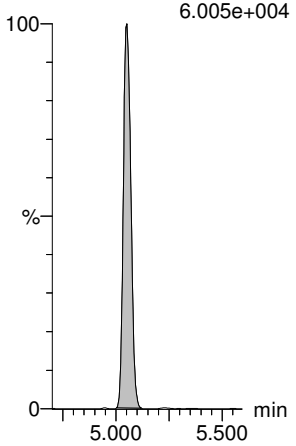

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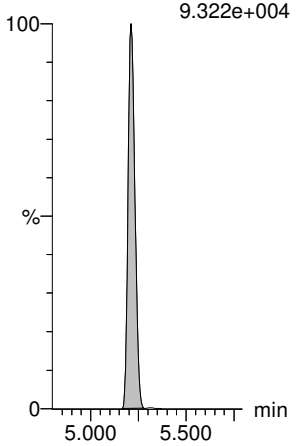

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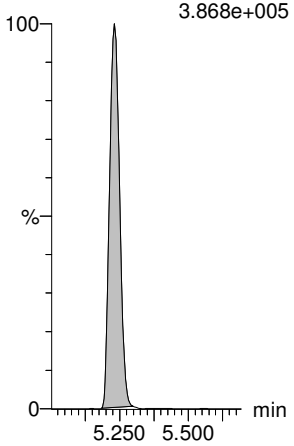

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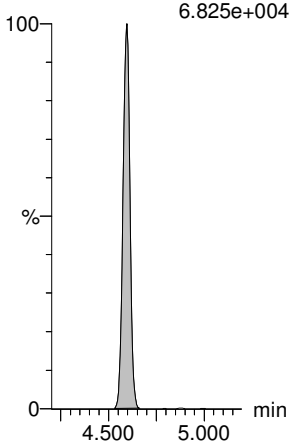

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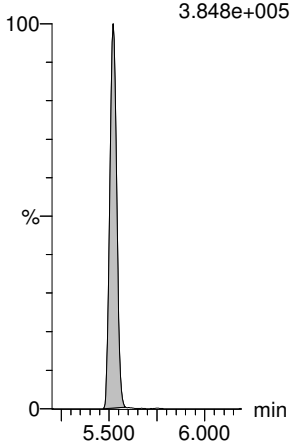

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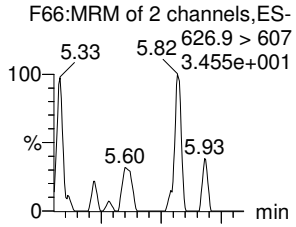
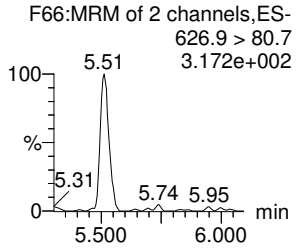
Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

10:2 FTS





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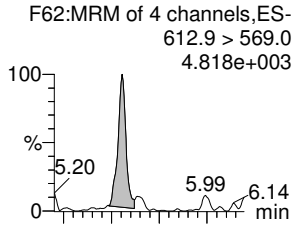

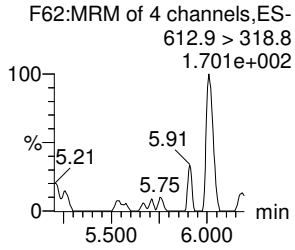

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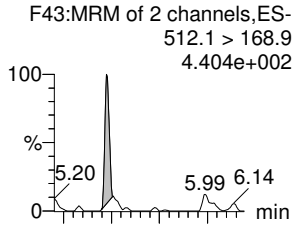

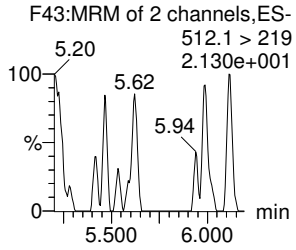

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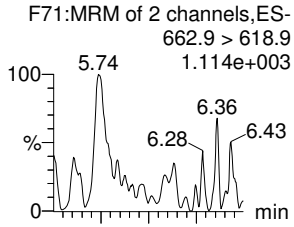

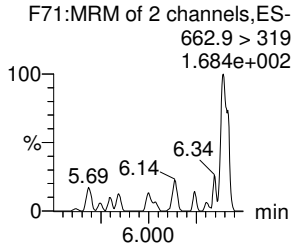

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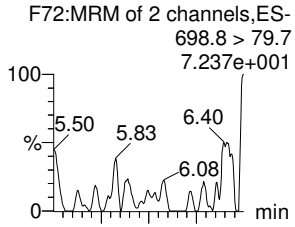

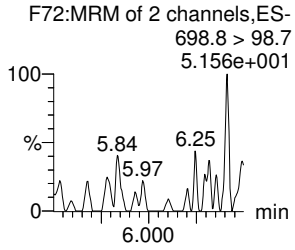

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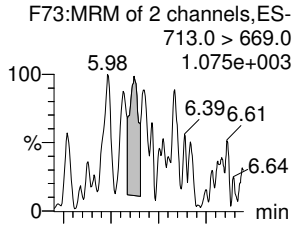

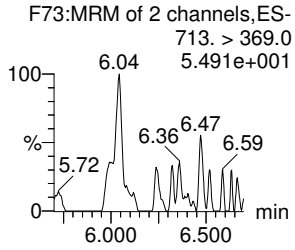

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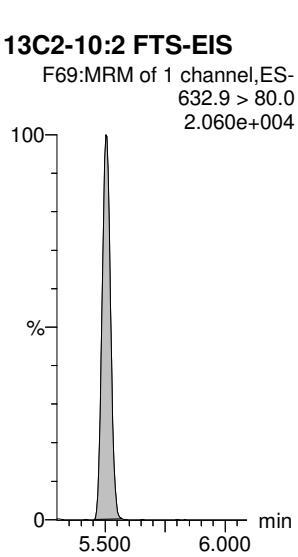

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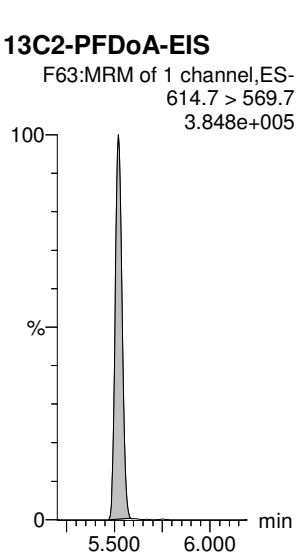

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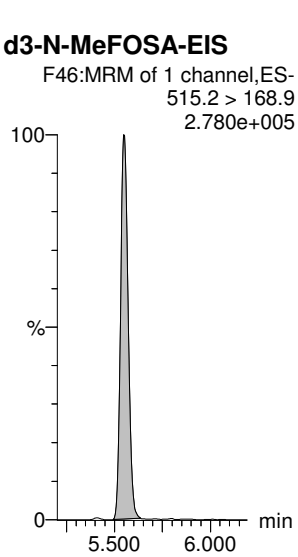

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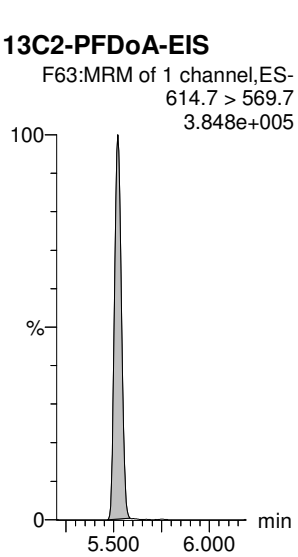

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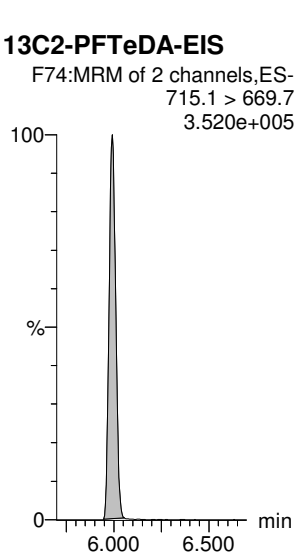

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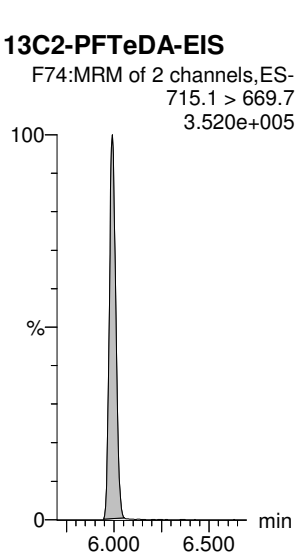

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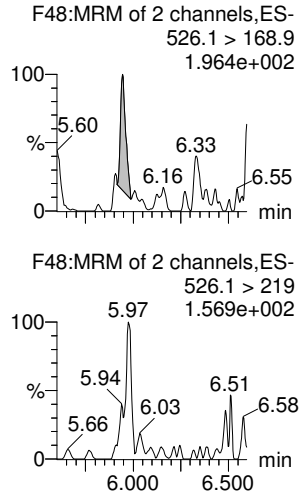

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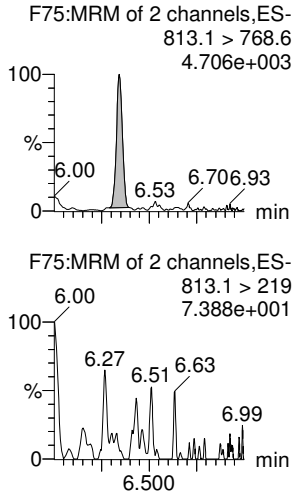

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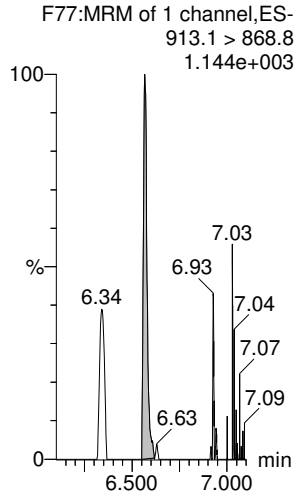

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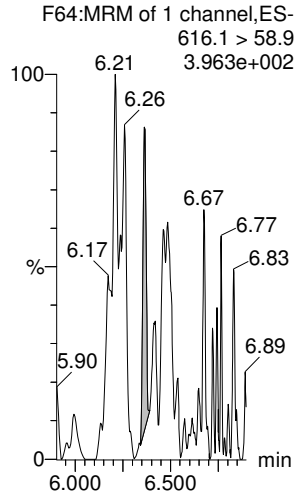

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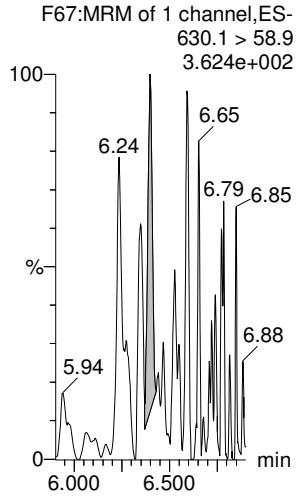

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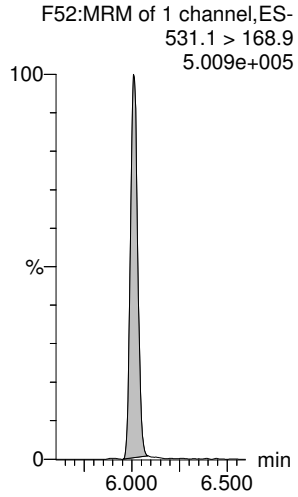

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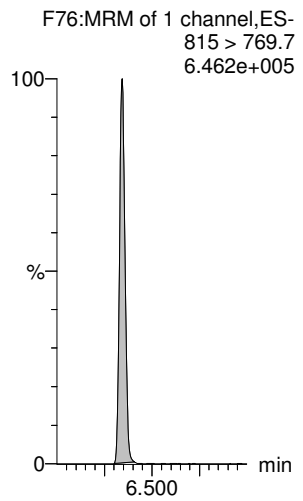

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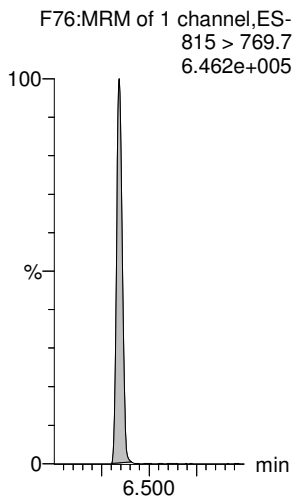

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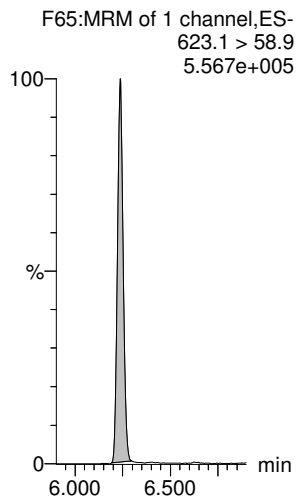
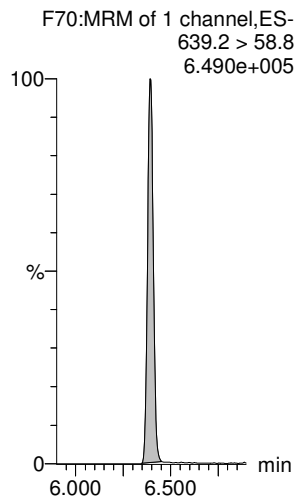


d9-N-EtFOSE-EIS



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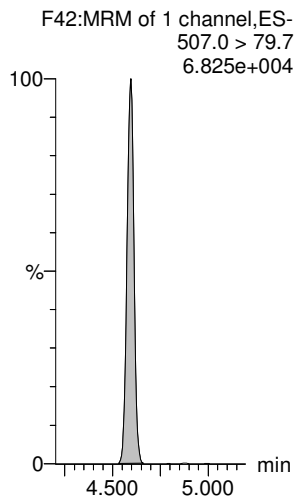

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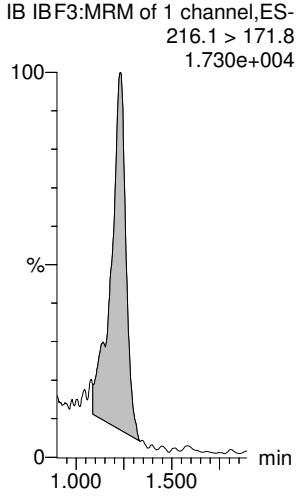

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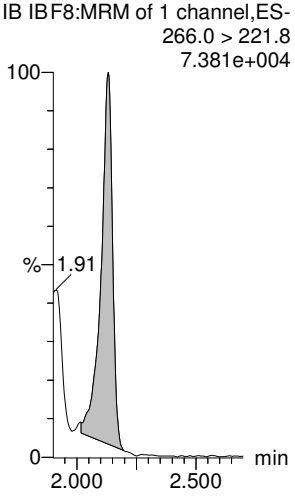

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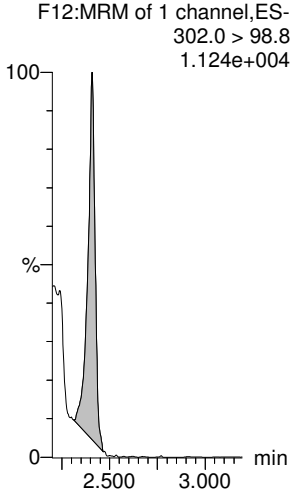

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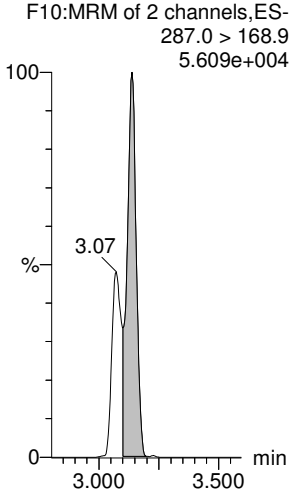

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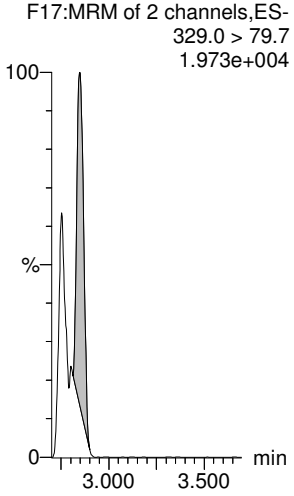

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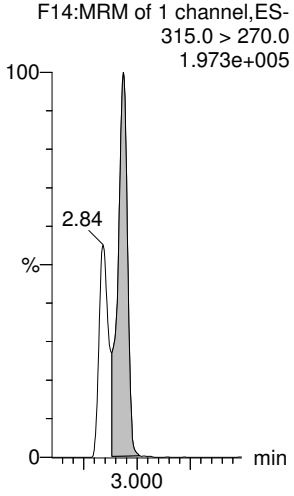

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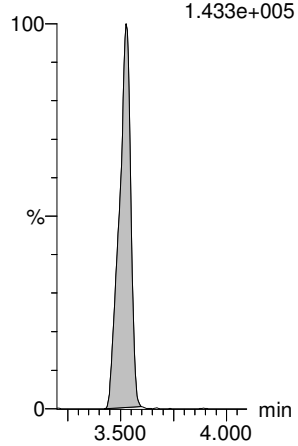

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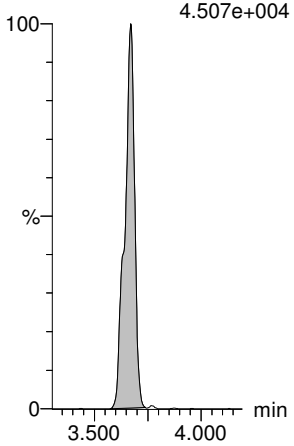
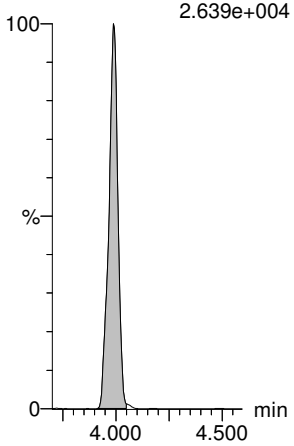
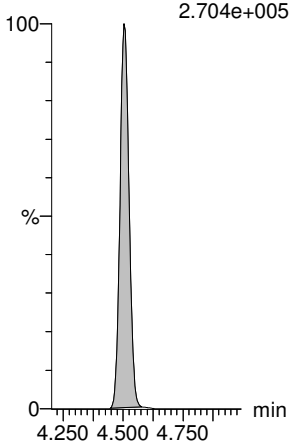


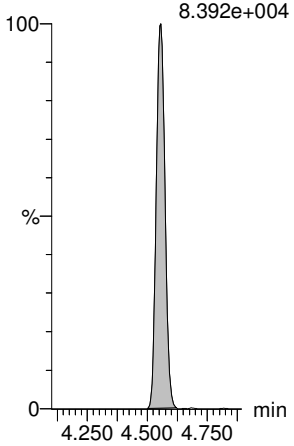
13C2-6:2 FTS-RSD



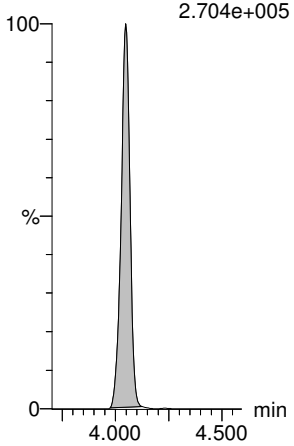
13C5-PFNA-RSD



13C8-PFOSA-RSD



13C2-PFOA-RSD



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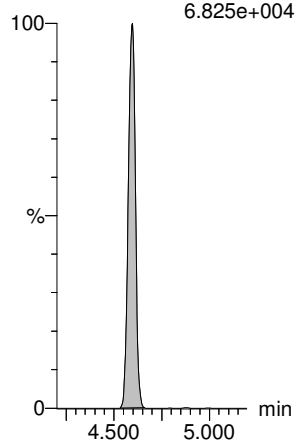
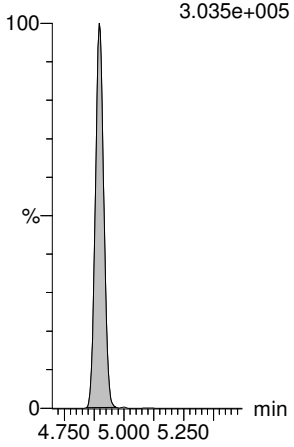
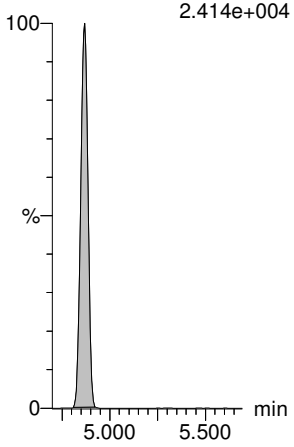
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.825e+004



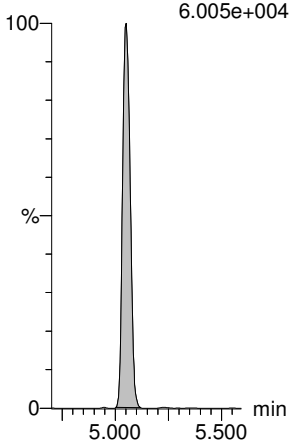
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.035e+005



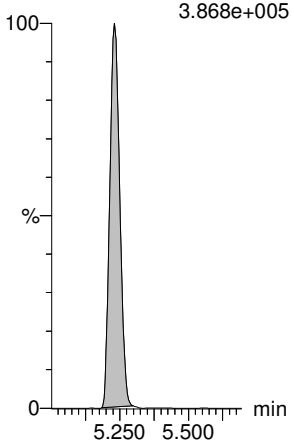
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.414e+004



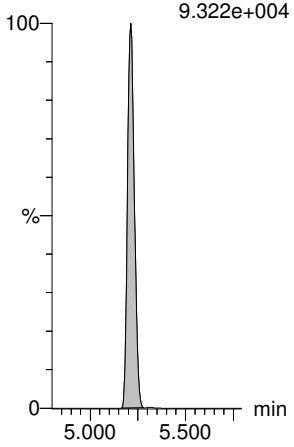
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.005e+004



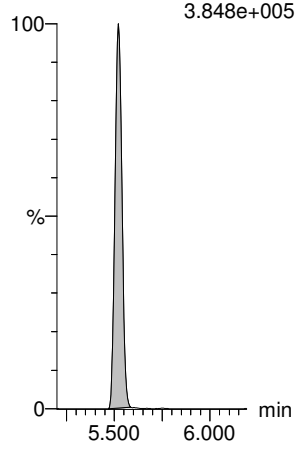
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.868e+005



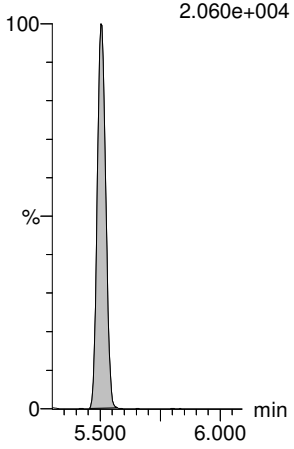
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.322e+004



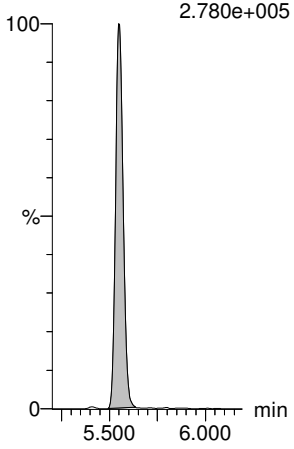
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.848e+005



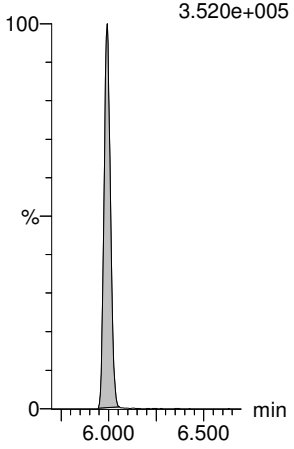
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.060e+004



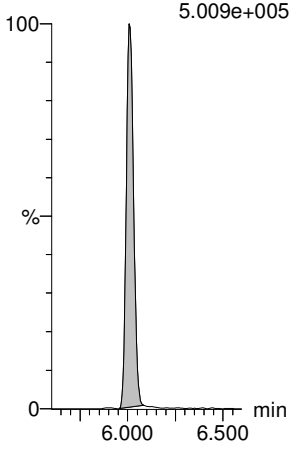
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
2.780e+005



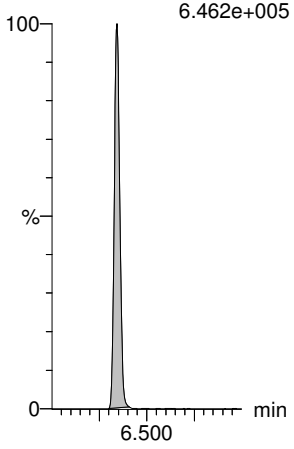
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.520e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.009e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.462e+005



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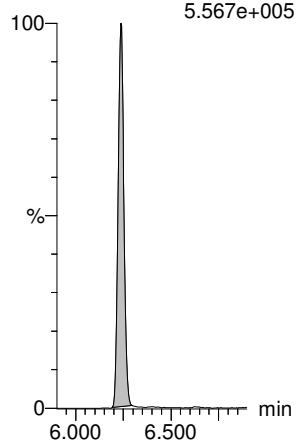
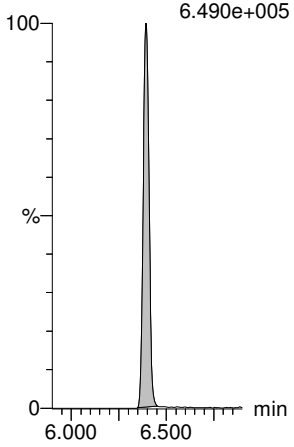
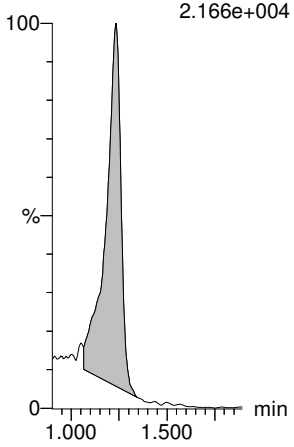
d7-N-MeFOSE-RSD



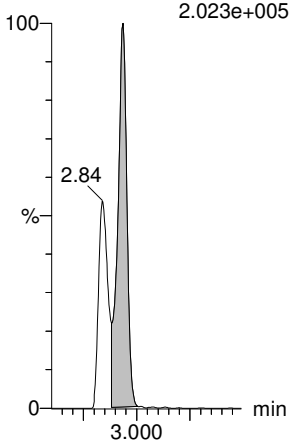
d9-N-EtFOSE-RSD



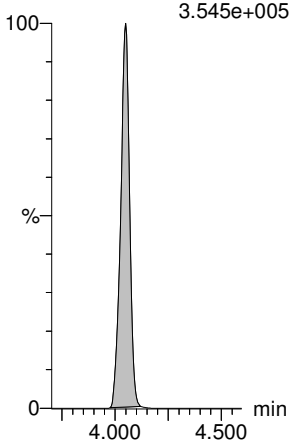
13C4-PFBA



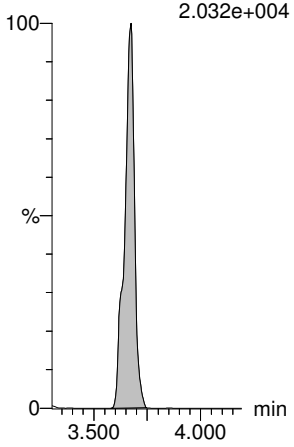
13C5-PFHxA



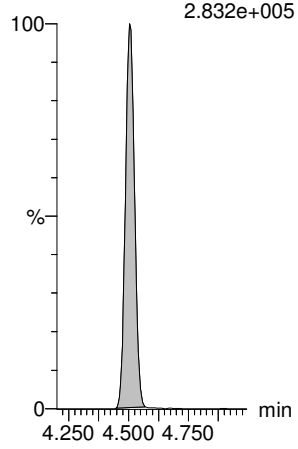
13C8-PFOA



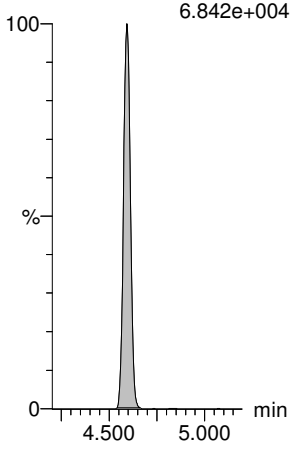
18O2-PFHxS



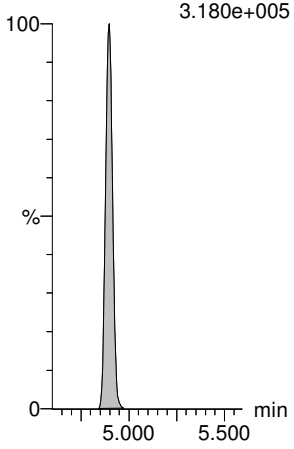
13C9-PFNA



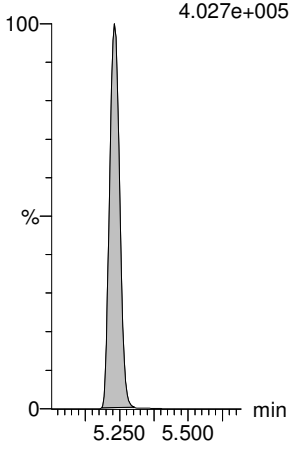
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	12.159	1425.392	1.00	1.34	0.107		0.126		NO		
2	2	PFPrS	248.9 > 79.7		468.345	1.00						NO		YES
3	3	3:3 FTCA	240.9 > 176.9		4005.253	1.00						NO		YES
4	4	PFPeA	263.1 > 218.9	6.192	4005.253	1.00	2.18	0.019		0.0144		NO		
5	5	PFBS	299.0 > 79.7		468.345	1.00						NO		YES
6	6	4:2 FTS	327.0 > 307		687.112	1.00						NO		YES
7	47	13C3-PFBA-EIS	216.1 > 171.8	1425.392		1.00	1.23	1425.392	12.500	3.84	30.7	YES		
8	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	4005.253		1.00	2.13	4005.253	12.500	5.88	47.0	YES		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	4005.253		1.00	2.13	4005.253	12.500	5.88	47.0	YES		
11	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	687.112		1.00	2.85	687.112	12.500	5.69	45.5	YES		
13	-1													
14	7	PFHxA	313.0 > 269.0	64.647	10086.920	1.00	2.95	0.080		0.0245		NO		YES
15	8	PFPeS	349.>79.7		468.345	1.00						NO		YES
16	9	HFPO-DA	285.1 > 168.9		2419.228	1.00						NO		YES
17	10	5:3 FTCA	340.9 > 236.9		8859.708	1.00						NO		YES
18	11	PFHpA	363.0 > 318.9	20.703	8859.708	1.00	3.50	0.029				NO		YES
19	12	ADONA	376.8 > 250.9	9.118	8859.708	1.00	3.56	0.013				NO		YES
20	57	13C2-PFHxA-EIS	315.0 > 270.0	10086.920		1.00	2.94	10086.920	12.500	8.32	66.5	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	468.345		1.00	2.41	468.345	12.500	5.67	45.3	YES		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2419.228		1.00	3.14	2419.228	12.500	8.63	69.1	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	8859.708		1.00	3.53	8859.708	12.500	13.1	104.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	11.526	2366.117	1.00	3.67	0.061		0.130		NO		YES
28	15	6:2 FTS	427.0 > 407		1286.210	1.00						NO		YES
29	16	L-PFOA	412.8 > 368.9	24.111	12880.134	1.00	4.07	0.023				NO	2.116	NO
30	18	PFecHS	460.8 > 381.0		12880.134	1.00						NO		YES
31	19	PFHpS	449.0 > 79.7		2877.657	1.00						NO		YES
32	20	7:3 FTCA	440.9 > 336.9		11555.749	1.00						NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2366.117		1.00	3.67	2366.117	12.500	12.4	99.6	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1286.210		1.00	3.99	1286.210	12.500	14.3	114.2	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	12880.134		1.00	4.05	12880.134	12.500	12.7	101.4	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	12880.134		1.00	4.05	12880.134	12.500	12.7	101.4	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	11555.749		1.00	4.50	11555.749	12.500	13.3	106.6	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	28.700	11555.749	1.00	4.48	0.031				NO		YES
41	22	PFOSA	497.9 > 77.9	13.301	3483.541	1.00	4.55	0.048				NO		YES
42	23	L-PFOS	498.9 > 79.7		2877.657	1.00						NO		YES
43	25	9Cl-PF30NS	530.7 > 350.8	5.586	2877.657	1.00	4.80	0.024		0.00565		NO	0.706	YES
44	26	PFDA	513 > 468.8	28.565	12344.313	1.00	4.90	0.029				NO		YES
45	27	8:2 FTS	526.9 > 507		1030.673	1.00						NO		YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	11555.749		1.00	4.50	11555.749	12.500	13.3	106.6	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3483.541		1.00	4.56	3483.541	12.500	13.6	109.2	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	12344.313		1.00	4.90	12344.313	12.500	13.1	104.5	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1030.673		1.00	4.87	1030.673	12.500	11.8	94.5	NO		
52	-1													
53	28	PFNS	549.1 > 79.7		2877.657	1.00						NO		YES
54	29	L-MeFOSAA	570 > 419	5.340	2439.694	1.00	5.23	0.027		0.0476		NO	0.951	YES
55	31	L-EtFOSAA	584.1 > 419	7.322	3890.859	1.00	5.20	0.024		0.0711		NO	0.466	YES
56	33	PFUdA	563.0 > 518.9	44.895	16051.350	1.00	5.24	0.035				NO		YES
57	34	PFDS	598.8 > 79.7		2877.657	1.00						NO		YES
58	35	11Cl-PF30UdS	630.9 > 450.9		15742.117	1.00						NO		YES
59	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	2439.694		1.00	5.05	2439.694	12.500	12.5	100.1	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	3890.859		1.00	5.21	3890.859	12.500	13.5	108.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	16051.350		1.00	5.23	16051.350	12.500	13.1	104.7	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		831.490	1.00						NO		YES
67	37	PFDoA	612.9 > 569.0	223.817	15742.117	1.00	5.56	0.178				NO		YES
68	38	N-MeFOSA	512.1 > 168.9	10.727	12577.316	1.00	5.47	0.127				NO		YES
69	39	PFTrDA	662.9 > 618.9		15742.117	1.00						NO		YES
70	40	PFDoS	698.8 > 79.7		13690.438	1.00						NO		YES
71	41	PFTeDA	713.0 > 669.0	51.518	13690.438	1.00	6.12	0.047		0.0555		NO		YES
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	831.490		1.00	5.50	831.490	12.500	14.5	116.3	NO		

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Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	12577.316		1.00	5.55	12577.316	149.200	150	100.3	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	15742.117		1.00	5.52	15742.117	12.500	13.0	103.9	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	13690.438		1.00	5.99	13690.438	12.500	12.8	102.4	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	13690.438		1.00	5.99	13690.438	12.500	12.8	102.4	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	5.406	21915.990	1.00	5.94	0.037				NO		YES
80	43	PFHxDA	813.1 > 768.6	160.668	21672.244	1.00	6.34	0.093		0.0102		NO		YES
81	44	PFODA	913.1 > 868.8	25.492	21672.244	1.00	6.57	0.015		0.0394		NO		
82	45	N-MeFOSE	616.1 > 58.9	5.858	19399.535	1.00	6.36	0.045		0.114		NO		
83	46	N-EtFOSE	630.1 > 58.9	8.164	22549.330	1.00	6.40	0.054		0.106		NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	21915.990		1.00	6.01	21915.990	149.200	151	101.0	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	21672.244		1.00	6.34	21672.244	12.500	12.9	103.0	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	21672.244		1.00	6.34	21672.244	12.500	12.9	103.0	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	19399.535		1.00	6.24	19399.535	149.200	145	96.9	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	22549.330		1.00	6.39	22549.330	149.200	149	99.6	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	2877.657		1.00	4.60	2877.657	12.500	13.8	110.7	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	1425.392	1862.473	1.00	1.23	9.567	12.500	12.0	96.0	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	3983.000	9902.850	1.00	2.13	5.028	12.500	8.84	70.7	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	468.345	1086.782	1.00	2.41	5.387	12.500	5.36	42.8	YES		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	2419.228	9902.850	1.00	3.14	3.054	12.500	12.5	99.6	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	687.112	1086.782	1.00	2.85	7.903	12.500	5.21	41.6	YES		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	10086.920	9902.850	1.00	2.94	12.732	12.500	12.4	98.9	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	8859.708	9902.850	1.00	3.53	11.183	12.500	19.8	158.3	YES		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2366.117	1086.782	1.00	3.67	27.215	12.500	11.4	90.9	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1286.210	2801.486	1.00	3.99	5.739	12.500	12.0	95.6	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	11555.749	12146.396	1.00	4.50	11.892	12.500	12.7	101.8	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3483.541	16926.570	1.00	4.56	2.573	12.500	12.2	97.6	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	12880.134	17218.184	1.00	4.05	9.351	12.500	11.4	91.0	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	2877.657	2801.486	1.00	4.60	12.840	12.500	13.0	103.8	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	12344.313	13326.403	1.00	4.90	11.579	12.500	11.8	94.3	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1030.673	2801.486	1.00	4.87	4.599	12.500	11.2	89.9	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	2439.694	16926.570	1.00	5.05	1.802	12.500	11.2	89.3	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	16051.350	16926.570	1.00	5.23	11.854	12.500	12.3	98.3	NO		

Dataset: Untitled

Last Altered: Thursday, March 05, 2020 10:34:45 Pacific Standard Time
Printed: Thursday, March 05, 2020 10:35:03 Pacific Standard Time

Name: 200304P2-13, Date: 04-Mar-2020, Time: 21:16:56, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	3890.859	16926.570	1.00	5.21	2.873	12.500	12.6	100.8	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	15742.117	13326.403	1.00	5.52	14.766	12.500	11.8	94.6	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	831.490	2801.486	1.00	5.50	3.710	12.500	13.0	103.9	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	12577.316	16926.570	1.00	5.55	9.288	149.200	130	87.4	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	13690.438	16926.570	1.00	5.99	10.110	12.500	12.0	96.2	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	21915.990	16926.570	1.00	6.01	16.185	149.200	142	94.9	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	21672.244	16926.570	1.00	6.34	16.005	12.500	12.1	97.1	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	19399.535	16926.570	1.00	6.24	14.326	149.200	137	92.0	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	22549.330	16926.570	1.00	6.39	16.652	149.200	139	93.3	NO		
119	99	13C4-PFBA	217.0 > 172.0	1862.473	1862.473	1.00	1.23	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	9902.850	9902.850	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	17218.184	17218.184	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1086.782	1086.782	1.00	3.67	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	12146.396	12146.396	1.00	4.50	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	2801.486	2801.486	1.00	4.59	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	13326.403	13326.403	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	16926.570	16926.570	1.00	5.23	12.500	12.500	12.5	100.0	NO		

Quantify Compound Summary Report **MassLynx V4.2 SCN977**
Vista Analytical Laboratory

Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 10:35:12 Pacific Standard Time
Printed: Friday, March 06, 2020 11:35:57 Pacific Standard Time

Low point
PFHpA = 0.5
PFecHS = 0.5
7:3 FTCA = 0.5
8:2 FTS = 1.0

high point
3:3 FTCA : 100
5:3 FTCA : 100
7:3 FTCA : 100
9Cl = 250
4:2 FTS = 250
PFDoA = 250

PFUdA GM 3/8/2020

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Compound name: PFBA
Correlation coefficient: r = 0.999861, r^2 = 0.999723
Calibration curve: 1.11795 * x + 0.00202098
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

VJ 03/06/20
OPR 03/06/20

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	1.25	112.581	4795.876	0.293	0.3	4.3	NO	1.000	NO	bb
2	2	200305P1-4	Standard	0.500	1.24	215.872	4979.229	0.542	0.5	-3.4	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	1.23	422.490	5063.786	1.043	0.9	-6.9	NO	1.000	NO	MM
4	4	200305P1-6	Standard	2.000	1.24	893.551	4898.788	2.280	2.0	1.9	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	1.24	2296.108	5076.228	5.654	5.1	1.1	NO	1.000	NO	MM
6	6	200305P1-8	Standard	10.000	1.24	4636.715	5265.479	11.007	9.8	-1.6	NO	1.000	NO	MM
7	7	200305P1-9	Standard	50.000	1.24	23483.900	5100.396	57.554	51.5	3.0	NO	1.000	NO	MM
8	8	200305P1-10	Standard	100.000	1.24	47694.141	5266.524	113.201	101.3	1.3	NO	1.000	NO	MM
9	9	200305P1-11	Standard	250.000	1.24	115001.656	5052.340	284.526	254.5	1.8	NO	1.000	NO	MM
10	10	200305P1-12	Standard	500.000	1.24	238780.313	5416.615	551.037	492.9	-1.4	NO	1.000	NO	MM

Compound name: PFPrS
Correlation coefficient: r = 0.997122, r^2 = 0.994252
Calibration curve: 1.40166 * x + -0.0872088
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	1.54	22.705	1070.703	0.265	0.3	0.5	NO	0.994	NO	MM
2	2	200305P1-4	Standard	0.500	1.54	54.429	1118.537	0.608	0.5	-0.8	NO	0.994	NO	MM
3	3	200305P1-5	Standard	1.000	1.54	132.998	1112.049	1.495	1.1	12.9	NO	0.994	NO	MM
4	4	200305P1-6	Standard	2.000	1.54	210.080	1117.039	2.351	1.7	-13.0	NO	0.994	NO	MM
5	5	200305P1-7	Standard	5.000	1.54	587.253	1100.979	6.667	4.8	-3.6	NO	0.994	NO	MM
6	6	200305P1-8	Standard	10.000	1.54	1246.844	1190.493	13.092	9.4	-6.0	NO	0.994	NO	MM
7	7	200305P1-9	Standard	50.000	1.54	5584.881	1095.049	63.751	45.5	-8.9	NO	0.994	NO	MM
8	8	200305P1-10	Standard	100.000	1.54	11837.007	1084.198	136.472	97.4	-2.6	NO	0.994	NO	MM
9	9	200305P1-11	Standard	250.000	1.54	29051.170	1152.101	315.198	224.9	-10.0	NO	0.994	NO	MM
10	10	200305P1-12	Standard	500.000	1.54	58152.910	973.103	747.004	533.0	6.6	NO	0.994	NO	bb

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Dataset: Untitled

Last Altered: Friday, March 06, 2020 09:23:10 Pacific Standard Time
Printed: Friday, March 06, 2020 09:25:13 Pacific Standard Time

Compound name: 3:3 FTCA
Coefficient of Determination: R^2 = 0.999765
Calibration curve: -2.02699e-005 * x^2 + 0.116168 * x + -0.0058557
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	1.99	15.831	9563.888	0.021	0.2	-8.6	NO	1.000	NO	MM
2	2	200305P1-4	Standard	0.500	2.00	42.860	9781.680	0.055	0.5	4.4	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	2.00	76.674	9950.158	0.096	0.9	-12.0	NO	1.000	NO	bb
4	4	200305P1-6	Standard	2.000	2.00	174.932	9941.450	0.220	1.9	-2.8	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	2.01	458.212	10163.174	0.564	4.9	-1.9	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	2.00	968.505	10503.685	1.153	10.0	-0.1	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	2.01	4561.554	9805.540	5.815	50.6	1.1	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	2.01	9149.848	10052.442	11.378	99.7	-0.3	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	2.01	4579.025	9725.440	5.885	51.2	-79.5	YES	1.000	NO	bbX
10	10	200305P1-12	Standard	500.000	2.01	9162.890	9753.044	11.744	103.0	-79.4	YES	1.000	NO	bbX

Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999916
Calibration curve: -0.000114285 * x^2 + 0.981102 * x + -0.0181501
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	2.14	176.317	9563.888	0.230	0.3	1.4	NO	1.000	NO	bb
2	2	200305P1-4	Standard	0.500	2.14	381.869	9781.680	0.488	0.5	3.2	NO	1.000	NO	MM
3	3	200305P1-5	Standard	1.000	2.13	719.001	9950.158	0.903	0.9	-6.1	NO	1.000	NO	bb
4	4	200305P1-6	Standard	2.000	2.13	1552.526	9941.450	1.952	2.0	0.4	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	2.14	3895.273	10163.174	4.791	4.9	-1.9	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	2.14	7918.356	10503.685	9.423	9.6	-3.7	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	2.14	37877.887	9805.540	48.286	49.5	-1.0	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	2.14	77387.586	10052.442	96.230	99.2	-0.8	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	2.14	187548.375	9725.440	241.054	253.2	1.3	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	2.14	359450.813	9753.044	460.691	498.5	-0.3	NO	1.000	NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 10:35:12 Pacific Standard Time
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Compound name: PFBS
Correlation coefficient: r = 0.998910, r^2 = 0.997821
Calibration curve: 2.50481 * x + 0.0209645
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	2.40	62.234	1070.703	0.727	0.3	12.7	NO	0.998	NO	bb
2	2	200305P1-4	Standard	0.500	2.41	98.878	1118.537	1.105	0.4	-13.4	NO	0.998	NO	MM
3	3	200305P1-5	Standard	1.000	2.40	224.562	1112.049	2.524	1.0	-0.1	NO	0.998	NO	bb
4	4	200305P1-6	Standard	2.000	2.41	468.450	1117.039	5.242	2.1	4.2	NO	0.998	NO	bb
5	5	200305P1-7	Standard	5.000	2.41	1106.611	1100.979	12.564	5.0	0.2	NO	0.998	NO	bb
6	6	200305P1-8	Standard	10.000	2.41	2319.958	1190.493	24.359	9.7	-2.8	NO	0.998	NO	bb
7	7	200305P1-9	Standard	50.000	2.41	11214.660	1095.049	128.016	51.1	2.2	NO	0.998	NO	bb
8	8	200305P1-10	Standard	100.000	2.41	22893.398	1084.198	263.944	105.4	5.4	NO	0.998	NO	bb
9	9	200305P1-11	Standard	250.000	2.41	53469.293	1152.101	580.128	231.6	-7.4	NO	0.998	NO	bb
10	10	200305P1-12	Standard	500.000	2.41	99870.906	973.103	1282.892	512.2	2.4	NO	0.998	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999779
Calibration curve: 0.000313704 * x^2 + 1.28417 * x + -0.0117412
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	2.87	42.228	1379.538	0.383	0.3	22.8	NO	1.000	NO	bb
2	2	200305P1-4	Standard	0.500	2.85	72.422	1677.537	0.540	0.4	-14.1	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	2.86	124.995	1531.169	1.020	0.8	-19.6	NO	1.000	NO	bb
4	4	200305P1-6	Standard	2.000	2.85	353.752	1549.796	2.853	2.2	11.5	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	2.85	833.604	1613.237	6.459	5.0	0.7	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	2.85	1806.344	1787.284	12.633	9.8	-1.8	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	2.86	8491.814	1617.445	65.627	50.5	1.0	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	2.86	16887.010	1612.134	130.937	99.6	-0.4	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	2.86	36316.801	1332.209	340.757	250.1	0.0	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	2.86	63117.844	1307.064	603.622	425.8	-14.8	NO	1.000	NO	bbX

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Dataset: Untitled

Last Altered: Friday, March 06, 2020 09:23:10 Pacific Standard Time
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Compound name: PFHxA
Correlation coefficient: r = 0.999420, r^2 = 0.998840
Calibration curve: 0.852543 * x + 0.0820288
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	2.93	388.996	16029.746	0.303	0.3	3.8	NO	0.999	NO	bb
2	2 200305P1-4	Standard	0.500	2.94	705.712	17209.922	0.513	0.5	1.0	NO	0.999	NO	bb
3	3 200305P1-5	Standard	1.000	2.94	1268.517	16889.459	0.939	1.0	0.5	NO	0.999	NO	bd
4	4 200305P1-6	Standard	2.000	2.94	2620.313	17143.332	1.911	2.1	7.2	NO	0.999	NO	bb
5	5 200305P1-7	Standard	5.000	2.94	6473.967	17341.906	4.666	5.4	7.5	NO	0.999	NO	bb
6	6 200305P1-8	Standard	10.000	2.94	13373.242	17998.912	9.288	10.8	8.0	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	2.94	60275.977	16544.674	45.540	53.3	6.6	NO	0.999	NO	bb
8	8 200305P1-10	Standard	100.000	2.94	120970.664	16928.336	89.326	104.7	4.7	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	2.94	287882.969	16569.424	217.179	254.6	1.9	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	2.94	537629.938	16215.977	414.429	486.0	-2.8	NO	0.999	NO	bb

Compound name: PFPeS
Correlation coefficient: r = 0.997722, r^2 = 0.995448
Calibration curve: 2.18539 * x + 0.14757
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	3.13	46.107	1070.703	0.538	0.2	-28.5	NO	0.995	NO	bb
2	2 200305P1-4	Standard	0.500	3.13	112.852	1118.537	1.261	0.5	1.9	NO	0.995	NO	bb
3	3 200305P1-5	Standard	1.000	3.13	200.977	1112.049	2.259	1.0	-3.4	NO	0.995	NO	bb
4	4 200305P1-6	Standard	2.000	3.13	425.504	1117.039	4.762	2.1	5.6	NO	0.995	NO	bb
5	5 200305P1-7	Standard	5.000	3.13	1219.484	1100.979	13.845	6.3	25.4	NO	0.995	NO	bb
6	6 200305P1-8	Standard	10.000	3.13	2225.851	1190.493	23.371	10.6	6.3	NO	0.995	NO	bb
7	7 200305P1-9	Standard	50.000	3.13	10823.893	1095.049	123.555	56.5	12.9	NO	0.995	NO	bb
8	8 200305P1-10	Standard	100.000	3.13	21645.361	1084.198	249.555	114.1	14.1	NO	0.995	NO	bb
9	9 200305P1-11	Standard	250.000	3.13	47563.383	1152.101	516.050	236.1	-5.6	NO	0.995	NO	bb
10	10 200305P1-12	Standard	500.000	3.13	83617.188	973.103	1074.105	491.4	-1.7	NO	0.995	NO	bb

Dataset: Untitled

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Compound name: HFPO-DA
Coefficient of Determination: R^2 = 0.999924
Calibration curve: -0.000152064 * x^2 + 1.02168 * x + -0.00797328
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	3.15	60.083	3083.738	0.244	0.2	-1.5	NO	1.000	NO	bb
2	2 200305P1-4	Standard	0.500	3.14	129.610	3532.139	0.459	0.5	-8.6	NO	1.000	NO	bb
3	3 200305P1-5	Standard	1.000	3.14	302.917	3553.742	1.065	1.1	5.1	NO	1.000	NO	bb
4	4 200305P1-6	Standard	2.000	3.14	607.346	3598.210	2.110	2.1	3.7	NO	1.000	NO	bb
5	5 200305P1-7	Standard	5.000	3.14	1411.256	3538.034	4.986	4.9	-2.2	NO	1.000	NO	bb
6	6 200305P1-8	Standard	10.000	3.14	2961.560	3573.185	10.360	10.2	1.6	NO	1.000	NO	bb
7	7 200305P1-9	Standard	50.000	3.14	14397.933	3639.157	49.455	48.8	-2.5	NO	1.000	NO	bb
8	8 200305P1-10	Standard	100.000	3.14	29413.941	3604.236	102.012	101.4	1.4	NO	1.000	NO	bb
9	9 200305P1-11	Standard	250.000	3.15	71407.266	3633.134	245.681	249.8	-0.1	NO	1.000	NO	bb
10	10 200305P1-12	Standard	500.000	3.14	132022.828	3490.625	472.776	500.0	-0.0	NO	1.000	NO	bb

Compound name: 5:3 FTCA
Coefficient of Determination: R^2 = 0.999705
Calibration curve: -0.000120487 * x^2 + 0.257045 * x + -0.00139412
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	3.47	52.268	10575.721	0.062	0.2	-1.7	NO	1.000	NO	bb
2	2 200305P1-4	Standard	0.500	3.47	108.643	10468.981	0.130	0.5	2.0	NO	1.000	NO	bb
3	3 200305P1-5	Standard	1.000	3.47	212.551	11007.823	0.241	0.9	-5.5	NO	1.000	NO	bb
4	4 200305P1-6	Standard	2.000	3.47	479.266	10591.144	0.566	2.2	10.4	NO	1.000	NO	bb
5	5 200305P1-7	Standard	5.000	3.47	1060.212	10683.082	1.241	4.8	-3.1	NO	1.000	NO	bb
6	6 200305P1-8	Standard	10.000	3.47	2278.102	11471.383	2.482	9.7	-2.9	NO	1.000	NO	bb
7	7 200305P1-9	Standard	50.000	3.47	10722.380	10569.529	12.681	50.5	1.1	NO	1.000	NO	bb
8	8 200305P1-10	Standard	100.000	3.47	21983.434	11243.036	24.441	99.8	-0.2	NO	1.000	NO	bb
9	9 200305P1-11	Standard	250.000	3.47	11087.915	9987.780	13.877	55.4	-77.8	YES	1.000	NO	bbX
10	10 200305P1-12	Standard	500.000	3.47	22170.803	9549.484	29.021	119.6	-76.1	YES	1.000	NO	bbX

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Compound name: PFHpA
Correlation coefficient: r = 0.999982, r^2 = 0.999964
Calibration curve: 1.16728 * x + 0.176256
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	3.54	215.294	10575.721	0.254	0.1	-73.2	YES	1.000	NO	bbX
2	2	200305P1-4	Standard	0.500	3.53	675.015	10468.981	0.806	0.5	7.9	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	3.53	1192.324	11007.823	1.354	1.0	0.9	NO	1.000	NO	dd
4	4	200305P1-6	Standard	2.000	3.53	1929.966	10591.144	2.278	1.8	-10.0	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	3.53	5160.924	10683.082	6.039	5.0	0.4	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	3.53	10857.800	11471.383	11.831	10.0	-0.2	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	3.54	49959.617	10569.529	59.084	50.5	0.9	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	3.54	104971.617	11243.036	116.707	99.8	-0.2	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	3.54	234080.531	9987.780	292.959	250.8	0.3	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	3.54	445137.156	9549.484	582.672	499.0	-0.2	NO	1.000	NO	bb

Compound name: ADONA
Coefficient of Determination: R^2 = 0.999243
Calibration curve: 2.79261e-005 * x^2 + 2.83074 * x + 0.104975
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	3.64	559.823	10575.721	0.662	0.2	-21.3	NO	0.999	NO	bb
2	2	200305P1-4	Standard	0.500	3.64	1254.342	10468.981	1.498	0.5	-1.6	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	3.64	2721.530	11007.823	3.090	1.1	5.5	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	3.64	5201.281	10591.144	6.139	2.1	6.6	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	3.64	13067.935	10683.082	15.290	5.4	7.3	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	3.64	27024.697	11471.383	29.448	10.4	3.6	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	3.64	125823.516	10569.529	148.805	52.5	5.0	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	3.64	238307.266	11243.036	264.950	93.5	-6.5	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	3.64	576582.875	9987.780	721.610	254.2	1.7	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	3.64	1084344.375	9549.484	1419.376	498.9	-0.2	NO	0.999	NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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Compound name: L-PFHxS
Correlation coefficient: r = 0.999612, r^2 = 0.999225
Calibration curve: 1.01175 * x + -0.0270117
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	3.68	52.563	2587.455	0.254	0.3	11.1	NO	0.999	NO	MM
2	2 200305P1-4	Standard	0.500	3.69	80.769	2548.680	0.396	0.4	-16.4	NO	0.999	NO	MM
3	3 200305P1-5	Standard	1.000	3.68	220.957	2654.331	1.041	1.1	5.5	NO	0.999	NO	MM
4	4 200305P1-6	Standard	2.000	3.68	449.138	2682.740	2.093	2.1	4.8	NO	0.999	NO	MM
5	5 200305P1-7	Standard	5.000	3.68	1130.161	2678.569	5.274	5.2	4.8	NO	0.999	NO	MM
6	6 200305P1-8	Standard	10.000	3.68	1993.580	2862.414	8.706	8.6	-13.7	NO	0.999	NO	MM
7	7 200305P1-9	Standard	50.000	3.68	11022.833	2620.332	52.583	52.0	4.0	NO	0.999	NO	MM
8	8 200305P1-10	Standard	100.000	3.68	21867.693	2754.703	99.229	98.1	-1.9	NO	0.999	NO	MM
9	9 200305P1-11	Standard	250.000	3.68	52420.395	2509.648	261.094	258.1	3.2	NO	0.999	NO	MM
10	10 200305P1-12	Standard	500.000	3.68	96143.648	2410.309	498.606	492.8	-1.4	NO	0.999	NO	MM

Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998759
Calibration curve: -0.000234707 * x^2 + 1.6136 * x + -0.0782106
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	3.99	34.077	1335.094	0.319	0.2	-1.5	NO	0.999	NO	bb
2	2 200305P1-4	Standard	0.500	4.00	60.085	1465.739	0.512	0.4	-26.8	NO	0.999	NO	MM
3	3 200305P1-5	Standard	1.000	4.00	205.174	1519.827	1.687	1.1	9.4	NO	0.999	NO	bb
4	4 200305P1-6	Standard	2.000	3.99	433.808	1528.657	3.547	2.2	12.4	NO	0.999	NO	bb
5	5 200305P1-7	Standard	5.000	3.99	1143.089	1587.353	9.002	5.6	12.6	NO	0.999	NO	bb
6	6 200305P1-8	Standard	10.000	3.99	1981.863	1511.055	16.395	10.2	2.2	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	3.99	8496.634	1500.827	70.766	44.2	-11.6	NO	0.999	NO	bb
8	8 200305P1-10	Standard	100.000	4.00	18698.330	1454.282	160.718	101.1	1.1	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	4.00	44234.426	1385.549	399.069	257.0	2.8	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	4.00	76993.789	1294.650	743.384	496.6	-0.7	NO	0.999	NO	bb

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Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999654
Calibration curve: -0.000248693 * x^2 + 1.21949 * x + 0.0898371
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.06	458.368	14322.384	0.400	0.3	1.8	NO	1.000	NO	bb
2	2 200305P1-4	Standard	0.500	4.05	829.185	14079.412	0.736	0.5	6.0	NO	1.000	NO	bb
3	3 200305P1-5	Standard	1.000	4.05	1585.388	14877.822	1.332	1.0	1.9	NO	1.000	NO	bb
4	4 200305P1-6	Standard	2.000	4.05	3025.229	15260.232	2.478	2.0	-2.0	NO	1.000	NO	bb
5	5 200305P1-7	Standard	5.000	4.05	7626.826	14994.204	6.358	5.1	2.9	NO	1.000	NO	bb
6	6 200305P1-8	Standard	10.000	4.05	15064.557	16694.656	11.279	9.2	-8.1	NO	1.000	NO	bb
7	7 200305P1-9	Standard	50.000	4.05	70181.992	15050.213	58.290	48.2	-3.6	NO	1.000	NO	bb
8	8 200305P1-10	Standard	100.000	4.05	138830.703	14612.382	118.761	99.3	-0.7	NO	1.000	NO	bb
9	9 200305P1-11	Standard	250.000	4.05	320831.656	13544.175	296.097	256.1	2.4	NO	1.000	NO	bb
10	10 200305P1-12	Standard	500.000	4.05	565278.313	12971.973	544.711	497.0	-0.6	NO	1.000	NO	bb

Compound name: PFecHS
Coefficient of Determination: R^2 = 0.999170
Calibration curve: -2.44709e-005 * x^2 + 0.181906 * x + -0.000881271
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.08	25.906	14322.384	0.023	0.1	-48.3	YES	0.999	NO	bbX
2	2 200305P1-4	Standard	0.500	4.06	101.904	14079.412	0.090	0.5	0.4	NO	0.999	NO	bb
3	3 200305P1-5	Standard	1.000	4.06	270.646	14877.822	0.227	1.3	25.5	NO	0.999	NO	bb
4	4 200305P1-6	Standard	2.000	4.06	374.853	15260.232	0.307	1.7	-15.3	NO	0.999	NO	bb
5	5 200305P1-7	Standard	5.000	4.06	1100.343	14994.204	0.917	5.1	1.0	NO	0.999	NO	bb
6	6 200305P1-8	Standard	10.000	4.07	2223.724	16694.656	1.665	9.2	-8.3	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	4.06	10190.521	15050.213	8.464	46.8	-6.3	NO	0.999	NO	bd
8	8 200305P1-10	Standard	100.000	4.07	20844.402	14612.382	17.831	99.4	-0.6	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	4.07	49244.680	13544.175	45.448	258.9	3.5	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	4.07	87344.008	12971.973	84.166	495.8	-0.8	NO	0.999	NO	db

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.997734
Calibration curve: -0.000247258 * x^2 + 1.00986 * x + -0.105925
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	4.17	26.217	2735.055	0.120	0.2	-10.6	NO	0.998	NO	bb
2	2	200305P1-4	Standard	0.500	4.17	95.704	3109.455	0.385	0.5	-2.8	NO	0.998	NO	bb
3	3	200305P1-5	Standard	1.000	4.16	191.701	2858.746	0.838	0.9	-6.5	NO	0.998	NO	bb
4	4	200305P1-6	Standard	2.000	4.17	393.863	3146.012	1.565	1.7	-17.2	NO	0.998	NO	bb
5	5	200305P1-7	Standard	5.000	4.17	1221.756	2923.960	5.223	5.3	5.7	NO	0.998	NO	bb
6	6	200305P1-8	Standard	10.000	4.17	2391.398	3147.029	9.499	9.5	-4.7	NO	0.998	NO	bb
7	7	200305P1-9	Standard	50.000	4.17	11596.466	3045.557	47.596	47.8	-4.4	NO	0.998	NO	bb
8	8	200305P1-10	Standard	100.000	4.17	22348.793	3043.774	91.781	93.1	-6.9	NO	0.998	NO	bb
9	9	200305P1-11	Standard	250.000	4.17	54920.551	2716.929	252.678	267.9	7.2	NO	0.998	NO	bb
10	10	200305P1-12	Standard	500.000	4.17	99470.594	2847.404	436.672	491.7	-1.7	NO	0.998	NO	bb

Compound name: 7:3 FTCA
Coefficient of Determination: R^2 = 0.998710
Calibration curve: -0.000174394 * x^2 + 0.215936 * x + -0.058193
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	4.49	82.978	13662.778	0.076	0.6	148.5	YES	0.999	NO	bbX
2	2	200305P1-4	Standard	0.500	4.50	46.417	13512.850	0.043	0.5	-6.3	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	4.50	186.459	13886.635	0.168	1.0	4.8	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	4.49	486.706	14075.757	0.432	2.3	13.8	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	4.49	995.900	13141.951	0.947	4.7	-6.5	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	4.50	2327.427	15231.051	1.910	9.2	-8.2	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	4.49	11088.419	13045.264	10.625	51.6	3.3	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	4.50	21475.533	13661.383	19.650	99.2	-0.8	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	4.50	10679.612	13176.899	10.131	49.1	-80.3	YES	0.999	NO	bbX
10	10	200305P1-12	Standard	500.000	4.50	21744.275	12353.308	22.002	112.4	-77.5	YES	0.999	NO	bbX

Dataset: Untitled

Last Altered: Friday, March 06, 2020 09:23:10 Pacific Standard Time
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Compound name: PFNA
Correlation coefficient: r = 0.999924, r^2 = 0.999847
Calibration curve: 1.16063 * x + 0.0285423
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	4.51	329.904	13662.778	0.302	0.2	-5.8	NO	1.000	NO	bb
2	2	200305P1-4	Standard	0.500	4.50	639.679	13512.850	0.592	0.5	-3.0	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	4.50	1458.976	13886.635	1.313	1.1	10.7	NO	1.000	NO	db
4	4	200305P1-6	Standard	2.000	4.51	2495.249	14075.757	2.216	1.9	-5.8	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	4.51	6844.399	13141.951	6.510	5.6	11.7	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	4.51	14191.301	15231.051	11.647	10.0	0.1	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	4.51	62277.043	13045.264	59.674	51.4	2.8	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	4.51	125976.086	13661.383	115.267	99.3	-0.7	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	4.51	306285.250	13176.899	290.551	250.3	0.1	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	4.51	571754.750	12353.308	578.544	498.4	-0.3	NO	1.000	NO	bb

Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999324
Calibration curve: -0.000148812 * x^2 + 0.873606 * x + 0.0409163
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	4.57	69.362	3242.750	0.267	0.3	3.7	NO	0.999	NO	bb
2	2	200305P1-4	Standard	0.500	4.56	142.165	3505.126	0.507	0.5	6.7	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	4.55	251.346	3305.163	0.951	1.0	4.1	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	4.55	503.198	3486.484	1.804	2.0	0.9	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	4.56	1117.077	3781.580	3.692	4.2	-16.3	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	4.56	2746.606	3727.416	9.211	10.5	5.2	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	4.56	11739.287	3580.658	40.982	47.2	-5.5	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	4.56	24429.197	3594.883	84.944	98.9	-1.1	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	4.56	59438.563	3450.826	215.306	257.7	3.1	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	4.56	105724.219	3328.953	396.988	496.3	-0.7	NO	0.999	NO	bb

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Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.997956
Calibration curve: -0.000198133 * x^2 + 0.979777 * x + -0.067988
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.61	28.274	2735.055	0.129	0.2	-19.5	NO	0.998	NO	MM
2	2 200305P1-4	Standard	0.500	4.59	107.970	3109.455	0.434	0.5	2.5	NO	0.998	NO	MM
3	3 200305P1-5	Standard	1.000	4.59	275.175	2858.746	1.203	1.3	29.8	NO	0.998	NO	MM
4	4 200305P1-6	Standard	2.000	4.59	489.768	3146.012	1.946	2.1	2.8	NO	0.998	NO	MM
5	5 200305P1-7	Standard	5.000	4.60	1099.058	2923.960	4.698	4.9	-2.6	NO	0.998	NO	MM
6	6 200305P1-8	Standard	10.000	4.59	2305.718	3147.029	9.158	9.4	-5.7	NO	0.998	NO	MM
7	7 200305P1-9	Standard	50.000	4.60	10920.396	3045.557	44.821	46.2	-7.5	NO	0.998	NO	MM
8	8 200305P1-10	Standard	100.000	4.60	22226.561	3043.774	91.279	95.1	-4.9	NO	0.998	NO	MM
9	9 200305P1-11	Standard	250.000	4.60	53715.375	2716.929	247.133	266.7	6.7	NO	0.998	NO	MM
10	10 200305P1-12	Standard	500.000	4.60	98923.117	2847.404	434.269	492.3	-1.5	NO	0.998	NO	MM

Compound name: 9Cl-PF30NS
Coefficient of Determination: R^2 = 0.999402
Calibration curve: 0.000146032 * x^2 + 1.02657 * x + -0.2305
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.84	15.937	2735.055	0.073	0.3	18.2	NO	0.999	NO	bb
2	2 200305P1-4	Standard	0.500	4.83	39.563	3109.455	0.159	0.4	-24.1	NO	0.999	NO	bb
3	3 200305P1-5	Standard	1.000	4.82	209.872	2858.746	0.918	1.1	11.8	NO	0.999	NO	bb
4	4 200305P1-6	Standard	2.000	4.82	384.956	3146.012	1.530	1.7	-14.3	NO	0.999	NO	bb
5	5 200305P1-7	Standard	5.000	4.82	1136.974	2923.960	4.861	5.0	-0.9	NO	0.999	NO	MM
6	6 200305P1-8	Standard	10.000	4.83	2826.273	3147.029	11.226	11.1	11.4	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	4.82	12220.774	3045.557	50.158	48.7	-2.5	NO	0.999	NO	bb
8	8 200305P1-10	Standard	100.000	4.82	25380.441	3043.774	104.231	100.3	0.3	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	4.82	57733.242	2716.929	265.618	250.1	0.0	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	4.82	109398.383	2847.404	480.255	440.5	-11.9	NO	0.999	NO	bbX

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.999592
Calibration curve: -0.000117629 * x^2 + 1.17652 * x + 0.0553522
Response type: Internal Std (Ref 73), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.90	442.073	15354.609	0.360	0.3	3.5	NO	1.000	NO	MM
2	2 200305P1-4	Standard	0.500	4.90	799.230	14883.763	0.671	0.5	4.7	NO	1.000	NO	dd
3	3 200305P1-5	Standard	1.000	4.89	1665.442	16903.959	1.232	1.0	-0.0	NO	1.000	NO	bb
4	4 200305P1-6	Standard	2.000	4.89	3153.874	15681.516	2.514	2.1	4.5	NO	1.000	NO	bb
5	5 200305P1-7	Standard	5.000	4.90	8055.985	16283.075	6.184	5.2	4.2	NO	1.000	NO	bb
6	6 200305P1-8	Standard	10.000	4.90	16534.822	16940.865	12.200	10.3	3.3	NO	1.000	NO	bb
7	7 200305P1-9	Standard	50.000	4.90	77259.852	16231.370	59.499	50.8	1.6	NO	1.000	NO	bb
8	8 200305P1-10	Standard	100.000	4.90	148055.172	16650.854	111.147	95.3	-4.7	NO	1.000	NO	bb
9	9 200305P1-11	Standard	250.000	4.90	344604.188	14738.810	292.259	254.9	1.9	NO	1.000	NO	bb
10	10 200305P1-12	Standard	500.000	4.90	654372.625	14680.723	557.170	498.4	-0.3	NO	1.000	NO	bb

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.997258
Calibration curve: -0.000830938 * x^2 + 1.54344 * x + -0.485115
Response type: Internal Std (Ref 75), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	4.87	14.191	1188.197	0.149	0.4	64.4	YES	0.997	NO	bbX
2	2 200305P1-4	Standard	0.500	4.87	95.528	1313.837	0.909	0.9	80.7	YES	0.997	NO	bbX
3	3 200305P1-5	Standard	1.000	4.86	84.455	1163.416	0.907	0.9	-9.7	NO	0.997	NO	bb
4	4 200305P1-6	Standard	2.000	4.86	252.714	1262.400	2.502	1.9	-3.1	NO	0.997	NO	bb
5	5 200305P1-7	Standard	5.000	4.86	669.817	1153.996	7.255	5.0	0.6	NO	0.997	NO	bb
6	6 200305P1-8	Standard	10.000	4.87	1494.337	1163.765	16.051	10.8	7.8	NO	0.997	NO	bb
7	7 200305P1-9	Standard	50.000	4.87	7431.172	1220.233	76.125	51.0	2.1	NO	0.997	NO	bb
8	8 200305P1-10	Standard	100.000	4.87	13199.037	1050.998	156.982	108.3	8.3	NO	0.997	NO	bb
9	9 200305P1-11	Standard	250.000	4.87	29231.396	1176.769	310.505	230.0	-8.0	NO	0.997	NO	bb
10	10 200305P1-12	Standard	500.000	4.87	49388.238	1078.331	572.508	512.8	2.6	NO	0.997	NO	bb

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Compound name: PFNS
Correlation coefficient: r = 0.998320, r^2 = 0.996642
Calibration curve: 0.83721 * x + 0.017214
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	4.97	37.453	2735.055	0.171	0.2	-26.4	NO	0.997	NO	bb
2	2	200305P1-4	Standard	0.500	4.96	91.793	3109.455	0.369	0.4	-16.0	NO	0.997	NO	bb
3	3	200305P1-5	Standard	1.000	4.96	210.483	2858.746	0.920	1.1	7.9	NO	0.997	NO	bb
4	4	200305P1-6	Standard	2.000	4.96	439.381	3146.012	1.746	2.1	3.2	NO	0.997	NO	bb
5	5	200305P1-7	Standard	5.000	4.97	1106.318	2923.960	4.730	5.6	12.6	NO	0.997	NO	bb
6	6	200305P1-8	Standard	10.000	4.96	2333.528	3147.029	9.269	11.1	10.5	NO	0.997	NO	bb
7	7	200305P1-9	Standard	50.000	4.96	11048.678	3045.557	45.348	54.1	8.3	NO	0.997	NO	bb
8	8	200305P1-10	Standard	100.000	4.97	22250.734	3043.774	91.378	109.1	9.1	NO	0.997	NO	bb
9	9	200305P1-11	Standard	250.000	4.97	47332.645	2716.929	217.767	260.1	4.0	NO	0.997	NO	bb
10	10	200305P1-12	Standard	500.000	4.97	90584.250	2847.404	397.662	475.0	-5.0	NO	0.997	NO	bb

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999074
Calibration curve: -0.000178672 * x^2 + 1.73548 * x + -0.00212334
Response type: Internal Std (Ref 77), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.06	90.973	2890.411	0.393	0.2	-8.8	NO	0.999	NO	MM
2	2	200305P1-4	Standard	0.500	5.07	157.081	2792.767	0.703	0.4	-18.7	NO	0.999	NO	MM
3	3	200305P1-5	Standard	1.000	5.06	500.185	3142.354	1.990	1.1	14.8	NO	0.999	NO	MM
4	4	200305P1-6	Standard	2.000	5.05	874.143	2975.845	3.672	2.1	5.9	NO	0.999	NO	MM
5	5	200305P1-7	Standard	5.000	5.06	2335.082	3085.006	9.461	5.5	9.1	NO	0.999	NO	MM
6	6	200305P1-8	Standard	10.000	5.05	4835.863	3436.011	17.593	10.1	1.5	NO	0.999	NO	MM
7	7	200305P1-9	Standard	50.000	5.05	22407.297	3557.840	78.725	45.6	-8.8	NO	0.999	NO	MM
8	8	200305P1-10	Standard	100.000	5.06	45437.000	3136.622	181.075	105.5	5.5	NO	0.999	NO	MM
9	9	200305P1-11	Standard	250.000	5.06	102627.430	3062.488	418.889	247.7	-0.9	NO	0.999	NO	MM
10	10	200305P1-12	Standard	500.000	5.06	193383.000	2934.106	823.858	500.5	0.1	NO	0.999	NO	MM

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Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 10:35:12 Pacific Standard Time
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Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Compound name: L-EtFOSAA
Correlation coefficient: r = 0.999552, r^2 = 0.999105
Calibration curve: 1.24101 * x + -0.0936517
Response type: Internal Std (Ref 81), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	5.22	77.985	3847.288	0.253	0.3	11.9	NO	0.999	NO	MM
2	2 200305P1-4	Standard	0.500	5.22	141.846	3684.068	0.481	0.5	-7.3	NO	0.999	NO	MM
3	3 200305P1-5	Standard	1.000	5.22	275.273	3874.187	0.888	0.8	-20.9	NO	0.999	NO	MM
4	4 200305P1-6	Standard	2.000	5.21	715.012	4019.245	2.224	1.9	-6.6	NO	0.999	NO	MM
5	5 200305P1-7	Standard	5.000	5.22	2054.795	4524.091	5.677	4.7	-7.0	NO	0.999	NO	MM
6	6 200305P1-8	Standard	10.000	5.22	4291.823	4509.962	11.895	9.7	-3.4	NO	0.999	NO	MM
7	7 200305P1-9	Standard	50.000	5.22	20381.703	4184.759	60.881	49.1	-1.7	NO	0.999	NO	MM
8	8 200305P1-10	Standard	100.000	5.22	40253.355	3923.587	128.242	103.4	3.4	NO	0.999	NO	MM
9	9 200305P1-11	Standard	250.000	5.22	87047.891	3383.731	321.568	259.2	3.7	NO	0.999	NO	MM
10	10 200305P1-12	Standard	500.000	5.22	152924.922	3148.492	607.136	489.3	-2.1	NO	0.999	NO	MM

Compound name: PFUdA
Correlation coefficient: r = 0.999234, r^2 = 0.998469
Calibration curve: 0.935594 * x + 0.102678
Response type: Internal Std (Ref 79), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	5.23	379.095	16443.457	0.288	0.2	-20.7	NO	0.998	NO	bb
2	2 200305P1-4	Standard	0.500	5.23	820.599	17824.594	0.575	0.5	1.1	NO	0.998	NO	bd
3	3 200305P1-5	Standard	1.000	5.23	1540.095	17604.381	1.094	1.1	5.9	NO	0.998	NO	bb
4	4 200305P1-6	Standard	2.000	5.23	2966.087	17371.818	2.134	2.2	8.6	NO	0.998	NO	bb
5	5 200305P1-7	Standard	5.000	5.23	7330.266	18373.496	4.987	5.2	4.4	NO	0.998	NO	bb
6	6 200305P1-8	Standard	10.000	5.23	14180.917	19532.285	9.075	9.6	-4.1	NO	0.998	NO	bb
7	7 200305P1-9	Standard	50.000	5.23	67384.883	17709.941	47.561	50.7	1.5	NO	0.998	NO	bb
8	8 200305P1-10	Standard	100.000	5.23	139477.219	17543.604	99.379	106.1	6.1	NO	0.998	NO	bb
9	9 200305P1-11	Standard	250.000	5.23	320600.500	17606.910	227.610	243.2	-2.7	NO	0.998	NO	bb
10	10 200305P1-12	Standard	500.000	5.23	577933.000	16624.428	434.551	464.4	-7.1	NO	0.998	NO	bbX

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Compound name: PFDS
Coefficient of Determination: R^2 = 0.999112
Calibration curve: -0.00029837 * x^2 + 0.901603 * x + -0.053312
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	5.29	35.175	2735.055	0.161	0.2	-5.0	NO	0.999	NO	bb
2	2 200305P1-4	Standard	0.500	5.28	76.401	3109.455	0.307	0.4	-20.0	NO	0.999	NO	bb
3	3 200305P1-5	Standard	1.000	5.28	198.976	2858.746	0.870	1.0	2.4	NO	0.999	NO	bb
4	4 200305P1-6	Standard	2.000	5.28	409.976	3146.012	1.629	1.9	-6.6	NO	0.999	NO	bb
5	5 200305P1-7	Standard	5.000	5.28	1164.237	2923.960	4.977	5.6	11.8	NO	0.999	NO	bb
6	6 200305P1-8	Standard	10.000	5.28	2244.240	3147.029	8.914	10.0	-0.2	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	5.28	9973.032	3045.557	40.933	46.2	-7.7	NO	0.999	NO	bb
8	8 200305P1-10	Standard	100.000	5.28	21029.783	3043.774	86.364	99.1	-0.9	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	5.28	46367.316	2716.929	213.326	258.8	3.5	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	5.28	85040.438	2847.404	373.324	495.3	-0.9	NO	0.999	NO	bb

Compound name: 11Cl-PF30UdS
Correlation coefficient: r = 0.997887, r^2 = 0.995778
Calibration curve: 0.425681 * x + 0.0326374
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	5.45	146.401	15817.352	0.116	0.2	-22.0	NO	0.996	NO	bb
2	2 200305P1-4	Standard	0.500	5.44	282.307	17243.137	0.205	0.4	-19.2	NO	0.996	NO	bb
3	3 200305P1-5	Standard	1.000	5.44	648.781	17390.746	0.466	1.0	1.9	NO	0.996	NO	bb
4	4 200305P1-6	Standard	2.000	5.44	1257.723	17216.820	0.913	2.1	3.4	NO	0.996	NO	bb
5	5 200305P1-7	Standard	5.000	5.44	3172.557	17116.512	2.317	5.4	7.3	NO	0.996	NO	bb
6	6 200305P1-8	Standard	10.000	5.44	6493.445	17453.033	4.651	10.8	8.5	NO	0.996	NO	bb
7	7 200305P1-9	Standard	50.000	5.44	31077.254	15892.708	24.443	57.3	14.7	NO	0.996	NO	bb
8	8 200305P1-10	Standard	100.000	5.45	61734.207	17210.133	44.839	105.3	5.3	NO	0.996	NO	bb
9	9 200305P1-11	Standard	250.000	5.45	142331.953	15819.084	112.469	264.1	5.7	NO	0.996	NO	bb
10	10 200305P1-12	Standard	500.000	5.45	259981.266	16167.693	201.004	472.1	-5.6	NO	0.996	NO	bb

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Compound name: 10:2 FTS
Coefficient of Determination: R^2 = 0.999214
Calibration curve: -0.000945965 * x^2 + 2.41432 * x + -0.12696
Response type: Internal Std (Ref 85), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.51	40.612	1006.848	0.504	0.3	4.6	NO	0.999	NO	bb
2	2	200305P1-4	Standard	0.500	5.50	107.086	1066.167	1.256	0.6	14.5	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	5.50	133.069	1021.276	1.629	0.7	-27.3	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	5.50	354.110	940.534	4.706	2.0	0.2	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	5.50	850.495	943.381	11.269	4.7	-5.4	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	5.50	1524.613	901.369	21.143	8.8	-11.6	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	5.50	7355.713	733.245	125.397	53.1	6.2	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	5.50	14863.975	826.655	224.761	96.8	-3.2	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	5.50	31345.699	711.908	550.382	253.1	1.2	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	5.50	53386.871	689.198	968.279	498.5	-0.3	NO	0.999	NO	bb

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999424
Calibration curve: -0.000386569 * x^2 + 1.16791 * x + 0.0889899
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.52	489.561	15817.352	0.387	0.3	2.0	NO	0.999	NO	MM
2	2	200305P1-4	Standard	0.500	5.52	1096.343	17243.137	0.795	0.6	20.9	NO	0.999	NO	MM
3	3	200305P1-5	Standard	1.000	5.51	1941.050	17390.746	1.395	1.1	11.9	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	5.51	3133.244	17216.820	2.275	1.9	-6.4	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	5.52	8280.872	17116.512	6.047	5.1	2.2	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	5.52	15754.399	17453.033	11.283	9.6	-3.8	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	5.52	75457.680	15892.708	59.349	51.6	3.2	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	5.52	159972.922	17210.133	116.191	102.9	2.9	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	5.52	328922.656	15819.084	259.910	241.8	-3.3	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	5.52	634535.063	16167.693	490.589	504.1	0.8	NO	0.999	NO	bb

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Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999629
Calibration curve: -8.31358e-005 * x^2 + 1.06623 * x + -0.0762396
Response type: Internal Std (Ref 87), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	1.250	5.55	93.789	13562.836	1.032	1.0	-16.9	NO	1.000	NO	bb
2	2	200305P1-4	Standard	2.500	5.54	264.805	14514.347	2.722	2.6	5.0	NO	1.000	NO	bb
3	3	200305P1-5	Standard	5.000	5.54	528.102	15020.873	5.246	5.0	-0.1	NO	1.000	NO	bb
4	4	200305P1-6	Standard	10.000	5.54	939.634	14944.172	9.381	8.9	-11.2	NO	1.000	NO	bb
5	5	200305P1-7	Standard	25.000	5.54	2995.455	15044.006	29.708	28.0	12.0	NO	1.000	NO	bb
6	6	200305P1-8	Standard	50.000	5.54	5867.876	15565.910	56.244	53.0	6.1	NO	1.000	NO	bb
7	7	200305P1-9	Standard	250.000	5.54	26176.875	15122.509	258.263	247.1	-1.2	NO	1.000	NO	bb
8	8	200305P1-10	Standard	500.000	5.54	53111.328	15167.027	522.463	510.4	2.1	NO	1.000	NO	bb
9	9	200305P1-11	Standard	1250.000	5.54	120315.922	15188.338	1181.903	1225.7	-1.9	NO	1.000	NO	bb
10	10	200305P1-12	Standard	2500.000	5.54	220142.750	15244.770	2154.529	2513.3	0.5	NO	1.000	NO	bb

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999337
Calibration curve: -0.000602348 * x^2 + 1.22892 * x + 0.0232646
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.77	427.084	15817.352	0.338	0.3	2.3	NO	0.999	NO	bb
2	2	200305P1-4	Standard	0.500	5.76	804.000	17243.137	0.583	0.5	-8.9	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	5.76	1726.739	17390.746	1.241	1.0	-0.9	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	5.76	3596.069	17216.820	2.611	2.1	5.4	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	5.76	8855.719	17116.512	6.467	5.3	5.1	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	5.76	16812.713	17453.033	12.041	9.8	-1.7	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	5.77	77370.156	15892.708	60.854	50.8	1.5	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	5.76	152923.938	17210.133	111.071	94.8	-5.2	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	5.77	350501.844	15819.084	276.961	258.0	3.2	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	5.76	596646.313	16167.693	461.295	495.9	-0.8	NO	0.999	NO	bb

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Compound name: PFDoS
Coefficient of Determination: R^2 = 0.999339
Calibration curve: -3.93636e-005 * x^2 + 0.173166 * x + -0.00448597
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.79	55.536	16898.303	0.041	0.3	5.3	NO	0.999	NO	bb
2	2	200305P1-4	Standard	0.500	5.79	91.211	17382.055	0.066	0.4	-19.1	NO	0.999	NO	bb
3	3	200305P1-5	Standard	1.000	5.79	261.290	17644.141	0.185	1.1	9.5	NO	0.999	NO	bb
4	4	200305P1-6	Standard	2.000	5.79	514.272	17413.496	0.369	2.2	7.9	NO	0.999	NO	bb
5	5	200305P1-7	Standard	5.000	5.79	1196.906	18219.109	0.821	4.8	-4.5	NO	0.999	NO	bb
6	6	200305P1-8	Standard	10.000	5.79	2414.753	17721.832	1.703	9.9	-1.2	NO	0.999	NO	bb
7	7	200305P1-9	Standard	50.000	5.79	11476.736	15814.473	9.071	53.1	6.1	NO	0.999	NO	bb
8	8	200305P1-10	Standard	100.000	5.79	22445.762	17465.322	16.065	94.8	-5.2	NO	0.999	NO	bb
9	9	200305P1-11	Standard	250.000	5.80	50916.191	15402.276	41.322	253.2	1.3	NO	0.999	NO	bb
10	10	200305P1-12	Standard	500.000	5.79	86347.195	14088.771	76.610	499.0	-0.2	NO	0.999	NO	bb

Compound name: PFTeDA
Correlation coefficient: r = 0.999768, r^2 = 0.999536
Calibration curve: 1.16147 * x + 0.0871654
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	5.99	478.940	16898.303	0.354	0.2	-8.0	NO	1.000	NO	MM
2	2	200305P1-4	Standard	0.500	5.99	864.611	17382.055	0.622	0.5	-7.9	NO	1.000	NO	bd
3	3	200305P1-5	Standard	1.000	5.98	1854.006	17644.141	1.313	1.1	5.6	NO	1.000	NO	bb
4	4	200305P1-6	Standard	2.000	5.99	3428.886	17413.496	2.461	2.0	2.2	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	5.99	8636.723	18219.109	5.926	5.0	0.5	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	5.99	17494.861	17721.832	12.340	10.5	5.5	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	5.99	76710.938	15814.473	60.633	52.1	4.3	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	5.99	156929.375	17465.322	112.315	96.6	-3.4	NO	1.000	NO	db
9	9	200305P1-11	Standard	250.000	5.99	365960.656	15402.276	297.002	255.6	2.3	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	5.99	648094.563	14088.771	575.010	495.0	-1.0	NO	1.000	NO	db

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Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999777
Calibration curve: -3.69663e-005 * x^2 + 0.905995 * x + -0.0954189
Response type: Internal Std (Ref 91), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	1.250	6.00	137.021	22568.527	0.906	1.1	-11.6	NO	1.000	NO	bb
2	2	200305P1-4	Standard	2.500	6.01	347.128	23179.293	2.234	2.6	2.9	NO	1.000	NO	bd
3	3	200305P1-5	Standard	5.000	6.00	756.568	23416.254	4.821	5.4	8.5	NO	1.000	NO	bb
4	4	200305P1-6	Standard	10.000	6.00	1434.003	23908.514	8.949	10.0	-0.1	NO	1.000	NO	bb
5	5	200305P1-7	Standard	25.000	6.00	3729.790	24242.070	22.955	25.5	1.9	NO	1.000	NO	bb
6	6	200305P1-8	Standard	50.000	6.00	7387.352	24694.824	44.633	49.5	-1.1	NO	1.000	NO	bb
7	7	200305P1-9	Standard	250.000	6.00	35684.543	24428.945	217.944	243.1	-2.8	NO	1.000	NO	bb
8	8	200305P1-10	Standard	500.000	6.00	71299.148	23247.402	457.592	516.0	3.2	NO	1.000	NO	bb
9	9	200305P1-11	Standard	1250.000	6.00	161545.313	22676.238	1062.899	1235.6	-1.2	NO	1.000	NO	bb
10	10	200305P1-12	Standard	2500.000	6.00	286757.188	20997.803	2037.555	2505.1	0.2	NO	1.000	NO	bb

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999938
Calibration curve: -0.000137885 * x^2 + 0.678476 * x + 0.0887228
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	0.250	6.34	461.778	22764.664	0.254	0.2	-2.8	NO	1.000	NO	bb
2	2	200305P1-4	Standard	0.500	6.33	846.799	25173.775	0.420	0.5	-2.2	NO	1.000	NO	bb
3	3	200305P1-5	Standard	1.000	6.34	1577.638	25202.826	0.782	1.0	2.3	NO	1.000	NO	bb
4	4	200305P1-6	Standard	2.000	6.34	2951.113	25361.021	1.455	2.0	0.7	NO	1.000	NO	bb
5	5	200305P1-7	Standard	5.000	6.34	7155.082	25107.861	3.562	5.1	2.5	NO	1.000	NO	bb
6	6	200305P1-8	Standard	10.000	6.34	13863.437	25041.533	6.920	10.1	0.9	NO	1.000	NO	bb
7	7	200305P1-9	Standard	50.000	6.34	62437.438	23369.955	33.396	49.6	-0.8	NO	1.000	NO	bb
8	8	200305P1-10	Standard	100.000	6.34	132092.281	25141.590	65.674	98.6	-1.4	NO	1.000	NO	bb
9	9	200305P1-11	Standard	250.000	6.34	287929.813	22123.781	162.681	252.6	1.0	NO	1.000	NO	bb
10	10	200305P1-12	Standard	500.000	6.34	518666.281	21308.387	304.262	498.9	-0.2	NO	1.000	NO	bb

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Compound name: PFODA
Coefficient of Determination: R^2 = 0.999487
Calibration curve: -0.000182686 * x^2 + 0.959017 * x + -0.035825
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	0.250	6.58	351.936	22764.664	0.193	0.2	-4.5	NO	0.999	NO	bb
2	2 200305P1-4	Standard	0.500	6.59	1021.632	25173.775	0.507	0.6	13.3	NO	0.999	NO	bb
3	3 200305P1-5	Standard	1.000	6.58	1854.947	25202.826	0.920	1.0	-0.3	NO	0.999	NO	bb
4	4 200305P1-6	Standard	2.000	6.58	3368.721	25361.021	1.660	1.8	-11.5	NO	0.999	NO	bd
5	5 200305P1-7	Standard	5.000	6.58	9007.668	25107.861	4.484	4.7	-5.6	NO	0.999	NO	bb
6	6 200305P1-8	Standard	10.000	6.58	17992.086	25041.533	8.981	9.4	-5.8	NO	0.999	NO	bb
7	7 200305P1-9	Standard	50.000	6.58	89339.070	23369.955	47.785	50.3	0.7	NO	0.999	NO	bb
8	8 200305P1-10	Standard	100.000	6.58	182663.859	25141.590	90.818	96.5	-3.5	NO	0.999	NO	bb
9	9 200305P1-11	Standard	250.000	6.58	415625.656	22123.781	234.830	257.5	3.0	NO	0.999	NO	bb
10	10 200305P1-12	Standard	500.000	6.58	734990.750	21308.387	431.163	496.6	-0.7	NO	0.999	NO	bb

Compound name: N-MeFOSE
Correlation coefficient: r = 0.999855, r^2 = 0.999710
Calibration curve: 0.996229 * x + 0.246652
Response type: Internal Std (Ref 95), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	1.250	6.24	173.996	17870.785	1.453	1.2	-3.2	NO	1.000	NO	bb
2	2 200305P1-4	Standard	2.500	6.25	328.968	19553.301	2.510	2.3	-9.1	NO	1.000	NO	bb
3	3 200305P1-5	Standard	5.000	6.25	709.738	18911.717	5.599	5.4	7.5	NO	1.000	NO	bb
4	4 200305P1-6	Standard	10.000	6.25	1317.748	19364.688	10.153	9.9	-0.6	NO	1.000	NO	bb
5	5 200305P1-7	Standard	25.000	6.25	3520.669	20163.543	26.051	25.9	3.6	NO	1.000	NO	bb
6	6 200305P1-8	Standard	50.000	6.25	6981.877	21053.467	49.479	49.4	-1.2	NO	1.000	NO	bb
7	7 200305P1-9	Standard	250.000	6.25	33883.930	19175.660	263.641	264.4	5.8	NO	1.000	NO	bb
8	8 200305P1-10	Standard	500.000	6.25	66554.297	20363.842	487.624	489.2	-2.2	NO	1.000	NO	bb
9	9 200305P1-11	Standard	1250.000	6.25	165210.203	19995.135	1232.768	1237.2	-1.0	NO	1.000	NO	bb
10	10 200305P1-12	Standard	2500.000	6.25	313203.969	18694.885	2499.616	2508.8	0.4	NO	1.000	NO	bb

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Compound name: N-EtFOSE
Correlation coefficient: r = 0.999900, r^2 = 0.999800
Calibration curve: 0.933847 * x + 0.0161544
Response type: Internal Std (Ref 97), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	1.250	6.41	148.517	20928.951	1.059	1.1	-10.7	NO	1.000	NO	bb
2	2 200305P1-4	Standard	2.500	6.40	352.068	21996.947	2.388	2.5	1.6	NO	1.000	NO	bb
3	3 200305P1-5	Standard	5.000	6.41	726.305	22555.229	4.804	5.1	2.5	NO	1.000	NO	bb
4	4 200305P1-6	Standard	10.000	6.40	1410.955	23716.721	8.876	9.5	-5.1	NO	1.000	NO	bb
5	5 200305P1-7	Standard	25.000	6.41	3886.282	23243.811	24.946	26.7	6.8	NO	1.000	NO	bb
6	6 200305P1-8	Standard	50.000	6.40	7517.979	23086.477	48.586	52.0	4.0	NO	1.000	NO	bb
7	7 200305P1-9	Standard	250.000	6.41	37394.871	23412.762	238.302	255.2	2.1	NO	1.000	NO	bb
8	8 200305P1-10	Standard	500.000	6.41	72520.398	23145.338	467.483	500.6	0.1	NO	1.000	NO	bb
9	9 200305P1-11	Standard	1250.000	6.41	179981.203	23456.744	1144.796	1225.9	-1.9	NO	1.000	NO	bb
10	10 200305P1-12	Standard	2500.000	6.40	353531.781	22457.180	2348.779	2515.1	0.6	NO	1.000	NO	bb

Compound name: 13C3-PFBA-EIS
Response Factor: 421.238
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	1.24	4795.876		4795.876	11.4	-8.9	NO		NO	MMX
2	2 200305P1-4	Standard	12.500	1.24	4979.229		4979.229	11.8	-5.4	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	1.24	5063.786		5063.786	12.0	-3.8	NO		NO	MMX
4	4 200305P1-6	Standard	12.500	1.24	4898.788		4898.788	11.6	-7.0	NO		NO	MMX
5	5 200305P1-7	Standard	12.500	1.24	5076.228		5076.228	12.1	-3.6	NO		NO	MMX
6	6 200305P1-8	Standard	12.500	1.24	5265.479		5265.479	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	1.24	5100.396		5100.396	12.1	-3.1	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	1.24	5266.524		5266.524	12.5	0.0	NO		NO	MMX
9	9 200305P1-11	Standard	12.500	1.24	5052.340		5052.340	12.0	-4.0	NO		NO	MMX
10	10 200305P1-12	Standard	12.500	1.24	5416.615		5416.615	12.9	2.9	NO		NO	MMX

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Compound name: 13C3-PFBA-RSD
Response Factor: 0.827966
RRF SD: 0.0162203, Relative SD: 1.95905
Response type: Internal Std (Ref 99), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	1.24	4787.439	5819.126	10.284	12.4	-0.6	NO		NO	MM
2	2 200305P1-4	Standard	12.500	1.24	4979.229	6140.335	10.136	12.2	-2.1	NO		NO	bb
3	3 200305P1-5	Standard	12.500	1.24	5066.604	5971.413	10.606	12.8	2.5	NO		NO	MM
4	4 200305P1-6	Standard	12.500	1.24	5274.491	6228.470	10.585	12.8	2.3	NO		NO	MM
5	5 200305P1-7	Standard	12.500	1.24	5095.657	6026.650	10.569	12.8	2.1	NO		NO	MM
6	6 200305P1-8	Standard	12.500	1.24	5265.479	6517.249	10.099	12.2	-2.4	NO		NO	bb
7	7 200305P1-9	Standard	12.500	1.24	5100.396	6219.250	10.251	12.4	-1.0	NO		NO	bb
8	8 200305P1-10	Standard	12.500	1.24	5276.995	6310.759	10.452	12.6	1.0	NO		NO	MM
9	9 200305P1-11	Standard	12.500	1.24	5062.376	6075.972	10.415	12.6	0.6	NO		NO	MM
10	10 200305P1-12	Standard	12.500	1.24	4981.175	6166.233	10.098	12.2	-2.4	NO		NO	MM

Compound name: 13C3-PFPeA-EIS
Response Factor: 840.295
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.13	9563.888		9563.888	11.4	-8.9	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	2.14	9781.680		9781.680	11.6	-6.9	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	2.13	9950.158		9950.158	11.8	-5.3	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	2.13	9941.450		9941.450	11.8	-5.4	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	2.13	10163.174		10163.174	12.1	-3.2	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	2.14	10503.685		10503.685	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.14	9805.540		9805.540	11.7	-6.6	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	2.14	10052.442		10052.442	12.0	-4.3	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	2.14	9725.440		9725.440	11.6	-7.4	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	2.14	9753.044		9753.044	11.6	-7.1	NO		NO	bbX

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Compound name: 13C3-PFPeA-RSD
Response Factor: 0.605633
RRF SD: 0.0188579, Relative SD: 3.11375
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.13	9563.888	16336.348	7.318	12.1	-3.3	NO		NO	bb
2	2 200305P1-4	Standard	12.500	2.14	9781.680	16446.965	7.434	12.3	-1.8	NO		NO	bb
3	3 200305P1-5	Standard	12.500	2.13	9950.158	16253.666	7.652	12.6	1.1	NO		NO	bb
4	4 200305P1-6	Standard	12.500	2.13	9941.450	17143.104	7.249	12.0	-4.2	NO		NO	bb
5	5 200305P1-7	Standard	12.500	2.13	10163.174	16897.311	7.518	12.4	-0.7	NO		NO	bb
6	6 200305P1-8	Standard	12.500	2.14	10503.685	17770.303	7.389	12.2	-2.4	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.14	9805.540	16142.707	7.593	12.5	0.3	NO		NO	bb
8	8 200305P1-10	Standard	12.500	2.14	10052.442	16040.667	7.834	12.9	3.5	NO		NO	bb
9	9 200305P1-11	Standard	12.500	2.14	9725.440	15737.322	7.725	12.8	2.0	NO		NO	bb
10	10 200305P1-12	Standard	12.500	2.14	9753.044	15253.024	7.993	13.2	5.6	NO		NO	bb

Compound name: 13C3-PFBS-EIS
Response Factor: 95.2394
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.41	1070.703		1070.703	11.2	-10.1	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	2.41	1118.537		1118.537	11.7	-6.0	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	2.41	1112.049		1112.049	11.7	-6.6	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	2.41	1117.039		1117.039	11.7	-6.2	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	2.41	1100.979		1100.979	11.6	-7.5	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	2.41	1190.493		1190.493	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.42	1095.049		1095.049	11.5	-8.0	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	2.41	1084.198		1084.198	11.4	-8.9	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	2.41	1152.101		1152.101	12.1	-3.2	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	2.41	973.103		973.103	10.2	-18.3	NO		NO	bbX

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Compound name: 13C3-PFBS-RSD
Response Factor: 1.01403
RRF SD: 0.0663625, Relative SD: 6.54446
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.41	1070.703	1071.232	12.494	12.3	-1.4	NO		NO	bb
2	2 200305P1-4	Standard	12.500	2.41	1118.537	1120.669	12.476	12.3	-1.6	NO		NO	bb
3	3 200305P1-5	Standard	12.500	2.41	1112.049	1020.400	13.623	13.4	7.5	NO		NO	bb
4	4 200305P1-6	Standard	12.500	2.41	1117.039	1108.550	12.596	12.4	-0.6	NO		NO	bb
5	5 200305P1-7	Standard	12.500	2.41	1100.979	1066.392	12.905	12.7	1.8	NO		NO	bb
6	6 200305P1-8	Standard	12.500	2.41	1190.493	1207.581	12.323	12.2	-2.8	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.42	1095.049	1080.361	12.670	12.5	-0.0	NO		NO	bb
8	8 200305P1-10	Standard	12.500	2.41	1084.198	1094.234	12.385	12.2	-2.3	NO		NO	bb
9	9 200305P1-11	Standard	12.500	2.41	1152.101	1013.166	14.214	14.0	12.1	NO		NO	bb
10	10 200305P1-12	Standard	12.500	2.41	973.103	1099.133	11.067	10.9	-12.7	NO		NO	bb

Compound name: 13C3-HFPO-DA-EIS
Response Factor: 285.855
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.14	3083.738		3083.738	10.8	-13.7	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	3.14	3532.139		3532.139	12.4	-1.1	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	3.14	3553.742		3553.742	12.4	-0.5	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	3.14	3598.210		3598.210	12.6	0.7	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	3.14	3538.034		3538.034	12.4	-1.0	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	3.14	3573.185		3573.185	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.14	3639.157		3639.157	12.7	1.8	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	3.14	3604.236		3604.236	12.6	0.9	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	3.14	3633.134		3633.134	12.7	1.7	NO		NO	bdX
10	10 200305P1-12	Standard	12.500	3.14	3490.625		3490.625	12.2	-2.3	NO		NO	bbX

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Compound name: 13C3-HFPO-DA-RSD
Response Factor: 0.215236
RRF SD: 0.0133281, Relative SD: 6.19232
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.14	3083.738	16336.348	2.360	11.0	-12.3	NO		NO	bb
2	2 200305P1-4	Standard	12.500	3.14	3532.139	16446.965	2.684	12.5	-0.2	NO		NO	bb
3	3 200305P1-5	Standard	12.500	3.14	3553.742	16253.666	2.733	12.7	1.6	NO		NO	bb
4	4 200305P1-6	Standard	12.500	3.14	3598.210	17143.104	2.624	12.2	-2.5	NO		NO	bb
5	5 200305P1-7	Standard	12.500	3.14	3538.034	16897.311	2.617	12.2	-2.7	NO		NO	bb
6	6 200305P1-8	Standard	12.500	3.14	3573.185	17770.303	2.513	11.7	-6.6	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.14	3639.157	16142.707	2.818	13.1	4.7	NO		NO	bb
8	8 200305P1-10	Standard	12.500	3.14	3604.236	16040.667	2.809	13.0	4.4	NO		NO	bb
9	9 200305P1-11	Standard	12.500	3.14	3633.134	15737.322	2.886	13.4	7.3	NO		NO	bd
10	10 200305P1-12	Standard	12.500	3.14	3490.625	15253.024	2.861	13.3	6.3	NO		NO	bb

Compound name: 13C2-4:2 FTS-EIS
Response Factor: 142.983
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.85	1379.538		1379.538	9.6	-22.8	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	2.85	1677.537		1677.537	11.7	-6.1	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	2.85	1531.169		1531.169	10.7	-14.3	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	2.85	1549.796		1549.796	10.8	-13.3	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	2.85	1613.237		1613.237	11.3	-9.7	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	2.85	1787.284		1787.284	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.86	1617.445		1617.445	11.3	-9.5	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	2.86	1612.134		1612.134	11.3	-9.8	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	2.85	1332.209		1332.209	9.3	-25.5	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	2.86	1307.064		1307.064	9.1	-26.9	NO		NO	bbX

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Compound name: 13C2-4:2 FTS-RSD
Response Factor: 1.41507
RRF SD: 0.113261, Relative SD: 8.00395
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.85	1379.538	1071.232	16.098	11.4	-9.0	NO		NO	bb
2	2 200305P1-4	Standard	12.500	2.85	1677.537	1120.669	18.711	13.2	5.8	NO		NO	bb
3	3 200305P1-5	Standard	12.500	2.85	1531.169	1020.400	18.757	13.3	6.0	NO		NO	bb
4	4 200305P1-6	Standard	12.500	2.85	1549.796	1108.550	17.475	12.3	-1.2	NO		NO	bb
5	5 200305P1-7	Standard	12.500	2.85	1613.237	1066.392	18.910	13.4	6.9	NO		NO	bb
6	6 200305P1-8	Standard	12.500	2.85	1787.284	1207.581	18.501	13.1	4.6	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.86	1617.445	1080.361	18.714	13.2	5.8	NO		NO	bb
8	8 200305P1-10	Standard	12.500	2.86	1612.134	1094.234	18.416	13.0	4.1	NO		NO	bb
9	9 200305P1-11	Standard	12.500	2.85	1332.209	1013.166	16.436	11.6	-7.1	NO		NO	bb
10	10 200305P1-12	Standard	12.500	2.86	1307.064	1099.133	14.865	10.5	-16.0	NO		NO	bb

Compound name: 13C2-PFHxA-EIS
Response Factor: 1439.91
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.94	16029.746		16029.746	11.1	-10.9	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	2.94	17209.922		17209.922	12.0	-4.4	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	2.94	16889.459		16889.459	11.7	-6.2	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	2.94	17143.332		17143.332	11.9	-4.8	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	2.94	17341.906		17341.906	12.0	-3.7	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	2.94	17998.912		17998.912	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.94	16544.674		16544.674	11.5	-8.1	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	2.94	16928.336		16928.336	11.8	-5.9	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	2.94	16569.424		16569.424	11.5	-7.9	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	2.94	16215.977		16215.977	11.3	-9.9	NO		NO	bbX

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Compound name: 13C2-PFHxA-RSD
Response Factor: 1.03022
RRF SD: 0.0262996, Relative SD: 2.55282
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	2.94	16029.746	16336.348	12.265	11.9	-4.8	NO		NO	bb
2	2 200305P1-4	Standard	12.500	2.94	17209.922	16446.965	13.080	12.7	1.6	NO		NO	bb
3	3 200305P1-5	Standard	12.500	2.94	16889.459	16253.666	12.989	12.6	0.9	NO		NO	bb
4	4 200305P1-6	Standard	12.500	2.94	17143.332	17143.104	12.500	12.1	-2.9	NO		NO	bb
5	5 200305P1-7	Standard	12.500	2.94	17341.906	16897.311	12.829	12.5	-0.4	NO		NO	bb
6	6 200305P1-8	Standard	12.500	2.94	17998.912	17770.303	12.661	12.3	-1.7	NO		NO	bb
7	7 200305P1-9	Standard	12.500	2.94	16544.674	16142.707	12.811	12.4	-0.5	NO		NO	bb
8	8 200305P1-10	Standard	12.500	2.94	16928.336	16040.667	13.192	12.8	2.4	NO		NO	bb
9	9 200305P1-11	Standard	12.500	2.94	16569.424	15737.322	13.161	12.8	2.2	NO		NO	bb
10	10 200305P1-12	Standard	12.500	2.94	16215.977	15253.024	13.289	12.9	3.2	NO		NO	bb

Compound name: 13C4-PFHpA-EIS
Response Factor: 917.711
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.53	10575.721		10575.721	11.5	-7.8	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	3.53	10468.981		10468.981	11.4	-8.7	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	3.53	11007.823		11007.823	12.0	-4.0	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	3.53	10591.144		10591.144	11.5	-7.7	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	3.53	10683.082		10683.082	11.6	-6.9	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	3.53	11471.383		11471.383	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.53	10569.529		10569.529	11.5	-7.9	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	3.53	11243.036		11243.036	12.3	-2.0	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	3.54	9987.780		9987.780	10.9	-12.9	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	3.53	9549.484		9549.484	10.4	-16.8	NO		NO	bbX

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Compound name: 13C4-PFHpA-RSD
Response Factor: 0.647313
RRF SD: 0.0250619, Relative SD: 3.87169
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.53	10575.721	16336.348	8.092	12.5	0.0	NO		NO	bb
2	2 200305P1-4	Standard	12.500	3.53	10468.981	16446.965	7.957	12.3	-1.7	NO		NO	bb
3	3 200305P1-5	Standard	12.500	3.53	11007.823	16253.666	8.466	13.1	4.6	NO		NO	bb
4	4 200305P1-6	Standard	12.500	3.53	10591.144	17143.104	7.723	11.9	-4.6	NO		NO	bb
5	5 200305P1-7	Standard	12.500	3.53	10683.082	16897.311	7.903	12.2	-2.3	NO		NO	bb
6	6 200305P1-8	Standard	12.500	3.53	11471.383	17770.303	8.069	12.5	-0.3	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.53	10569.529	16142.707	8.184	12.6	1.1	NO		NO	bb
8	8 200305P1-10	Standard	12.500	3.53	11243.036	16040.667	8.761	13.5	8.3	NO		NO	bb
9	9 200305P1-11	Standard	12.500	3.54	9987.780	15737.322	7.933	12.3	-2.0	NO		NO	bb
10	10 200305P1-12	Standard	12.500	3.53	9549.484	15253.024	7.826	12.1	-3.3	NO		NO	bb

Compound name: 13C3-PFHxS-EIS
Response Factor: 228.993
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.68	2587.455		2587.455	11.3	-9.6	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	3.68	2548.680		2548.680	11.1	-11.0	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	3.67	2654.331		2654.331	11.6	-7.3	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	3.68	2682.740		2682.740	11.7	-6.3	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	3.68	2678.569		2678.569	11.7	-6.4	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	3.68	2862.414		2862.414	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.68	2620.332		2620.332	11.4	-8.5	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	3.68	2754.703		2754.703	12.0	-3.8	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	3.68	2509.648		2509.648	11.0	-12.3	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	3.68	2410.309		2410.309	10.5	-15.8	NO		NO	bbX

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Compound name: 13C3-PFHxS-RSD
Response Factor: 2.4206
RRF SD: 0.119888, Relative SD: 4.95283
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	3.68	2587.455	1071.232	30.193	12.5	-0.2	NO		NO	bb
2	2 200305P1-4	Standard	12.500	3.68	2548.680	1120.669	28.428	11.7	-6.0	NO		NO	bb
3	3 200305P1-5	Standard	12.500	3.67	2654.331	1020.400	32.516	13.4	7.5	NO		NO	bb
4	4 200305P1-6	Standard	12.500	3.68	2682.740	1108.550	30.251	12.5	-0.0	NO		NO	bb
5	5 200305P1-7	Standard	12.500	3.68	2678.569	1066.392	31.398	13.0	3.8	NO		NO	bb
6	6 200305P1-8	Standard	12.500	3.68	2862.414	1207.581	29.630	12.2	-2.1	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.68	2620.332	1080.361	30.318	12.5	0.2	NO		NO	bb
8	8 200305P1-10	Standard	12.500	3.68	2754.703	1094.234	31.468	13.0	4.0	NO		NO	bb
9	9 200305P1-11	Standard	12.500	3.68	2509.648	1013.166	30.963	12.8	2.3	NO		NO	bb
10	10 200305P1-12	Standard	12.500	3.68	2410.309	1099.133	27.411	11.3	-9.4	NO		NO	bb

Compound name: 13C2-6:2 FTS-EIS
Response Factor: 120.884
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.00	1335.094		1335.094	11.0	-11.6	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	3.99	1465.739		1465.739	12.1	-3.0	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	3.99	1519.827		1519.827	12.6	0.6	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	3.99	1528.657		1528.657	12.6	1.2	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	3.99	1587.353		1587.353	13.1	5.0	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.00	1511.055		1511.055	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.99	1500.827		1500.827	12.4	-0.7	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	3.99	1454.282		1454.282	12.0	-3.8	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.00	1385.549		1385.549	11.5	-8.3	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.00	1294.650		1294.650	10.7	-14.3	NO		NO	bbX

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Compound name: 13C2-6:2 FTS-RSD
Response Factor: 0.472211
RRF SD: 0.0181498, Relative SD: 3.84357
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.00	1335.094	2843.529	5.869	12.4	-0.6	NO		NO	bb
2	2 200305P1-4	Standard	12.500	3.99	1465.739	3009.504	6.088	12.9	3.1	NO		NO	bb
3	3 200305P1-5	Standard	12.500	3.99	1519.827	3200.170	5.937	12.6	0.6	NO		NO	bb
4	4 200305P1-6	Standard	12.500	3.99	1528.657	3259.515	5.862	12.4	-0.7	NO		NO	bb
5	5 200305P1-7	Standard	12.500	3.99	1587.353	3131.168	6.337	13.4	7.4	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.00	1511.055	3421.749	5.520	11.7	-6.5	NO		NO	bb
7	7 200305P1-9	Standard	12.500	3.99	1500.827	3194.004	5.874	12.4	-0.5	NO		NO	bb
8	8 200305P1-10	Standard	12.500	3.99	1454.282	3046.593	5.967	12.6	1.1	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.00	1385.549	3083.860	5.616	11.9	-4.9	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.00	1294.650	2716.606	5.957	12.6	0.9	NO		NO	bb

Compound name: 13C5-PFNA-EIS
Response Factor: 1218.48
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.51	13662.778		13662.778	11.2	-10.3	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.51	13512.850		13512.850	11.1	-11.3	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.51	13886.635		13886.635	11.4	-8.8	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.50	14075.757		14075.757	11.6	-7.6	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.51	13141.951		13141.951	10.8	-13.7	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.51	15231.051		15231.051	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.51	13045.264		13045.264	10.7	-14.4	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.51	13661.383		13661.383	11.2	-10.3	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.51	13176.899		13176.899	10.8	-13.5	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.51	12353.308		12353.308	10.1	-18.9	NO		NO	bbX

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Compound name: 13C5-PFNA-RSD
Response Factor: 0.948152
RRF SD: 0.0394408, Relative SD: 4.15975
Response type: Internal Std (Ref 103), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.51	13662.778	13766.351	12.406	13.1	4.7	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.51	13512.850	13704.296	12.325	13.0	4.0	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.51	13886.635	14298.282	12.140	12.8	2.4	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.50	14075.757	15668.944	11.229	11.8	-5.3	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.51	13141.951	14132.776	11.624	12.3	-1.9	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.51	15231.051	15881.870	11.988	12.6	1.1	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.51	13045.264	14710.100	11.085	11.7	-6.5	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.51	13661.383	13685.645	12.478	13.2	5.3	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.51	13176.899	14025.602	11.744	12.4	-0.9	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.51	12353.308	13427.041	11.500	12.1	-3.0	NO		NO	bb

Compound name: 13C8-PFOSA-EIS
Response Factor: 298.193
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.56	3242.750		3242.750	10.9	-13.0	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.56	3505.126		3505.126	11.8	-6.0	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.55	3305.163		3305.163	11.1	-11.3	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.55	3486.484		3486.484	11.7	-6.5	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.56	3781.580		3781.580	12.7	1.5	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.56	3727.416		3727.416	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.56	3580.658		3580.658	12.0	-3.9	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.56	3594.883		3594.883	12.1	-3.6	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.56	3450.826		3450.826	11.6	-7.4	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.56	3328.953		3328.953	11.2	-10.7	NO		NO	bbX

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Compound name: 13C8-PFOSA-RSD
Response Factor: 0.202564
RRF SD: 0.0140911, Relative SD: 6.95636
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.56	3242.750	17006.004	2.384	11.8	-5.9	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.56	3505.126	19001.074	2.306	11.4	-8.9	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.55	3305.163	17719.709	2.332	11.5	-7.9	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.55	3486.484	16724.277	2.606	12.9	2.9	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.56	3781.580	17663.098	2.676	13.2	5.7	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.56	3727.416	19487.238	2.391	11.8	-5.6	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.56	3580.658	16760.604	2.670	13.2	5.5	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.56	3594.883	17938.912	2.505	12.4	-1.1	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.56	3450.826	16500.832	2.614	12.9	3.2	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.56	3328.953	14667.073	2.837	14.0	12.0	NO		NO	bb

Compound name: 13C2-PFOA-EIS
Response Factor: 1335.57
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.05	14322.384		14322.384	10.7	-14.2	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.05	14079.412		14079.412	10.5	-15.7	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.05	14877.822		14877.822	11.1	-10.9	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.05	15260.232		15260.232	11.4	-8.6	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.05	14994.204		14994.204	11.2	-10.2	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.05	16694.656		16694.656	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.05	15050.213		15050.213	11.3	-9.9	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.05	14612.382		14612.382	10.9	-12.5	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.05	13544.175		13544.175	10.1	-18.9	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.05	12971.973		12971.973	9.7	-22.3	NO		NO	bbX

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Compound name: 13C2-PFOA-RSD
Response Factor: 0.886448
RRF SD: 0.0419979, Relative SD: 4.73778
Response type: Internal Std (Ref 102), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.05	14322.384	16137.342	11.094	12.5	0.1	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.05	14079.412	16434.488	10.709	12.1	-3.4	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.05	14877.822	17121.748	10.862	12.3	-2.0	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.05	15260.232	17407.049	10.958	12.4	-1.1	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.05	14994.204	17943.361	10.446	11.8	-5.7	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.05	16694.656	17292.037	12.068	13.6	8.9	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.05	15050.213	17402.297	10.811	12.2	-2.4	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.05	14612.382	16686.107	10.947	12.3	-1.2	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.05	13544.175	15471.954	10.943	12.3	-1.2	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.05	12971.973	13546.695	11.970	13.5	8.0	NO		NO	bb

Compound name: 13C8-PFOS-EIS
Response Factor: 251.762
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.60	2735.055		2735.055	10.9	-13.1	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.59	3109.455		3109.455	12.4	-1.2	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.59	2858.746		2858.746	11.4	-9.2	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.59	3146.012		3146.012	12.5	-0.0	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.60	2923.960		2923.960	11.6	-7.1	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.60	3147.029		3147.029	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.60	3045.557		3045.557	12.1	-3.2	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.59	3043.774		3043.774	12.1	-3.3	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.60	2716.929		2716.929	10.8	-13.7	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.60	2847.404		2847.404	11.3	-9.5	NO		NO	bbX

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Compound name: 13C8-PFOS-RSD
Response Factor: 0.958353
RRF SD: 0.0546523, Relative SD: 5.70273
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.60	2735.055	2843.529	12.023	12.5	0.4	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.59	3098.637	3009.504	12.870	13.4	7.4	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.59	2858.746	3200.170	11.166	11.7	-6.8	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.59	3146.012	3259.515	12.065	12.6	0.7	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.60	2923.960	3131.168	11.673	12.2	-2.6	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.60	3147.029	3421.749	11.496	12.0	-4.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.60	3045.557	3194.004	11.919	12.4	-0.5	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.59	3043.774	3046.593	12.488	13.0	4.2	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.60	2716.929	3083.860	11.013	11.5	-8.1	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.60	2842.724	2716.606	13.080	13.6	9.2	NO		NO	bb

Compound name: 13C2-PFDA-EIS
Response Factor: 1355.27
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.90	15354.609		15354.609	11.3	-9.4	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.90	14883.763		14883.763	11.0	-12.1	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.90	16903.959		16903.959	12.5	-0.2	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.89	15681.516		15681.516	11.6	-7.4	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.90	16283.075		16283.075	12.0	-3.9	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.90	16940.865		16940.865	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.90	16231.370		16231.370	12.0	-4.2	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.90	16650.854		16650.854	12.3	-1.7	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.90	14738.810		14738.810	10.9	-13.0	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.90	14680.723		14680.723	10.8	-13.3	NO		NO	bbX

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Compound name: 13C2-PFDA-RSD
Response Factor: 1.10093
RRF SD: 0.0670325, Relative SD: 6.08871
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.90	15354.609	13159.308	14.585	13.2	6.0	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.90	14883.763	15406.874	12.076	11.0	-12.3	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.90	16903.959	15271.419	13.836	12.6	0.5	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.89	15681.516	13901.063	14.101	12.8	2.5	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.90	16283.075	15303.291	13.300	12.1	-3.4	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.90	16940.865	15009.033	14.109	12.8	2.5	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.90	16231.370	13579.045	14.942	13.6	8.6	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.90	16650.854	15193.590	13.699	12.4	-0.5	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.90	14738.810	14332.422	12.854	11.7	-6.6	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.90	14680.723	13001.795	14.114	12.8	2.6	NO		NO	bb

Compound name: 13C2-8:2 FTS-EIS
Response Factor: 93.1012
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.87	1188.197		1188.197	12.8	2.1	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	4.86	1313.837		1313.837	14.1	12.9	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	4.86	1163.416		1163.416	12.5	-0.0	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	4.86	1262.400		1262.400	13.6	8.5	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	4.87	1153.996		1153.996	12.4	-0.8	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	4.87	1163.765		1163.765	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.87	1220.233		1220.233	13.1	4.9	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	4.87	1050.998		1050.998	11.3	-9.7	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	4.87	1176.769		1176.769	12.6	1.1	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	4.87	1078.331		1078.331	11.6	-7.3	NO		NO	bbX

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Compound name: 13C2-8:2 FTS-RSD
Response Factor: 0.381947
RRF SD: 0.0301138, Relative SD: 7.88428
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	4.87	1188.197	2843.529	5.223	13.7	9.4	NO		NO	bb
2	2	200305P1-4	Standard	12.500	4.86	1313.837	3009.504	5.457	14.3	14.3	NO		NO	bb
3	3	200305P1-5	Standard	12.500	4.86	1163.416	3200.170	4.544	11.9	-4.8	NO		NO	bb
4	4	200305P1-6	Standard	12.500	4.86	1262.400	3259.515	4.841	12.7	1.4	NO		NO	bb
5	5	200305P1-7	Standard	12.500	4.87	1153.996	3131.168	4.607	12.1	-3.5	NO		NO	bb
6	6	200305P1-8	Standard	12.500	4.87	1163.765	3421.749	4.251	11.1	-11.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	4.87	1220.233	3194.004	4.775	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	4.87	1050.998	3046.593	4.312	11.3	-9.7	NO		NO	bb
9	9	200305P1-11	Standard	12.500	4.87	1176.769	3083.860	4.770	12.5	-0.1	NO		NO	bb
10	10	200305P1-12	Standard	12.500	4.87	1078.331	2716.606	4.962	13.0	3.9	NO		NO	bb

Compound name: d3-N-MeFOSAA-EIS
Response Factor: 274.881
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.05	2890.411		2890.411	10.5	-15.9	NO		NO	bbX
2	2	200305P1-4	Standard	12.500	5.05	2792.767		2792.767	10.2	-18.7	NO		NO	bbX
3	3	200305P1-5	Standard	12.500	5.05	3142.354		3142.354	11.4	-8.5	NO		NO	bbX
4	4	200305P1-6	Standard	12.500	5.05	2975.845		2975.845	10.8	-13.4	NO		NO	bbX
5	5	200305P1-7	Standard	12.500	5.05	3085.006		3085.006	11.2	-10.2	NO		NO	bbX
6	6	200305P1-8	Standard	12.500	5.05	3436.011		3436.011	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.05	3557.840		3557.840	12.9	3.5	NO		NO	bbX
8	8	200305P1-10	Standard	12.500	5.05	3136.622		3136.622	11.4	-8.7	NO		NO	bbX
9	9	200305P1-11	Standard	12.500	5.05	3062.488		3062.488	11.1	-10.9	NO		NO	bbX
10	10	200305P1-12	Standard	12.500	5.05	2934.106		2934.106	10.7	-14.6	NO		NO	bbX

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Compound name: d3-N-MeFOSAA-RSD
Response Factor: 0.179596
RRF SD: 0.0174617, Relative SD: 9.72276
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.05	2890.411	17006.004	2.125	11.8	-5.4	NO		NO	bb
2	2 200305P1-4	Standard	12.500	5.05	2792.767	19001.074	1.837	10.2	-18.2	NO		NO	bb
3	3 200305P1-5	Standard	12.500	5.05	3142.354	17719.709	2.217	12.3	-1.3	NO		NO	bb
4	4 200305P1-6	Standard	12.500	5.05	2975.845	16724.277	2.224	12.4	-0.9	NO		NO	bb
5	5 200305P1-7	Standard	12.500	5.05	3085.006	17663.098	2.183	12.2	-2.7	NO		NO	bb
6	6 200305P1-8	Standard	12.500	5.05	3436.011	19487.238	2.204	12.3	-1.8	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.05	3557.840	16760.604	2.653	14.8	18.2	NO		NO	bb
8	8 200305P1-10	Standard	12.500	5.05	3136.622	17938.912	2.186	12.2	-2.6	NO		NO	bb
9	9 200305P1-11	Standard	12.500	5.05	3062.488	16500.832	2.320	12.9	3.3	NO		NO	bb
10	10 200305P1-12	Standard	12.500	5.05	2934.106	14667.073	2.501	13.9	11.4	NO		NO	bb

Compound name: 13C2-PFUdA-EIS
Response Factor: 1562.58
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.23	16443.457		16443.457	10.5	-15.8	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	5.23	17824.594		17824.594	11.4	-8.7	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	5.23	17604.381		17604.381	11.3	-9.9	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	5.23	17371.818		17371.818	11.1	-11.1	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	5.23	18373.496		18373.496	11.8	-5.9	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	5.23	19532.285		19532.285	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.23	17709.941		17709.941	11.3	-9.3	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	5.23	17543.604		17543.604	11.2	-10.2	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	5.23	17606.910		17606.910	11.3	-9.9	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	5.23	16624.428		16624.428	10.6	-14.9	NO		NO	bbX

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Compound name: 13C2-PFUdA-RSD
Response Factor: 1.02148
RRF SD: 0.0572262, Relative SD: 5.60226
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.23	16443.457	17006.004	12.087	11.8	-5.3	NO		NO	bb
2	2	200305P1-4	Standard	12.500	5.23	17824.594	19001.074	11.726	11.5	-8.2	NO		NO	bb
3	3	200305P1-5	Standard	12.500	5.23	17604.381	17719.709	12.419	12.2	-2.7	NO		NO	bb
4	4	200305P1-6	Standard	12.500	5.23	17371.818	16724.277	12.984	12.7	1.7	NO		NO	bb
5	5	200305P1-7	Standard	12.500	5.23	18373.496	17663.098	13.003	12.7	1.8	NO		NO	bb
6	6	200305P1-8	Standard	12.500	5.23	19532.285	19487.238	12.529	12.3	-1.9	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.23	17709.941	16760.604	13.208	12.9	3.4	NO		NO	bb
8	8	200305P1-10	Standard	12.500	5.23	17543.604	17938.912	12.225	12.0	-4.3	NO		NO	bb
9	9	200305P1-11	Standard	12.500	5.23	17606.910	16500.832	13.338	13.1	4.5	NO		NO	bb
10	10	200305P1-12	Standard	12.500	5.23	16624.428	14667.073	14.168	13.9	11.0	NO		NO	bb

Compound name: d5-N-EtFOSAA-EIS
Response Factor: 360.797
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.21	3847.288		3847.288	10.7	-14.7	NO		NO	bbX
2	2	200305P1-4	Standard	12.500	5.21	3684.068		3684.068	10.2	-18.3	NO		NO	bbX
3	3	200305P1-5	Standard	12.500	5.21	3874.187		3874.187	10.7	-14.1	NO		NO	bbX
4	4	200305P1-6	Standard	12.500	5.21	4019.245		4019.245	11.1	-10.9	NO		NO	bbX
5	5	200305P1-7	Standard	12.500	5.21	4524.091		4524.091	12.5	0.3	NO		NO	bbX
6	6	200305P1-8	Standard	12.500	5.21	4509.962		4509.962	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.21	4184.759		4184.759	11.6	-7.2	NO		NO	bbX
8	8	200305P1-10	Standard	12.500	5.21	3923.587		3923.587	10.9	-13.0	NO		NO	bbX
9	9	200305P1-11	Standard	12.500	5.21	3383.731		3383.731	9.4	-25.0	NO		NO	bbX
10	10	200305P1-12	Standard	12.500	5.21	3148.492		3148.492	8.7	-30.2	NO		NO	bbX

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Compound name: d5-N-EtFOSAA-RSD
Response Factor: 0.225477
RRF SD: 0.0194533, Relative SD: 8.62761
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.21	3847.288	17006.004	2.828	12.5	0.3	NO		NO	bb
2	2	200305P1-4	Standard	12.500	5.21	3684.068	19001.074	2.424	10.7	-14.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	5.21	3874.187	17719.709	2.733	12.1	-3.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	5.21	4019.245	16724.277	3.004	13.3	6.6	NO		NO	bb
5	5	200305P1-7	Standard	12.500	5.21	4524.091	17663.098	3.202	14.2	13.6	NO		NO	bb
6	6	200305P1-8	Standard	12.500	5.21	4509.962	19487.238	2.893	12.8	2.6	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.21	4184.759	16760.604	3.121	13.8	10.7	NO		NO	bb
8	8	200305P1-10	Standard	12.500	5.21	3923.587	17938.912	2.734	12.1	-3.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	5.21	3383.731	16500.832	2.563	11.4	-9.1	NO		NO	bb
10	10	200305P1-12	Standard	12.500	5.21	3148.492	14667.073	2.683	11.9	-4.8	NO		NO	bb

Compound name: 13C2-PFDoA-EIS
Response Factor: 1396.24
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.52	15817.352		15817.352	11.3	-9.4	NO		NO	bbX
2	2	200305P1-4	Standard	12.500	5.51	17243.137		17243.137	12.3	-1.2	NO		NO	bbX
3	3	200305P1-5	Standard	12.500	5.51	17390.746		17390.746	12.5	-0.4	NO		NO	bbX
4	4	200305P1-6	Standard	12.500	5.51	17216.820		17216.820	12.3	-1.4	NO		NO	bbX
5	5	200305P1-7	Standard	12.500	5.52	17116.512		17116.512	12.3	-1.9	NO		NO	bbX
6	6	200305P1-8	Standard	12.500	5.52	17453.033		17453.033	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.51	15892.708		15892.708	11.4	-8.9	NO		NO	bbX
8	8	200305P1-10	Standard	12.500	5.52	17210.133		17210.133	12.3	-1.4	NO		NO	bbX
9	9	200305P1-11	Standard	12.500	5.52	15819.084		15819.084	11.3	-9.4	NO		NO	bbX
10	10	200305P1-12	Standard	12.500	5.52	16167.693		16167.693	11.6	-7.4	NO		NO	bbX

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Compound name: 13C2-PFDoA-RSD
Response Factor: 1.16301
RRF SD: 0.0501958, Relative SD: 4.31602
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.52	15817.352	13159.308	15.025	12.9	3.4	NO		NO	bb
2	2 200305P1-4	Standard	12.500	5.51	17243.137	15406.874	13.990	12.0	-3.8	NO		NO	bb
3	3 200305P1-5	Standard	12.500	5.51	17390.746	15271.419	14.235	12.2	-2.1	NO		NO	bb
4	4 200305P1-6	Standard	12.500	5.51	17216.820	13901.063	15.482	13.3	6.5	NO		NO	bb
5	5 200305P1-7	Standard	12.500	5.52	17116.512	15303.291	13.981	12.0	-3.8	NO		NO	bb
6	6 200305P1-8	Standard	12.500	5.52	17453.033	15009.033	14.535	12.5	-0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.51	15892.708	13579.045	14.630	12.6	0.6	NO		NO	bb
8	8 200305P1-10	Standard	12.500	5.52	17210.133	15193.590	14.159	12.2	-2.6	NO		NO	bb
9	9 200305P1-11	Standard	12.500	5.52	15819.084	14332.422	13.797	11.9	-5.1	NO		NO	bb
10	10 200305P1-12	Standard	12.500	5.52	16167.693	13001.795	15.544	13.4	6.9	NO		NO	bb

Compound name: 13C2-10:2 FTS-EIS
Response Factor: 72.1095
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.50	1006.848		1006.848	14.0	11.7	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	5.50	1066.167		1066.167	14.8	18.3	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	5.50	1021.276		1021.276	14.2	13.3	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	5.50	940.534		940.534	13.0	4.3	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	5.50	943.381		943.381	13.1	4.7	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	5.50	901.369		901.369	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.50	733.245		733.245	10.2	-18.7	NO		NO	MMX
8	8 200305P1-10	Standard	12.500	5.50	826.655		826.655	11.5	-8.3	NO		NO	MMX
9	9 200305P1-11	Standard	12.500	5.50	711.908		711.908	9.9	-21.0	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	5.50	689.198		689.198	9.6	-23.5	NO		NO	MMX

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Compound name: 13C2-10:2 FTS-RSD
Response Factor: 0.287336
RRF SD: 0.0449366, Relative SD: 15.639
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.50	1006.848	2843.529	4.426	15.4	23.2	NO		NO	bb
2	2 200305P1-4	Standard	12.500	5.50	1066.167	3009.504	4.428	15.4	23.3	NO		NO	bb
3	3 200305P1-5	Standard	12.500	5.50	1021.276	3200.170	3.989	13.9	11.1	NO		NO	bb
4	4 200305P1-6	Standard	12.500	5.50	940.534	3259.515	3.607	12.6	0.4	NO		NO	bb
5	5 200305P1-7	Standard	12.500	5.50	943.381	3131.168	3.766	13.1	4.9	NO		NO	bb
6	6 200305P1-8	Standard	12.500	5.50	901.369	3421.749	3.293	11.5	-8.3	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.50	734.487	3194.004	2.874	10.0	-20.0	NO		NO	MM
8	8 200305P1-10	Standard	12.500	5.50	826.522	3046.593	3.391	11.8	-5.6	NO		NO	MM
9	9 200305P1-11	Standard	12.500	5.50	711.908	3083.860	2.886	10.0	-19.7	NO		NO	bb
10	10 200305P1-12	Standard	12.500	5.50	707.711	2716.606	3.256	11.3	-9.3	NO		NO	MM

Compound name: d3-N-MeFOSA-EIS
Response Factor: 104.329
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	5.57	13562.836		13562.836	130.0	-12.9	NO		NO	bbX
2	2 200305P1-4	Standard	149.200	5.57	14514.347		14514.347	139.1	-6.8	NO		NO	bdX
3	3 200305P1-5	Standard	149.200	5.57	15020.873		15020.873	144.0	-3.5	NO		NO	bbX
4	4 200305P1-6	Standard	149.200	5.57	14944.172		14944.172	143.2	-4.0	NO		NO	bbX
5	5 200305P1-7	Standard	149.200	5.57	15044.006		15044.006	144.2	-3.4	NO		NO	bbX
6	6 200305P1-8	Standard	149.200	5.57	15565.910		15565.910	149.2	0.0	NO		NO	bb
7	7 200305P1-9	Standard	149.200	5.56	15122.509		15122.509	144.9	-2.8	NO		NO	bbX
8	8 200305P1-10	Standard	149.200	5.57	15167.027		15167.027	145.4	-2.6	NO		NO	bbX
9	9 200305P1-11	Standard	149.200	5.57	15188.338		15188.338	145.6	-2.4	NO		NO	bbX
10	10 200305P1-12	Standard	149.200	5.57	15244.770		15244.770	146.1	-2.1	NO		NO	bbX

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Compound name: d3-N-MeFOSA-RSD
Response Factor: 0.0725599
RRF SD: 0.00659103, Relative SD: 9.08357
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	5.57	13562.836	17006.004	9.969	137.4	-7.9	NO		NO	bb
2	2 200305P1-4	Standard	149.200	5.57	14514.347	19001.074	9.548	131.6	-11.8	NO		NO	bd
3	3 200305P1-5	Standard	149.200	5.57	15020.873	17719.709	10.596	146.0	-2.1	NO		NO	bb
4	4 200305P1-6	Standard	149.200	5.57	14944.172	16724.277	11.170	153.9	3.2	NO		NO	bb
5	5 200305P1-7	Standard	149.200	5.57	15044.006	17663.098	10.646	146.7	-1.7	NO		NO	bb
6	6 200305P1-8	Standard	149.200	5.57	15565.910	19487.238	9.985	137.6	-7.8	NO		NO	bb
7	7 200305P1-9	Standard	149.200	5.56	15122.509	16760.604	11.278	155.4	4.2	NO		NO	bb
8	8 200305P1-10	Standard	149.200	5.57	15167.027	17938.912	10.569	145.7	-2.4	NO		NO	bb
9	9 200305P1-11	Standard	149.200	5.57	15188.338	16500.832	11.506	158.6	6.3	NO		NO	bb
10	10 200305P1-12	Standard	149.200	5.57	15244.770	14667.073	12.992	179.1	20.0	NO		NO	bb

Compound name: 13C2-PFTeDA-EIS
Response Factor: 1417.75
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.99	16898.303		16898.303	11.9	-4.6	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	5.99	17382.055		17382.055	12.3	-1.9	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	5.98	17644.141		17644.141	12.4	-0.4	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	5.99	17413.496		17413.496	12.3	-1.7	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	5.99	18219.109		18219.109	12.9	2.8	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	5.99	17721.832		17721.832	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.99	15814.473		15814.473	11.2	-10.8	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	5.99	17465.322		17465.322	12.3	-1.4	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	5.99	15402.276		15402.276	10.9	-13.1	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	5.99	14088.771		14088.771	9.9	-20.5	NO		NO	bbX

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Compound name: 13C2-PFTeDA-RSD
Response Factor: 0.969744
RRF SD: 0.0458632, Relative SD: 4.72941
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	5.99	16898.303	17006.004	12.421	12.8	2.5	NO		NO	bb
2	2 200305P1-4	Standard	12.500	5.99	17382.055	19001.074	11.435	11.8	-5.7	NO		NO	bb
3	3 200305P1-5	Standard	12.500	5.98	17644.141	17719.709	12.447	12.8	2.7	NO		NO	bb
4	4 200305P1-6	Standard	12.500	5.99	17413.496	16724.277	13.015	13.4	7.4	NO		NO	bb
5	5 200305P1-7	Standard	12.500	5.99	18219.109	17663.098	12.893	13.3	6.4	NO		NO	bb
6	6 200305P1-8	Standard	12.500	5.99	17721.832	19487.238	11.368	11.7	-6.2	NO		NO	bb
7	7 200305P1-9	Standard	12.500	5.99	15814.473	16760.604	11.794	12.2	-2.7	NO		NO	bb
8	8 200305P1-10	Standard	12.500	5.99	17465.322	17938.912	12.170	12.5	0.4	NO		NO	bb
9	9 200305P1-11	Standard	12.500	5.99	15402.276	16500.832	11.668	12.0	-3.7	NO		NO	bb
10	10 200305P1-12	Standard	12.500	5.99	14088.771	14667.073	12.007	12.4	-0.9	NO		NO	bb

Compound name: d5-N-ETFOSA-EIS
Response Factor: 165.515
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	6.03	22568.527		22568.527	136.4	-8.6	NO		NO	bbX
2	2 200305P1-4	Standard	149.200	6.02	23179.293		23179.293	140.0	-6.1	NO		NO	bbX
3	3 200305P1-5	Standard	149.200	6.02	23416.254		23416.254	141.5	-5.2	NO		NO	bbX
4	4 200305P1-6	Standard	149.200	6.02	23908.514		23908.514	144.4	-3.2	NO		NO	bbX
5	5 200305P1-7	Standard	149.200	6.02	24242.070		24242.070	146.5	-1.8	NO		NO	bbX
6	6 200305P1-8	Standard	149.200	6.02	24694.824		24694.824	149.2	0.0	NO		NO	bb
7	7 200305P1-9	Standard	149.200	6.02	24428.945		24428.945	147.6	-1.1	NO		NO	bbX
8	8 200305P1-10	Standard	149.200	6.02	23247.402		23247.402	140.5	-5.9	NO		NO	bbX
9	9 200305P1-11	Standard	149.200	6.03	22676.238		22676.238	137.0	-8.2	NO		NO	bbX
10	10 200305P1-12	Standard	149.200	6.03	20997.803		20997.803	126.9	-15.0	NO		NO	bbX

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Compound name: d5-N-ETFOSA-RSD
Response Factor: 0.113079
RRF SD: 0.00647084, Relative SD: 5.72243
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	6.03	22568.527	17006.004	16.589	146.7	-1.7	NO		NO	bb
2	2 200305P1-4	Standard	149.200	6.02	23179.293	19001.074	15.249	134.9	-9.6	NO		NO	bb
3	3 200305P1-5	Standard	149.200	6.02	23416.254	17719.709	16.519	146.1	-2.1	NO		NO	bb
4	4 200305P1-6	Standard	149.200	6.02	23908.514	16724.277	17.870	158.0	5.9	NO		NO	bb
5	5 200305P1-7	Standard	149.200	6.02	24242.070	17663.098	17.156	151.7	1.7	NO		NO	bb
6	6 200305P1-8	Standard	149.200	6.02	24694.824	19487.238	15.840	140.1	-6.1	NO		NO	bb
7	7 200305P1-9	Standard	149.200	6.02	24428.945	16760.604	18.219	161.1	8.0	NO		NO	bb
8	8 200305P1-10	Standard	149.200	6.02	23247.402	17938.912	16.199	143.3	-4.0	NO		NO	bb
9	9 200305P1-11	Standard	149.200	6.03	22676.238	16500.832	17.178	151.9	1.8	NO		NO	bb
10	10 200305P1-12	Standard	149.200	6.03	20997.803	14667.073	17.895	158.3	6.1	NO		NO	bb

Compound name: 13C2-PFHxDA-EIS
Response Factor: 2003.32
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	6.34	22764.664		22764.664	11.4	-9.1	NO		NO	bbX
2	2 200305P1-4	Standard	12.500	6.33	25173.775		25173.775	12.6	0.5	NO		NO	bbX
3	3 200305P1-5	Standard	12.500	6.34	25202.826		25202.826	12.6	0.6	NO		NO	bbX
4	4 200305P1-6	Standard	12.500	6.34	25361.021		25361.021	12.7	1.3	NO		NO	bbX
5	5 200305P1-7	Standard	12.500	6.34	25107.861		25107.861	12.5	0.3	NO		NO	bbX
6	6 200305P1-8	Standard	12.500	6.34	25041.533		25041.533	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	6.34	23369.955		23369.955	11.7	-6.7	NO		NO	bbX
8	8 200305P1-10	Standard	12.500	6.34	25141.590		25141.590	12.5	0.4	NO		NO	bbX
9	9 200305P1-11	Standard	12.500	6.34	22123.781		22123.781	11.0	-11.7	NO		NO	bbX
10	10 200305P1-12	Standard	12.500	6.34	21308.387		21308.387	10.6	-14.9	NO		NO	bbX

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Compound name: 13C2-PFHxDA-RSD
Response Factor: 1.38981
RRF SD: 0.0686691, Relative SD: 4.94088
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	6.34	22764.664	17006.004	16.733	12.0	-3.7	NO		NO	bb
2	2 200305P1-4	Standard	12.500	6.33	25173.775	19001.074	16.561	11.9	-4.7	NO		NO	bb
3	3 200305P1-5	Standard	12.500	6.34	25202.826	17719.709	17.779	12.8	2.3	NO		NO	bb
4	4 200305P1-6	Standard	12.500	6.34	25361.021	16724.277	18.955	13.6	9.1	NO		NO	bb
5	5 200305P1-7	Standard	12.500	6.34	25107.861	17663.098	17.769	12.8	2.3	NO		NO	bb
6	6 200305P1-8	Standard	12.500	6.34	25041.533	19487.238	16.063	11.6	-7.5	NO		NO	bb
7	7 200305P1-9	Standard	12.500	6.34	23369.955	16760.604	17.429	12.5	0.3	NO		NO	bb
8	8 200305P1-10	Standard	12.500	6.34	25141.590	17938.912	17.519	12.6	0.8	NO		NO	bb
9	9 200305P1-11	Standard	12.500	6.34	22123.781	16500.832	16.760	12.1	-3.5	NO		NO	bb
10	10 200305P1-12	Standard	12.500	6.34	21308.387	14667.073	18.160	13.1	4.5	NO		NO	bb

Compound name: d7-N-MeFOSE-EIS
Response Factor: 141.109
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	6.24	17870.785		17870.785	126.6	-15.1	NO		NO	bbX
2	2 200305P1-4	Standard	149.200	6.24	19553.301		19553.301	138.6	-7.1	NO		NO	bbX
3	3 200305P1-5	Standard	149.200	6.24	18911.717		18911.717	134.0	-10.2	NO		NO	bbX
4	4 200305P1-6	Standard	149.200	6.24	19364.688		19364.688	137.2	-8.0	NO		NO	bbX
5	5 200305P1-7	Standard	149.200	6.24	20163.543		20163.543	142.9	-4.2	NO		NO	bbX
6	6 200305P1-8	Standard	149.200	6.24	21053.467		21053.467	149.2	0.0	NO		NO	bb
7	7 200305P1-9	Standard	149.200	6.24	19175.660		19175.660	135.9	-8.9	NO		NO	bbX
8	8 200305P1-10	Standard	149.200	6.24	20363.842		20363.842	144.3	-3.3	NO		NO	bbX
9	9 200305P1-11	Standard	149.200	6.24	19995.135		19995.135	141.7	-5.0	NO		NO	bbX
10	10 200305P1-12	Standard	149.200	6.24	18694.885		18694.885	132.5	-11.2	NO		NO	bbX

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Compound name: d7-N-MeFOSE-RSD
Response Factor: 0.09461
RRF SD: 0.00634256, Relative SD: 6.7039
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	6.24	17870.785	17006.004	13.136	138.8	-6.9	NO		NO	bb
2	2 200305P1-4	Standard	149.200	6.24	19553.301	19001.074	12.863	136.0	-8.9	NO		NO	bb
3	3 200305P1-5	Standard	149.200	6.24	18911.717	17719.709	13.341	141.0	-5.5	NO		NO	bb
4	4 200305P1-6	Standard	149.200	6.24	19364.688	16724.277	14.473	153.0	2.5	NO		NO	bb
5	5 200305P1-7	Standard	149.200	6.24	20163.543	17663.098	14.270	150.8	1.1	NO		NO	bb
6	6 200305P1-8	Standard	149.200	6.24	21053.467	19487.238	13.505	142.7	-4.3	NO		NO	bb
7	7 200305P1-9	Standard	149.200	6.24	19175.660	16760.604	14.301	151.2	1.3	NO		NO	bb
8	8 200305P1-10	Standard	149.200	6.24	20363.842	17938.912	14.190	150.0	0.5	NO		NO	bb
9	9 200305P1-11	Standard	149.200	6.24	19995.135	16500.832	15.147	160.1	7.3	NO		NO	bb
10	10 200305P1-12	Standard	149.200	6.24	18694.885	14667.073	15.933	168.4	12.9	NO		NO	bb

Compound name: d9-N-EtFOSE-EIS
Response Factor: 154.735
RRF SD: 0, Relative SD: 0
Response type: External Std, Area
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	149.200	6.39	20928.951		20928.951	135.3	-9.3	NO		NO	bbX
2	2 200305P1-4	Standard	149.200	6.39	21996.947		21996.947	142.2	-4.7	NO		NO	bbX
3	3 200305P1-5	Standard	149.200	6.39	22555.229		22555.229	145.8	-2.3	NO		NO	bbX
4	4 200305P1-6	Standard	149.200	6.39	23716.721		23716.721	153.3	2.7	NO		NO	bbX
5	5 200305P1-7	Standard	149.200	6.40	23243.811		23243.811	150.2	0.7	NO		NO	bbX
6	6 200305P1-8	Standard	149.200	6.40	23086.477		23086.477	149.2	0.0	NO		NO	bb
7	7 200305P1-9	Standard	149.200	6.40	23412.762		23412.762	151.3	1.4	NO		NO	bbX
8	8 200305P1-10	Standard	149.200	6.39	23145.338		23145.338	149.6	0.3	NO		NO	bbX
9	9 200305P1-11	Standard	149.200	6.40	23456.744		23456.744	151.6	1.6	NO		NO	bbX
10	10 200305P1-12	Standard	149.200	6.40	22457.180		22457.180	145.1	-2.7	NO		NO	bbX

Dataset: Untitled

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Compound name: d9-N-EtFOSE-RSD
Response Factor: 0.110738
RRF SD: 0.00992401, Relative SD: 8.96169
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	149.200	6.39	20928.951	17006.004	15.384	138.9	-6.9	NO		NO	bb
2	2	200305P1-4	Standard	149.200	6.39	21996.947	19001.074	14.471	130.7	-12.4	NO		NO	bb
3	3	200305P1-5	Standard	149.200	6.39	22555.229	17719.709	15.911	143.7	-3.7	NO		NO	bb
4	4	200305P1-6	Standard	149.200	6.39	23716.721	16724.277	17.726	160.1	7.3	NO		NO	bb
5	5	200305P1-7	Standard	149.200	6.40	23243.811	17663.098	16.449	148.5	-0.4	NO		NO	bb
6	6	200305P1-8	Standard	149.200	6.40	23086.477	19487.238	14.809	133.7	-10.4	NO		NO	bb
7	7	200305P1-9	Standard	149.200	6.40	23412.762	16760.604	17.461	157.7	5.7	NO		NO	bb
8	8	200305P1-10	Standard	149.200	6.39	23107.820	17938.912	16.102	145.4	-2.5	NO		NO	bb
9	9	200305P1-11	Standard	149.200	6.40	23456.744	16500.832	17.769	160.5	7.5	NO		NO	bb
10	10	200305P1-12	Standard	149.200	6.40	22457.180	14667.073	19.139	172.8	15.8	NO		NO	bb

Compound name: 13C4-PFBA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 99), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	1.24	5819.126	5819.126	12.500	12.5	0.0	NO		NO	MM
2	2	200305P1-4	Standard	12.500	1.24	6140.335	6140.335	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	1.24	5971.413	5971.413	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	1.24	6228.470	6228.470	12.500	12.5	0.0	NO		NO	MM
5	5	200305P1-7	Standard	12.500	1.24	6026.650	6026.650	12.500	12.5	0.0	NO		NO	MM
6	6	200305P1-8	Standard	12.500	1.24	6517.249	6517.249	12.500	12.5	0.0	NO		NO	MM
7	7	200305P1-9	Standard	12.500	1.24	6219.250	6219.250	12.500	12.5	0.0	NO		NO	MM
8	8	200305P1-10	Standard	12.500	1.24	6310.759	6310.759	12.500	12.5	0.0	NO		NO	MM
9	9	200305P1-11	Standard	12.500	1.24	6075.972	6075.972	12.500	12.5	0.0	NO		NO	MM
10	10	200305P1-12	Standard	12.500	1.24	6166.233	6166.233	12.500	12.5	0.0	NO		NO	MM

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Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 3.70074e-017, Relative SD: 3.70074e-015
Response type: Internal Std (Ref 100), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	2.94	16336.348	16336.348	12.500	12.5	0.0	NO		NO	bd
2	2	200305P1-4	Standard	12.500	2.94	16446.965	16446.965	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	2.94	16253.666	16253.666	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	2.94	17143.104	17143.104	12.500	12.5	0.0	NO		NO	bb
5	5	200305P1-7	Standard	12.500	2.94	16897.311	16897.311	12.500	12.5	0.0	NO		NO	bb
6	6	200305P1-8	Standard	12.500	2.94	17770.303	17770.303	12.500	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	2.94	16142.707	16142.707	12.500	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	2.94	16040.667	16040.667	12.500	12.5	0.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	2.94	15737.322	15737.322	12.500	12.5	0.0	NO		NO	bb
10	10	200305P1-12	Standard	12.500	2.94	15253.024	15253.024	12.500	12.5	0.0	NO		NO	bb

Compound name: 18O2-PFHxS
Response Factor: 1
RRF SD: 9.06493e-017, Relative SD: 9.06493e-015
Response type: Internal Std (Ref 101), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	3.68	1071.232	1071.232	12.500	12.5	0.0	NO		NO	bb
2	2	200305P1-4	Standard	12.500	3.68	1120.669	1120.669	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	3.68	1020.400	1020.400	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	3.68	1108.550	1108.550	12.500	12.5	0.0	NO		NO	bb
5	5	200305P1-7	Standard	12.500	3.68	1066.392	1066.392	12.500	12.5	0.0	NO		NO	bd
6	6	200305P1-8	Standard	12.500	3.68	1207.581	1207.581	12.500	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	3.68	1080.361	1080.361	12.500	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	3.68	1094.234	1094.234	12.500	12.5	0.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	3.68	1013.166	1013.166	12.500	12.5	0.0	NO		NO	bb
10	10	200305P1-12	Standard	12.500	3.68	1099.133	1099.133	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 8.27511e-017, Relative SD: 8.27511e-015
Response type: Internal Std (Ref 102), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.05	16137.342	16137.342	12.500	12.5	0.0	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.05	16434.488	16434.488	12.500	12.5	0.0	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.05	17121.748	17121.748	12.500	12.5	0.0	NO		NO	bb
4	4 200305P1-6	Standard	12.500	4.05	17407.049	17407.049	12.500	12.5	0.0	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.05	17943.361	17943.361	12.500	12.5	0.0	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.05	17292.037	17292.037	12.500	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.05	17402.297	17402.297	12.500	12.5	0.0	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.05	16686.107	16686.107	12.500	12.5	0.0	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.05	15471.954	15471.954	12.500	12.5	0.0	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.05	13546.695	13546.695	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C9-PFNA
Response Factor: 1
RRF SD: 5.23364e-017, Relative SD: 5.23364e-015
Response type: Internal Std (Ref 103), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 200305P1-3	Standard	12.500	4.51	13766.351	13766.351	12.500	12.5	0.0	NO		NO	bb
2	2 200305P1-4	Standard	12.500	4.51	13704.296	13704.296	12.500	12.5	0.0	NO		NO	bb
3	3 200305P1-5	Standard	12.500	4.50	14298.282	14298.282	12.500	12.5	0.0	NO		NO	bd
4	4 200305P1-6	Standard	12.500	4.50	15668.944	15668.944	12.500	12.5	0.0	NO		NO	bb
5	5 200305P1-7	Standard	12.500	4.51	14132.776	14132.776	12.500	12.5	0.0	NO		NO	bb
6	6 200305P1-8	Standard	12.500	4.51	15881.870	15881.870	12.500	12.5	0.0	NO		NO	bb
7	7 200305P1-9	Standard	12.500	4.51	14710.100	14710.100	12.500	12.5	0.0	NO		NO	bb
8	8 200305P1-10	Standard	12.500	4.51	13685.645	13685.645	12.500	12.5	0.0	NO		NO	bb
9	9 200305P1-11	Standard	12.500	4.51	14025.602	14025.602	12.500	12.5	0.0	NO		NO	bb
10	10 200305P1-12	Standard	12.500	4.51	13427.041	13427.041	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 104), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	4.60	2843.529	2843.529	12.500	12.5	0.0	NO		NO	bb
2	2	200305P1-4	Standard	12.500	4.59	3009.504	3009.504	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	4.59	3200.170	3200.170	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	4.59	3259.515	3259.515	12.500	12.5	0.0	NO		NO	bb
5	5	200305P1-7	Standard	12.500	4.59	3131.168	3131.168	12.500	12.5	0.0	NO		NO	bb
6	6	200305P1-8	Standard	12.500	4.60	3421.749	3421.749	12.500	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	4.60	3194.004	3194.004	12.500	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	4.60	3046.593	3046.593	12.500	12.5	0.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	4.60	3083.860	3083.860	12.500	12.5	0.0	NO		NO	bb
10	10	200305P1-12	Standard	12.500	4.60	2716.606	2716.606	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 3.70074e-017, Relative SD: 3.70074e-015
Response type: Internal Std (Ref 105), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	4.90	13159.308	13159.308	12.500	12.5	0.0	NO		NO	bb
2	2	200305P1-4	Standard	12.500	4.90	15406.874	15406.874	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	4.89	15271.419	15271.419	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	4.90	13901.063	13901.063	12.500	12.5	0.0	NO		NO	bb
5	5	200305P1-7	Standard	12.500	4.89	15303.291	15303.291	12.500	12.5	0.0	NO		NO	bb
6	6	200305P1-8	Standard	12.500	4.90	15009.033	15009.033	12.500	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	4.90	13579.045	13579.045	12.500	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	4.90	15193.590	15193.590	12.500	12.5	0.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	4.90	14332.422	14332.422	12.500	12.5	0.0	NO		NO	bb
10	10	200305P1-12	Standard	12.500	4.90	13001.795	13001.795	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 9.79125e-017, Relative SD: 9.79125e-015
Response type: Internal Std (Ref 106), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	200305P1-3	Standard	12.500	5.23	17006.004	17006.004	12.500	12.5	0.0	NO		NO	bb
2	2	200305P1-4	Standard	12.500	5.23	19001.074	19001.074	12.500	12.5	0.0	NO		NO	bb
3	3	200305P1-5	Standard	12.500	5.23	17719.709	17719.709	12.500	12.5	0.0	NO		NO	bb
4	4	200305P1-6	Standard	12.500	5.23	16724.277	16724.277	12.500	12.5	0.0	NO		NO	bb
5	5	200305P1-7	Standard	12.500	5.23	17663.098	17663.098	12.500	12.5	0.0	NO		NO	bb
6	6	200305P1-8	Standard	12.500	5.23	19487.238	19487.238	12.500	12.5	0.0	NO		NO	bb
7	7	200305P1-9	Standard	12.500	5.23	16760.604	16760.604	12.500	12.5	0.0	NO		NO	bb
8	8	200305P1-10	Standard	12.500	5.23	17938.912	17938.912	12.500	12.5	0.0	NO		NO	bb
9	9	200305P1-11	Standard	12.500	5.23	16500.832	16500.832	12.500	12.5	0.0	NO		NO	bb
10	10	200305P1-12	Standard	12.500	5.23	14667.073	14667.073	12.500	12.5	0.0	NO		NO	bb

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Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:39:26
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 09:33:11

Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	47	0.9997	NO	
2	2	PFPrS	51	0.9943	NO	
3	3	3:3 FTCA	49	0.9998	NO	
4	4	PFPeA	49	0.9999	NO	
5	5	PFBS	51	0.9978	NO	
6	6	4:2 FTS	55	0.9989	NO	
7	7	PFHxA	57	0.9988	NO	
8	8	PFPeS	51	0.9954	NO	
9	9	HFPO-DA	53	0.9999	NO	
10	10	5:3 FTCA	59	0.9997	NO	
11	11	PFHpA	59	1.0000	NO	
12	12	ADONA	59	0.9992	NO	
13	13	L-PFHxS	61	0.9992	NO	
14	15	6:2 FTS	63	0.9988	NO	
15	16	L-PFOA	69	0.9997	NO	
16	18	PFecHS	69	0.9992	NO	
17	19	PFHpS	71	0.9977	NO	
18	20	7:3 FTCA	65	0.9987	NO	
19	21	PFNA	65	0.9998	NO	
20	22	PFOSA	67	0.9993	NO	
21	23	L-PFOS	71	0.9980	NO	
22	25	9Cl-PF30NS	71	0.9994	NO	
23	26	PFDA	73	0.9996	NO	
24	27	8:2 FTS	75	0.9973	NO	
25	28	PFNS	71	0.9966	NO	
26	29	L-MeFOSAA	77	0.9991	NO	

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Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:39:26
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 09:33:11

Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
1	31	L-EtFOSAA	81	0.9991	NO	
2	33	PFUdA	79	0.9979	NO	
3	34	PFDS	71	0.9991	NO	
4	35	11Cl-PF30UdS	83	0.9958	NO	
5	36	10:2 FTS	85	0.9992	NO	
6	37	PFDoA	83	0.9994	NO	
7	38	N-MeFOSA	87	0.9996	NO	
8	39	PFTrDA	83	0.9993	NO	
9	40	PFDoS	89	0.9993	NO	
10	41	PFTeDA	89	0.9995	NO	
11	42	N-EtFOSA	91	0.9998	NO	
12	43	PFHxDA	93	0.9999	NO	
13	44	PFODA	93	0.9995	NO	
14	45	N-MeFOSE	95	0.9997	NO	
15	46	N-EtFOSE	97	0.9998	NO	
16	47	13C3-PFBA-EIS			NO	0.000
17	48	13C3-PFBA-RSD	99		NO	1.959
18	49	13C3-PFPeA-EIS			NO	0.000
19	50	13C3-PFPeA-RSD	100		NO	3.114
20	51	13C3-PFBS-EIS			NO	0.000
21	52	13C3-PFBS-RSD	101		NO	6.544
22	53	13C3-HFPO-DA-EIS			NO	0.000
23	54	13C3-HFPO-DA-RSD	100		NO	6.192
24	55	13C2-4:2 FTS-EIS			NO	0.000
25	56	13C2-4:2 FTS-RSD	101		NO	8.004
26	57	13C2-PFHxA-EIS			NO	0.000
27	58	13C2-PFHxA-RSD	100		NO	2.553
28	59	13C4-PFHpA-EIS			NO	0.000
29	60	13C4-PFHpA-RSD	100		NO	3.872
30	61	13C3-PFHxS-EIS			NO	0.000
31	62	13C3-PFHxS-RSD	101		NO	4.953
32	63	13C2-6:2 FTS-EIS			NO	0.000

Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
33	64	13C2-6:2 FTS-RSD	104		NO	3.844
34	65	13C5-PFNA-EIS			NO	0.000
35	66	13C5-PFNA-RSD	103		NO	4.160
36	67	13C8-PFOSA-EIS			NO	0.000
37	68	13C8-PFOSA-RSD	106		NO	6.956
38	69	13C2-PFOA-EIS			NO	0.000
39	70	13C2-PFOA-RSD	102		NO	4.738
40	71	13C8-PFOS-EIS			NO	0.000
41	72	13C8-PFOS-RSD	104		NO	5.703
42	73	13C2-PFDA-EIS			NO	0.000
43	74	13C2-PFDA-RSD	105		NO	6.089
44	75	13C2-8:2 FTS-EIS			NO	0.000
45	76	13C2-8:2 FTS-RSD	104		NO	7.884
46	77	d3-N-MeFOSAA-EIS			NO	0.000
47	78	d3-N-MeFOSAA-RSD	106		NO	9.723
48	79	13C2-PFUdA-EIS			NO	0.000
49	80	13C2-PFUdA-RSD	106		NO	5.602
50	81	d5-N-EtFOSAA-EIS			NO	0.000
51	82	d5-N-EtFOSAA-RSD	106		NO	8.628
52	83	13C2-PFDoA-EIS			NO	0.000
53	84	13C2-PFDoA-RSD	105		NO	4.316
54	85	13C2-10:2 FTS-EIS			NO	0.000
55	86	13C2-10:2 FTS-RSD	104		NO	15.639
56	87	d3-N-MeFOSA-EIS			NO	0.000
57	88	d3-N-MeFOSA-RSD	106		NO	9.084
58	89	13C2-PFTeDA-EIS			NO	0.000
59	90	13C2-PFTeDA-RSD	106		NO	4.729
60	91	d5-N-ETFOSA-EIS			NO	0.000
61	92	d5-N-ETFOSA-RSD	106		NO	5.722
62	93	13C2-PFHxDA-EIS			NO	0.000
63	94	13C2-PFHxDA-RSD	106		NO	4.941
64	95	d7-N-MeFOSE-EIS			NO	0.000
65	96	d7-N-MeFOSE-RSD	106		NO	6.704
66	97	d9-N-EtFOSE-EIS			NO	0.000
67	98	d9-N-EtFOSE-RSD	106		NO	8.962
68	99	13C4-PFBA	99		NO	0.000

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Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	#	Name	IS#	CoD	CoD Flag	%RSD
69	1...	13C5-PFHxA	100		NO	0.000
70	1...	18O2-PFHxS	101		NO	0.000
71	1...	13C8-PFOA	102		NO	0.000
72	1...	13C9-PFNA	103		NO	0.000
73	1...	13C4-PFOS	104		NO	0.000
74	1...	13C6-PFDA	105		NO	0.000
75	1...	13C7-PFUdA	106		NO	0.000

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:47:29 Pacific Standard Time
Printed: Friday, March 06, 2020 10:47:36 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 10:47:26
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	Name	Pred.RT	RT	Pred. Ratio	Ion Ratio	Ratio out?
1	PFBA	1.24	1.24			
2	PFPrS	1.54	1.54	2.727	2.727	NO
3	3:3 FTCA	2.01	2.00	4.180	4.180	NO
4	PFPeA	2.14	2.14			
5	PFBS	2.41	2.41	3.276	3.276	NO
6	4:2 FTS	2.85	2.85	0.908	0.908	NO
7	PFHxA	2.94	2.94	20.767	20.767	NO
8	PFPeS	3.12	3.13	2.155	2.155	NO
9	HFPO-DA	3.14	3.14	2.482	2.482	NO
10	5:3 FTCA	3.48	3.47	1.666	1.666	NO
11	PFHpA	3.53	3.53	22.420	22.420	NO
12	ADONA	3.62	3.64	4.135	4.135	NO
13	L-PFHxS	3.68	3.68	2.037	2.037	NO
14	6:2 FTS	4.00	3.99	1.213	1.213	NO
15	L-PFOA	4.05	4.05	3.274	3.274	NO
16	PFecHS	4.07	4.07	0.518	0.518	NO
17	PFHpS	4.22	4.17	2.072	2.072	NO
18	7:3 FTCA	4.50	4.50	1.414	1.414	NO
19	PFNA	4.51	4.51	7.253	7.253	NO
20	PFOSA	4.56	4.56	24.442	24.442	NO
21	L-PFOS	4.60	4.59	2.407	2.407	NO
22	9Cl-PF30NS	4.80	4.83	23.456	23.456	NO
23	PFDA	4.90	4.90	9.875	9.875	NO
24	8:2 FTS	4.87	4.87	2.413	2.413	NO
25	PFNS	4.93	4.96	2.291	2.291	NO
26	L-MeFOSAA	5.05	5.05	2.396	2.396	NO

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Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:47:29 Pacific Standard Time
Printed: Friday, March 06, 2020 10:48:26 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 10:47:26
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

	Name	Pred.RT	RT	Pred. Ratio	Ion Ratio	Ratio out?
1	L-EtFOSAA	5.21	5.22	1.329	1.329	NO
2	PFUdA	5.23	5.23	17.912	17.912	NO
3	PFDS	5.21	5.28	1.907	1.907	NO
4	11Cl-PF30UdS	5.45	5.44	22.747	22.747	NO
5	10:2 FTS	5.50	5.50	0.969	0.969	NO
6	PFDoA	5.52	5.52	10.511	10.511	NO
7	N-MeFOSA	5.56	5.54	1.826	1.826	NO
8	PFTrDA	5.77	5.76	55.532	55.532	NO
9	PFDoS	5.80	5.79	3.411	3.411	NO
10	PFTeDA	5.99	5.99	16.461	16.461	NO
11	N-EtFOSA	6.00	6.00	1.617	1.617	NO
12	PFHxDA	6.34	6.34	107.490	107.490	NO
13	PFODA	6.54	6.58			
14	N-MeFOSE	6.24	6.25			
15	N-EtFOSE	6.40	6.40			

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Friday, March 06, 2020 09:56:27 Pacific Standard Time
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Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 09:33:11

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	200305P1-1	IPA	05-Mar-20	17:14:10
2	2	200305P1-2	IPA	05-Mar-20	17:24:53
3	3	200305P1-3	ST200305P1-1 PFC CS-2 20C0304	05-Mar-20	17:35:21
4	4	200305P1-4	ST200305P1-2 PFC CS-1 20C0305	05-Mar-20	17:45:53
5	5	200305P1-5	ST200305P1-3 PFC CS0 20C0306	05-Mar-20	17:56:21
6	6	200305P1-6	ST200305P1-4 PFC CS1 20C0307	05-Mar-20	18:06:53
7	7	200305P1-7	ST200305P1-5 PFC CS2 20C0308	05-Mar-20	18:17:23
8	8	200305P1-8	ST200305P1-6 PFC CS3 20C0309	05-Mar-20	18:27:54
9	9	200305P1-9	ST200305P1-7 PFC CS4 20C0310	05-Mar-20	18:38:35
10	10	200305P1-10	ST200305P1-8 PFC CS5 20C0311	05-Mar-20	18:49:11
11	11	200305P1-11	ST200305P1-9 PFC CS6 20C0312	05-Mar-20	18:59:40
12	12	200305P1-12	ST200305P1-10 PFC CS7 20C0313	05-Mar-20	19:10:11
13	13	200305P1-13	IB	05-Mar-20	19:20:42
14	14	200305P1-14	ICV200305P1-1 PFC ICV 20C0314	05-Mar-20	19:31:12
15	15	200305P1-15	IB	05-Mar-20	19:41:41

Vista Analytical Laboratory Q1

Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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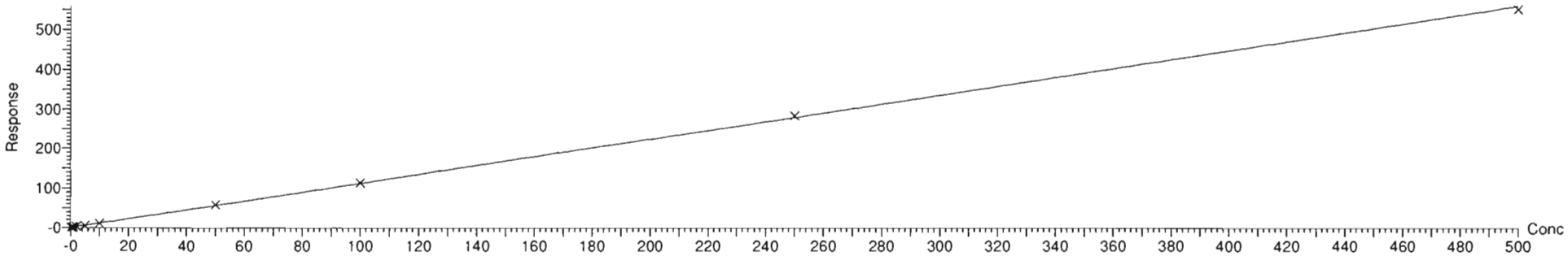
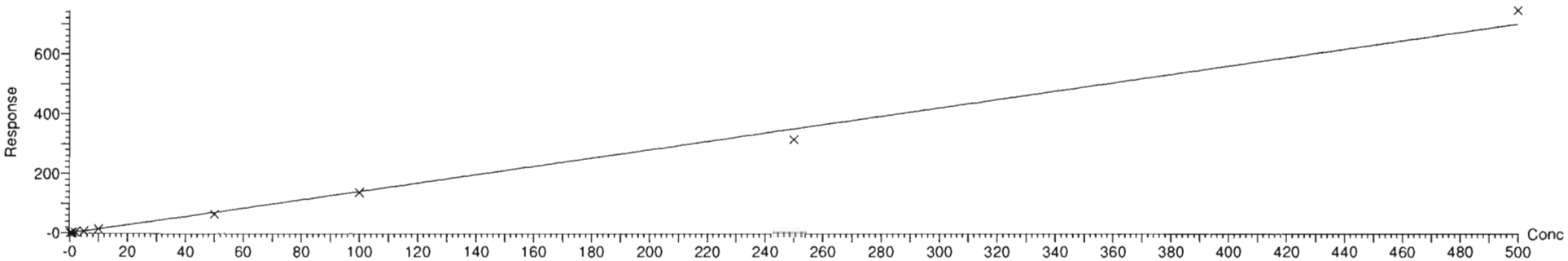
Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:39:26
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 09:33:11

Compound name: PFBA
Correlation coefficient: r = 0.999861, r^2 = 0.999723
Calibration curve: 1.11795 * x + 0.00202098
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: PFPrS
Correlation coefficient: r = 0.997122, r^2 = 0.994252
Calibration curve: 1.40166 * x + -0.0872088
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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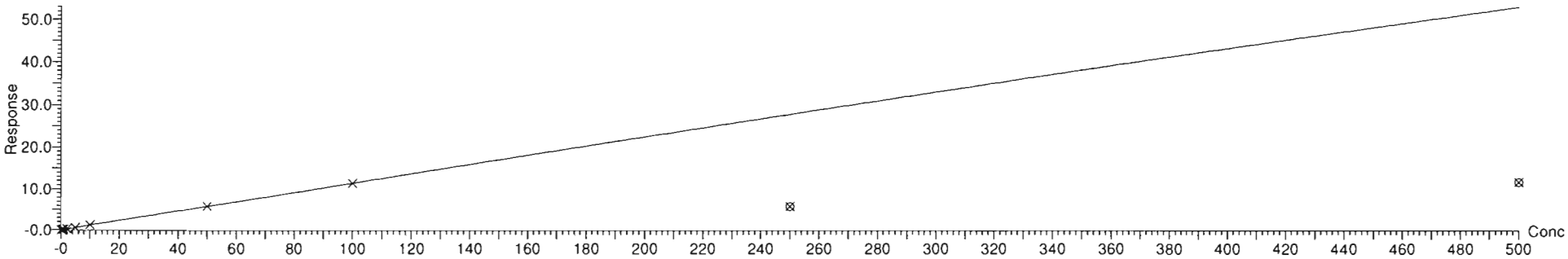
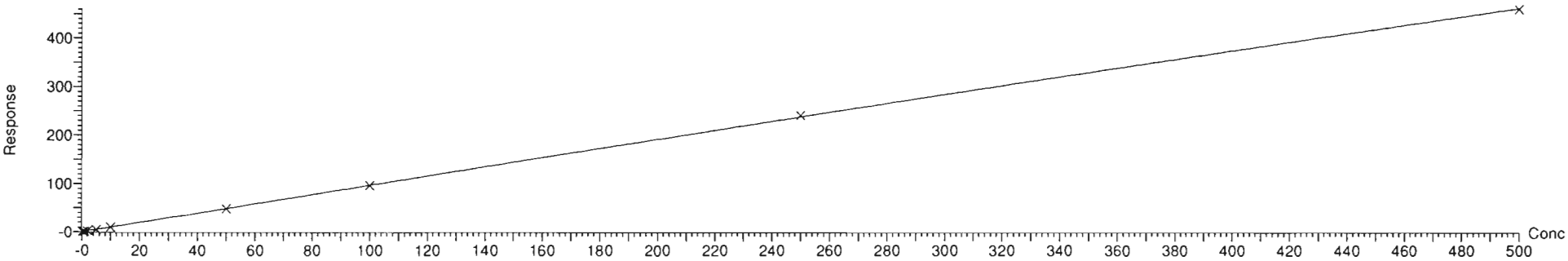
Compound name: 3:3 FTCA
Coefficient of Determination: R^2 = 0.999765
Calibration curve: -2.02699e-005 * x^2 + 0.116168 * x + -0.0058557
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999916
Calibration curve: -0.000114285 * x^2 + 0.981102 * x + -0.0181501
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



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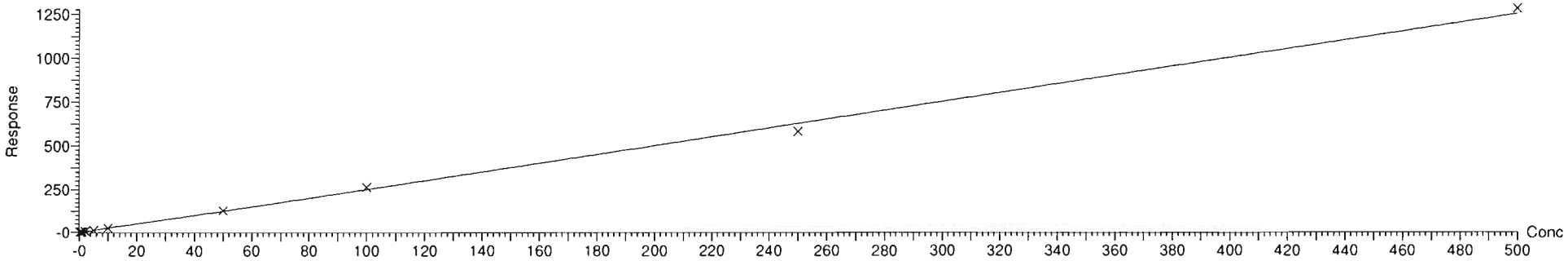
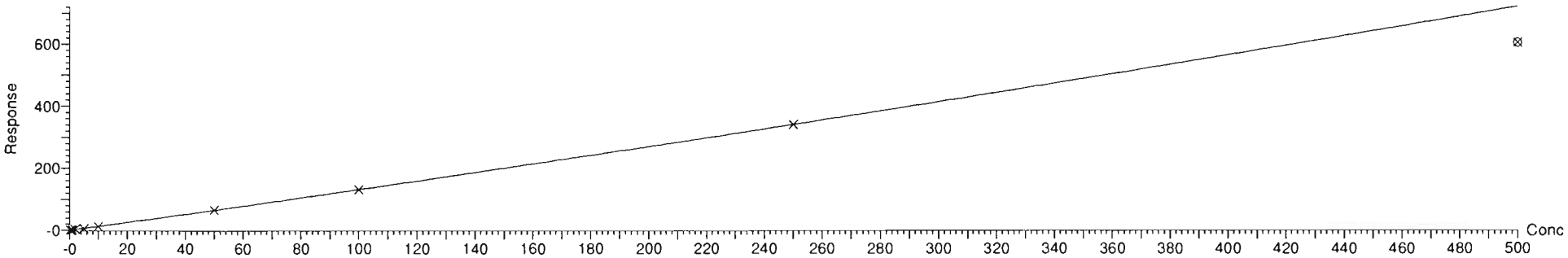
Compound name: PFBS
Correlation coefficient: r = 0.998910, r^2 = 0.997821
Calibration curve: 2.50481 * x + 0.0209645
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999779
Calibration curve: 0.000313704 * x^2 + 1.28417 * x + -0.0117412
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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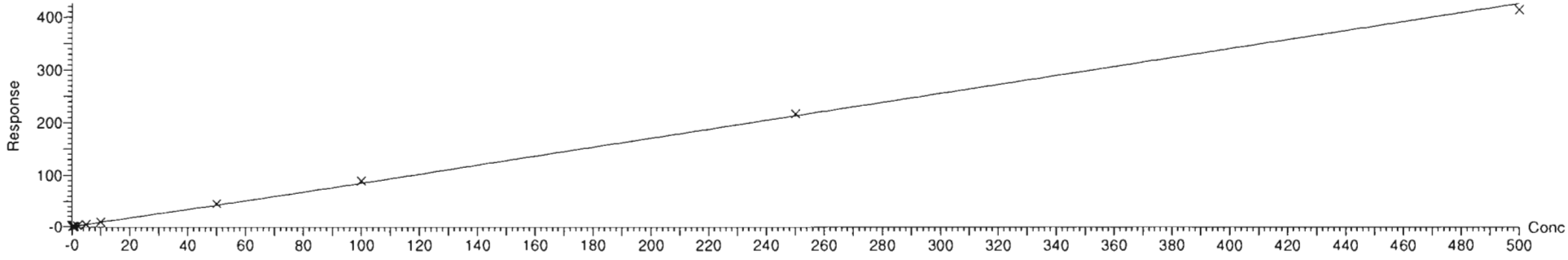
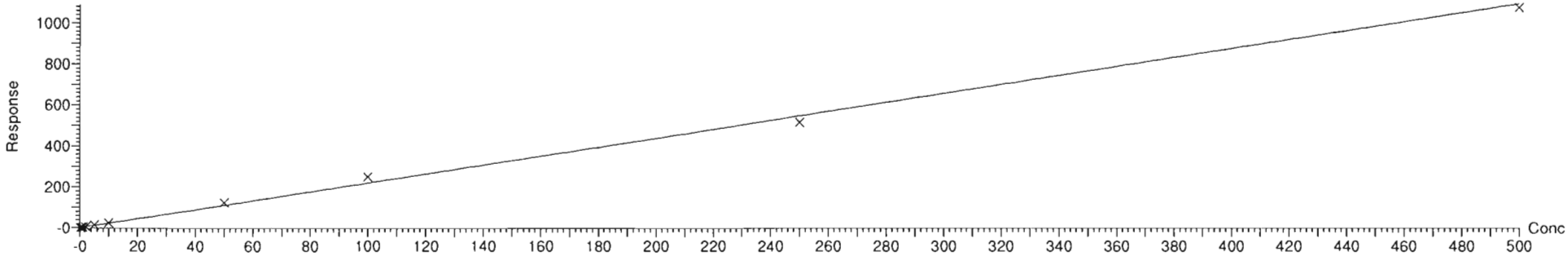
Compound name: PFHxA
Correlation coefficient: r = 0.999420, r^2 = 0.998840
Calibration curve: 0.852543 * x + 0.0820288
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFPeS
Correlation coefficient: r = 0.997722, r^2 = 0.995448
Calibration curve: 2.18539 * x + 0.14757
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



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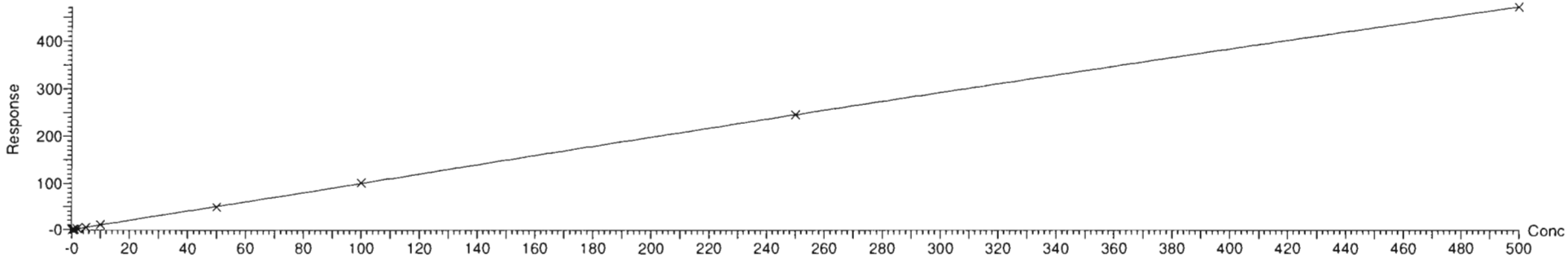
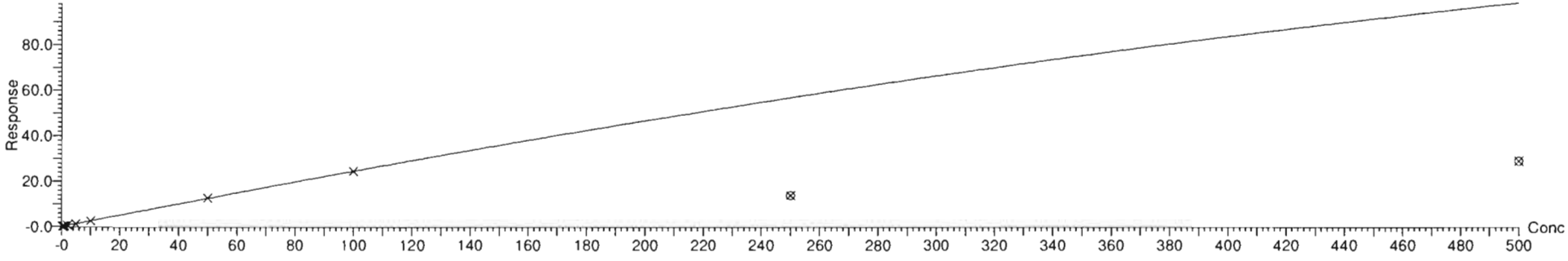
Compound name: HFPO-DA
Coefficient of Determination: R^2 = 0.999924
Calibration curve: -0.000152064 * x^2 + 1.02168 * x + -0.00797328
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 5:3 FTCA
Coefficient of Determination: R^2 = 0.999705
Calibration curve: -0.000120487 * x^2 + 0.257045 * x + -0.00139412
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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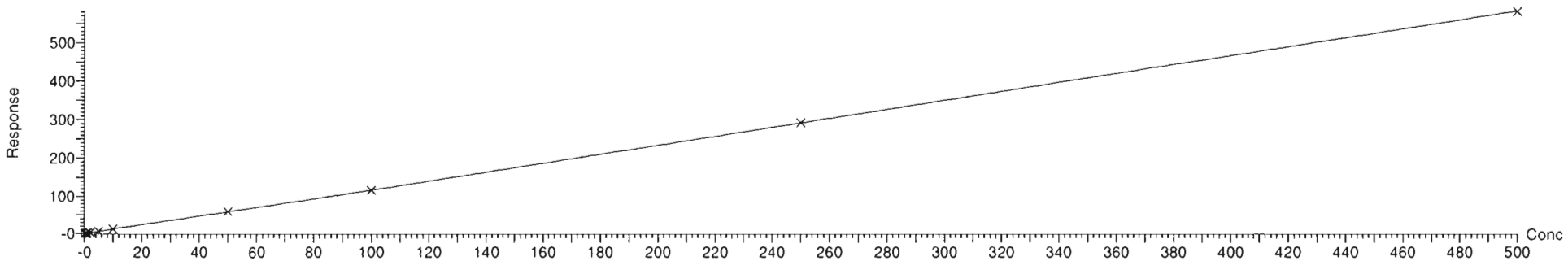
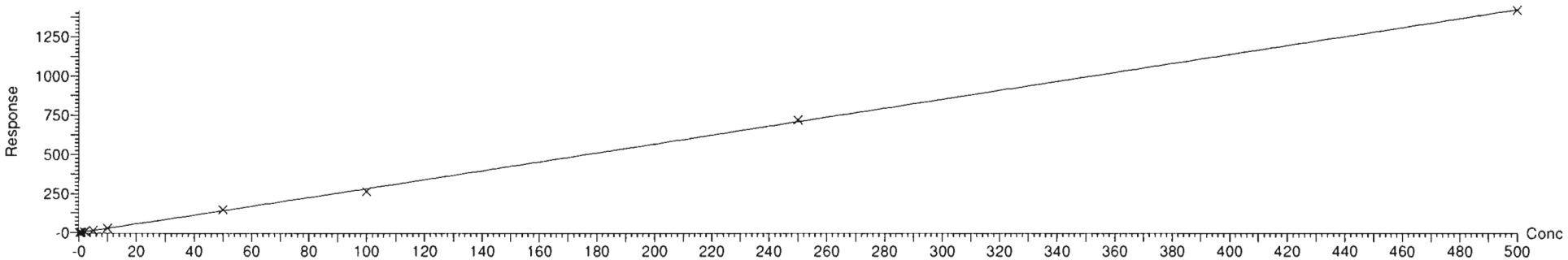
Compound name: PFHpA
Correlation coefficient: r = 0.999982, r^2 = 0.999964
Calibration curve: 1.16728 * x + 0.176256
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: ADONA
Coefficient of Determination: R^2 = 0.999243
Calibration curve: 2.79261e-005 * x^2 + 2.83074 * x + 0.104975
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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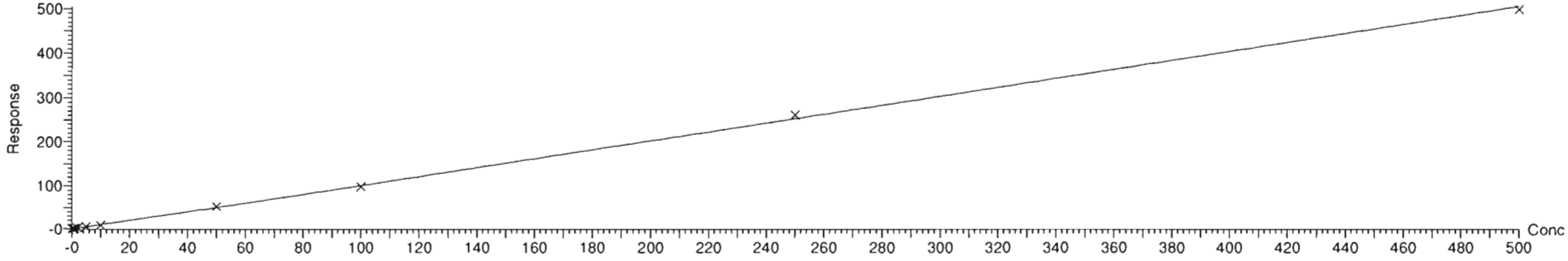
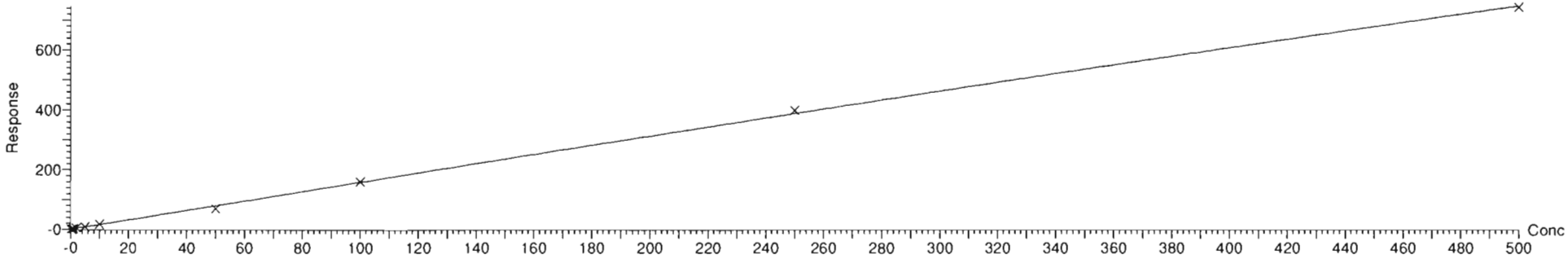
Compound name: L-PFHxS
Correlation coefficient: r = 0.999612, r^2 = 0.999225
Calibration curve: 1.01175 * x + -0.0270117
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998759
Calibration curve: -0.000234707 * x^2 + 1.6136 * x + -0.0782106
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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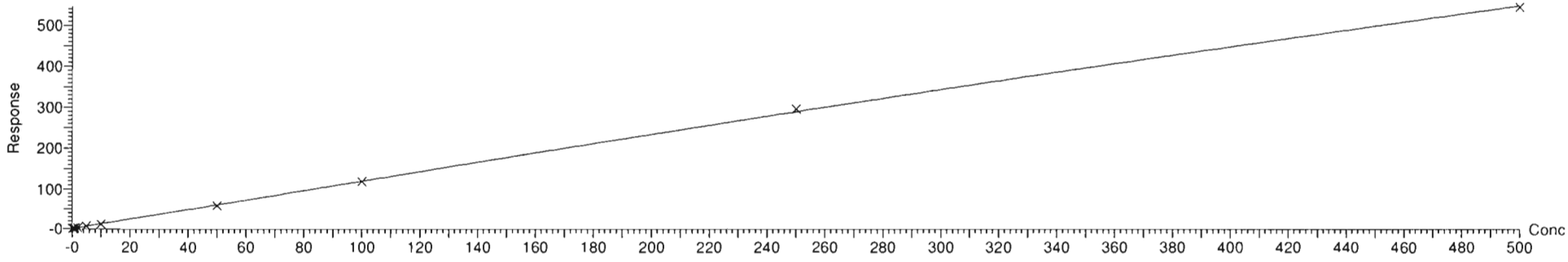
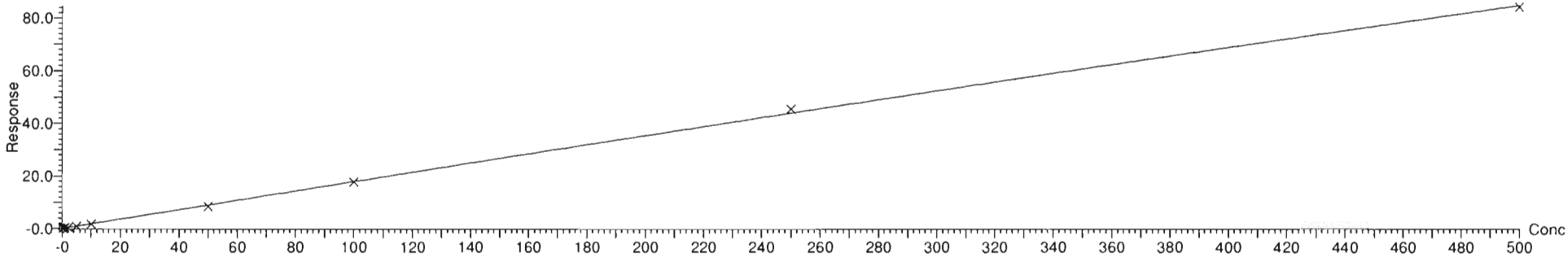
Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999654
Calibration curve: -0.000248693 * x^2 + 1.21949 * x + 0.0898371
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: PFecHS
Coefficient of Determination: R^2 = 0.999170
Calibration curve: -2.44709e-005 * x^2 + 0.181906 * x + -0.000881271
Response type: Internal Std (Ref 69), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



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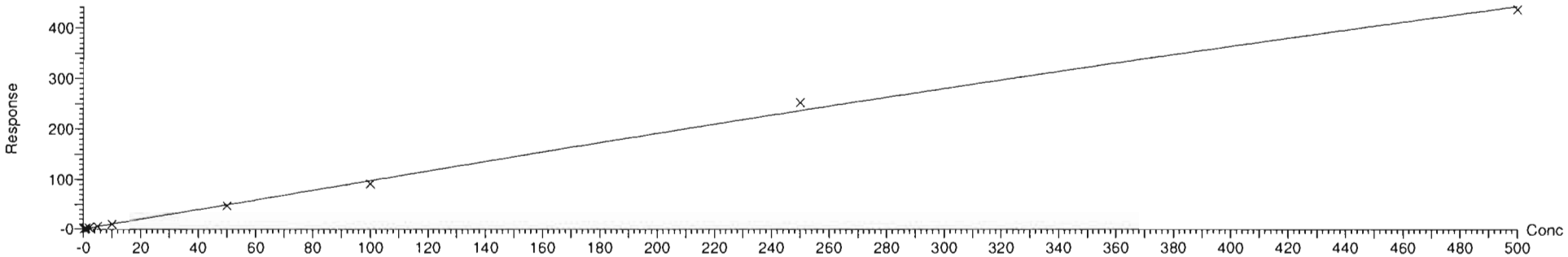
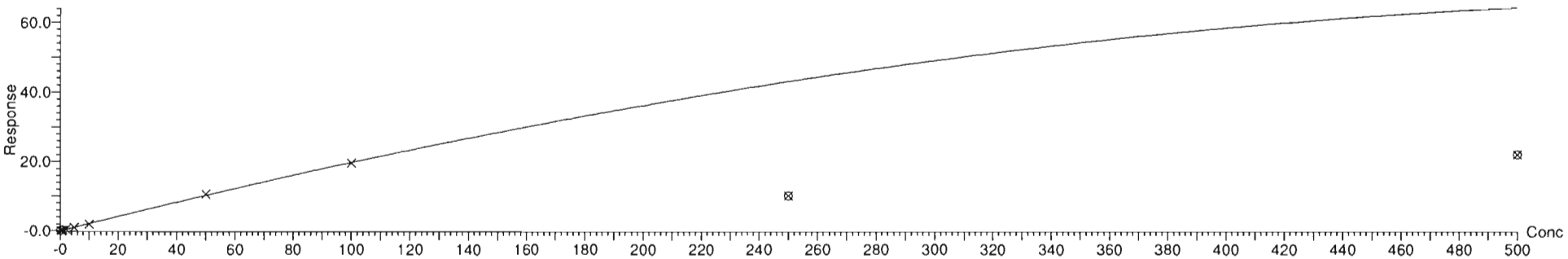
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.997734
Calibration curve: -0.000247258 * x^2 + 1.00986 * x + -0.105925
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 7:3 FTCA
Coefficient of Determination: R^2 = 0.998710
Calibration curve: -0.000174394 * x^2 + 0.215936 * x + -0.058193
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

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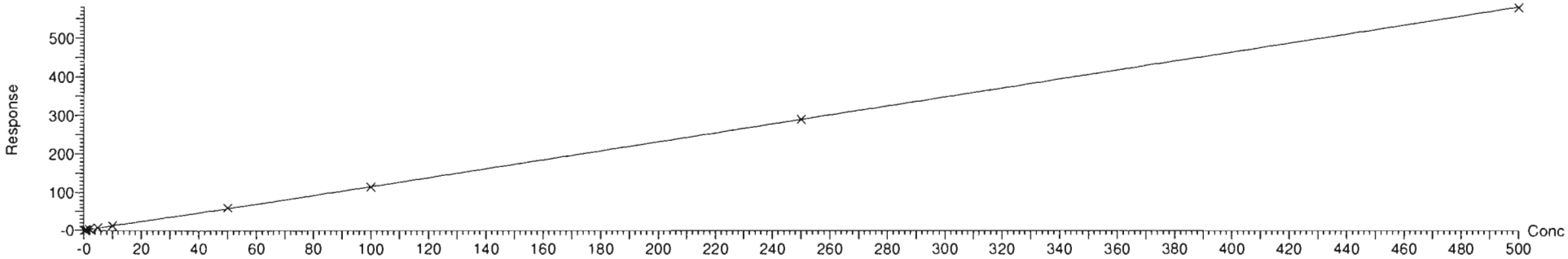
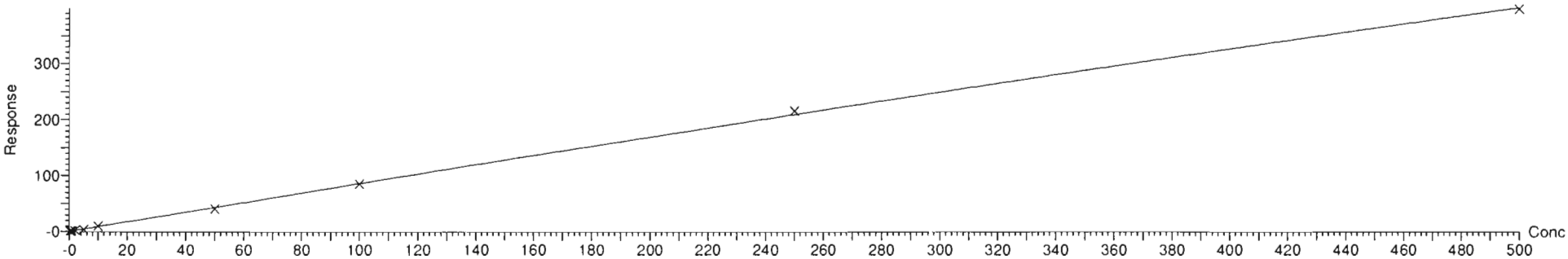
Compound name: PFNA
Correlation coefficient: r = 0.999924, r^2 = 0.999847
Calibration curve: 1.16063 * x + 0.0285423
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999324
Calibration curve: -0.000148812 * x^2 + 0.873606 * x + 0.0409163
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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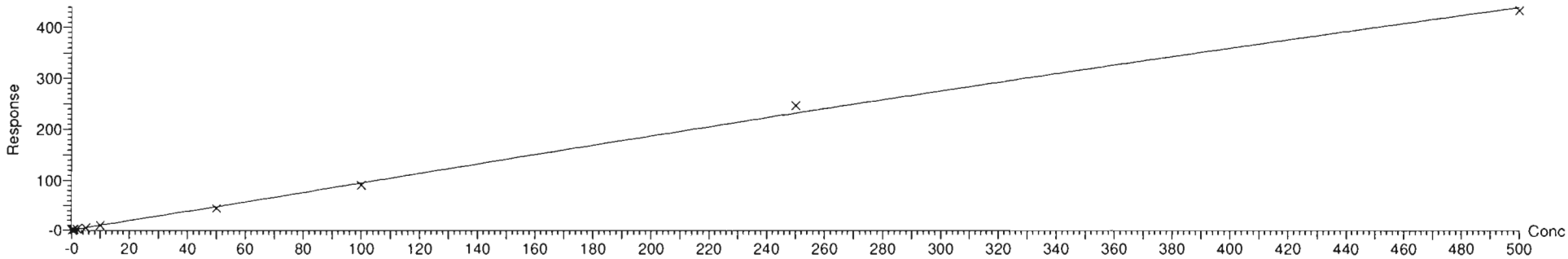
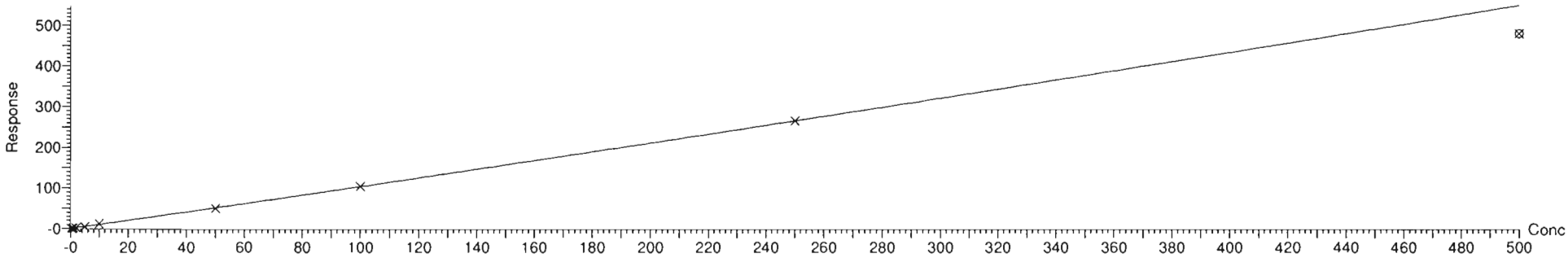
Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.997956
Calibration curve: -0.000198133 * x^2 + 0.979777 * x + -0.067988
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: 9CI-PF30NS
Coefficient of Determination: R^2 = 0.999402
Calibration curve: 0.000146032 * x^2 + 1.02657 * x + -0.2305
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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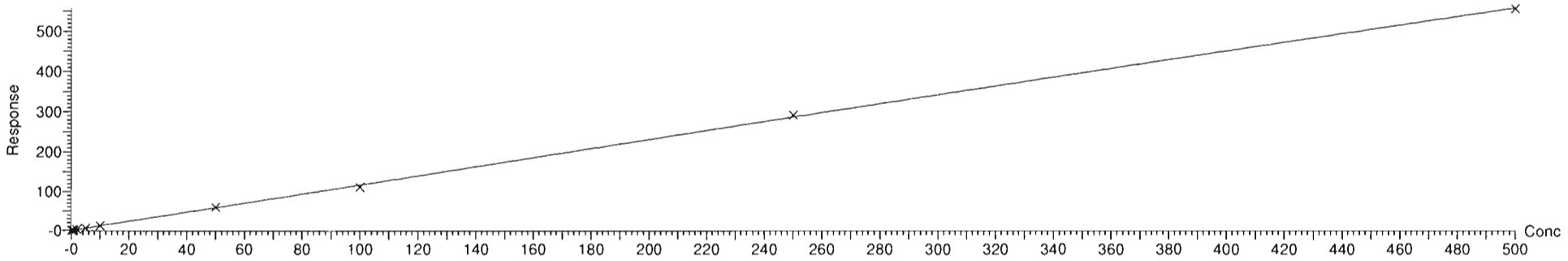
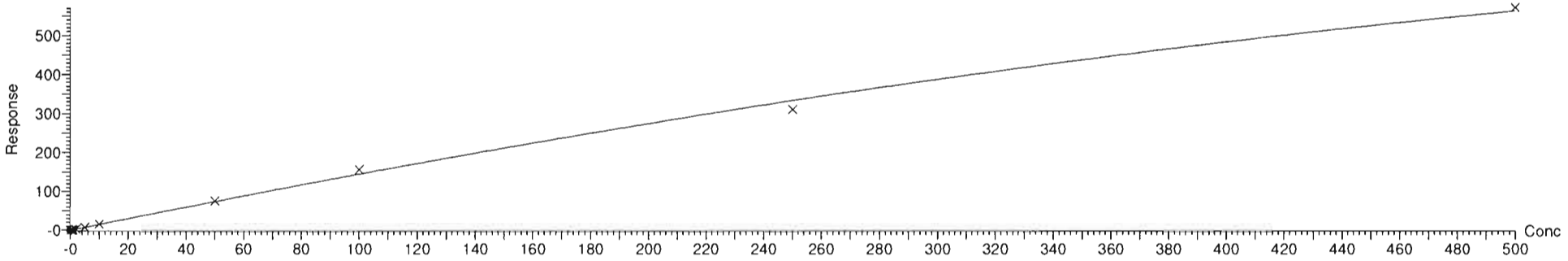
Compound name: PFDA
Coefficient of Determination: R^2 = 0.999592
Calibration curve: -0.000117629 * x^2 + 1.17652 * x + 0.0553522
Response type: Internal Std (Ref 73), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.997258
Calibration curve: -0.000830938 * x^2 + 1.54344 * x + -0.485115
Response type: Internal Std (Ref 75), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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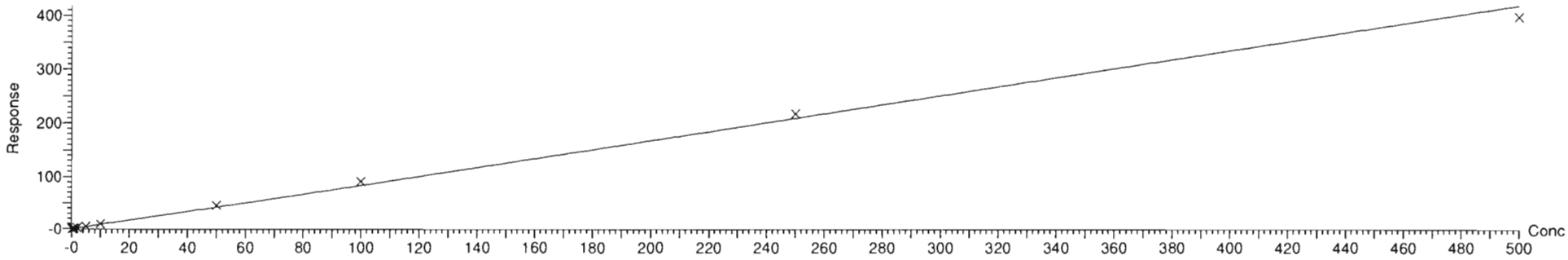
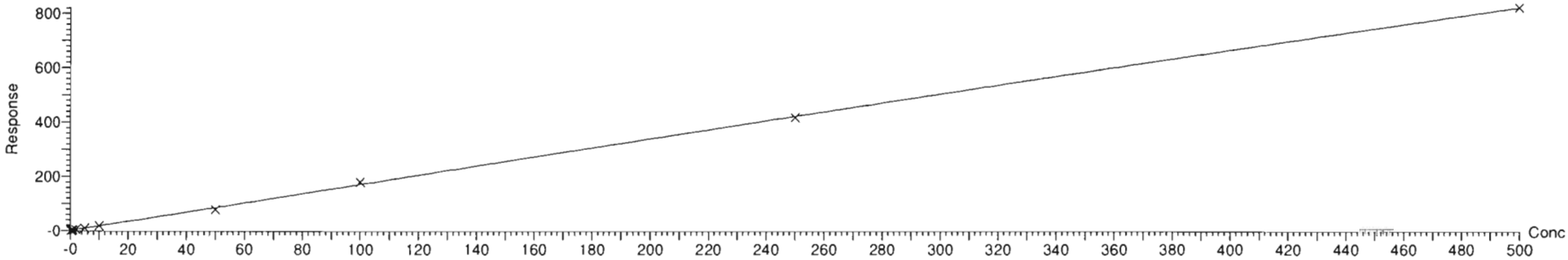
Compound name: PFNS
Correlation coefficient: r = 0.998320, r^2 = 0.996642
Calibration curve: 0.83721 * x + 0.017214
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999074
Calibration curve: -0.000178672 * x^2 + 1.73548 * x + -0.00212334
Response type: Internal Std (Ref 77), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

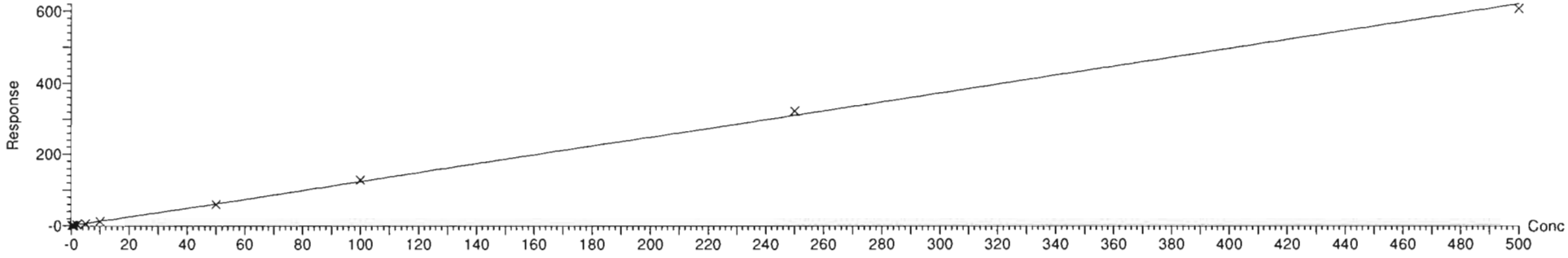


Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

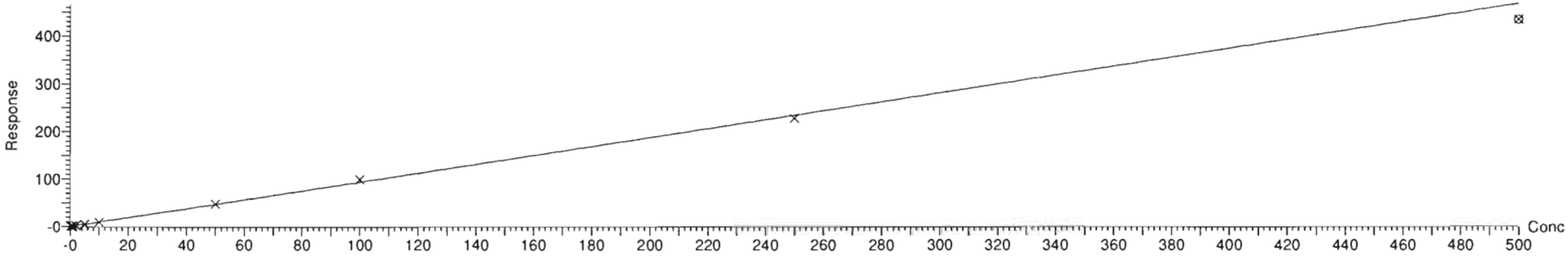
Last Altered: Friday, March 06, 2020 10:35:12 Pacific Standard Time
Printed: Friday, March 06, 2020 10:42:45 Pacific Standard Time

Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030520.mdb 06 Mar 2020 09:47:41
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Compound name: L-EtFOSAA
Correlation coefficient: r = 0.999552, r^2 = 0.999105
Calibration curve: 1.24101 * x + -0.0936517
Response type: Internal Std (Ref 81), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Compound name: PFUdA
Correlation coefficient: r = 0.999234, r^2 = 0.998469
Calibration curve: 0.935594 * x + 0.102678
Response type: Internal Std (Ref 79), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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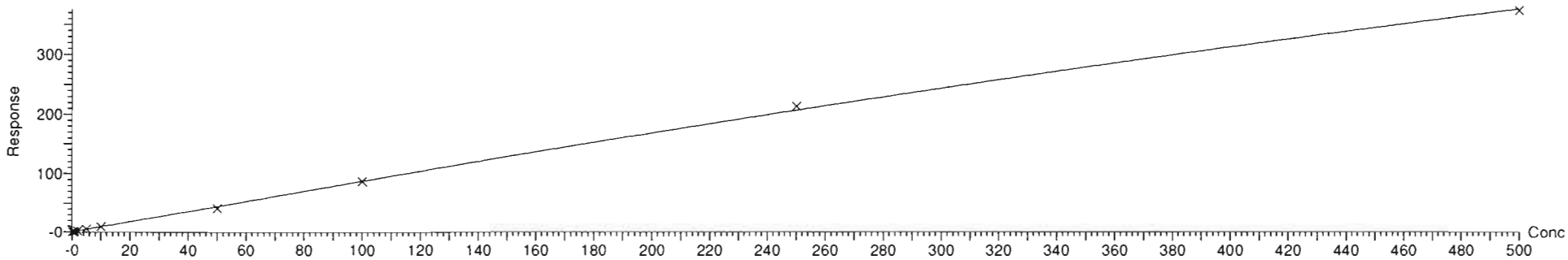
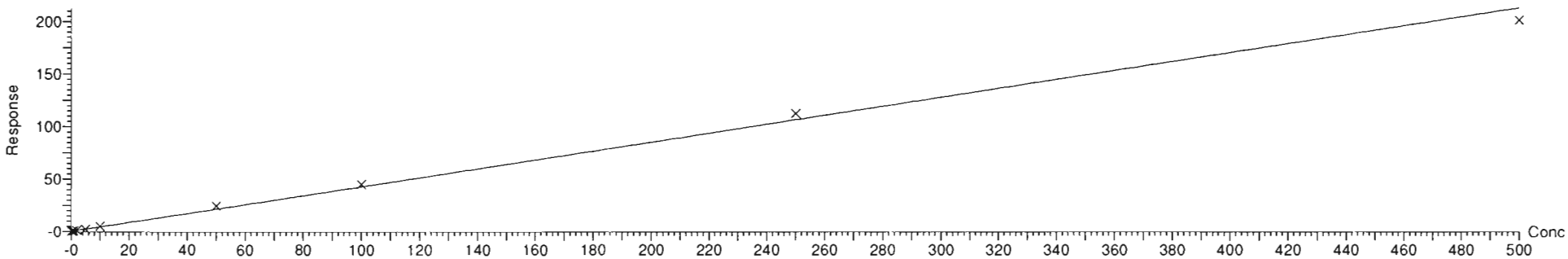
Compound name: PFDS
Coefficient of Determination: R^2 = 0.999112
Calibration curve: -0.00029837 * x^2 + 0.901603 * x + -0.053312
Response type: Internal Std (Ref 71), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



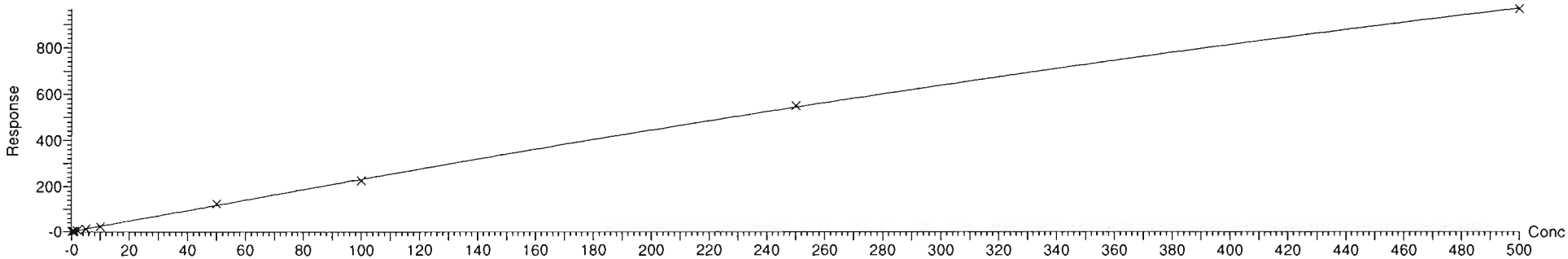
Compound name: 11Cl-PF30UdS
Correlation coefficient: r = 0.997887, r^2 = 0.995778
Calibration curve: 0.425681 * x + 0.0326374
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



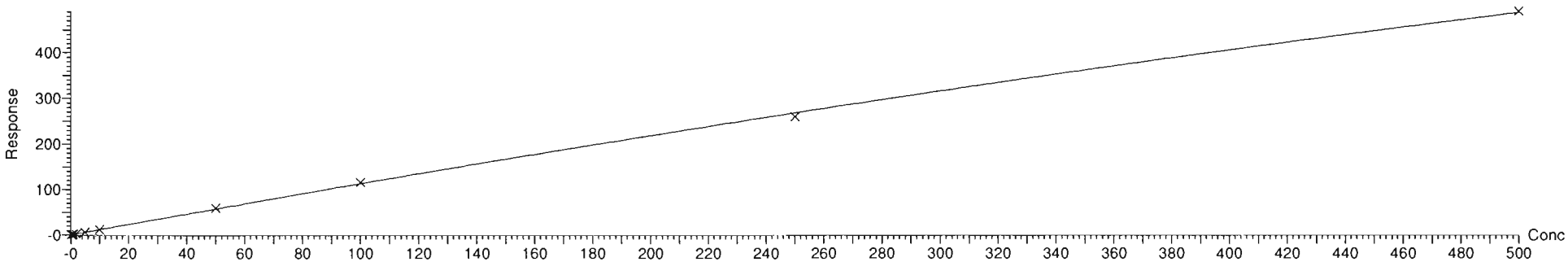
Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
Printed: Friday, March 06, 2020 09:42:55 Pacific Standard Time

Compound name: 10:2 FTS
Coefficient of Determination: R^2 = 0.999214
Calibration curve: -0.000945965 * x^2 + 2.41432 * x + -0.12696
Response type: Internal Std (Ref 85), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



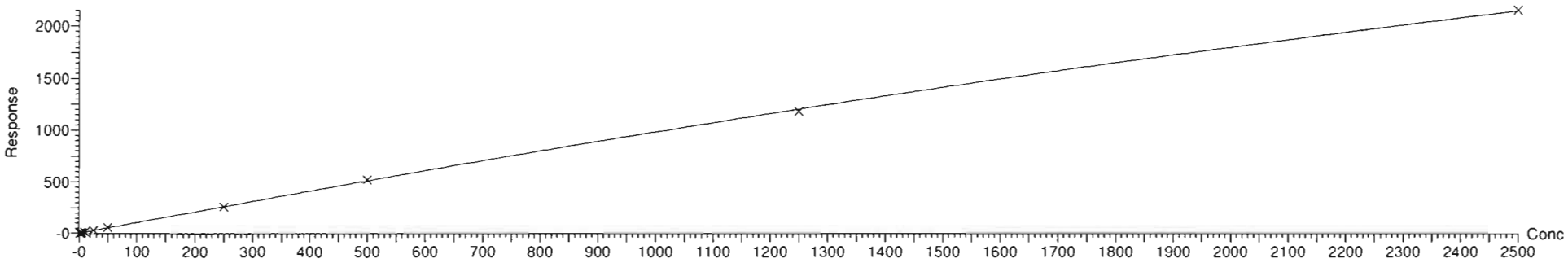
Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999424
Calibration curve: -0.000386569 * x^2 + 1.16791 * x + 0.0889899
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



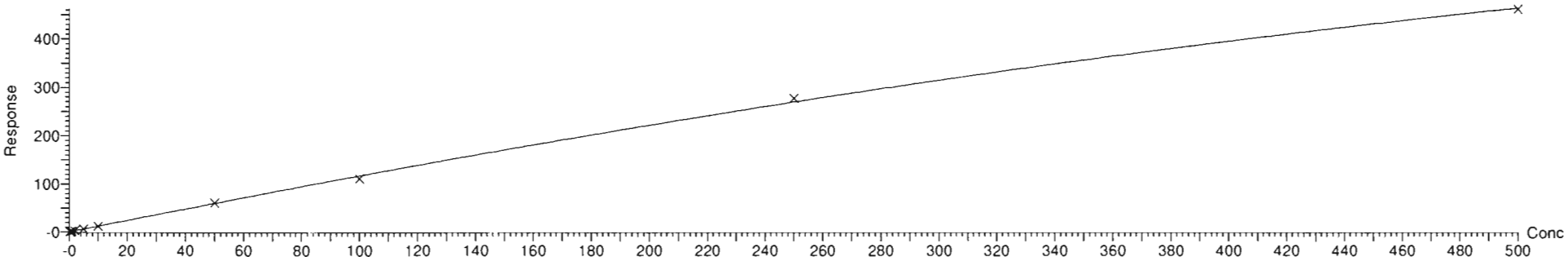
Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
Printed: Friday, March 06, 2020 09:42:55 Pacific Standard Time

Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999629
Calibration curve: -8.31358e-005 * x^2 + 1.06623 * x + -0.0762396
Response type: Internal Std (Ref 87), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



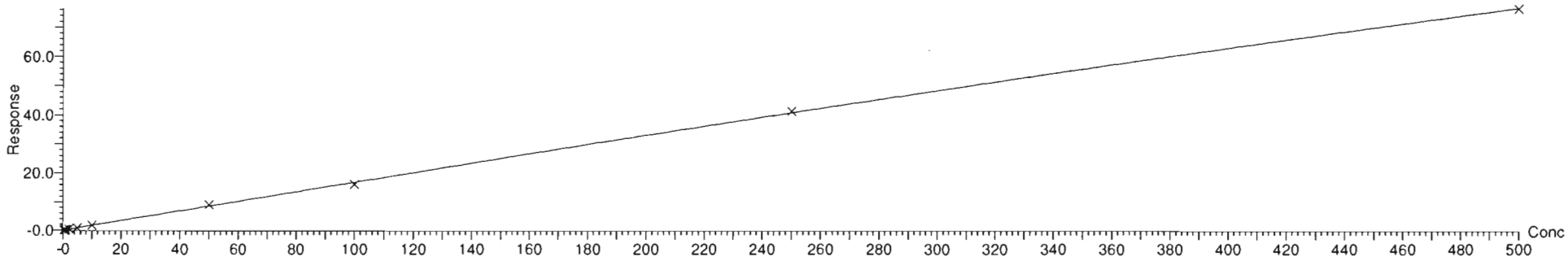
Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999337
Calibration curve: -0.000602348 * x^2 + 1.22892 * x + 0.0232646
Response type: Internal Std (Ref 83), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



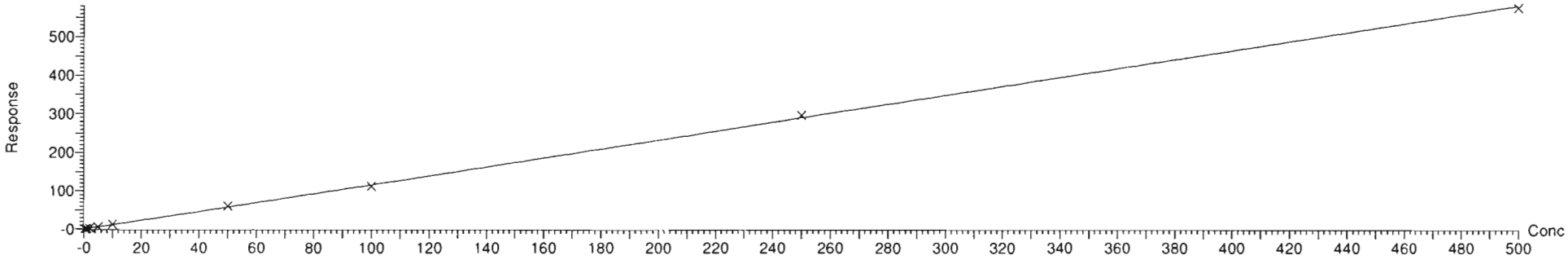
Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
Printed: Friday, March 06, 2020 09:42:55 Pacific Standard Time

Compound name: PFDoS
Coefficient of Determination: R^2 = 0.999339
Calibration curve: -3.93636e-005 * x^2 + 0.173166 * x + -0.00448597
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Compound name: PFTeDA
Correlation coefficient: r = 0.999768, r^2 = 0.999536
Calibration curve: 1.16147 * x + 0.0871654
Response type: Internal Std (Ref 89), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
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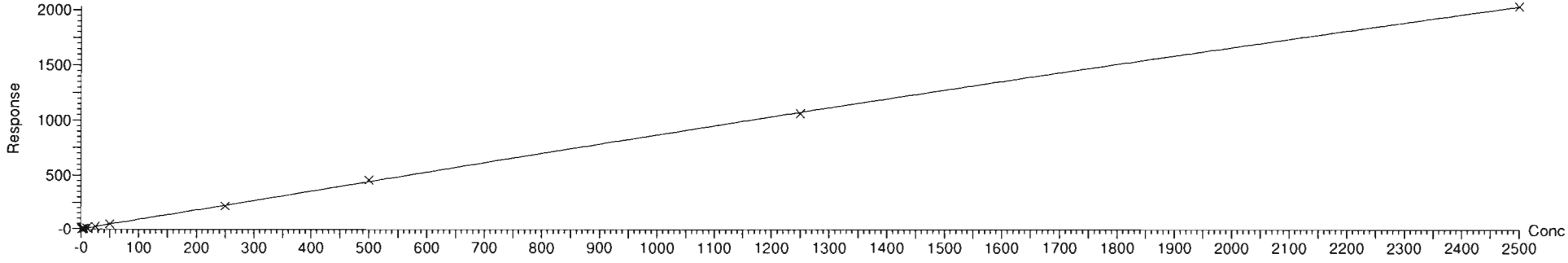
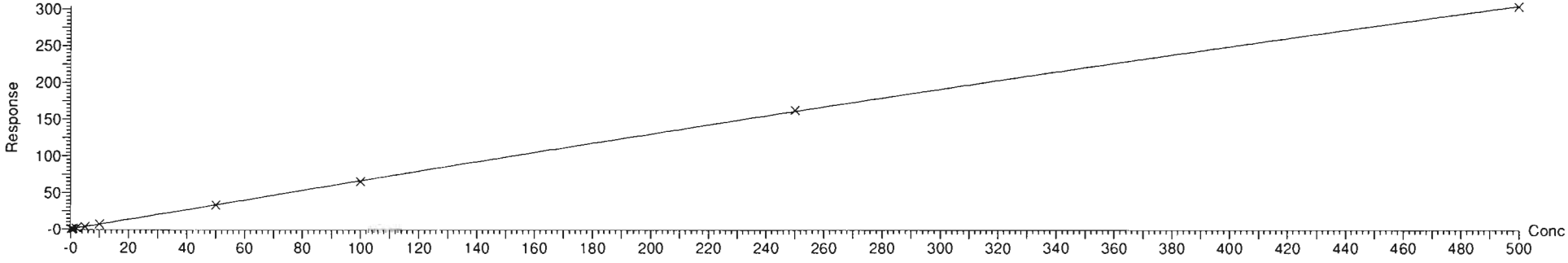
Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999777
Calibration curve: -3.69663e-005 * x^2 + 0.905995 * x + -0.0954189
Response type: Internal Std (Ref 91), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



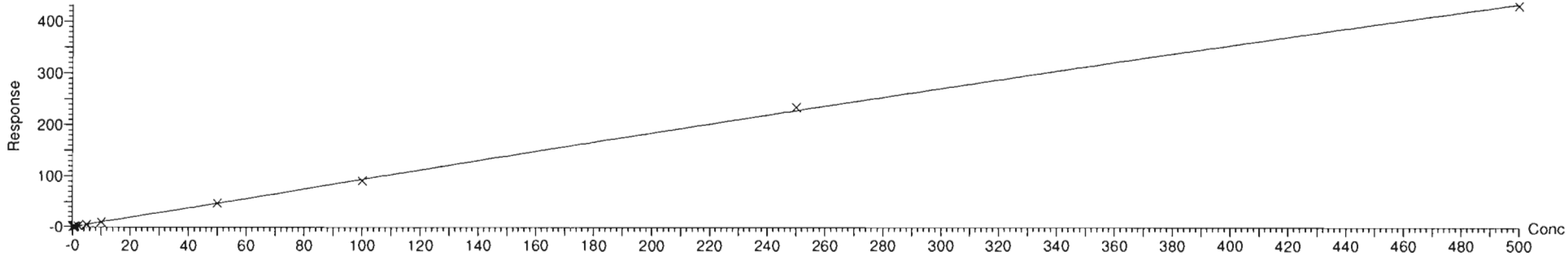
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999938
Calibration curve: -0.000137885 * x^2 + 0.678476 * x + 0.0887228
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



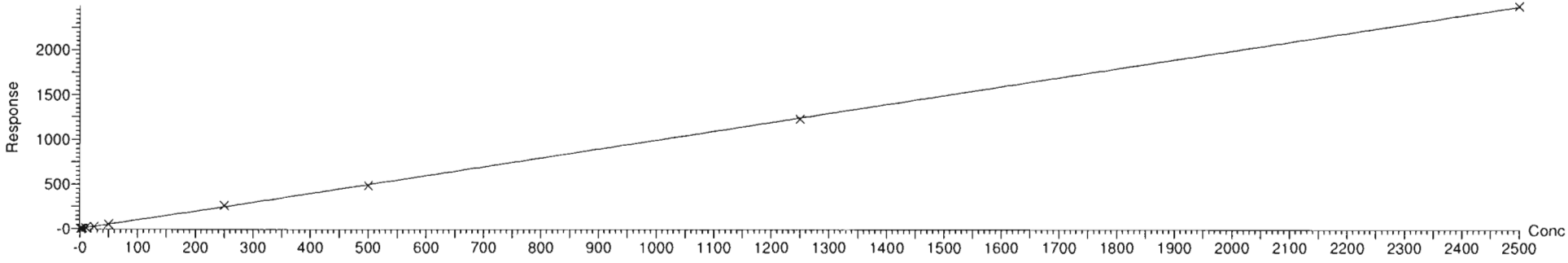
Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
Printed: Friday, March 06, 2020 09:42:55 Pacific Standard Time

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999487
Calibration curve: -0.000182686 * x^2 + 0.959017 * x + -0.035825
Response type: Internal Std (Ref 93), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



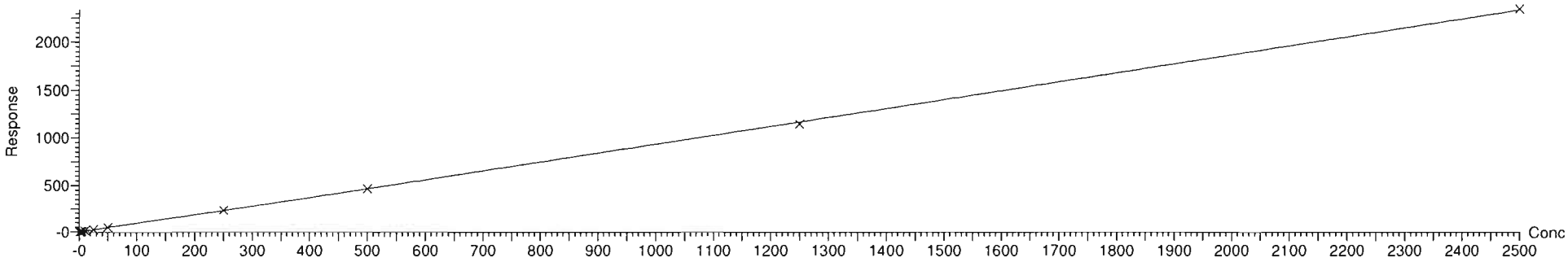
Compound name: N-MeFOSE
Correlation coefficient: r = 0.999855, r^2 = 0.999710
Calibration curve: 0.996229 * x + 0.246652
Response type: Internal Std (Ref 95), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-CRV.qld

Last Altered: Friday, March 06, 2020 09:39:29 Pacific Standard Time
Printed: Friday, March 06, 2020 09:42:55 Pacific Standard Time

Compound name: N-EtFOSE
Correlation coefficient: r = 0.999900, r^2 = 0.999800
Calibration curve: 0.933847 * x + 0.0161544
Response type: Internal Std (Ref 97), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



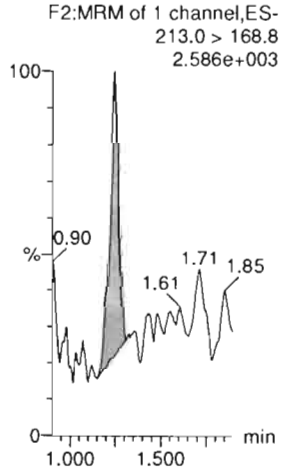
Dataset: Untitled

Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

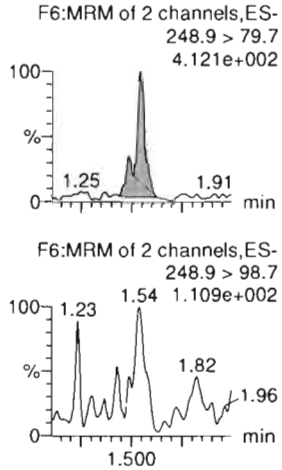
Method: D:\PFAS5.PRO\MethDB\NEW_PFAS_80C_030420.mdb 05 Mar 2020 09:51:06
Calibration: 06 Mar 2020 08:28:28

Name: 200305P1-3, Date: 05-Mar-2020, Time: 17:35:21, ID: ST200305P1-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

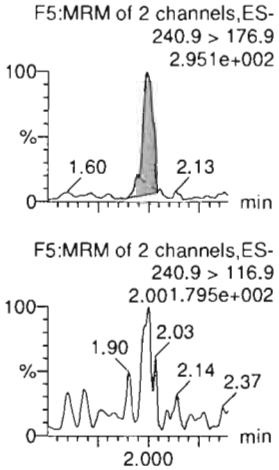
PFBA



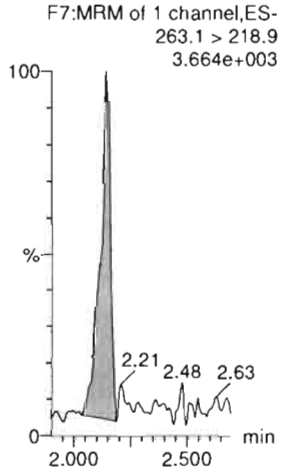
PFPrS



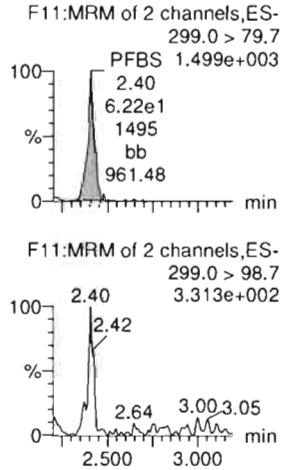
3:3 FTCA



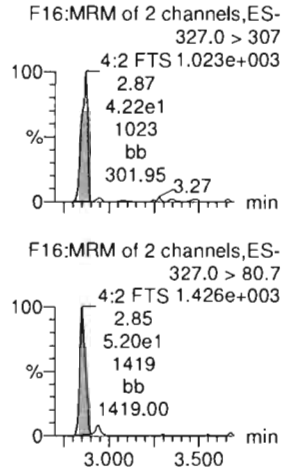
PFPeA



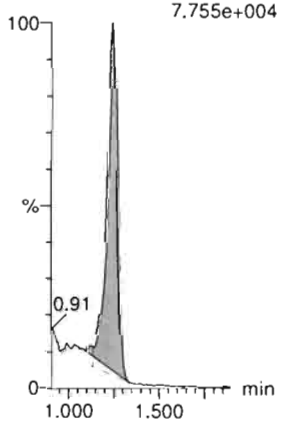
PFBS



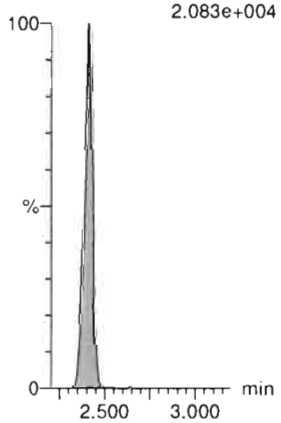
4:2 FTS



13C3-PFBA-EIS



13C3-PFBS-EIS



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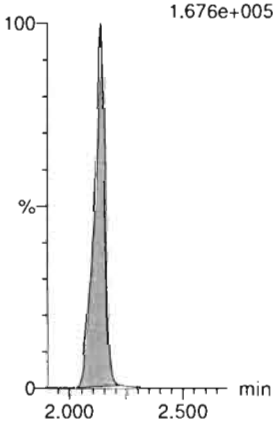

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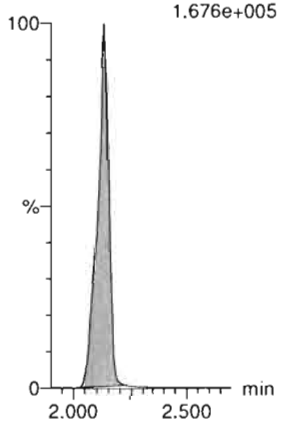

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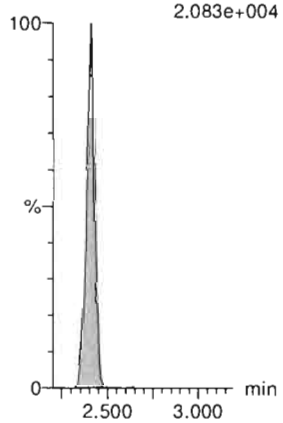
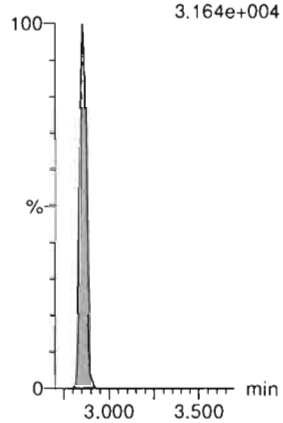


13C2-4:2 FTS-EIS



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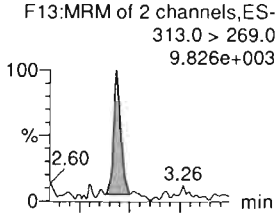

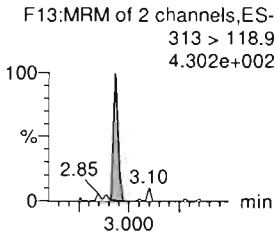

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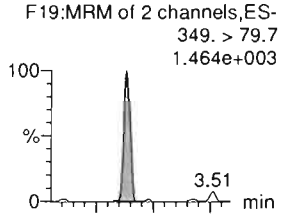

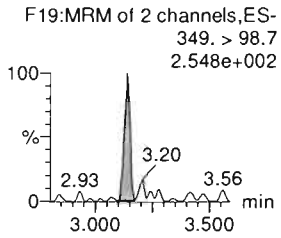

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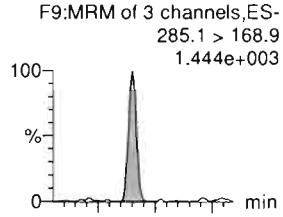

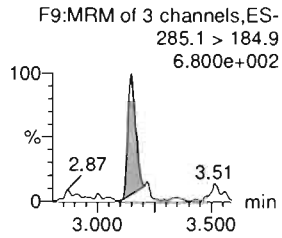

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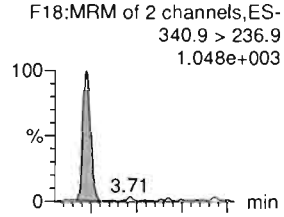

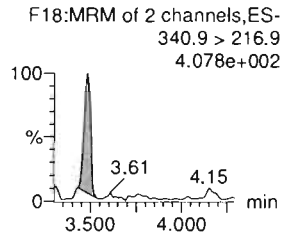

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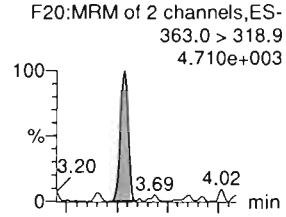

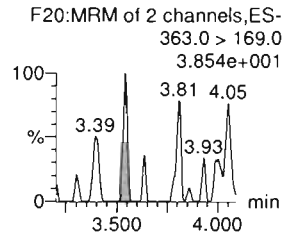

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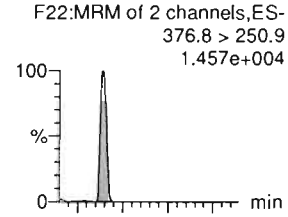

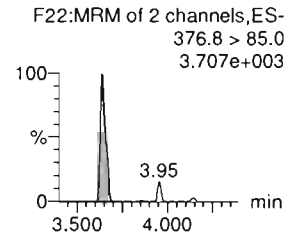

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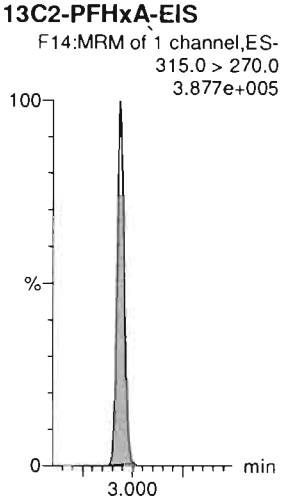

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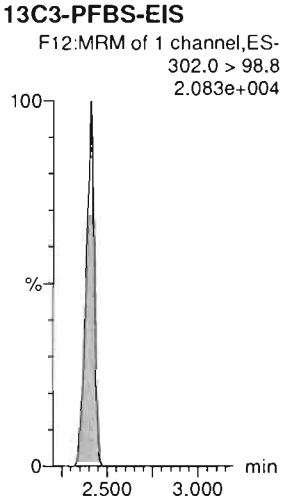

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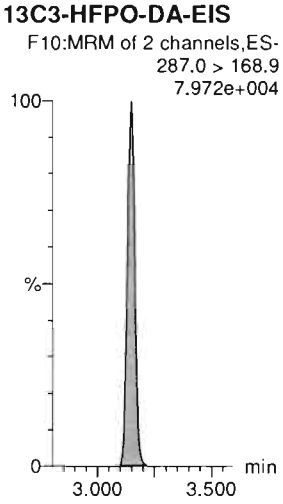

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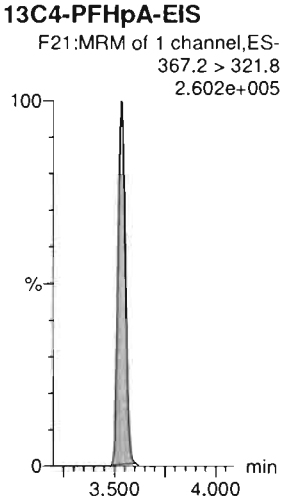

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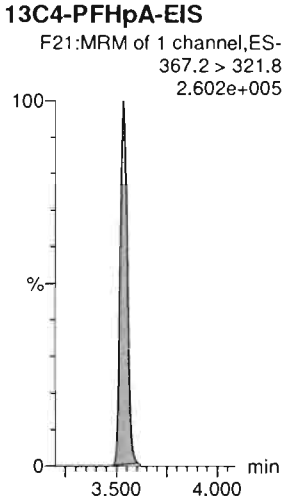

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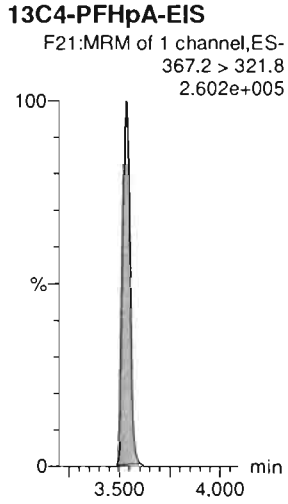

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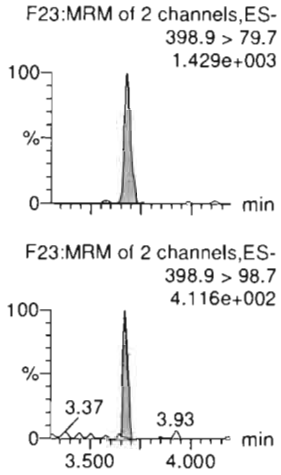
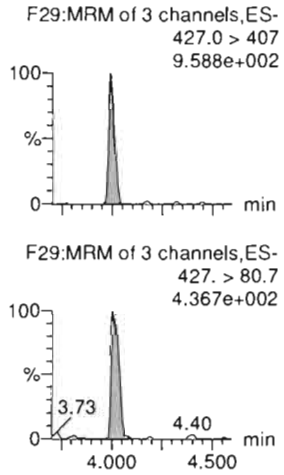


6:2 FTS



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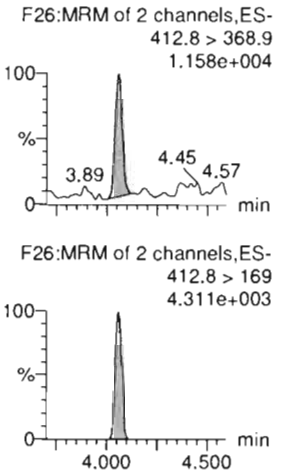

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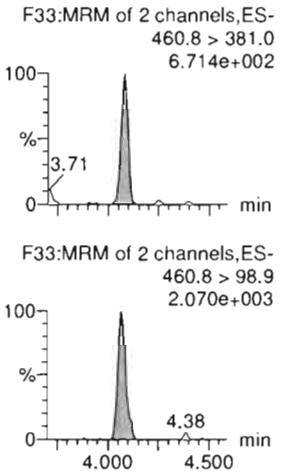

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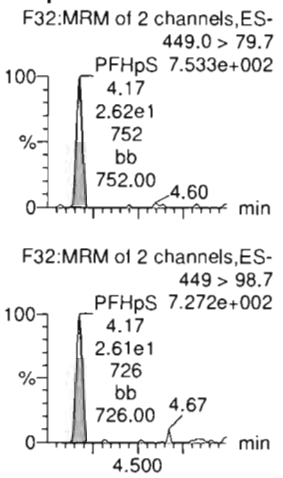

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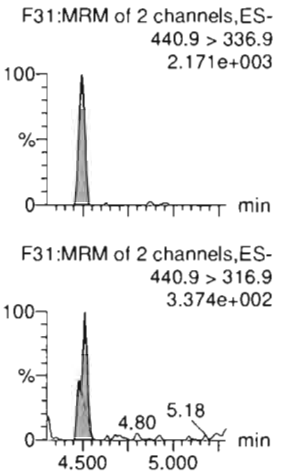

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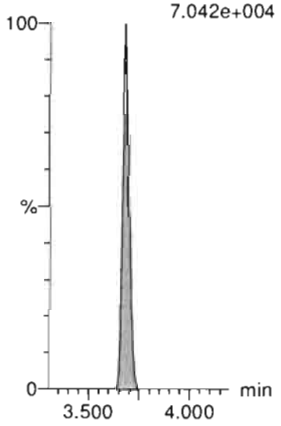

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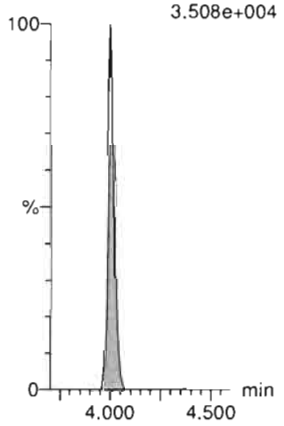

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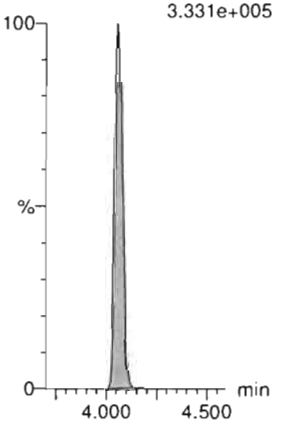

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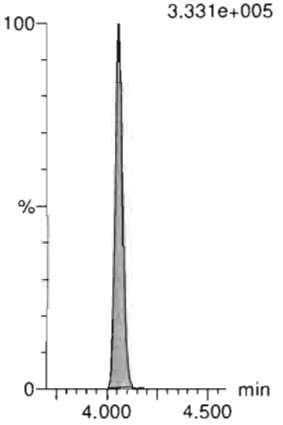

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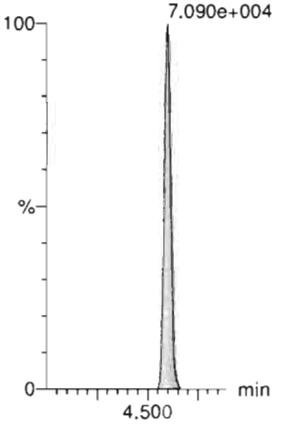
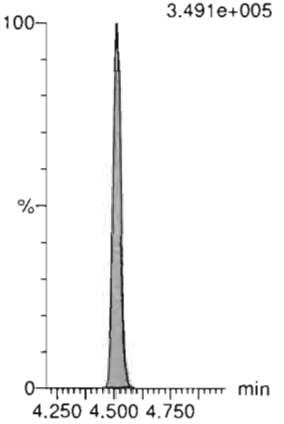


13C5-PFNA-EIS



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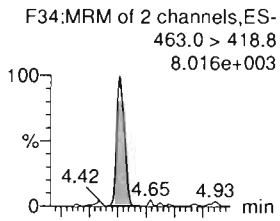

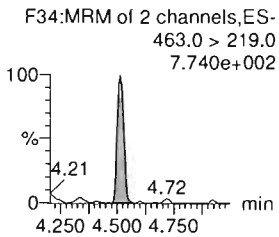

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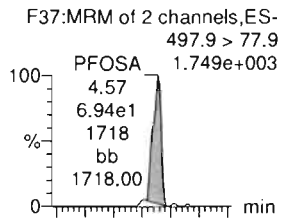
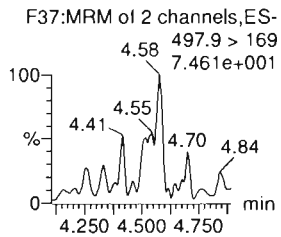
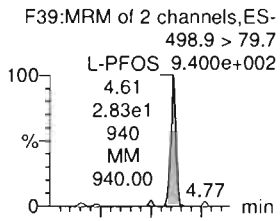
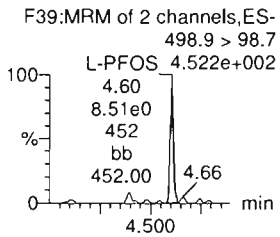




L-PFOS





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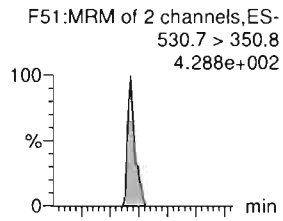

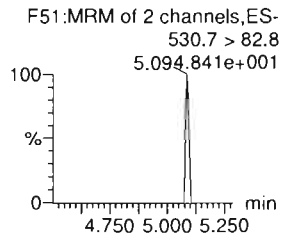

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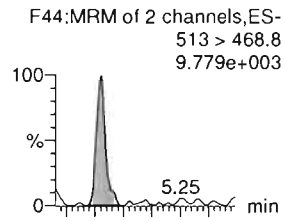
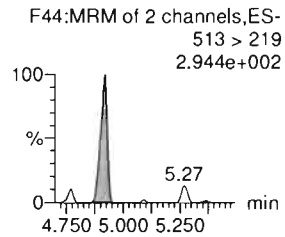
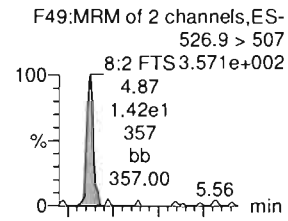
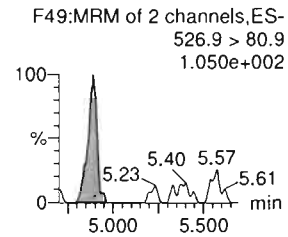




8:2 FTS





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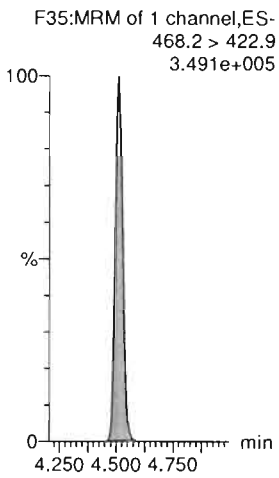

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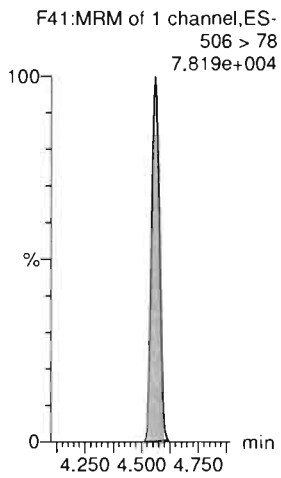

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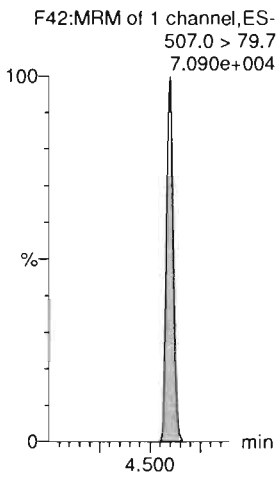

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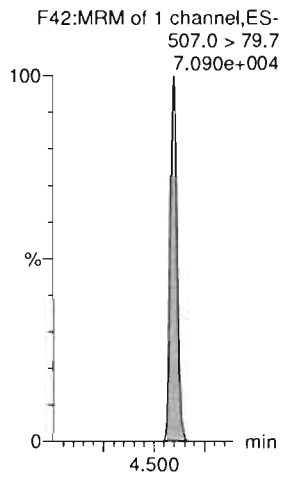

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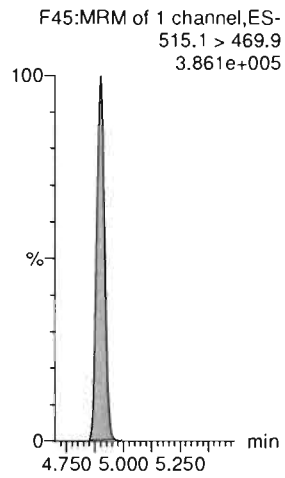

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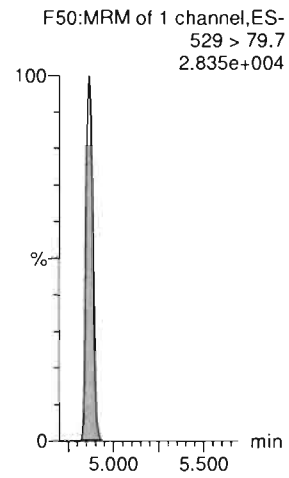

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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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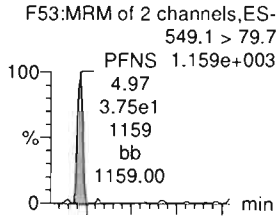
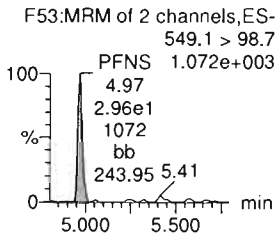
Name: 200305P1-3, Date: 05-Mar-2020, Time: 17:35:21, ID: ST200305P1-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

PFNS





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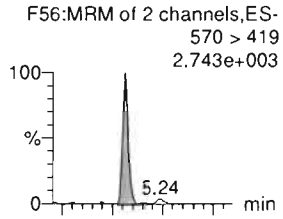

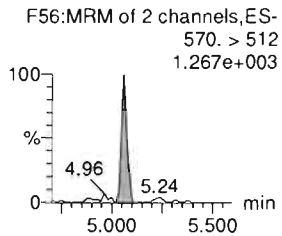

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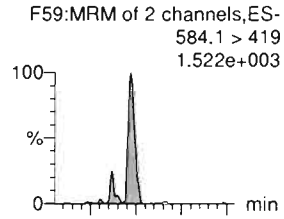
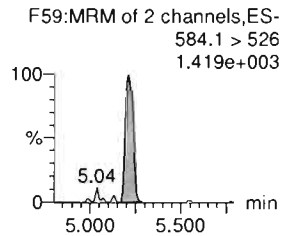
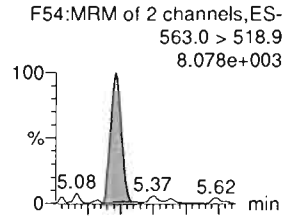
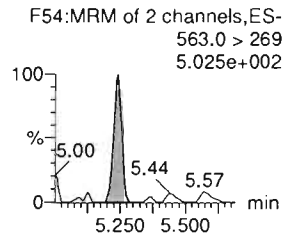




PFUdA





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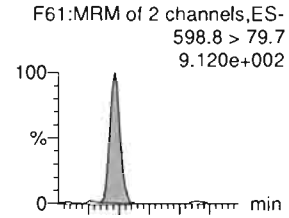
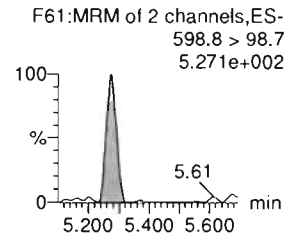
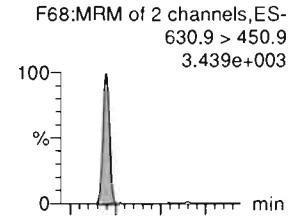
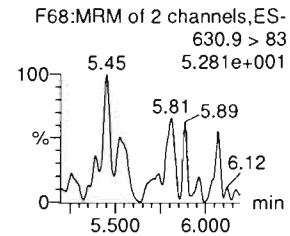


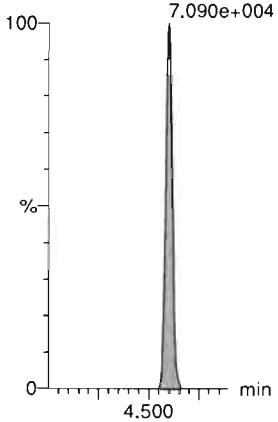


11Cl-PF30UdS

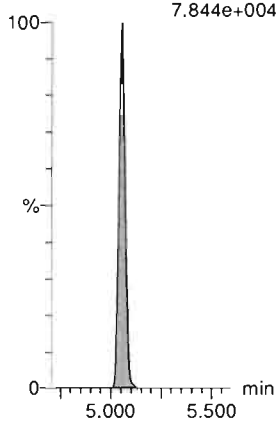




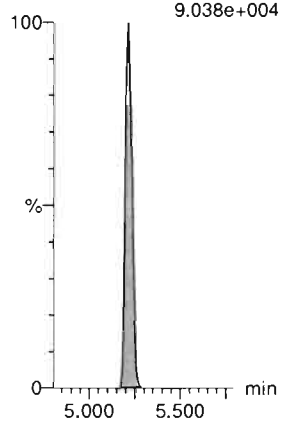
13C8-PFOS-EIS



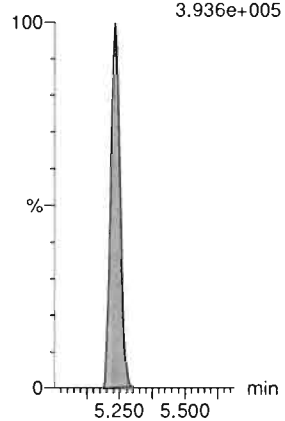
d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



13C2-PFUdA-EIS



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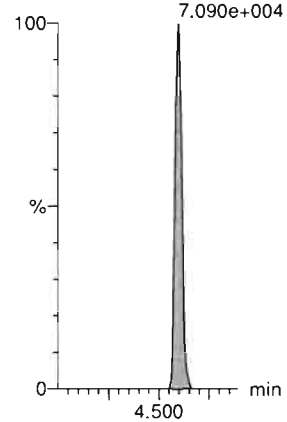

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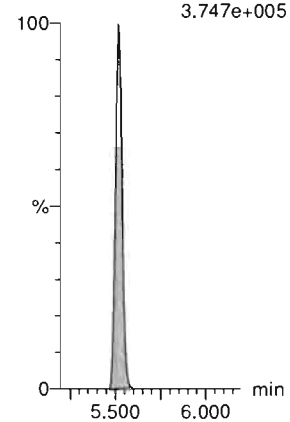

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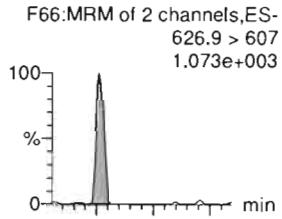
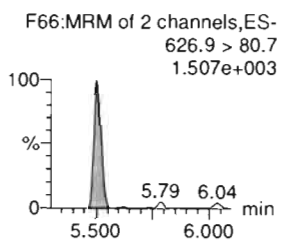
Name: 200305P1-3, Date: 05-Mar-2020, Time: 17:35:21, ID: ST200305P1-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

10:2 FTS





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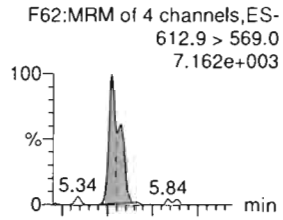
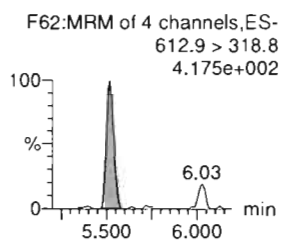
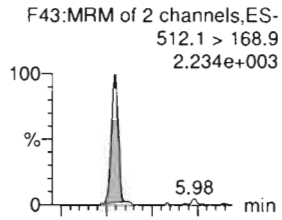
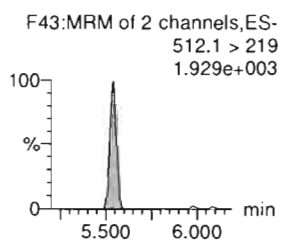




N-MeFOSA





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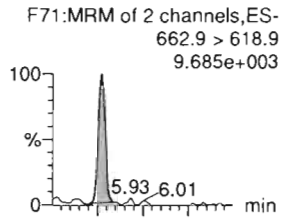

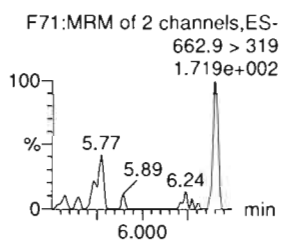

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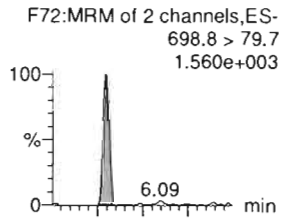

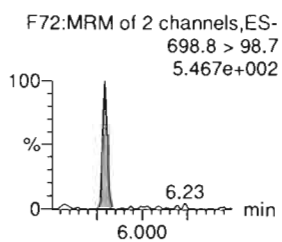

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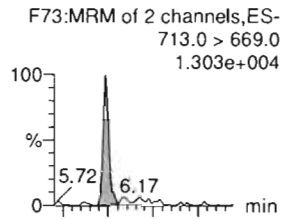
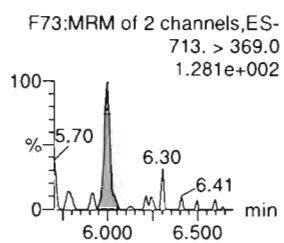
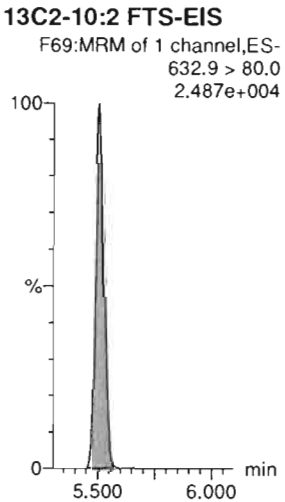




13C2-10:2 FTS-EIS



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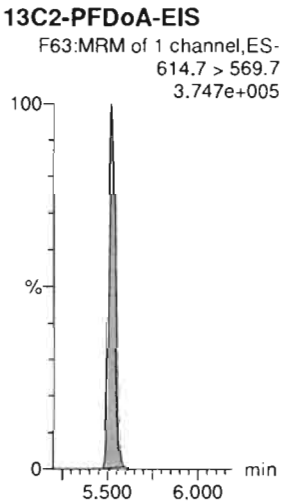
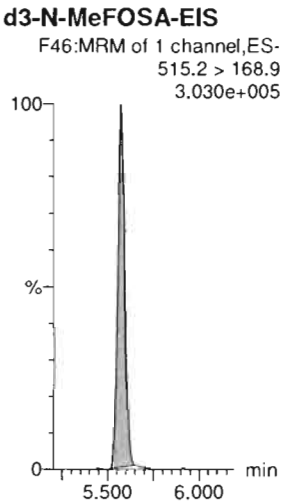


d3-N-MeFOSA-EIS



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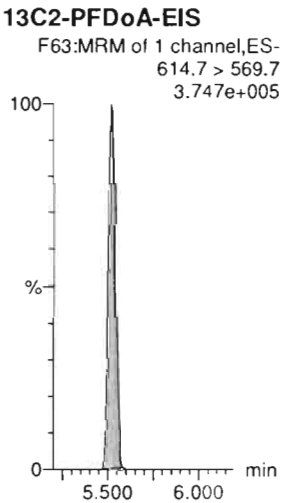

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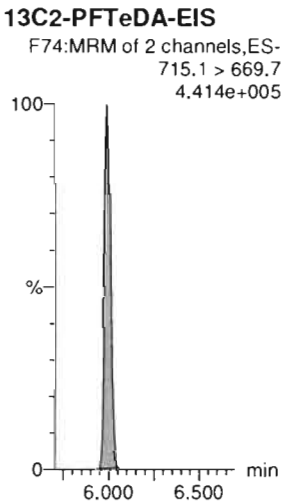

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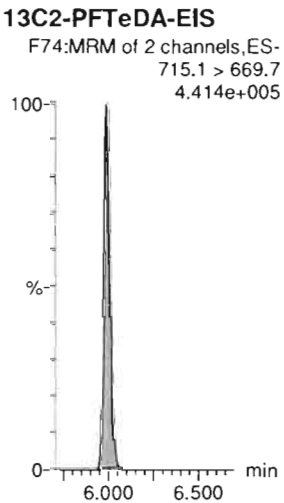

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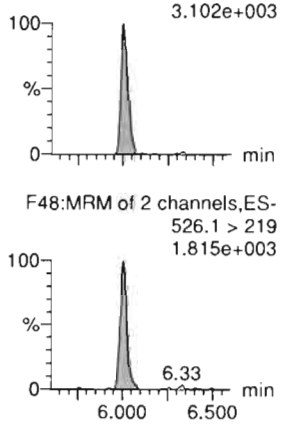
N-EtFOSA



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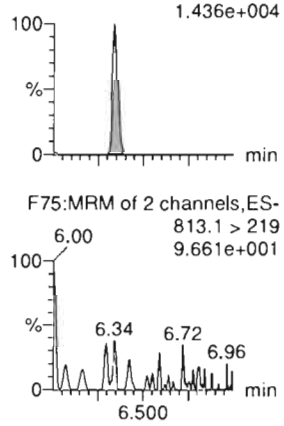

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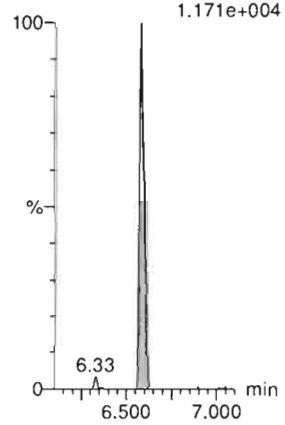
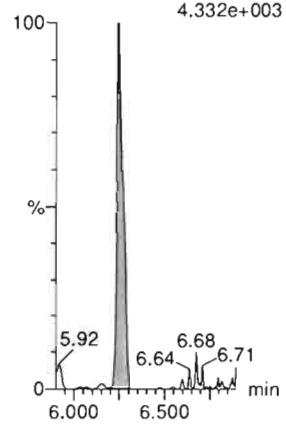


N-MeFOSE



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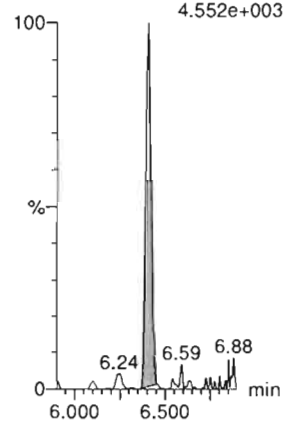

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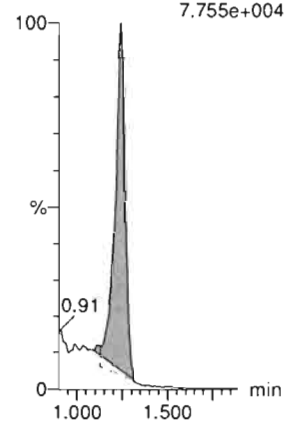
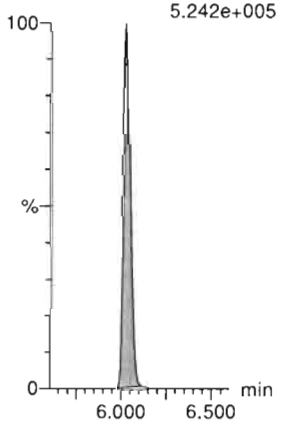


d5-N-ETFOSA-EIS



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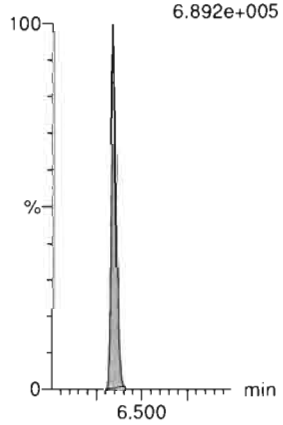

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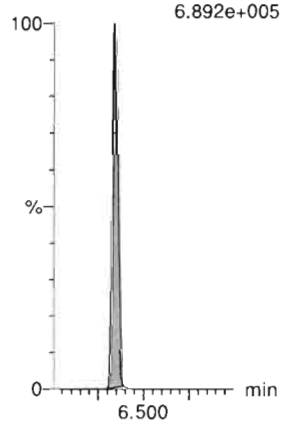

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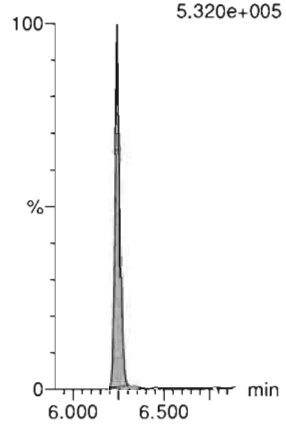

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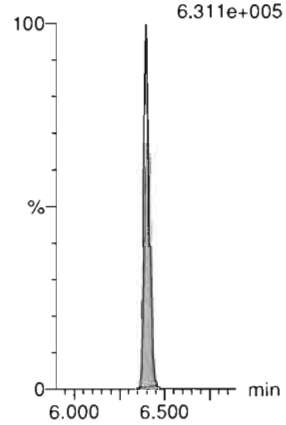

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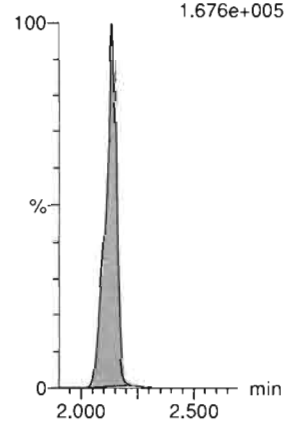

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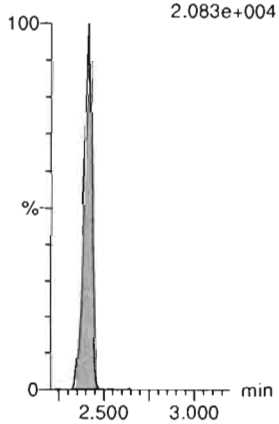
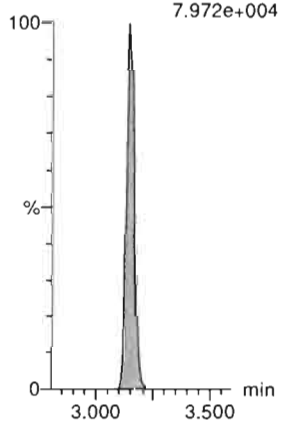
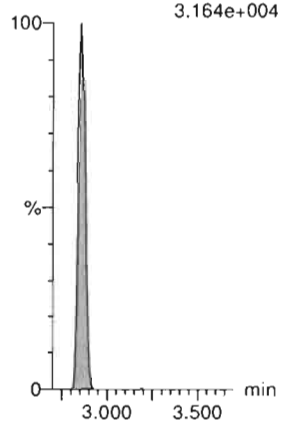
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.083e+004



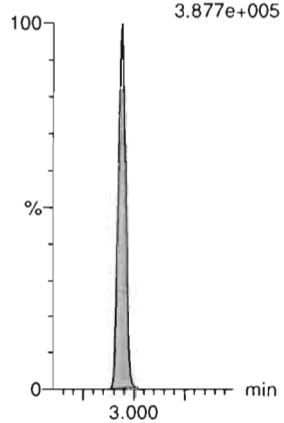
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
7.972e+004



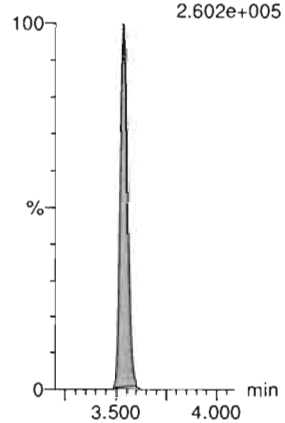
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.164e+004



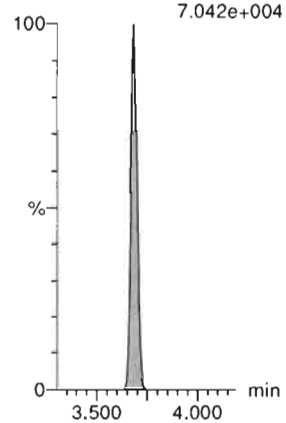
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.877e+005



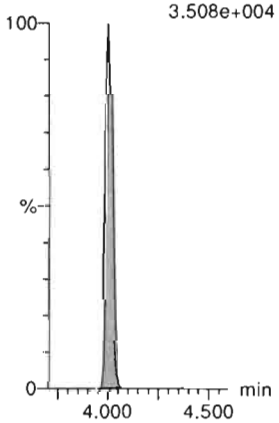
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.602e+005



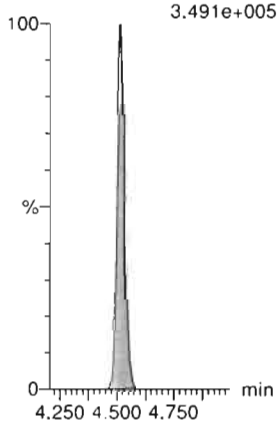
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.042e+004



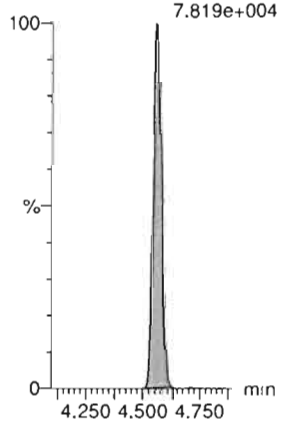
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.508e+004



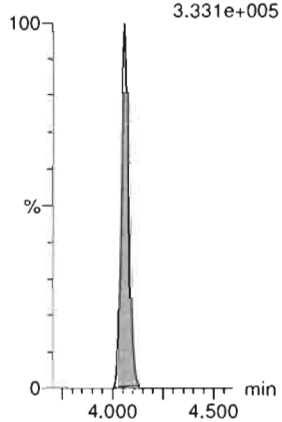
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.491e+005



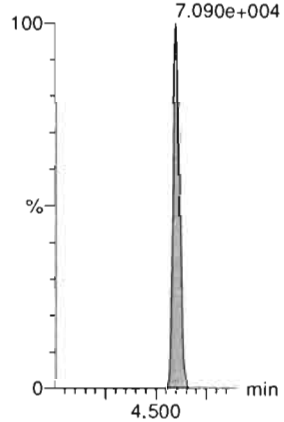
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
7.819e+004



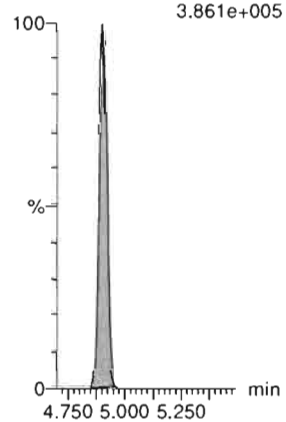
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.331e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.090e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.861e+005



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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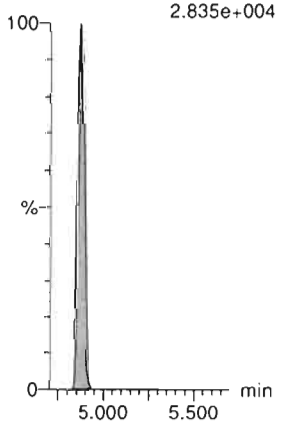
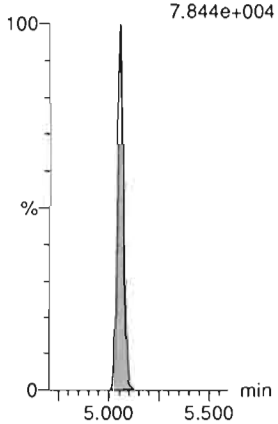
Name: 200305P1-3, Date: 05-Mar-2020, Time: 17:35:21, ID: ST200305P1-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

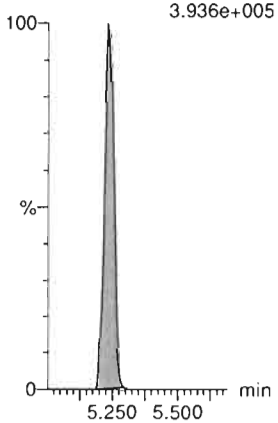
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.835e+004



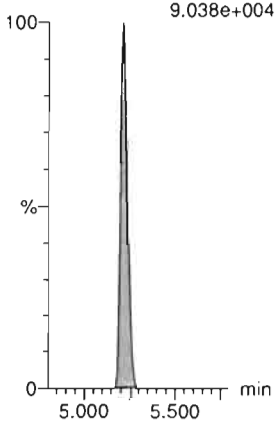
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.844e+004



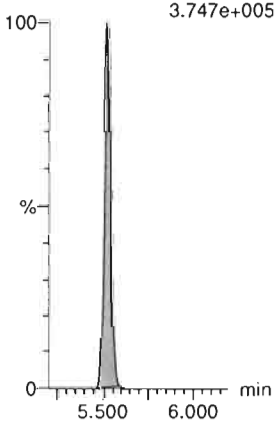
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.936e+005



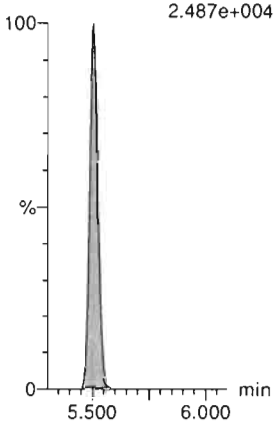
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.038e+004



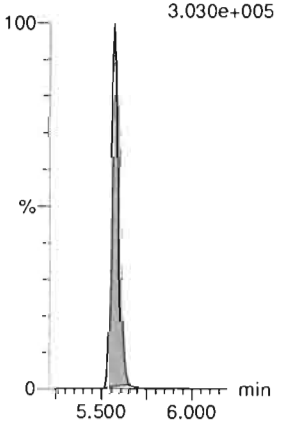
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.747e+005



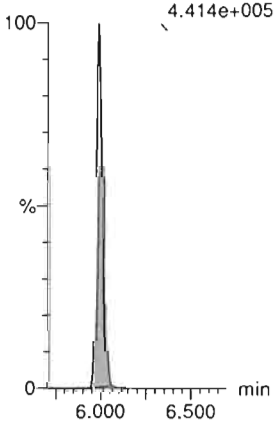
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.487e+004



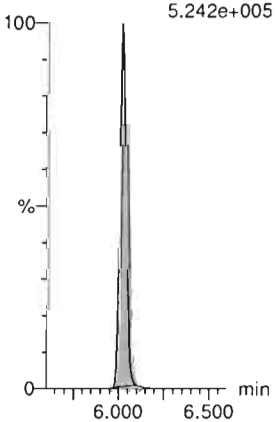
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.030e+005



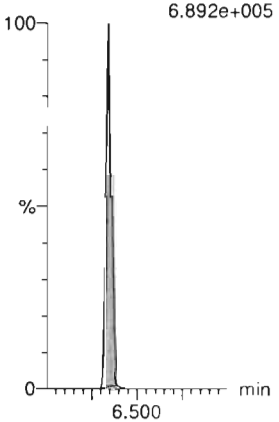
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.414e+005



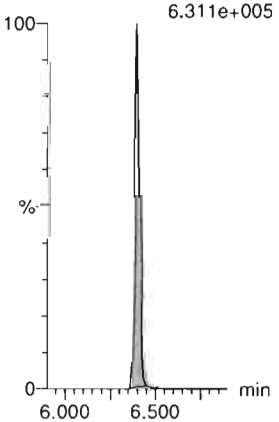
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.242e+005



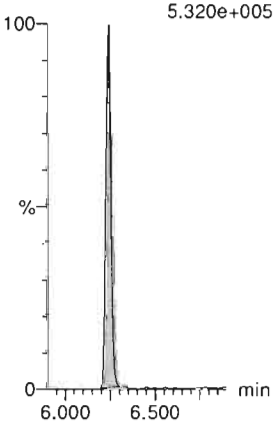
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.892e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.311e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.320e+005



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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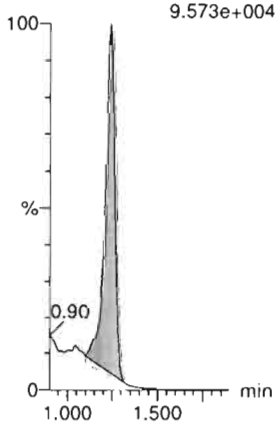
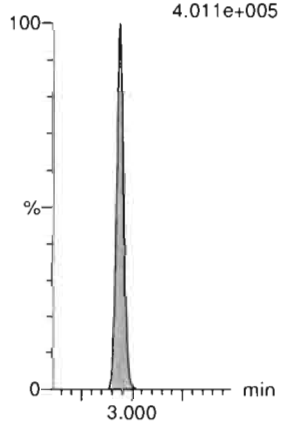
Name: 200305P1-3, Date: 05-Mar-2020, Time: 17:35:21, ID: ST200305P1-1 PFC CS-2 20C0304, Description: PFC CS-2 20C0304

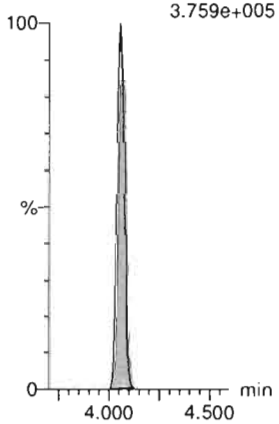
13C4-PFBA



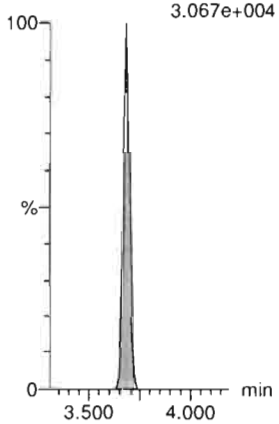
13C5-PFHxA



13C8-PFOA



18O2-PFHxS



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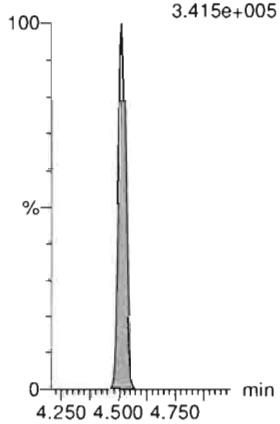
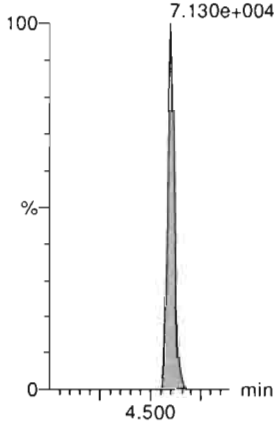


13C4-PFOS



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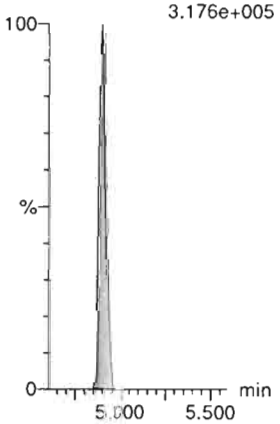
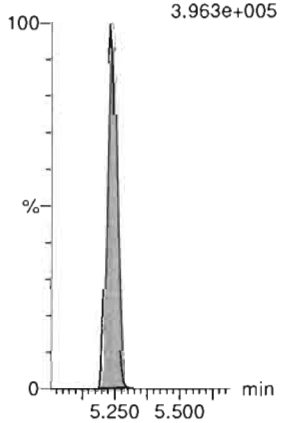


13C7-PFUdA



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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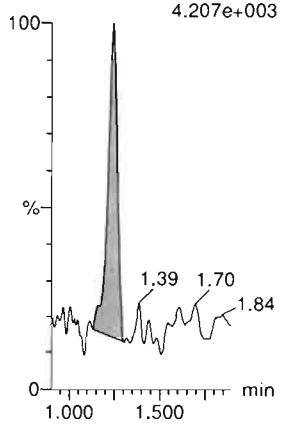

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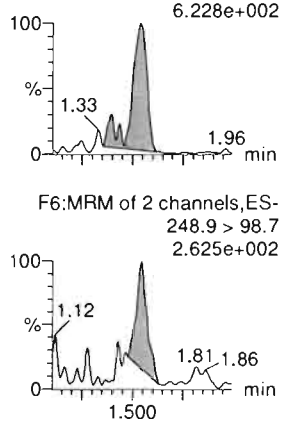
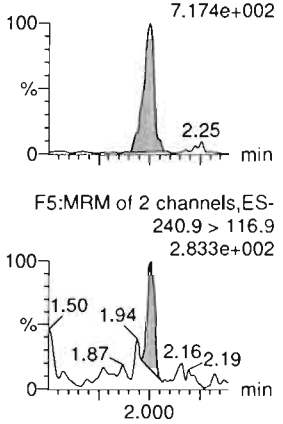


3:3 FTCA



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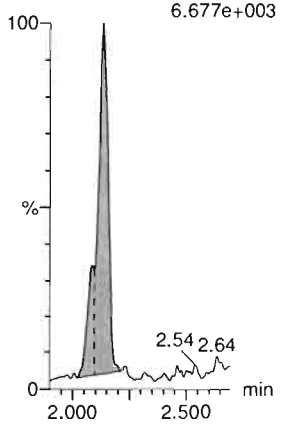
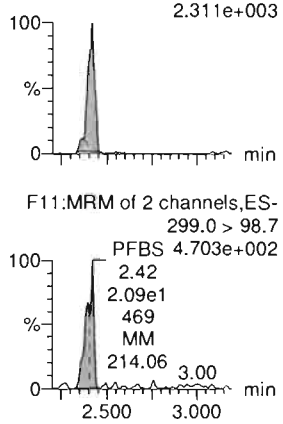
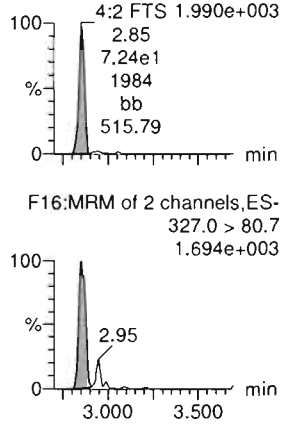


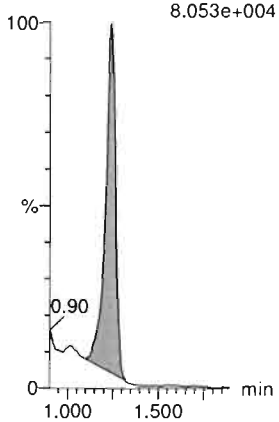
PFBS



4:2 FTS



13C3-PFBA-EIS



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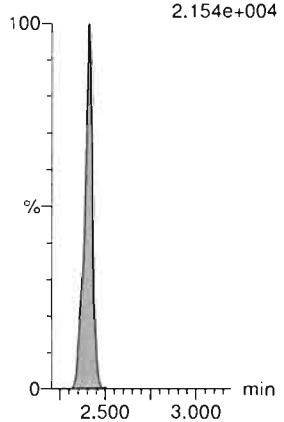

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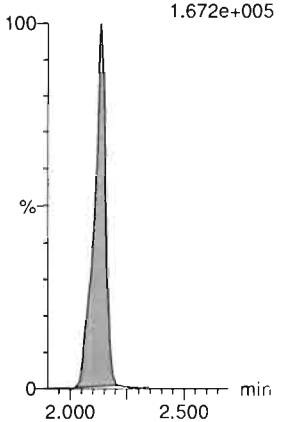

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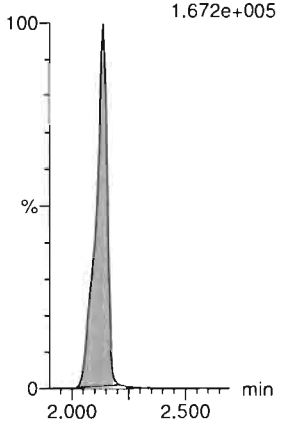

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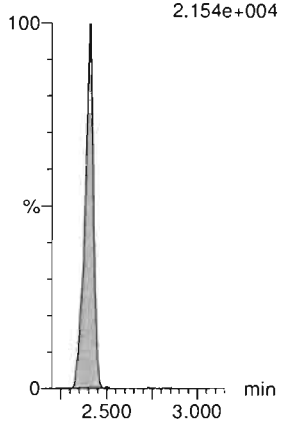

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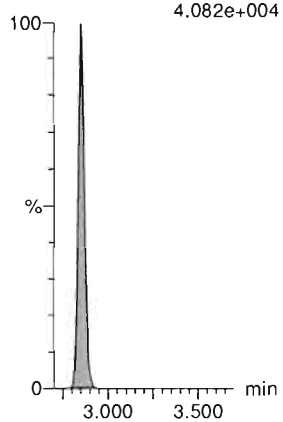

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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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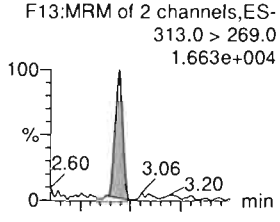
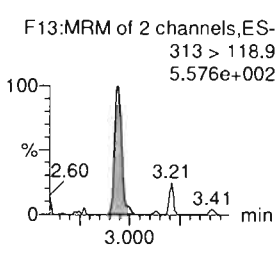
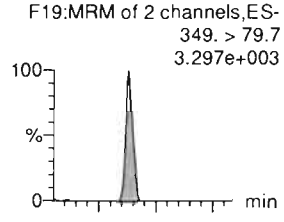
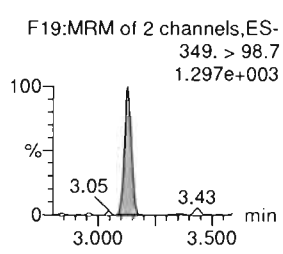
PFHxA



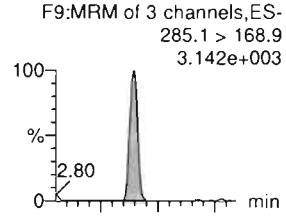


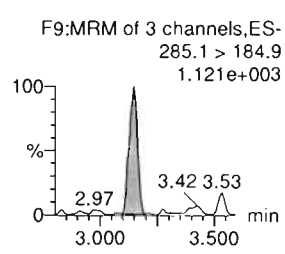
PFPeS



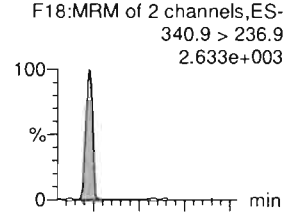


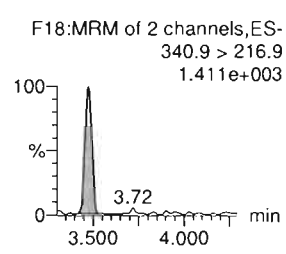
HFPO-DA





5:3 FTCA





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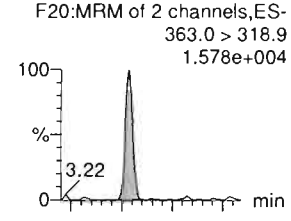

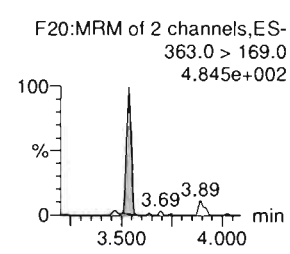

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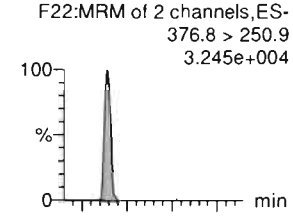
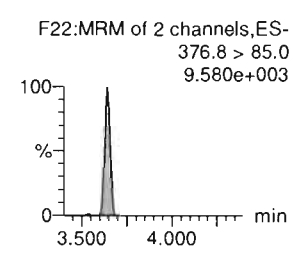
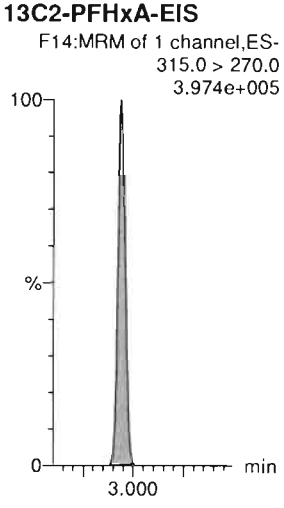
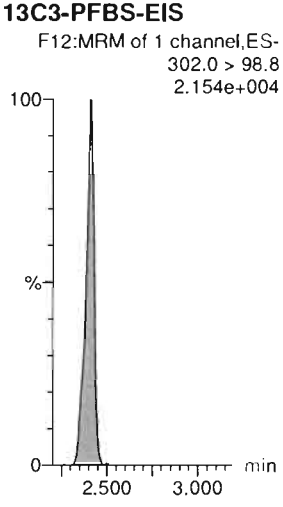




13C2-PFHxA-EIS



13C3-PFBS-EIS



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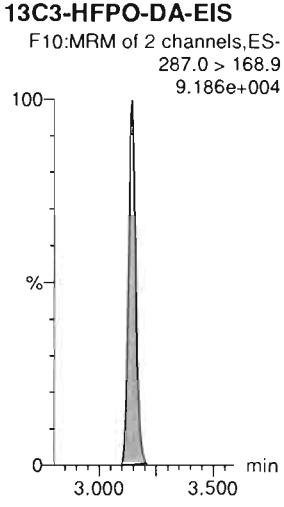
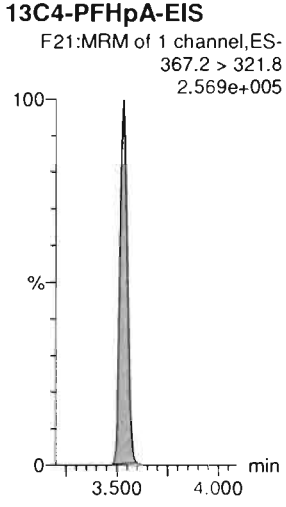


13C4-PFHpA-EIS



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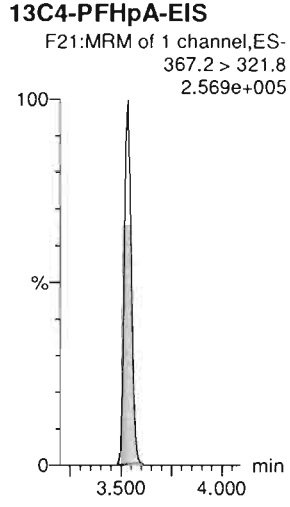

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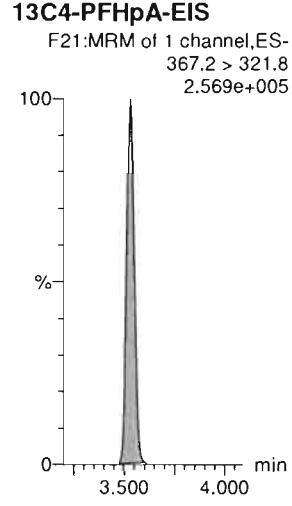

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Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

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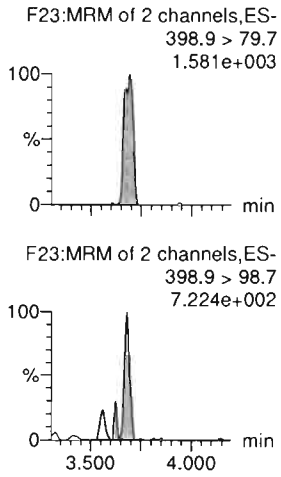
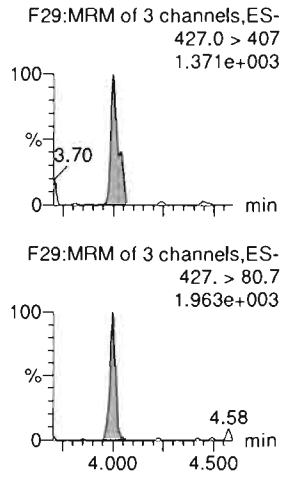


6:2 FTS



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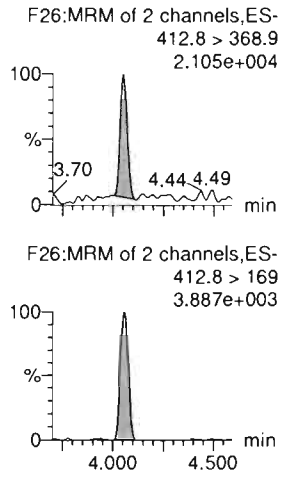

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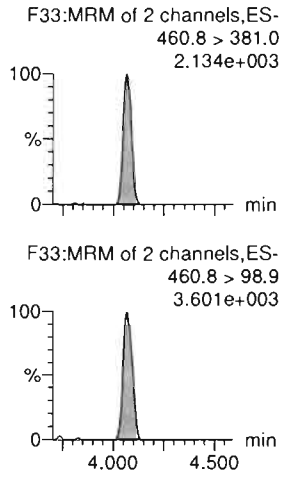

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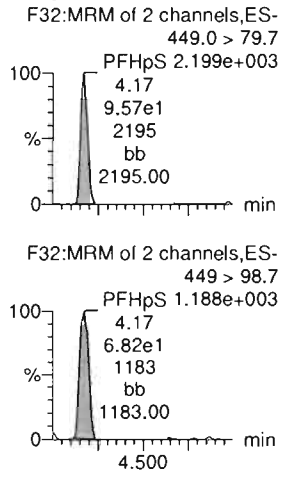
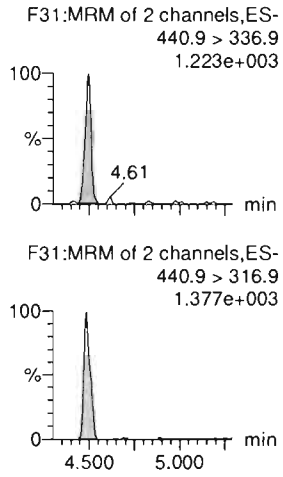


7:3 FTCA



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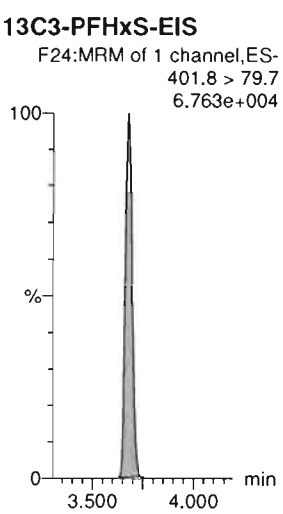
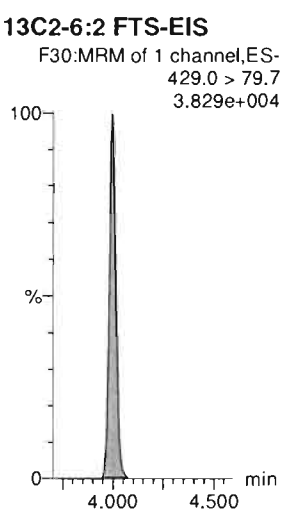


13C2-6:2 FTS-EIS



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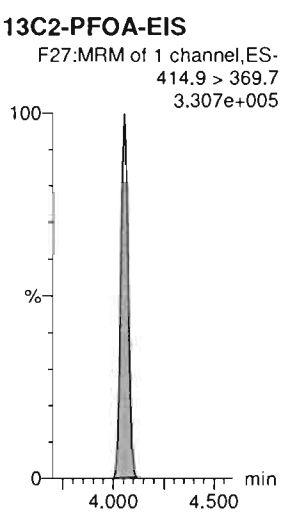

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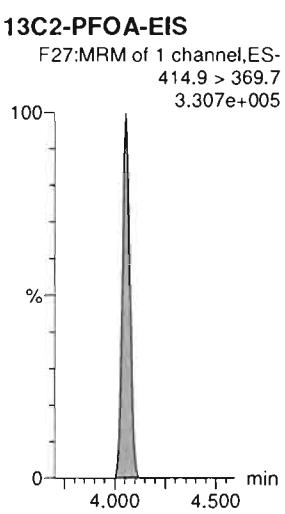
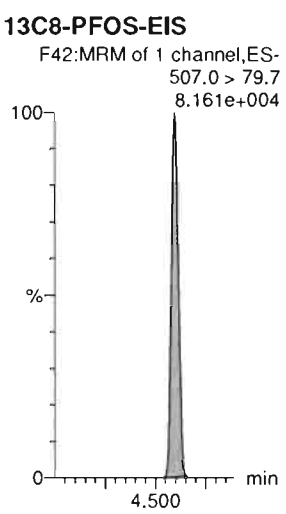


13C8-PFOS-EIS



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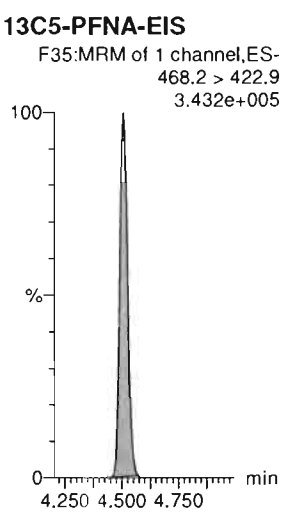

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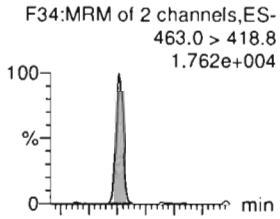

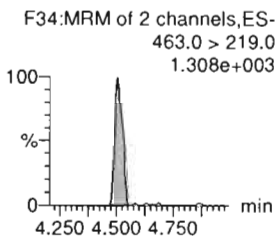

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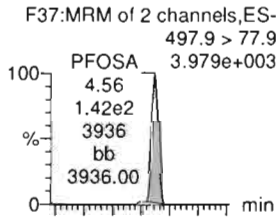
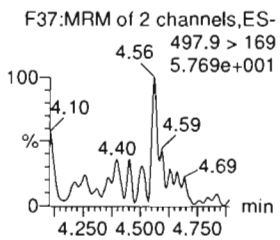
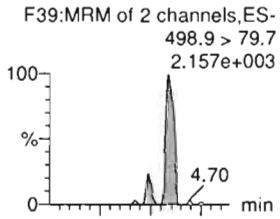
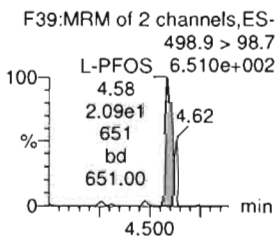




L-PFOS





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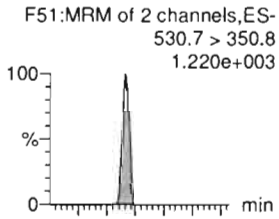

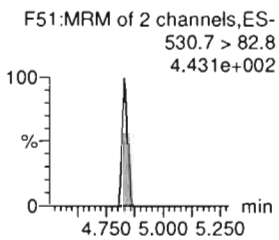

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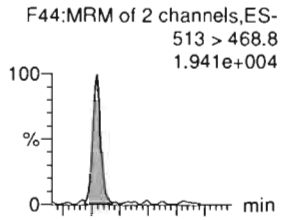
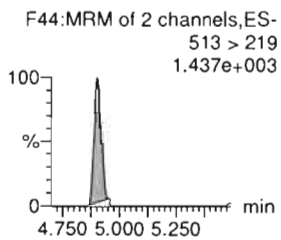
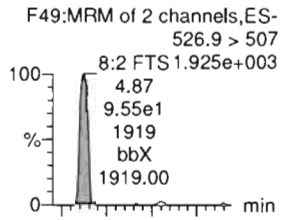
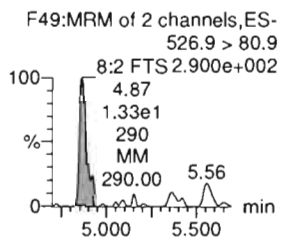




8:2 FTS





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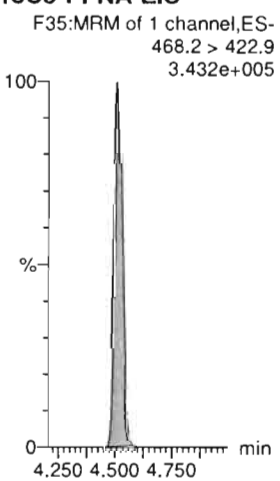
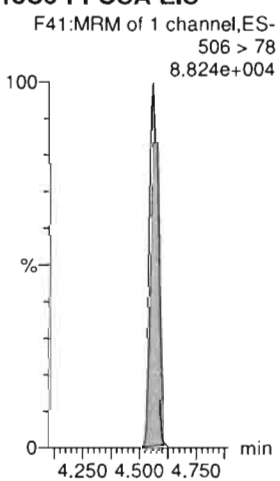


13C8-PFOSA-EIS



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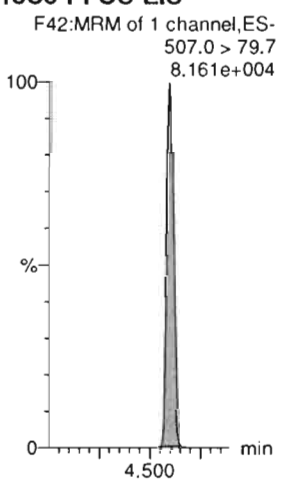

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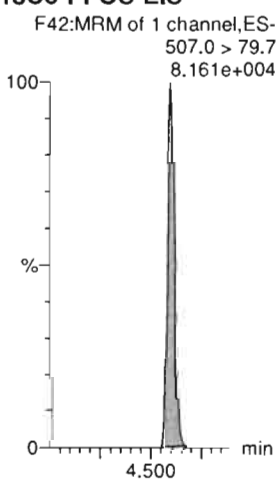

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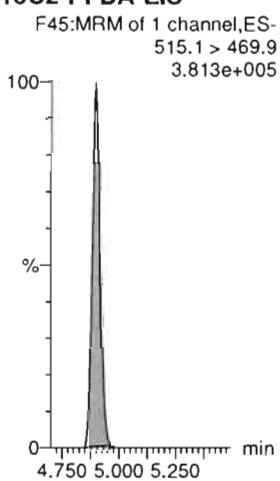

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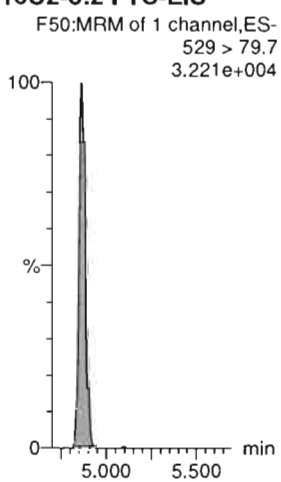

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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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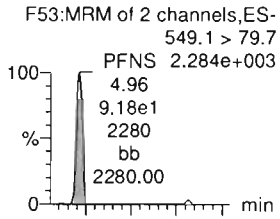

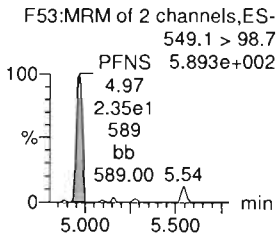

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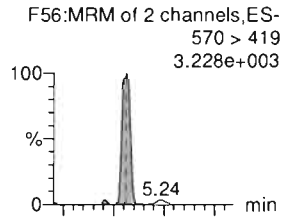

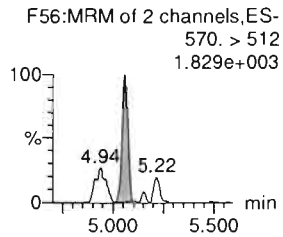

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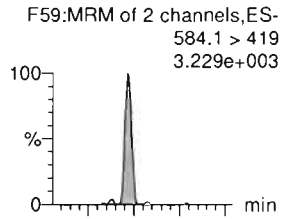

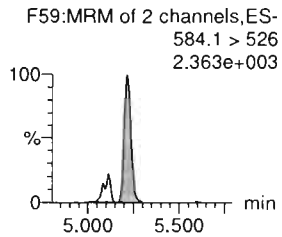

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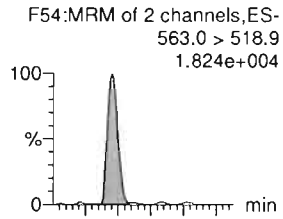

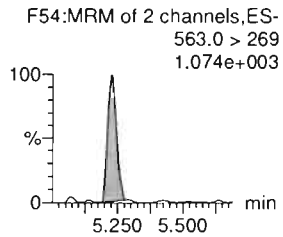

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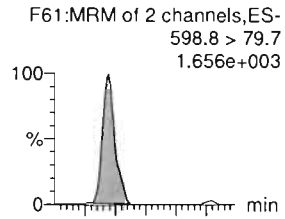

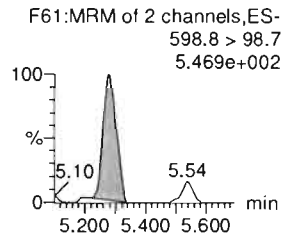

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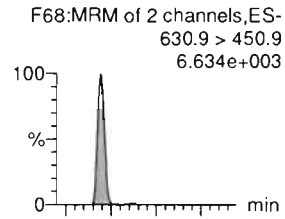
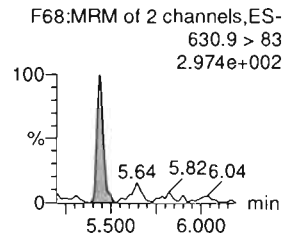
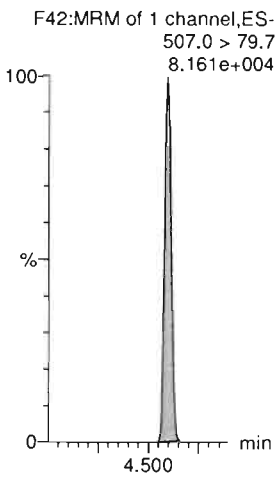




13C8-PFOS-EIS



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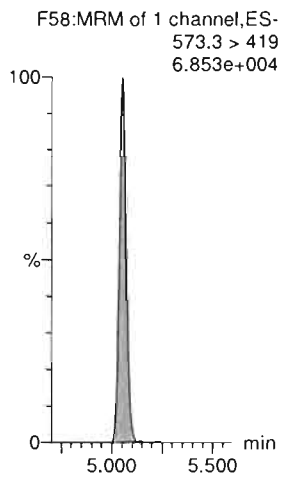
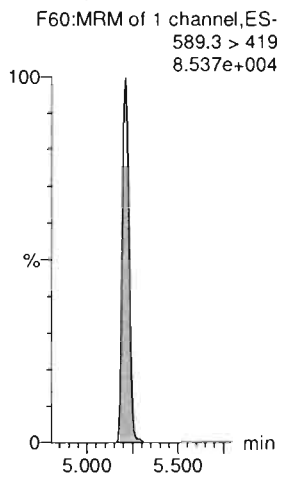


d5-N-EtFOSAA-EIS



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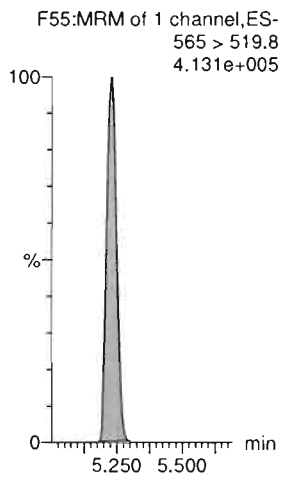

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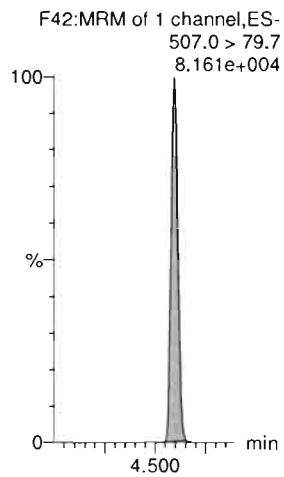

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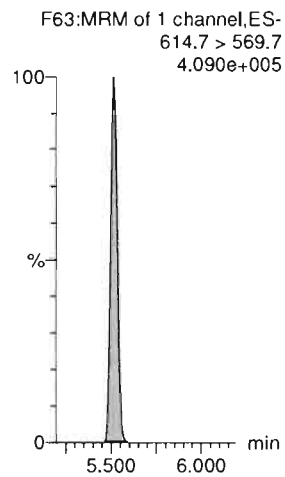

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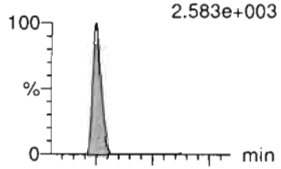
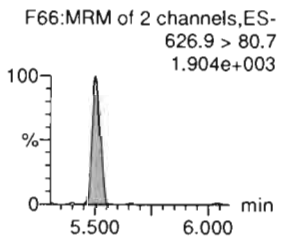
Printed: Friday, March 06, 2020 09:13:48 Pacific Standard Time

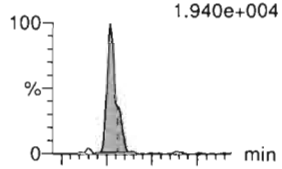
Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

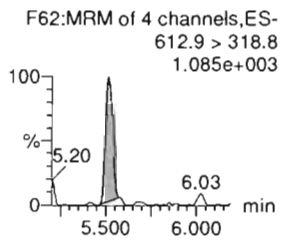
10:2 FTS



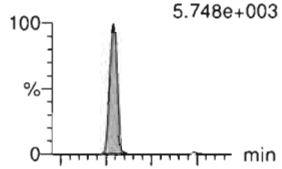


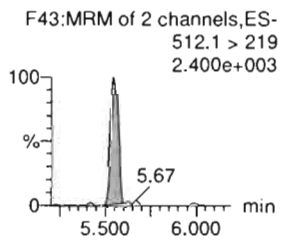
PFDoA





N-MeFOSA





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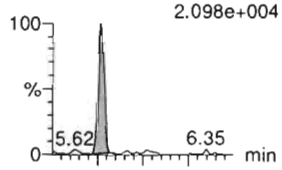
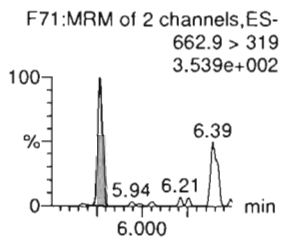
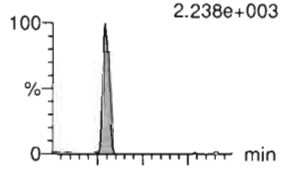
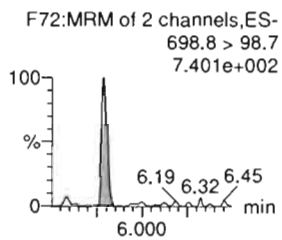


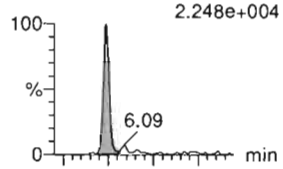


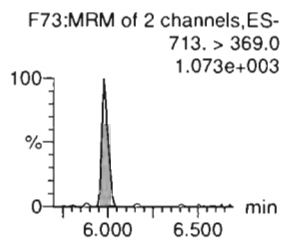
PFDoS



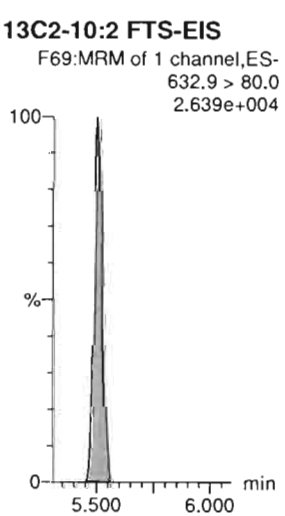


PFTeDA

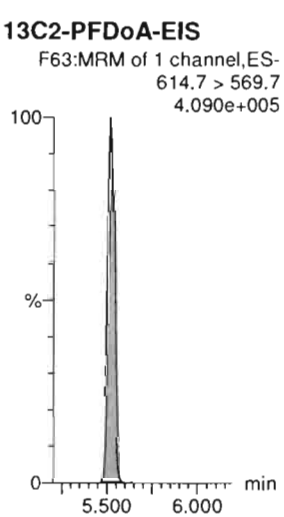




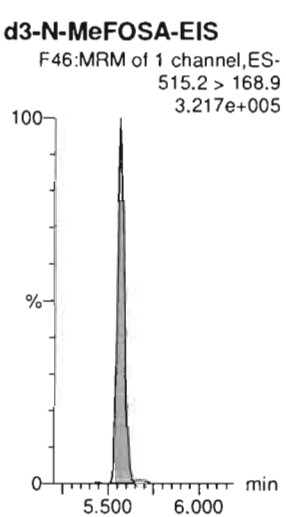
13C2-10:2 FTS-EIS



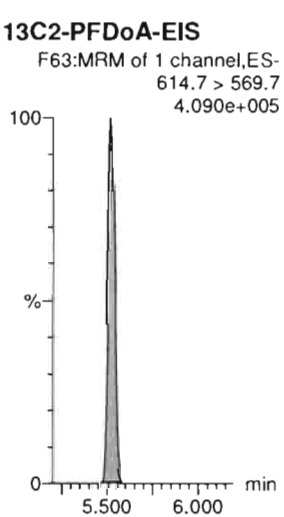
13C2-PFDoA-EIS



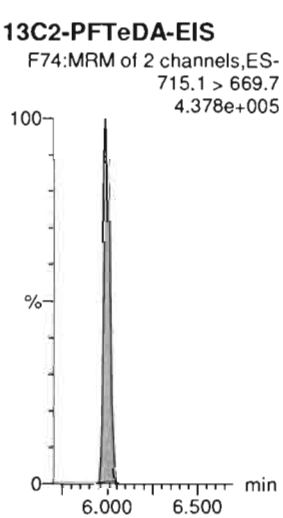
d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



13C2-PFTeDA-EIS



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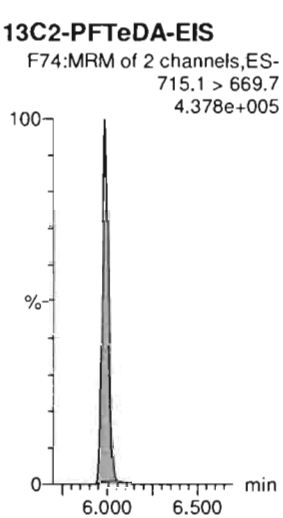

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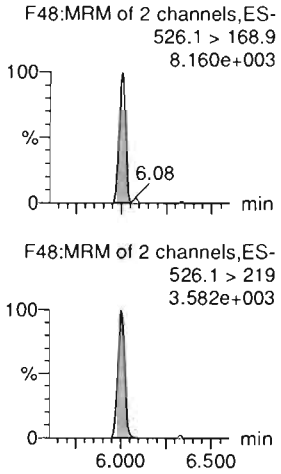
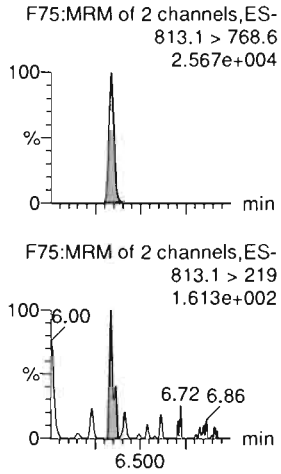
Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

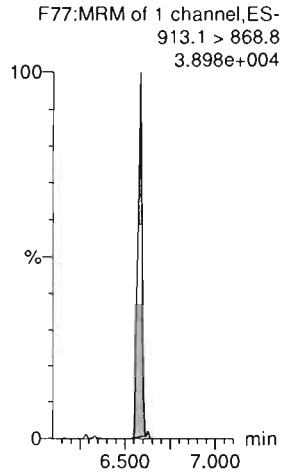
N-EtFOSA



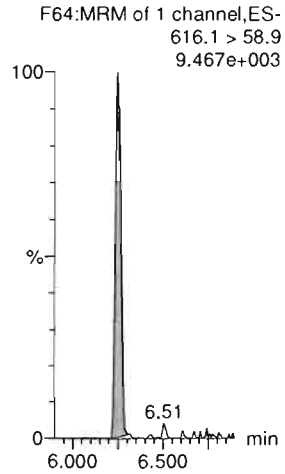
PFHxDA



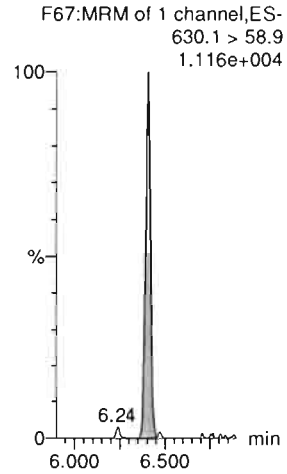
PFODA



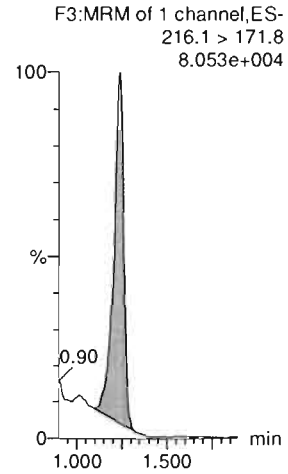
N-MeFOSE



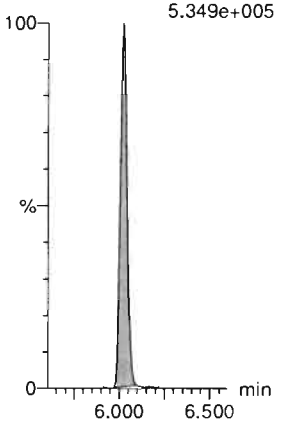
N-EtFOSE



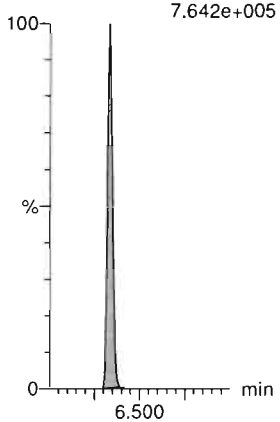
13C3-PFBA-RSD



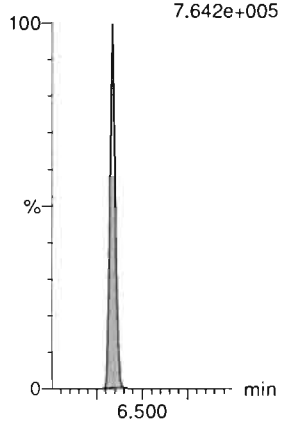
d5-N-ETFOSA-EIS



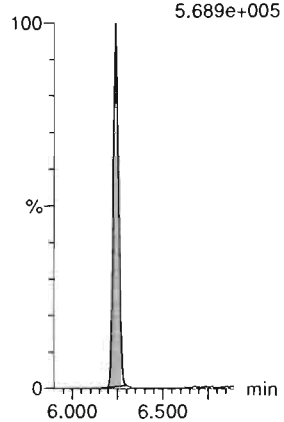
13C2-PFHxDA-EIS



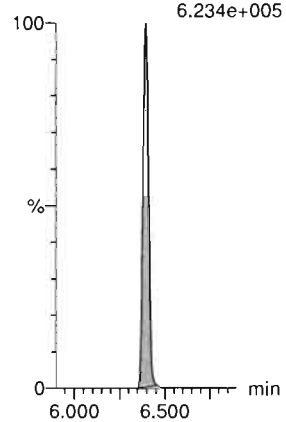
13C2-PFHxDA-EIS



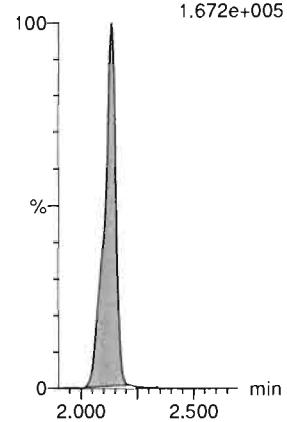
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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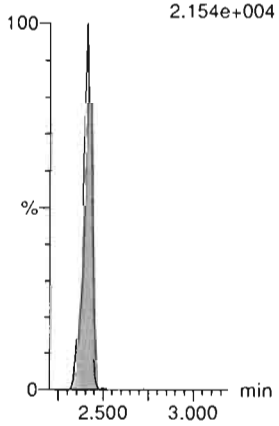
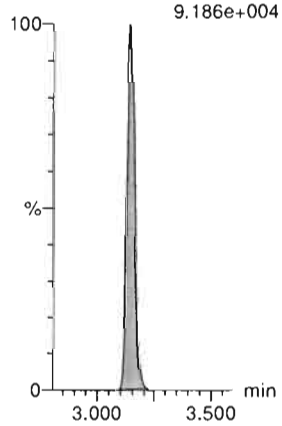
Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

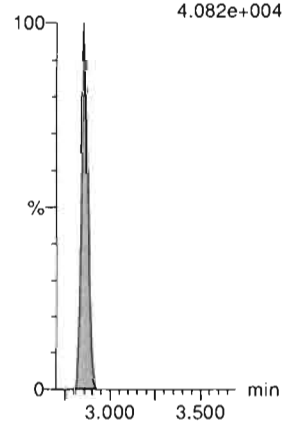
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.154e+004



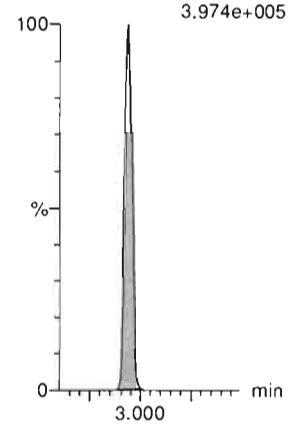
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.186e+004



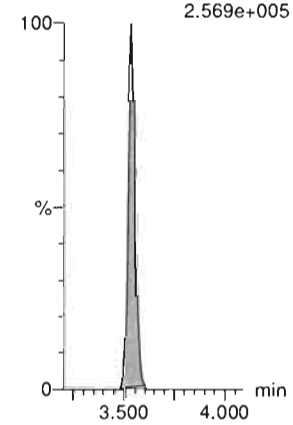
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
4.082e+004



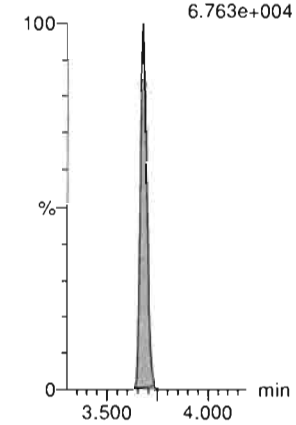
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.974e+005



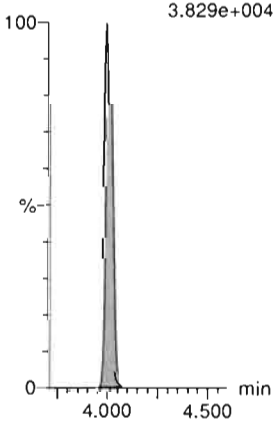
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.569e+005



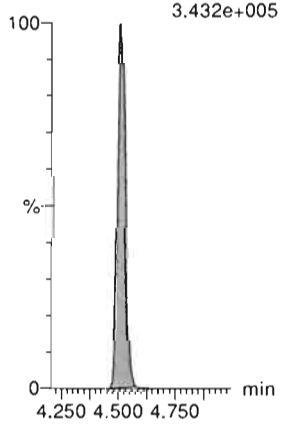
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.763e+004



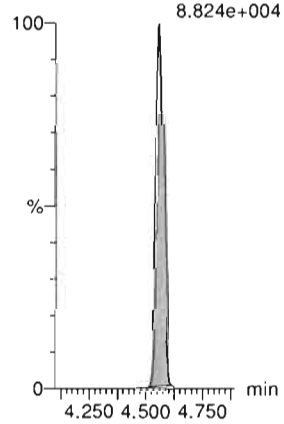
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.829e+004



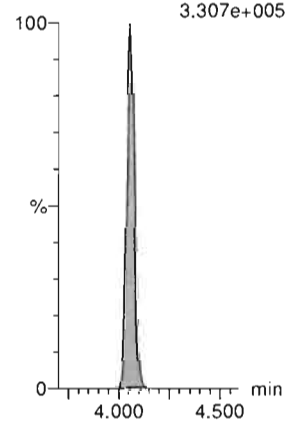
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.432e+005



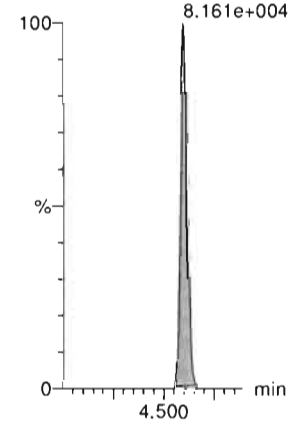
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.824e+004



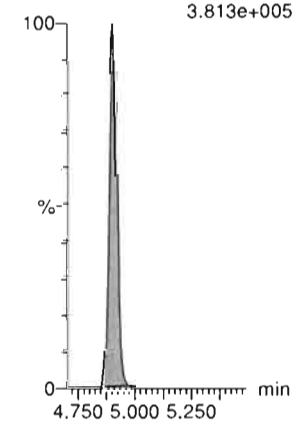
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.307e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
8.161e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.813e+005



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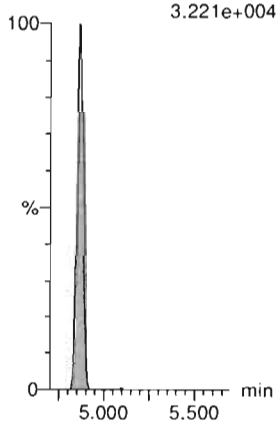
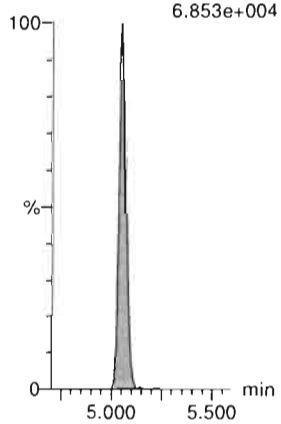
Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

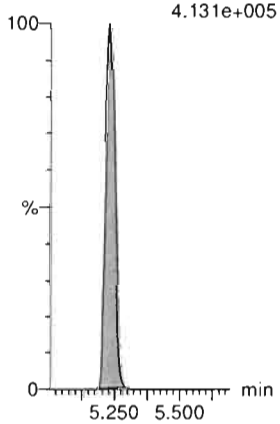
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
3.221e+004



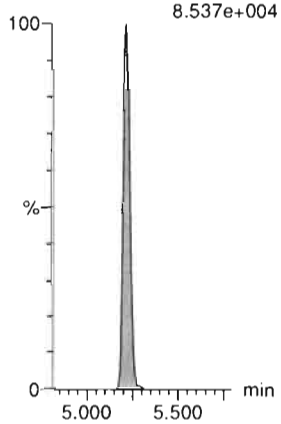
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
6.853e+004



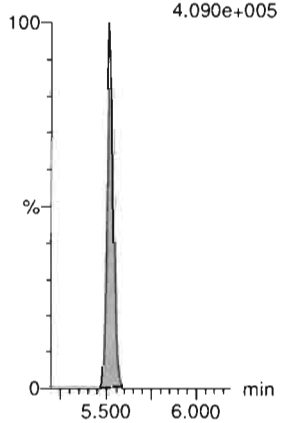
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.131e+005



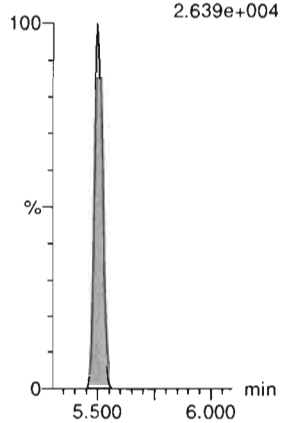
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
8.537e+004



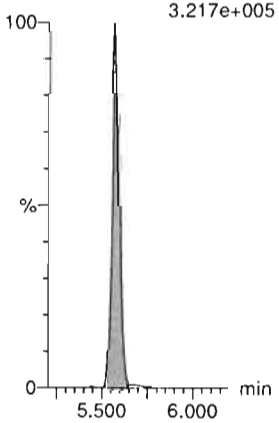
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.090e+005



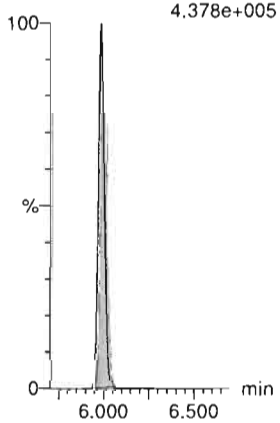
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.639e+004



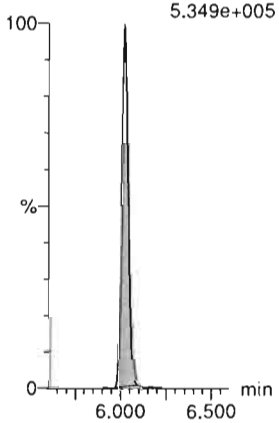
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.217e+005



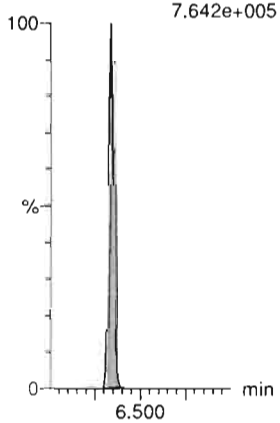
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.378e+005



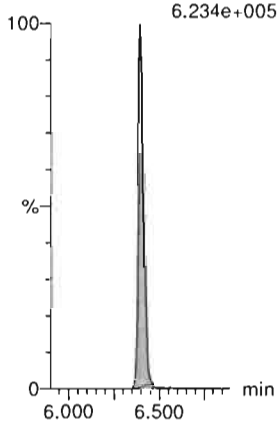
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.349e+005



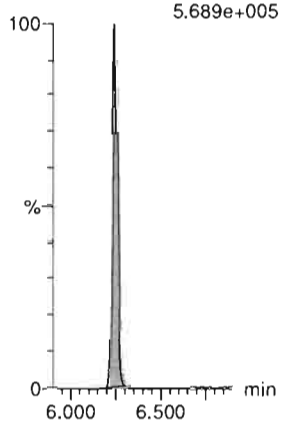
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.642e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.234e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.689e+005



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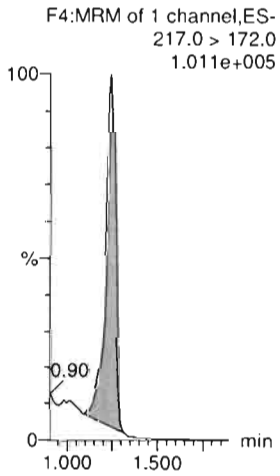
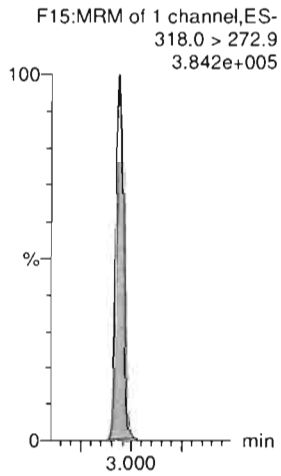
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-4, Date: 05-Mar-2020, Time: 17:45:53, ID: ST200305P1-2 PFC CS-1 20C0305, Description: PFC CS-1 20C0305

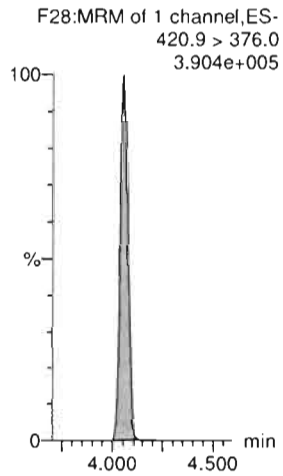
13C4-PFBA



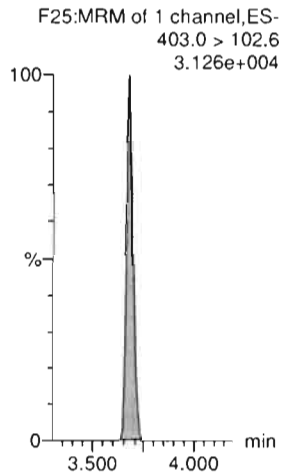
13C5-PFHxA



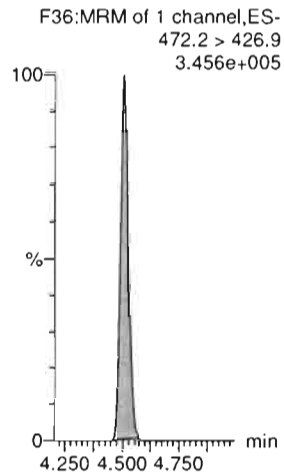
13C8-PFOA



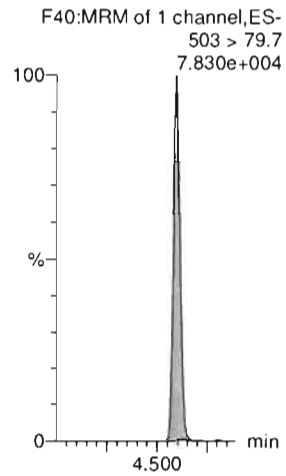
18O2-PFHxS



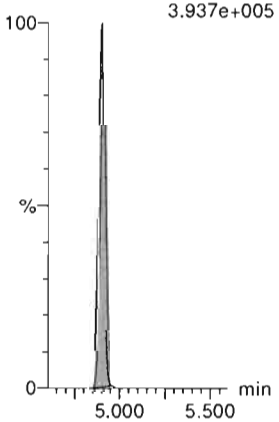
13C9-PFNA



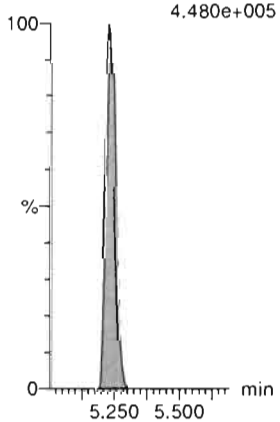
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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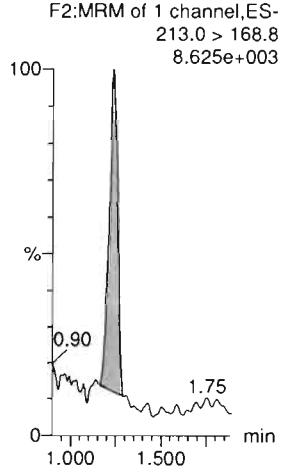
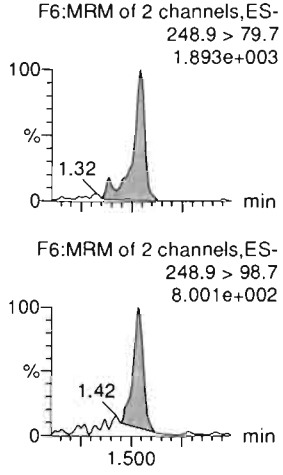
Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

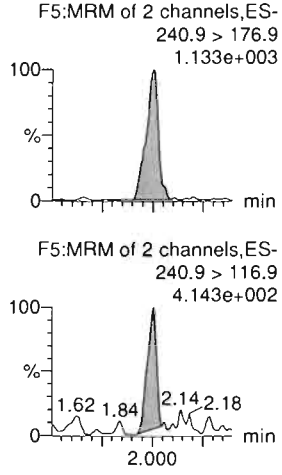
PFBA



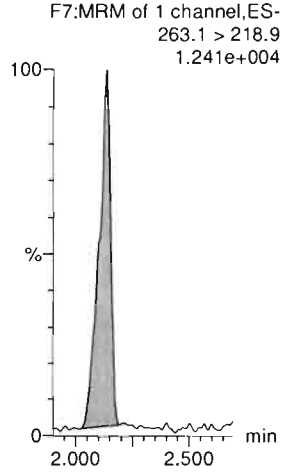
PFPrS



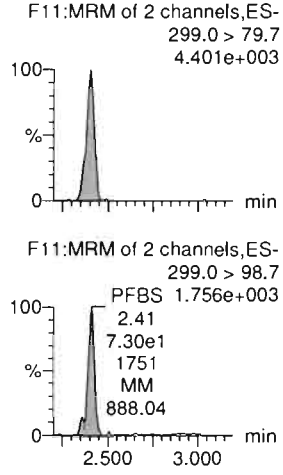
3:3 FTCA



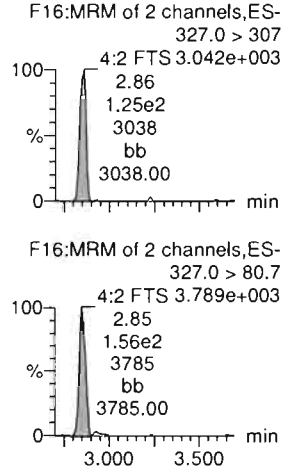
PFPeA



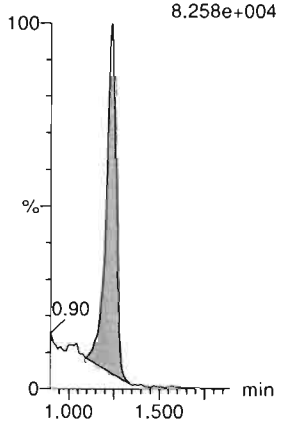
PFBS



4:2 FTS



13C3-PFBA-EIS



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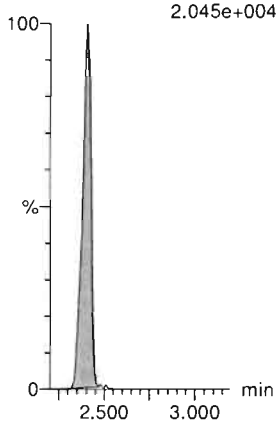
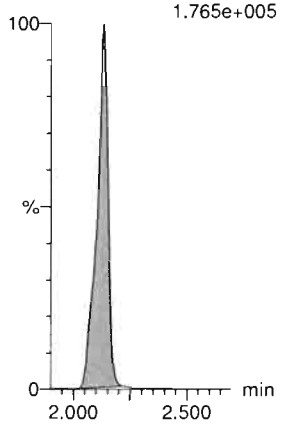
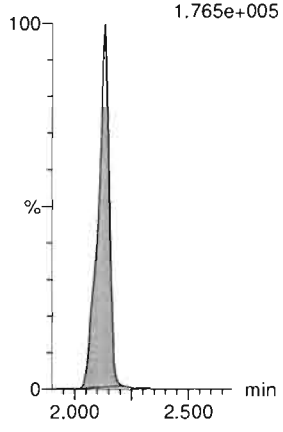


13C3-PFPeA-EIS



13C3-PFPeA-EIS



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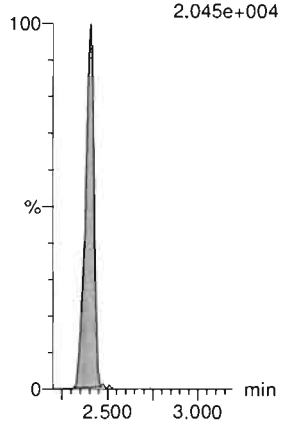
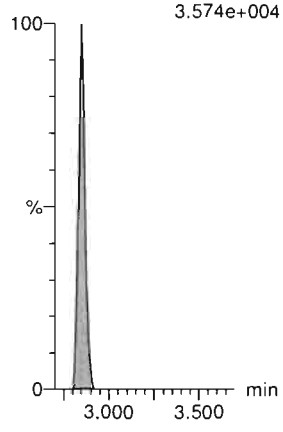


13C2-4:2 FTS-EIS



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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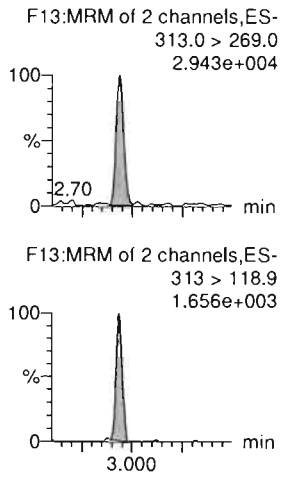
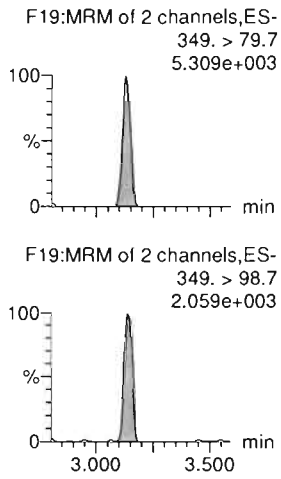
Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

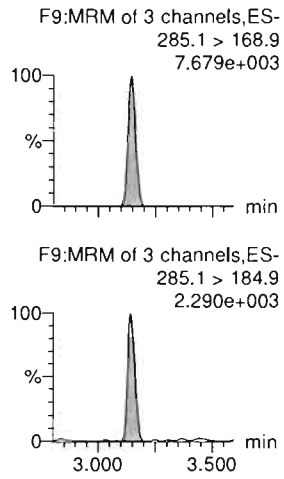
PFHxA



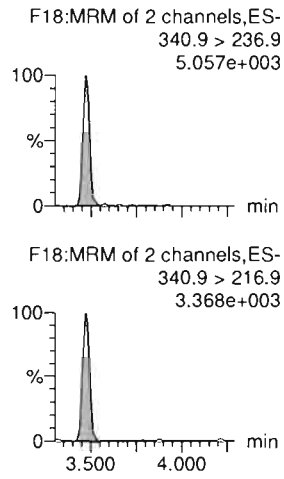
PFPeS



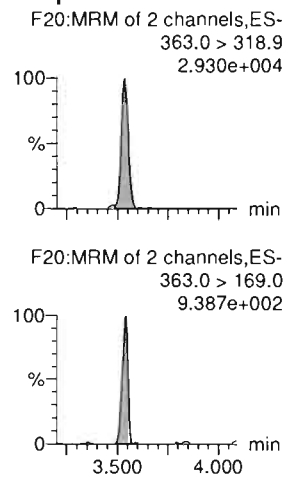
HFPO-DA



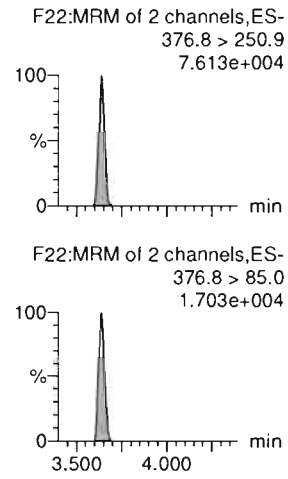
5:3 FTCA



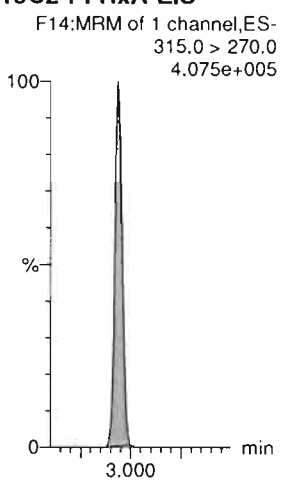
PFHpA



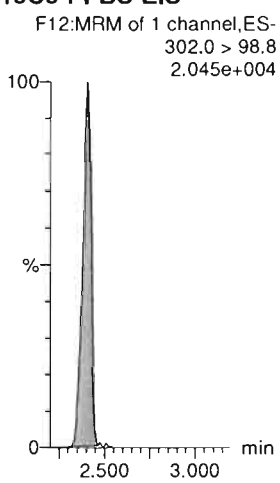
ADONA



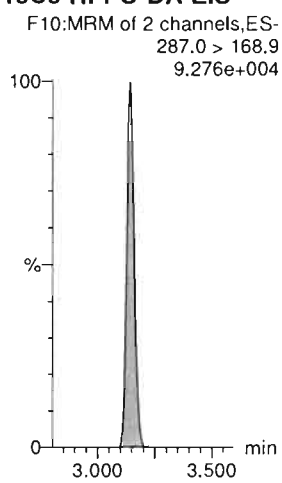
13C2-PFHxA-EIS



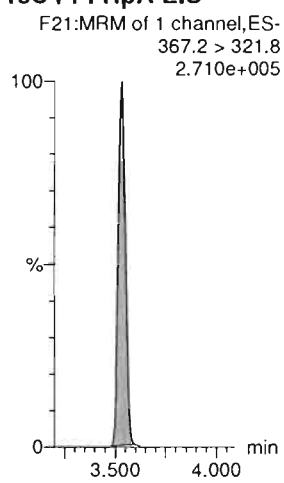
13C3-PFBS-EIS



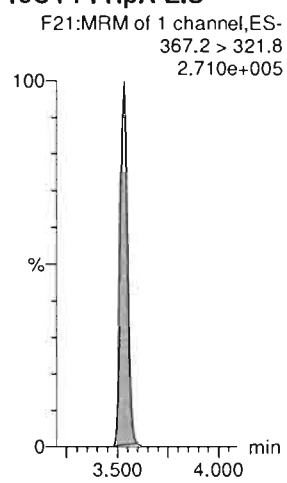
13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



13C4-PFHpA-EIS



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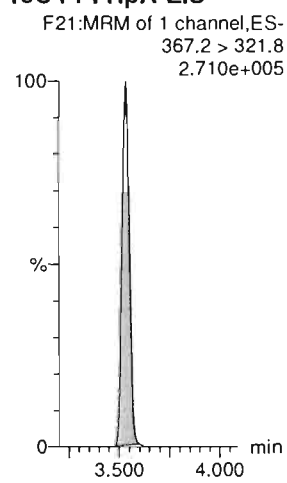

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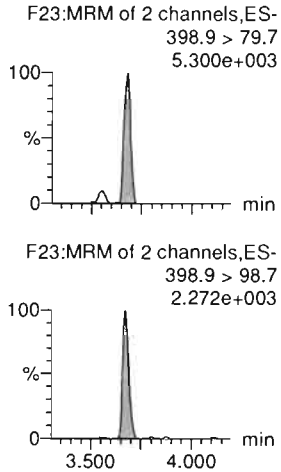
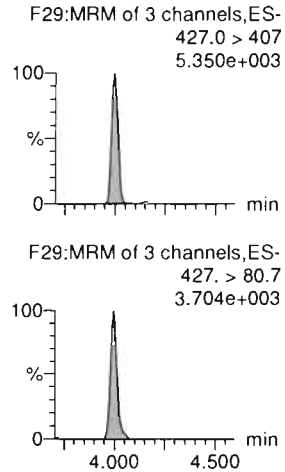
Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

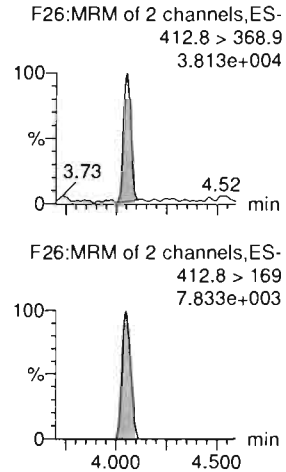
L-PFHxS



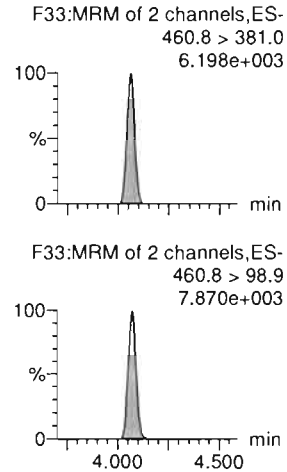
6:2 FTS



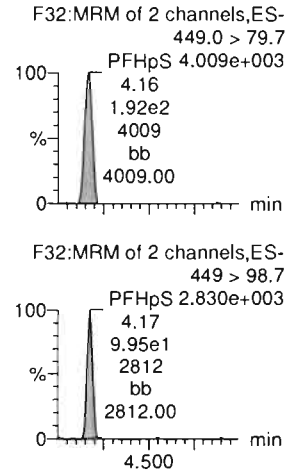
L-PFOA



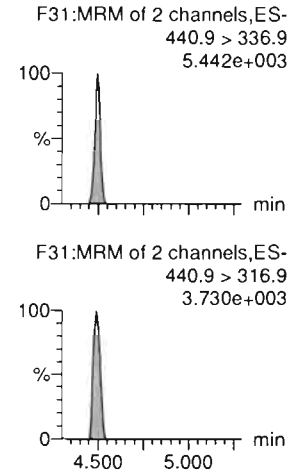
PFEChS



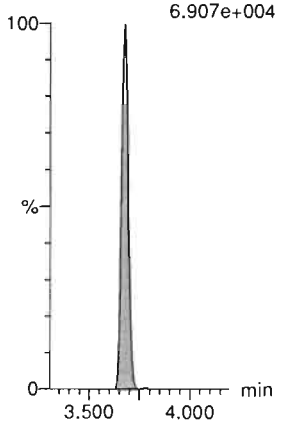
PFHpS



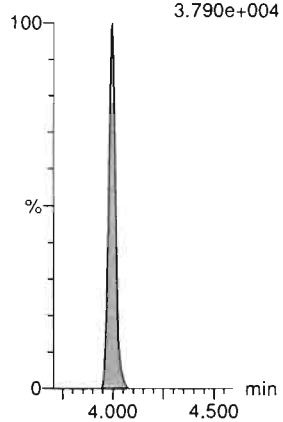
7:3 FTCA



13C3-PFHxS-EIS



13C2-6:2 FTS-EIS



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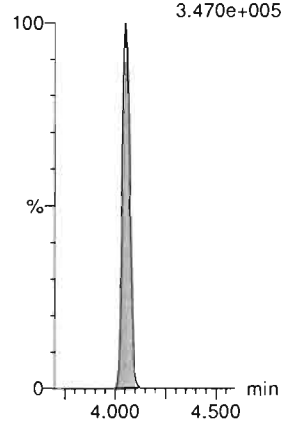

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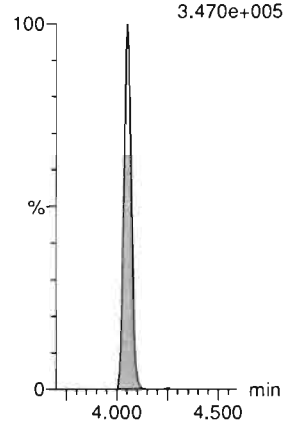
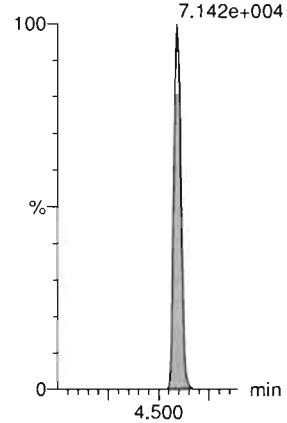
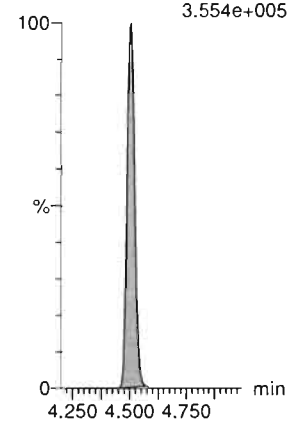


13C8-PFOS-EIS



13C5-PFNA-EIS



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Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

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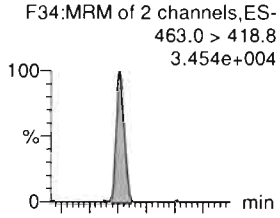

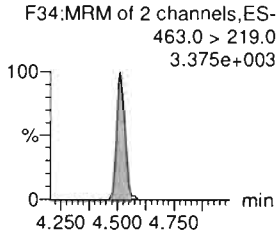

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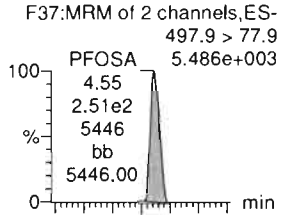

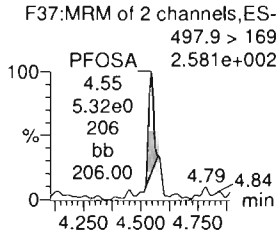

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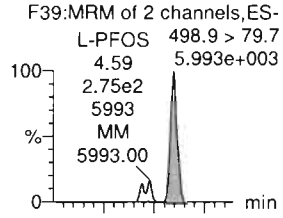

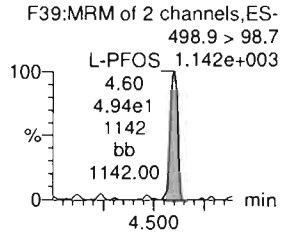

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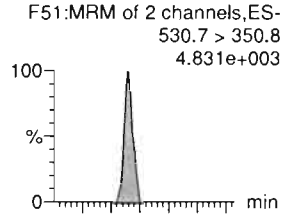

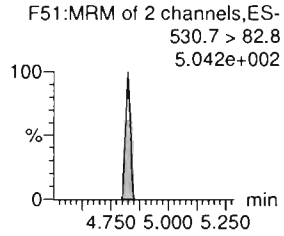

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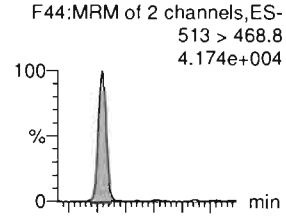
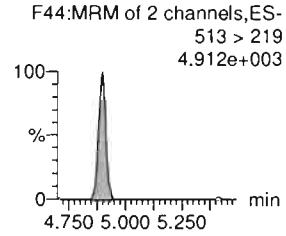
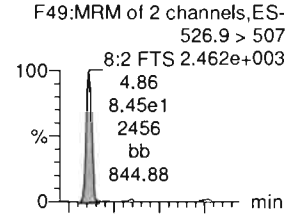
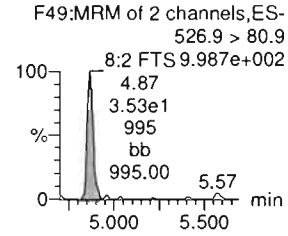




8:2 FTS





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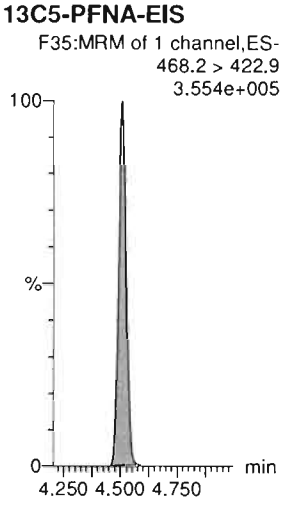
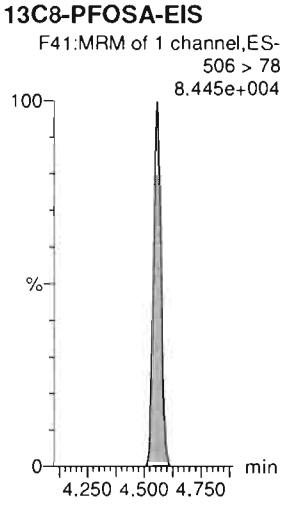


13C8-PFOSA-EIS



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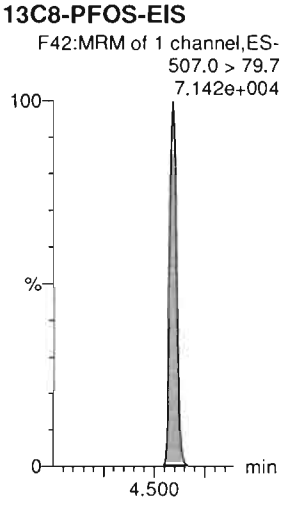

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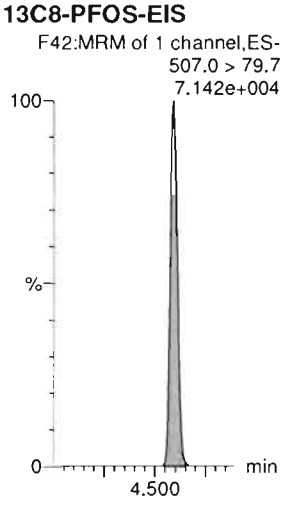

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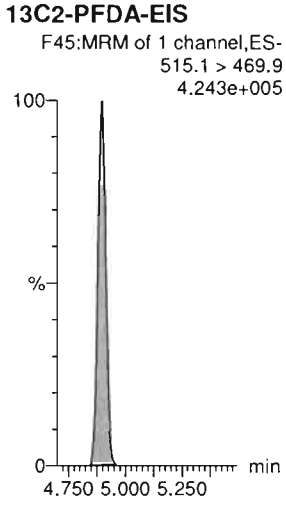

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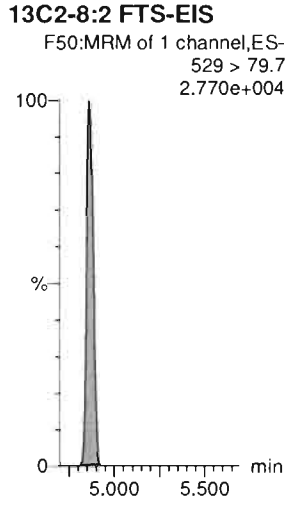

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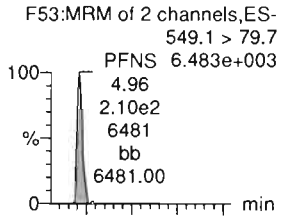

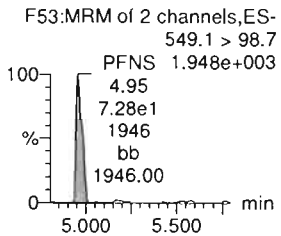

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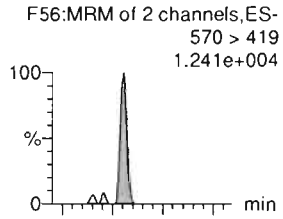

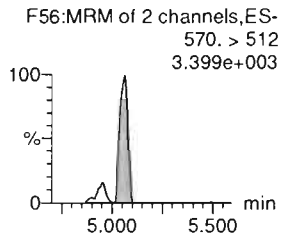

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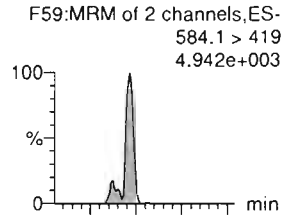

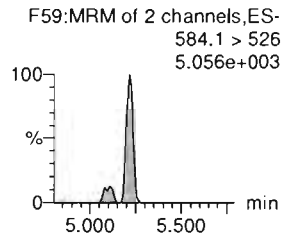

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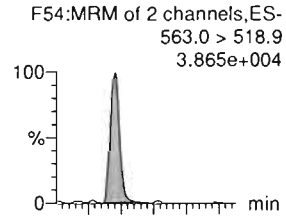

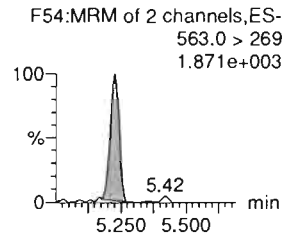

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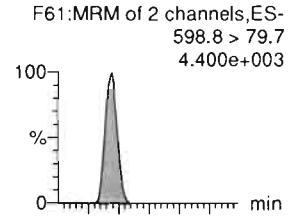

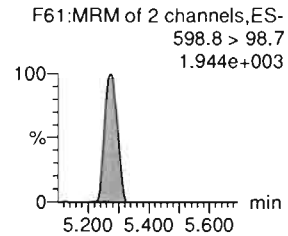

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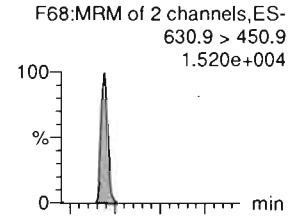

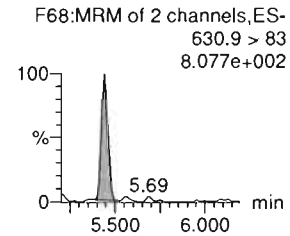

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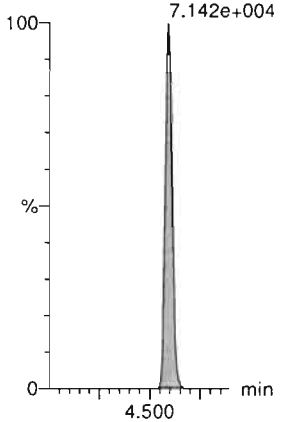

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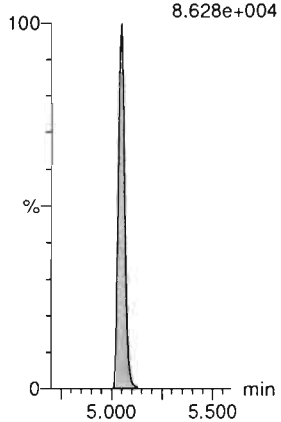

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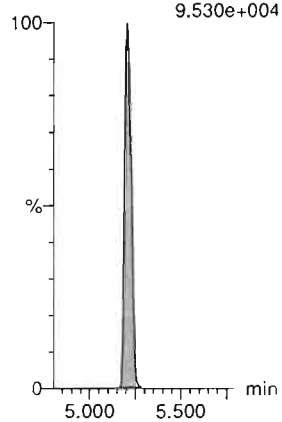

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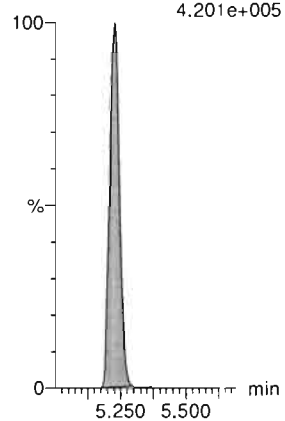

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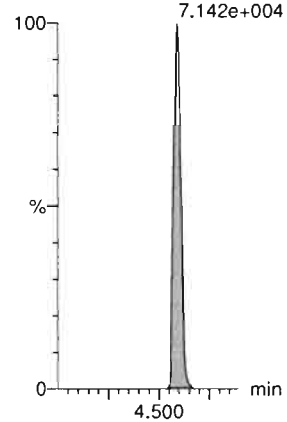

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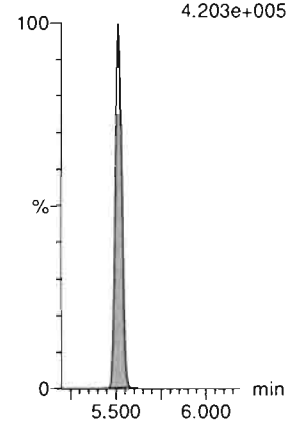

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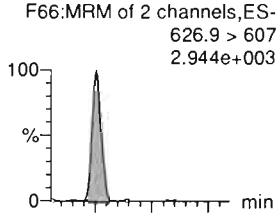
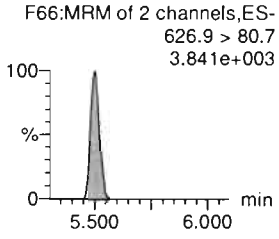
10:2 FTS





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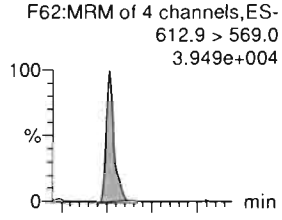
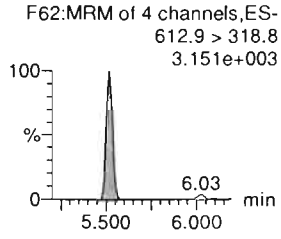
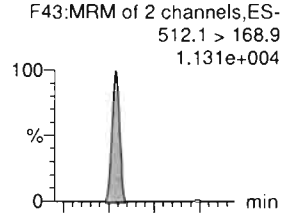
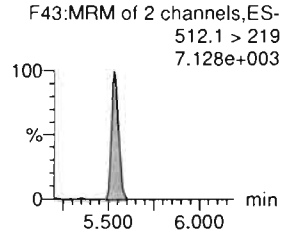




N-MeFOSA





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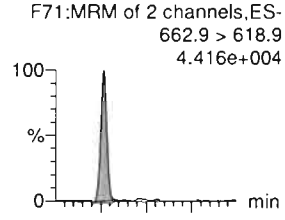

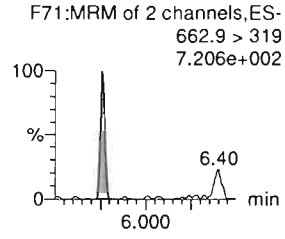

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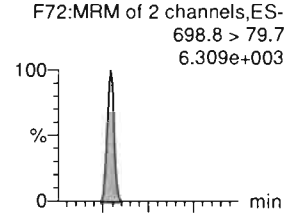

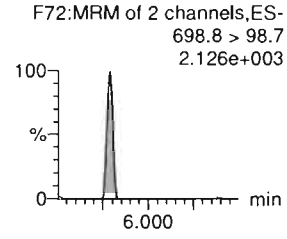

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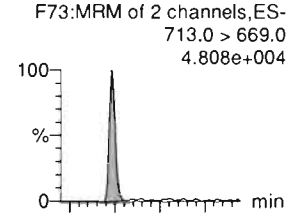

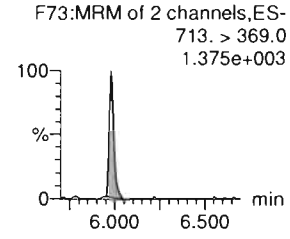

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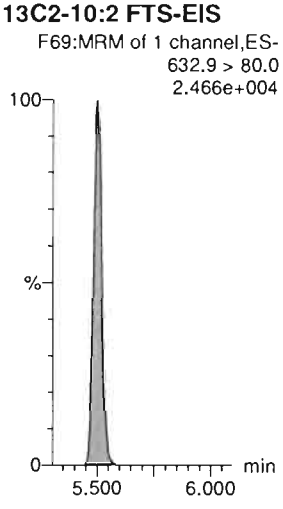

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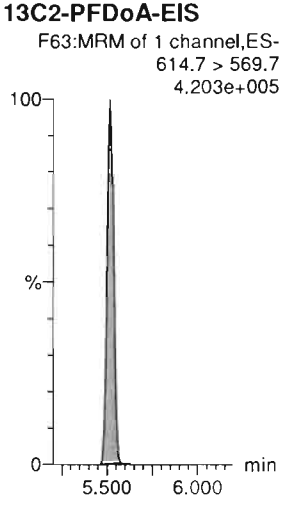
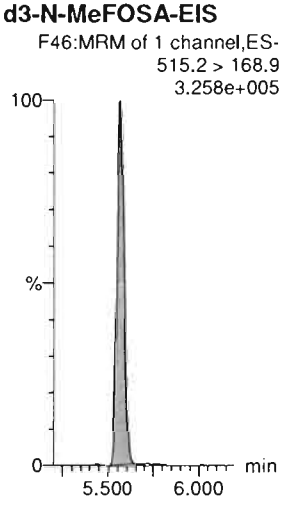
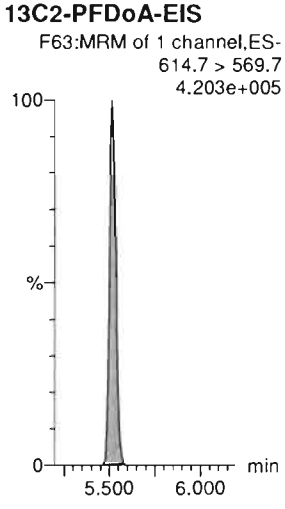


d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



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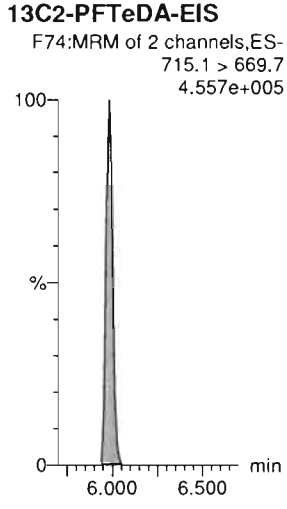

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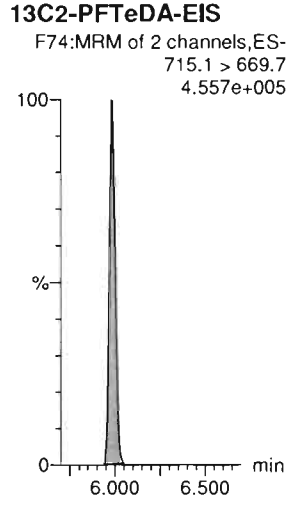

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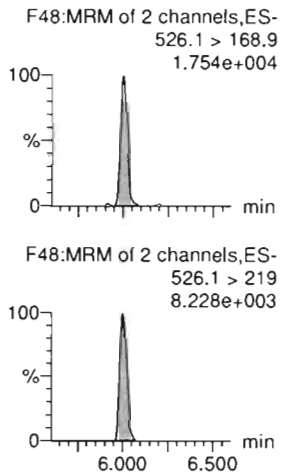
Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

N-EtFOSA



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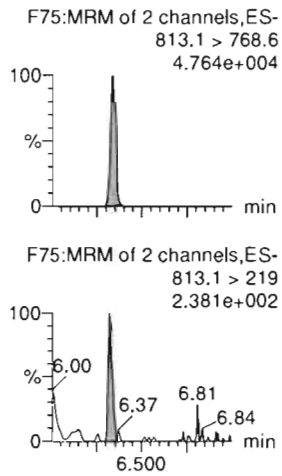
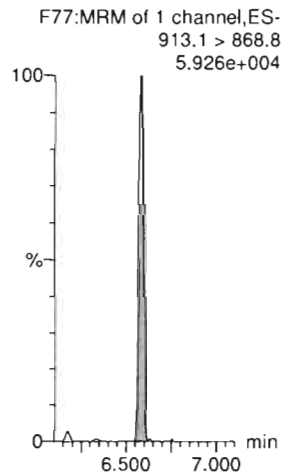
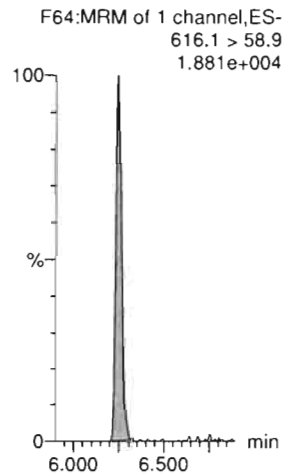


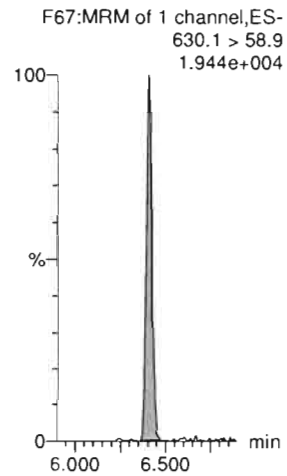
PFODA



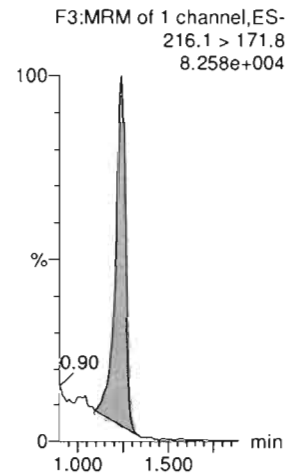
N-MeFOSE



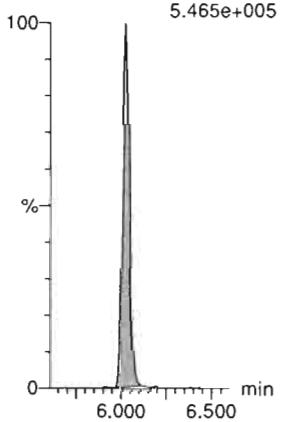
N-EtFOSE



13C3-PFBA-RSD



d5-N-ETFOSA-EIS



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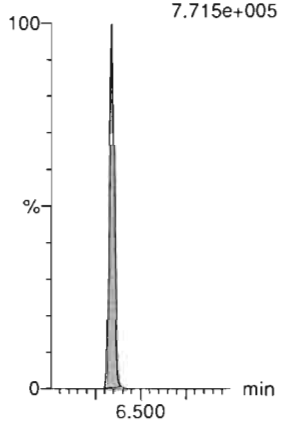
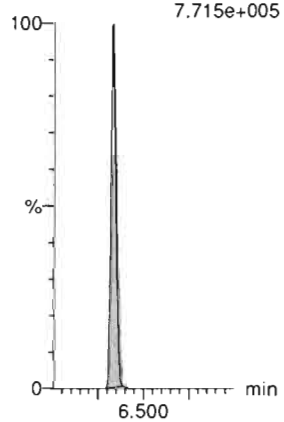
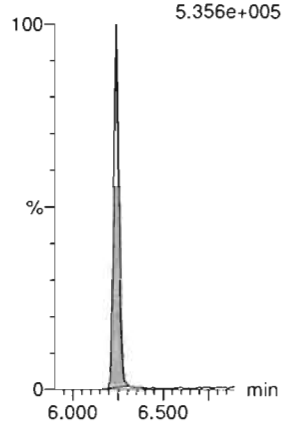


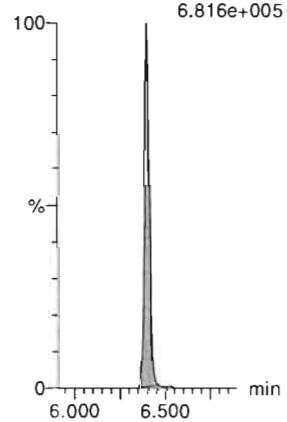
13C2-PFHxDA-EIS



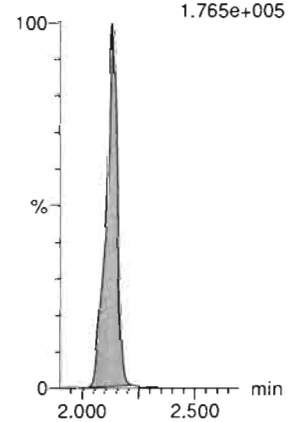
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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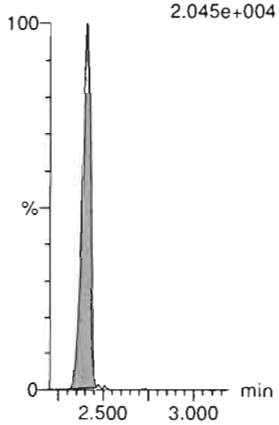
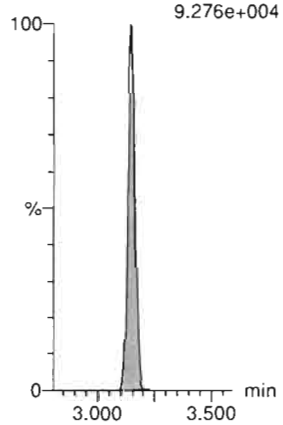
Name: 200305P1-5, Date: 05-Mar-2020, Time: 17:56:21, ID: ST200305P1-3 PFC CS0 20C0306, Description: PFC CS0 20C0306

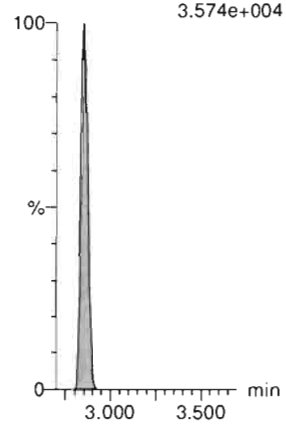
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.045e+004



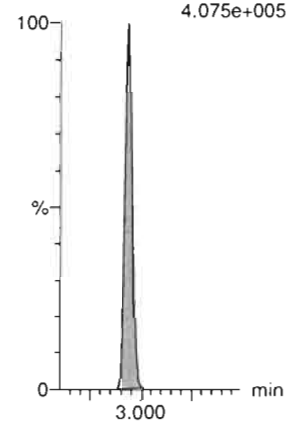
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.276e+004



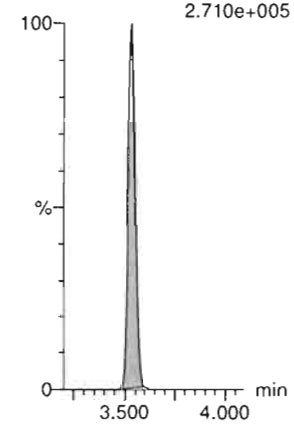
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.574e+004



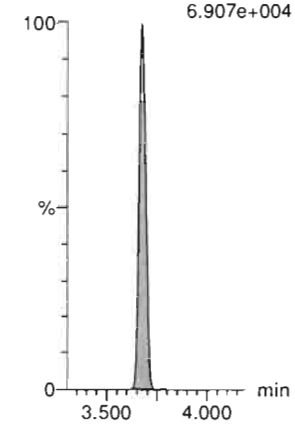
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.075e+005



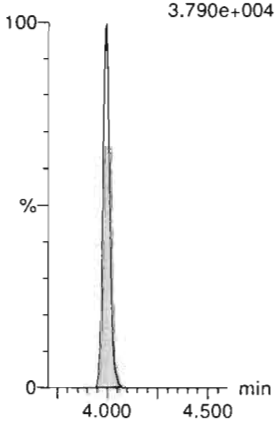
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.710e+005



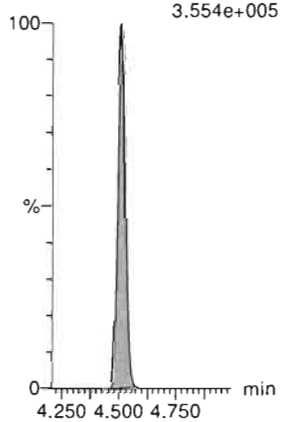
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.907e+004



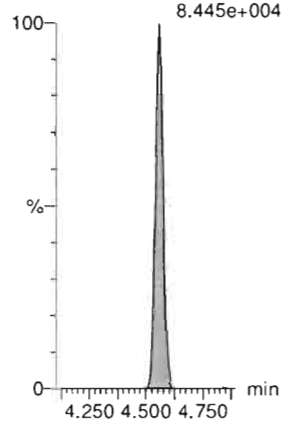
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.790e+004



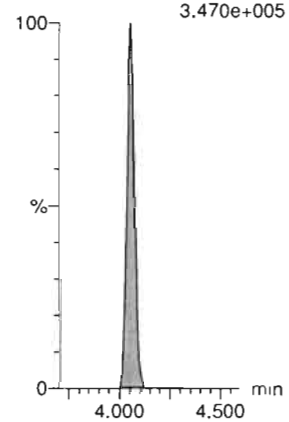
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.554e+005



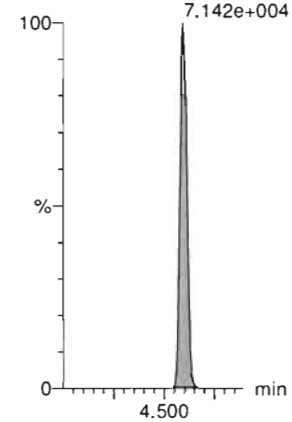
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.445e+004



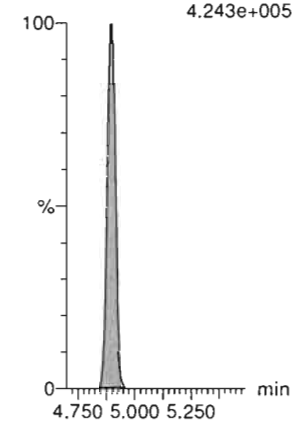
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.470e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.142e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.243e+005



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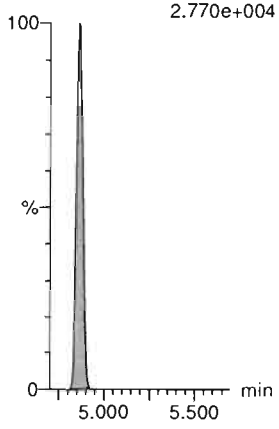
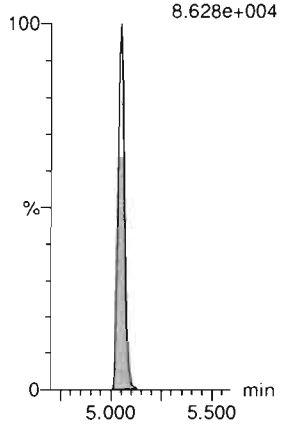
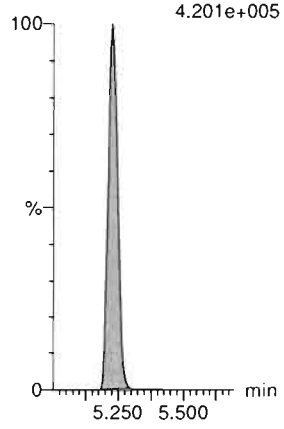
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.770e+004



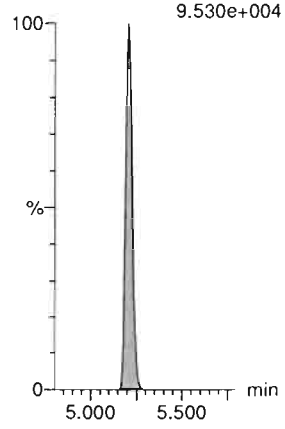
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
8.628e+004



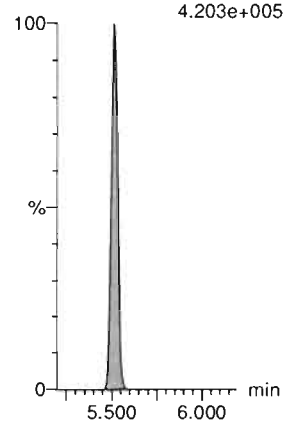
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.201e+005



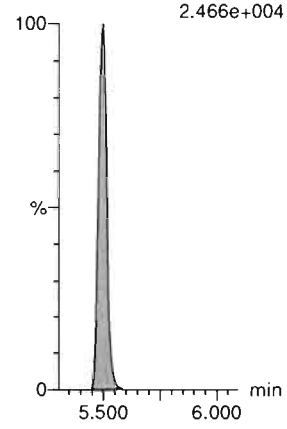
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.530e+004



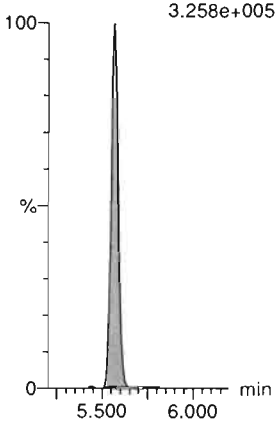
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.203e+005



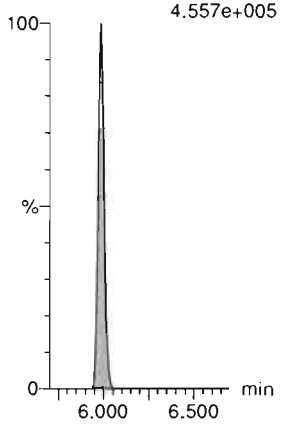
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.466e+004



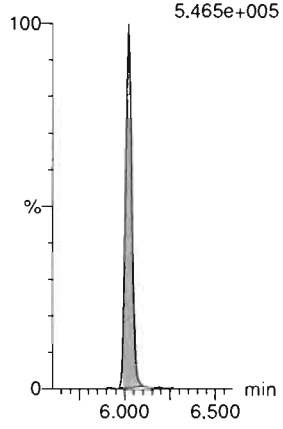
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.258e+005



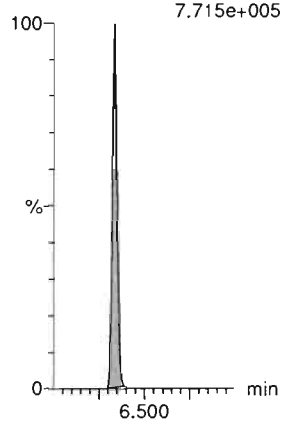
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.557e+005



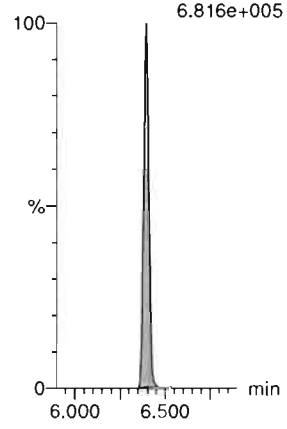
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.465e+005



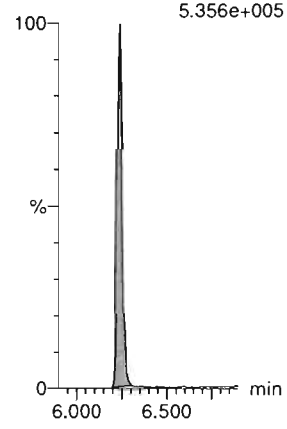
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.715e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.816e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.356e+005



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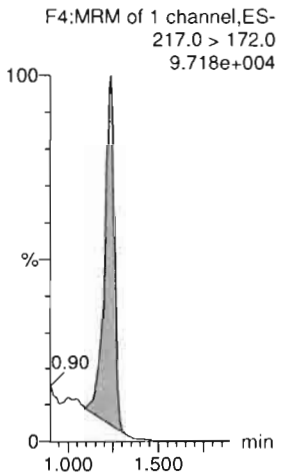
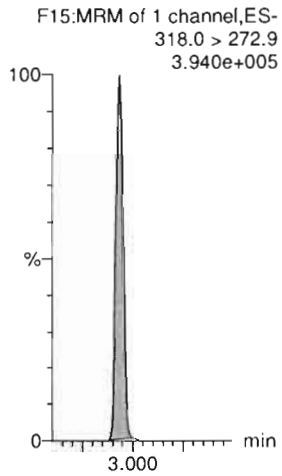
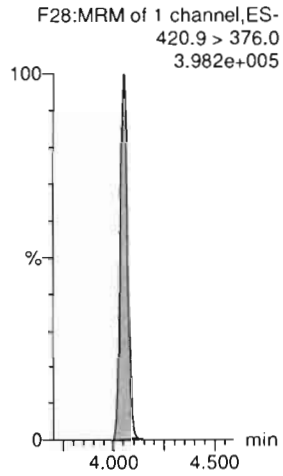
13C4-PFBA



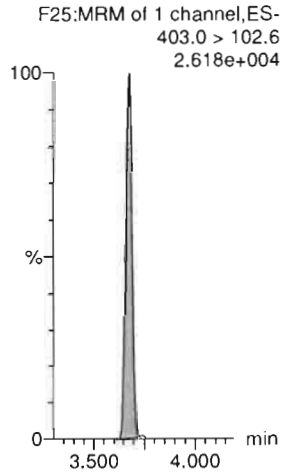
13C5-PFHxA



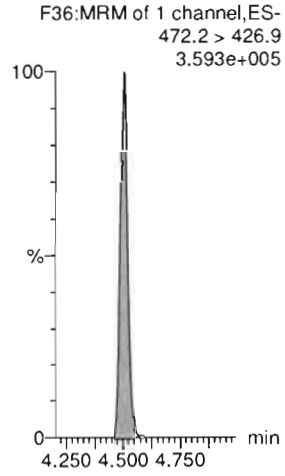
13C8-PFOA



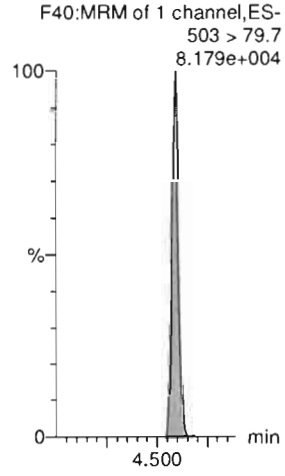
18O2-PFHxS



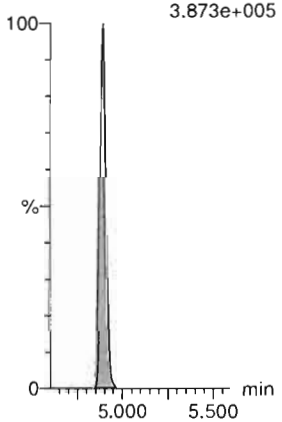
13C9-PFNA



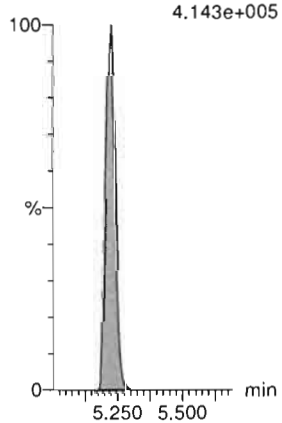
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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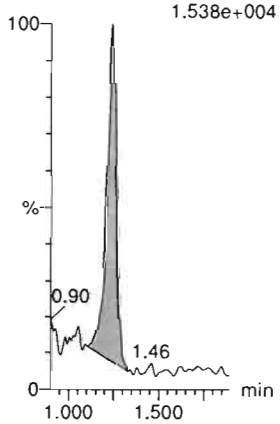
PFBA



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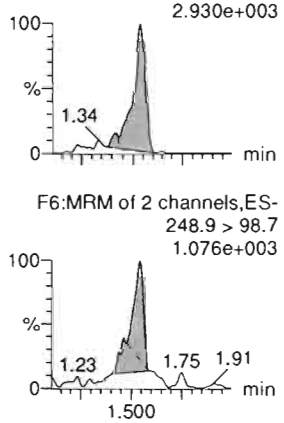
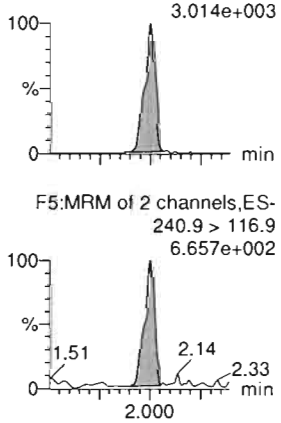


3:3 FTCA



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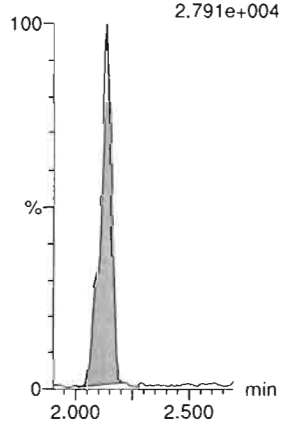

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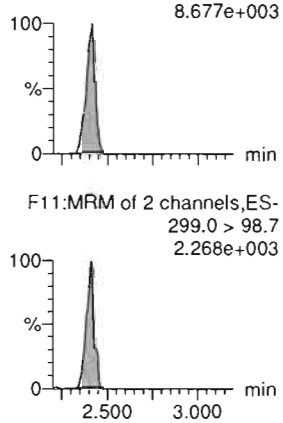
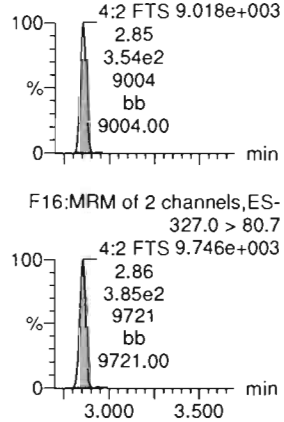


4:2 FTS



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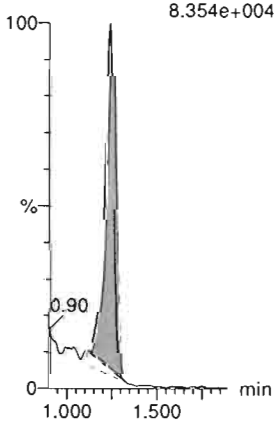

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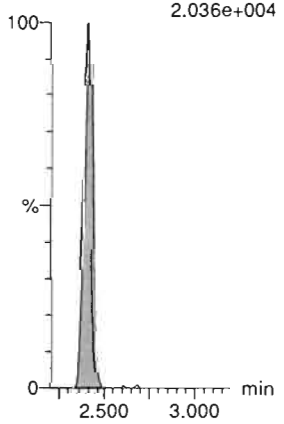

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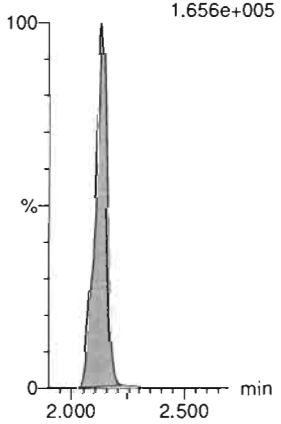

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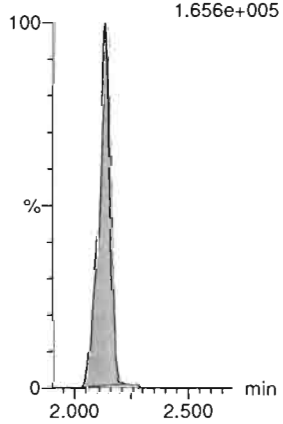

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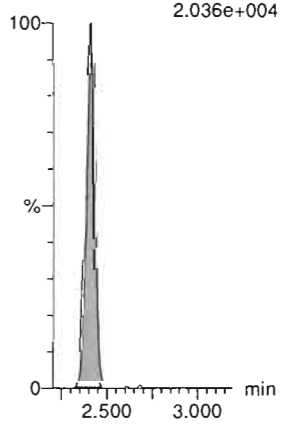

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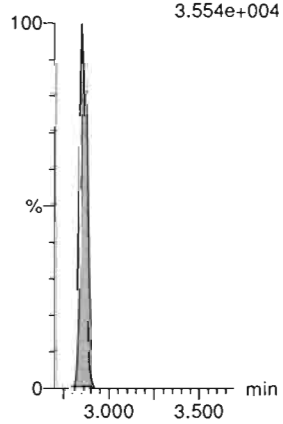

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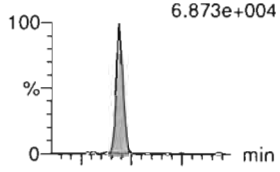

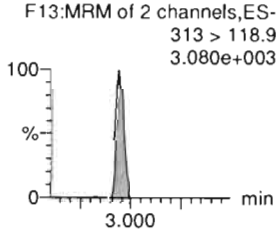

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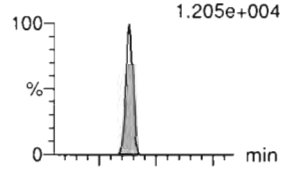

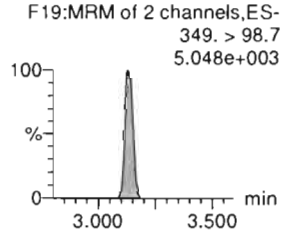

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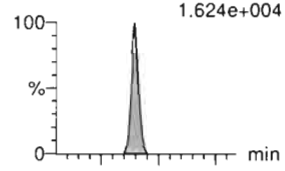

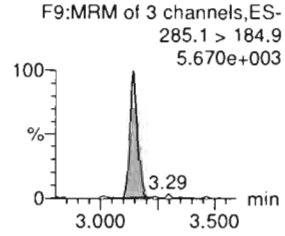

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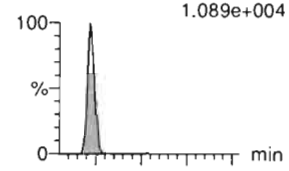

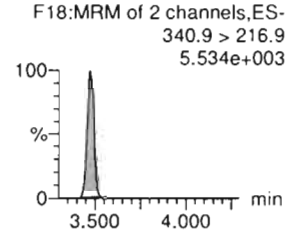

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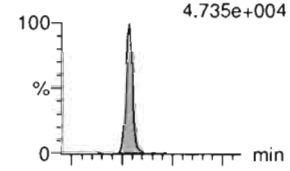

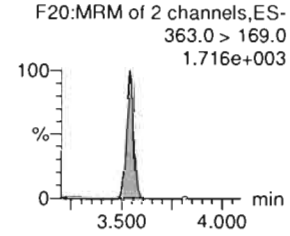

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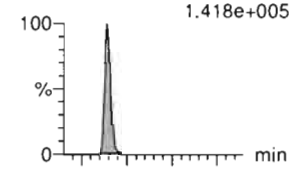

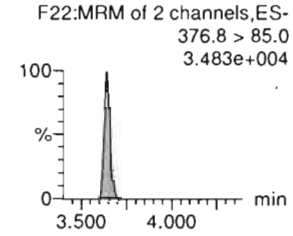

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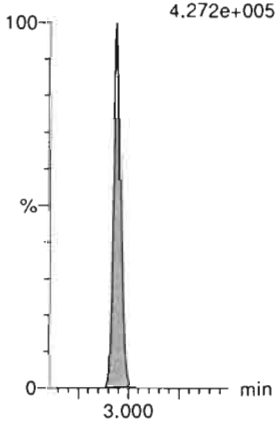

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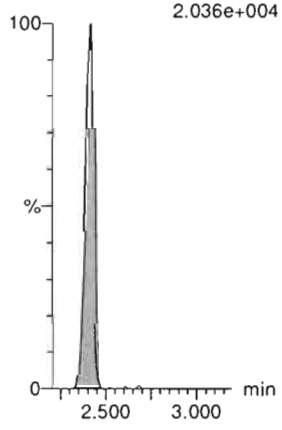

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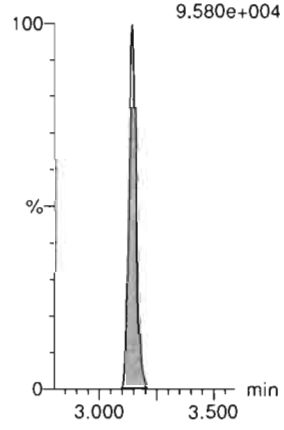

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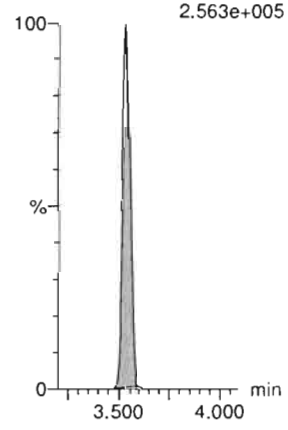

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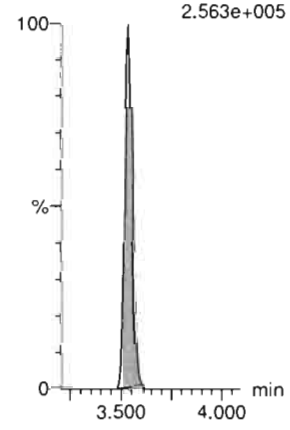

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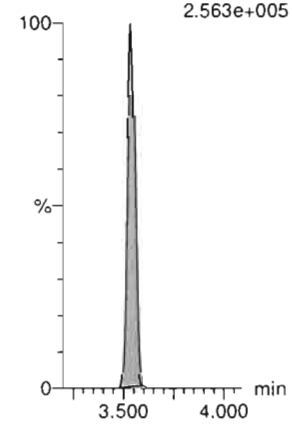

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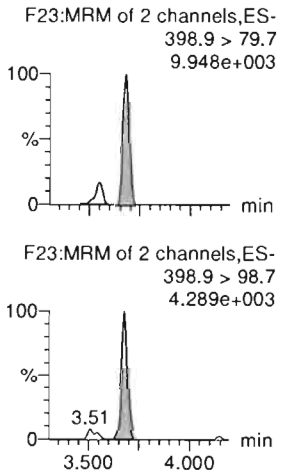
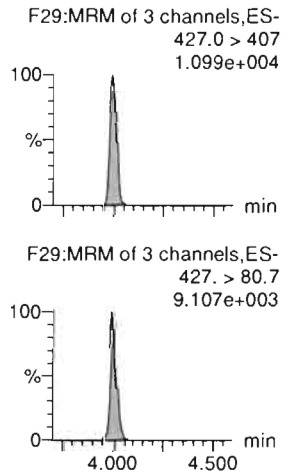
L-PFHxS



6:2 FTS



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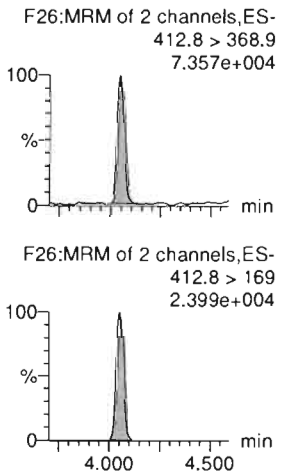

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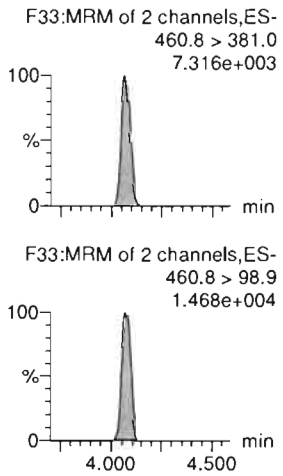

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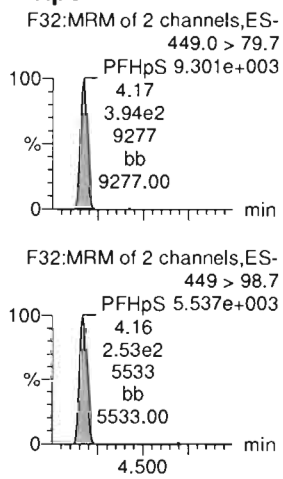
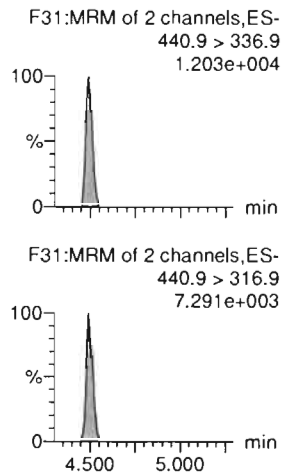


7:3 FTCA



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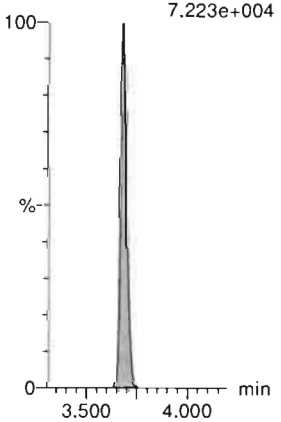

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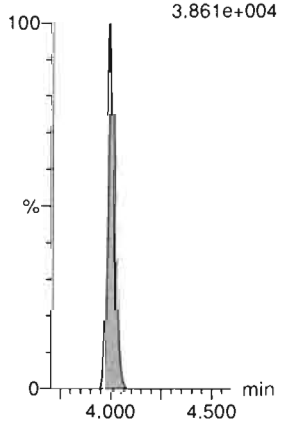

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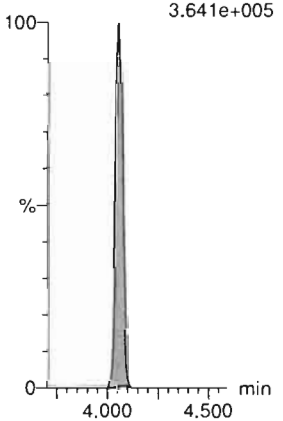

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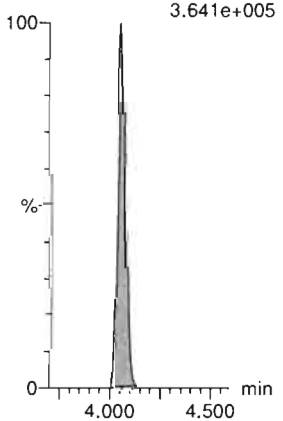

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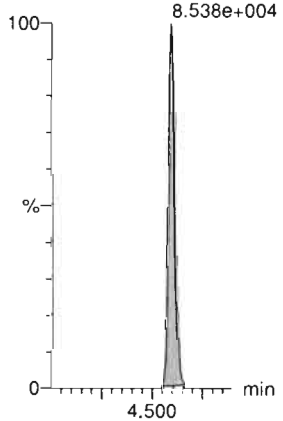

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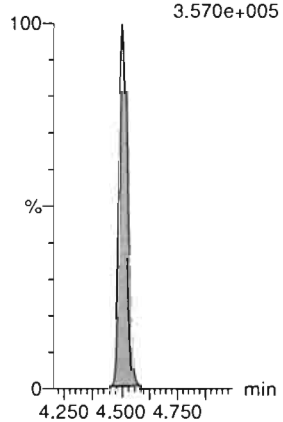

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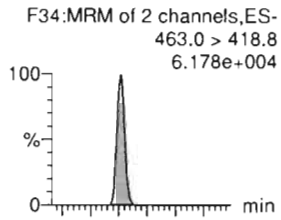
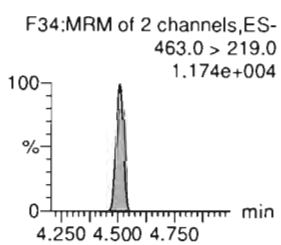
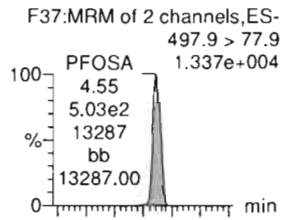
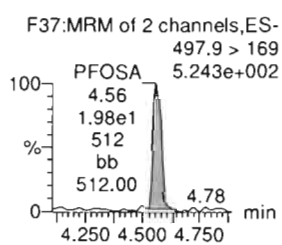


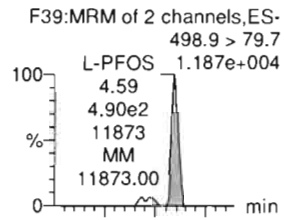


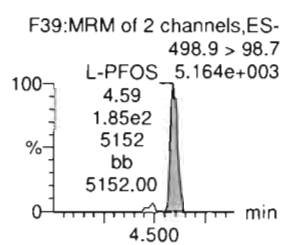
PFOSA





L-PFOS





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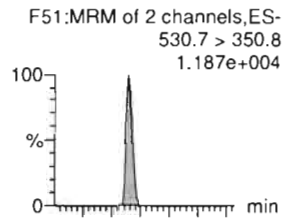
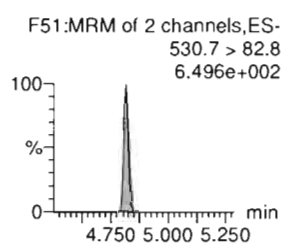
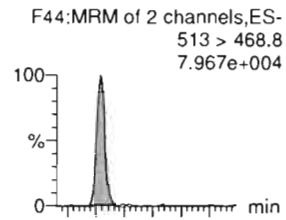
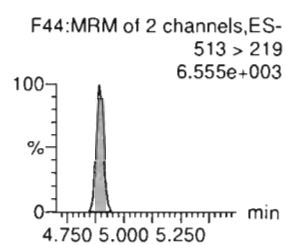




PFDA





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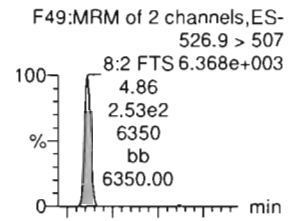
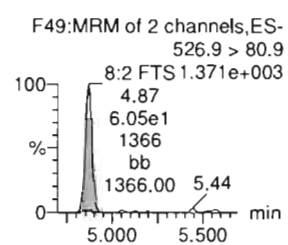
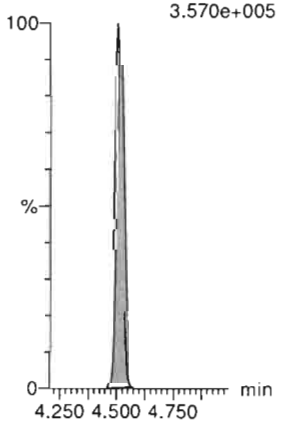
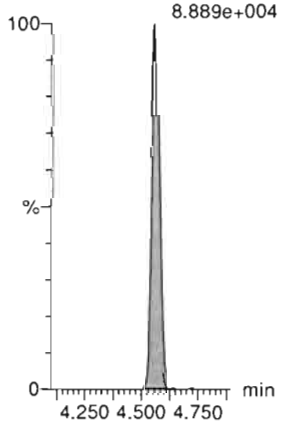




13C5-PFNA-EIS



13C8-PFOSA-EIS



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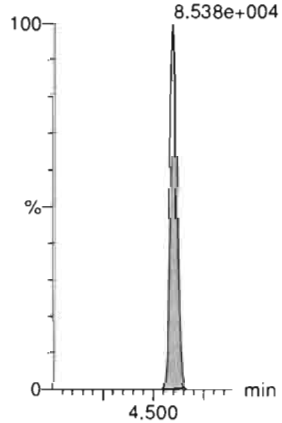

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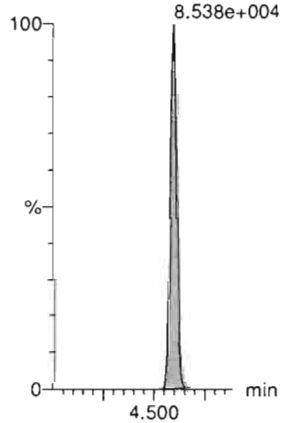

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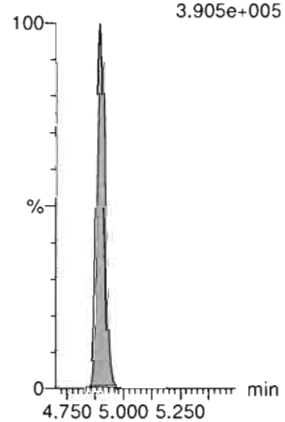

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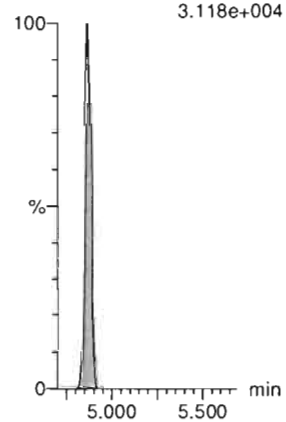

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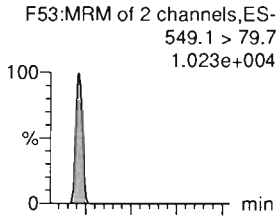

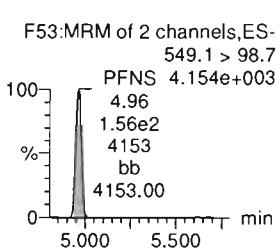

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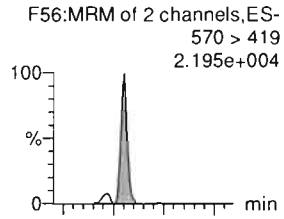

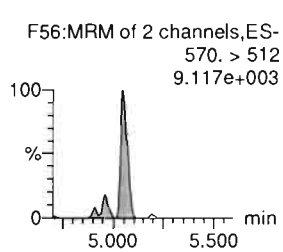

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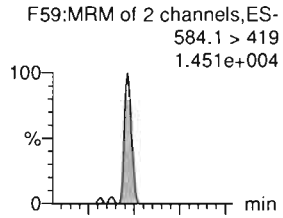

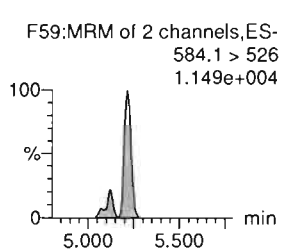

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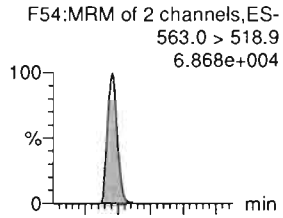

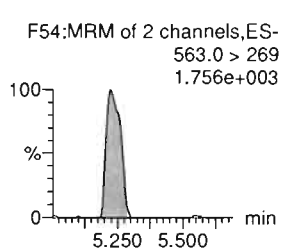

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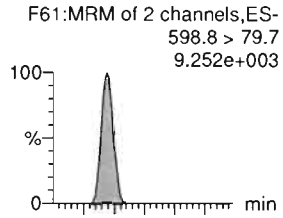

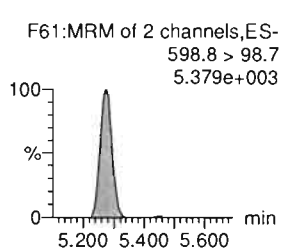

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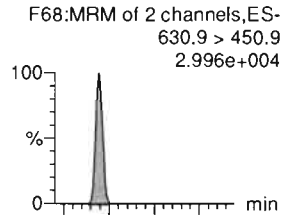

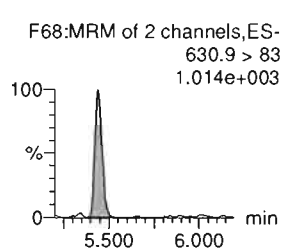

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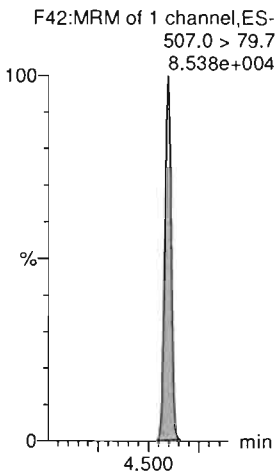

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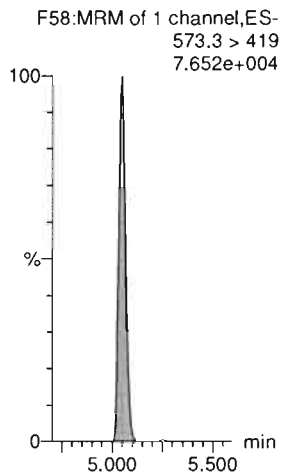

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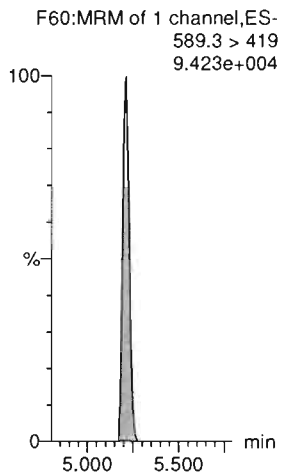

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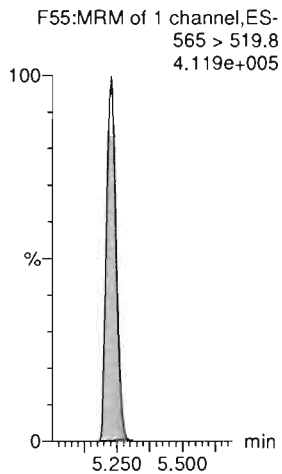

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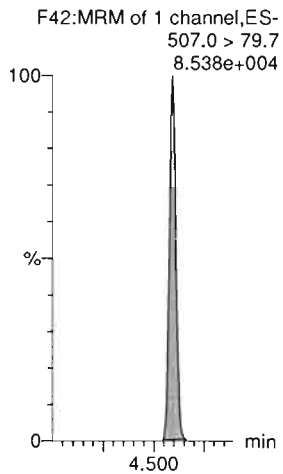

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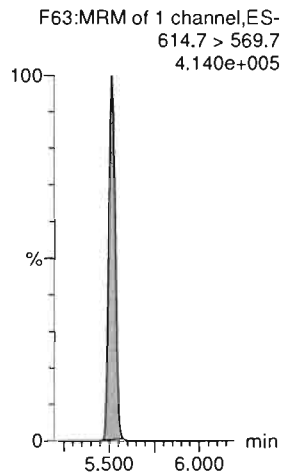

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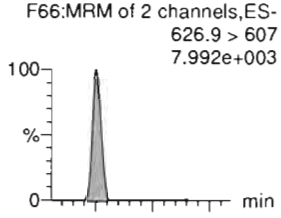
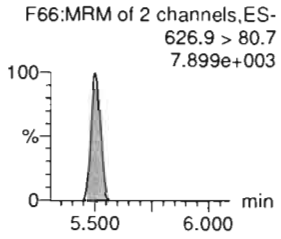
10:2 FTS





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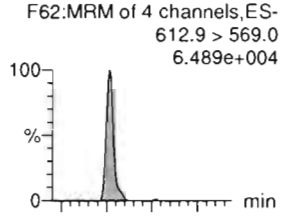

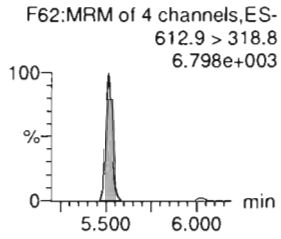

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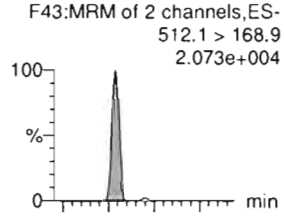

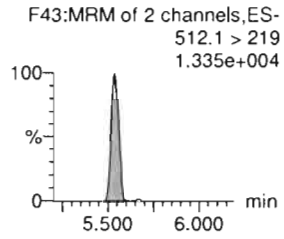

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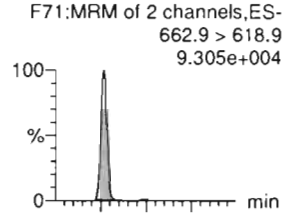

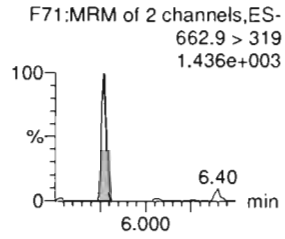

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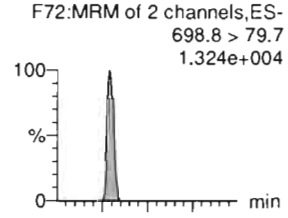

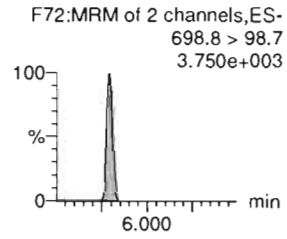

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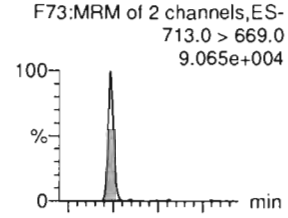

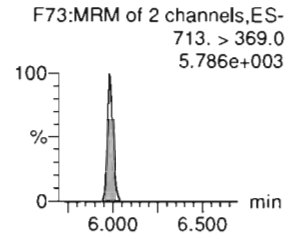

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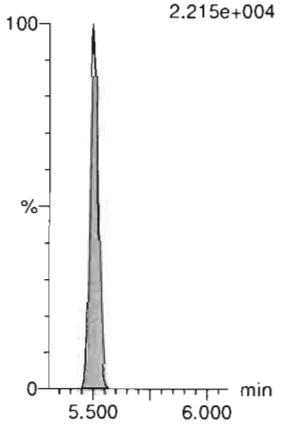

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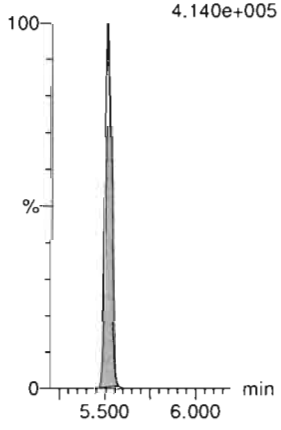

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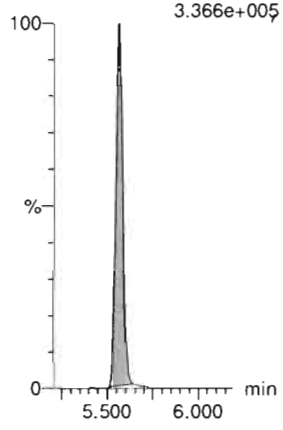

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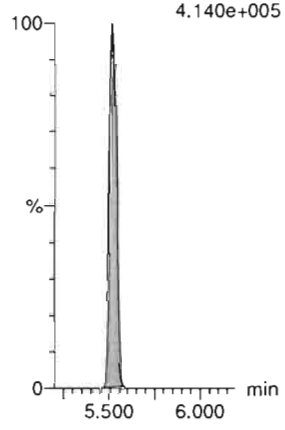

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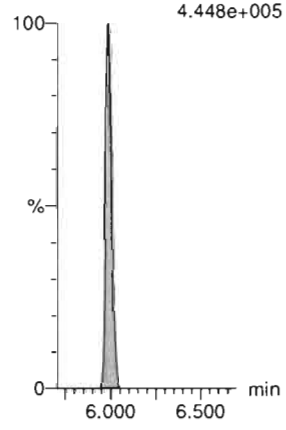

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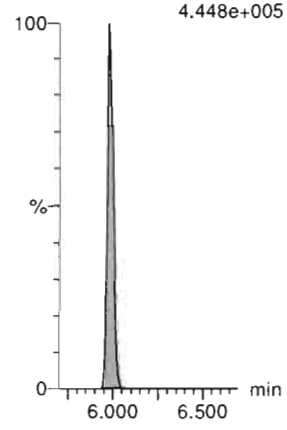

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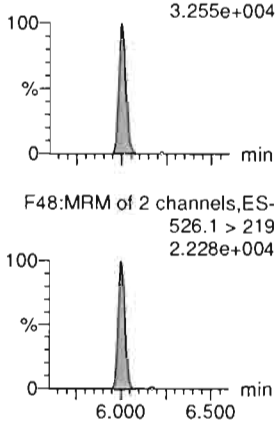
N-EtFOSA



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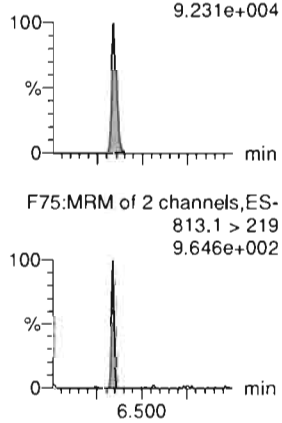

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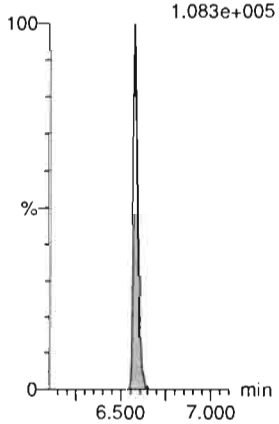

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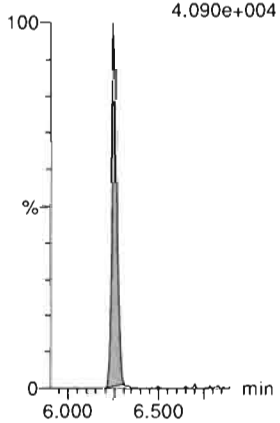

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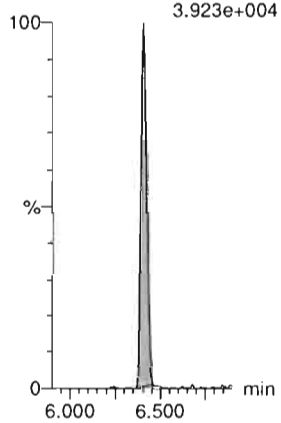

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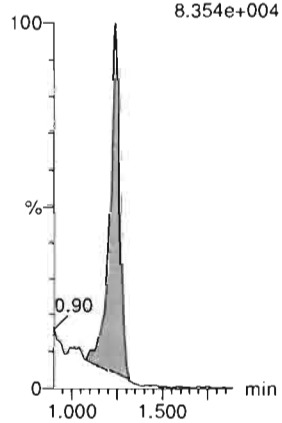
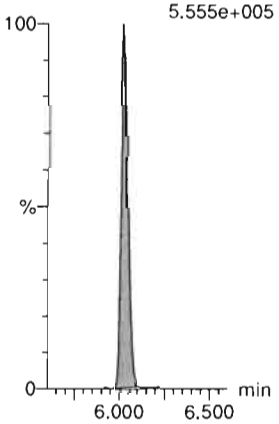
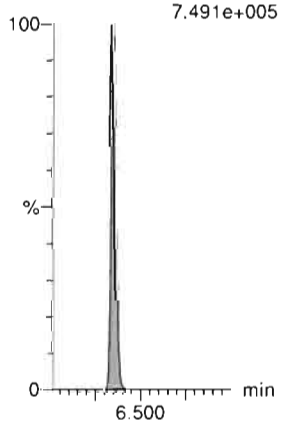


d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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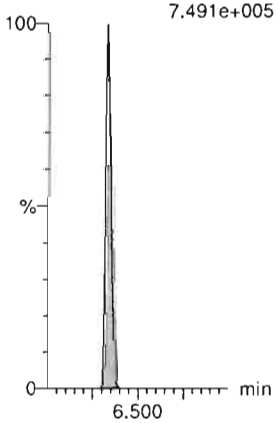
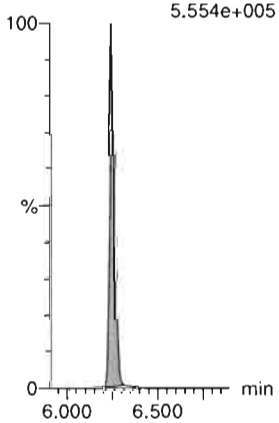
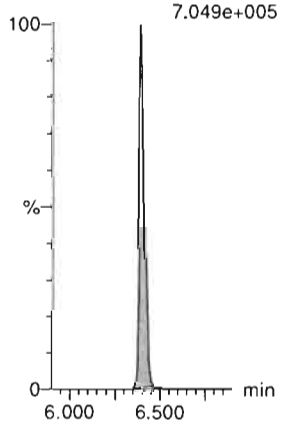


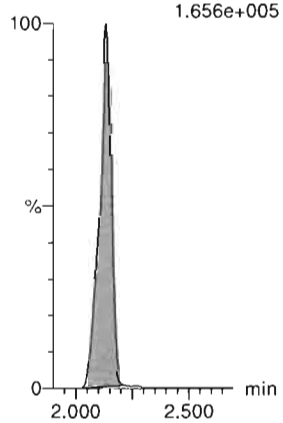
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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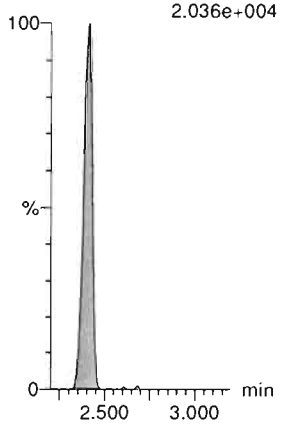
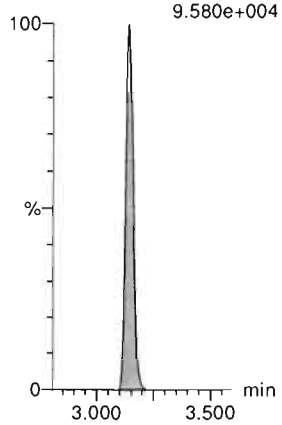
Name: 200305P1-6, Date: 05-Mar-2020, Time: 18:06:53, ID: ST200305P1-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

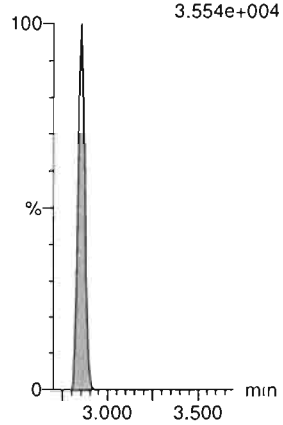
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.036e+004



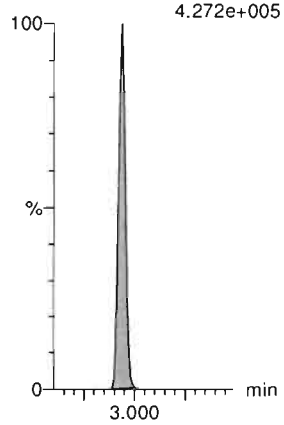
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.580e+004



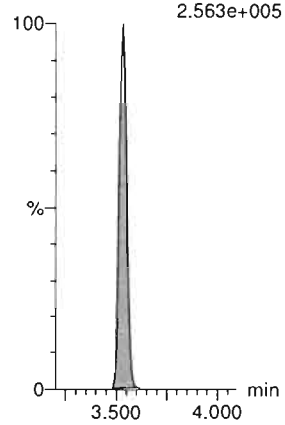
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.554e+004



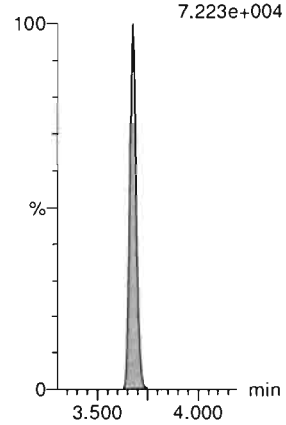
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.272e+005



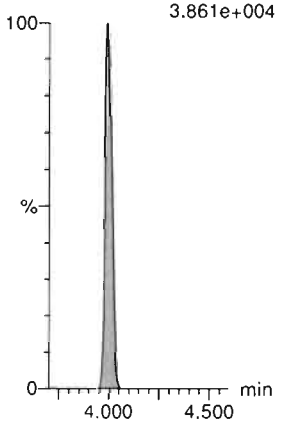
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.563e+005



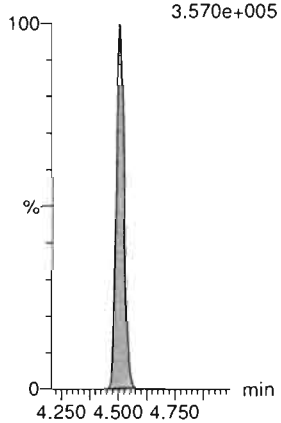
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.223e+004



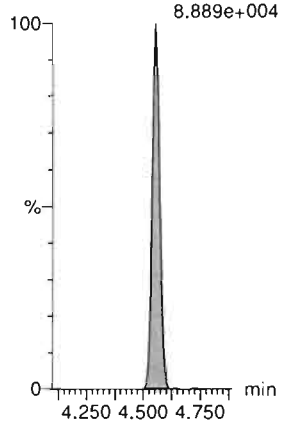
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.861e+004



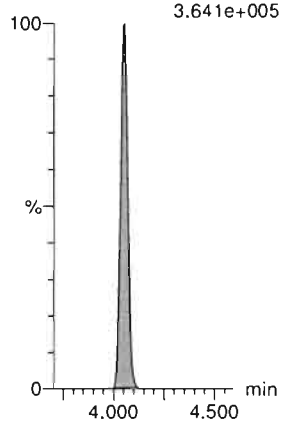
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.570e+005



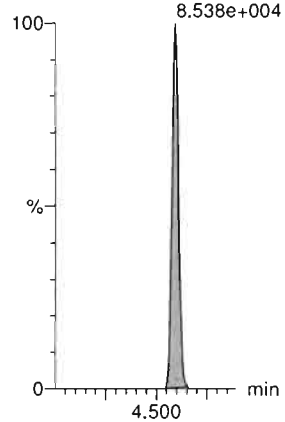
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.889e+004



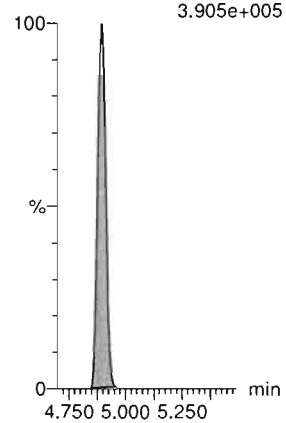
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.641e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
8.538e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.905e+005



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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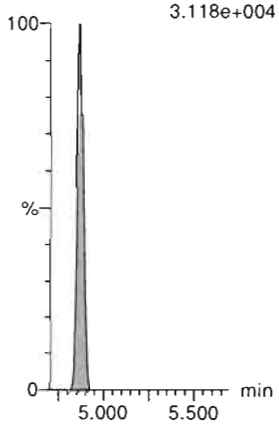
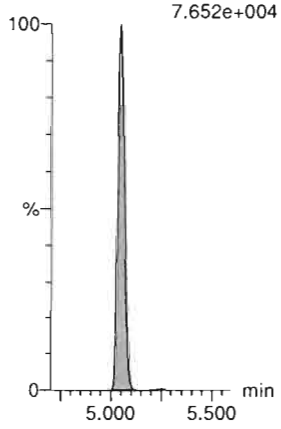
Name: 200305P1-6, Date: 05-Mar-2020, Time: 18:06:53, ID: ST200305P1-4 PFC CS1 20C0307, Description: PFC CS1 20C0307

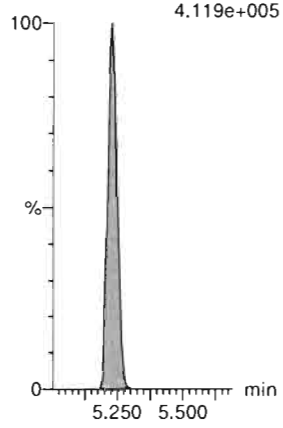
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
3.118e+004



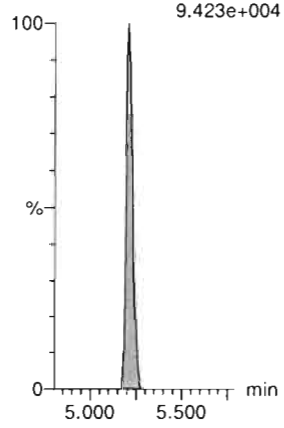
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.652e+004



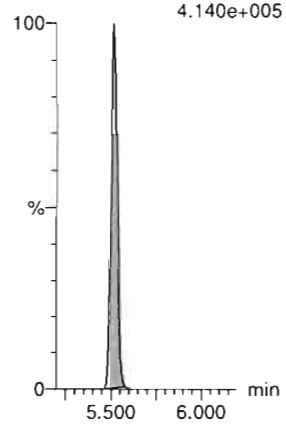
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.119e+005



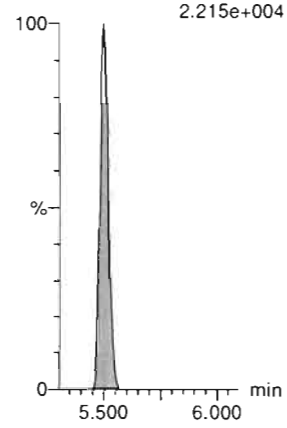
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.423e+004



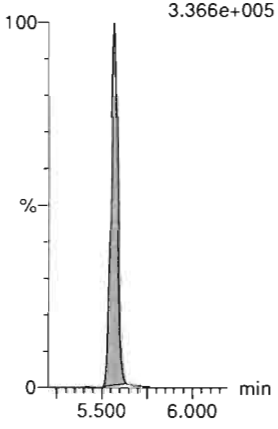
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.140e+005



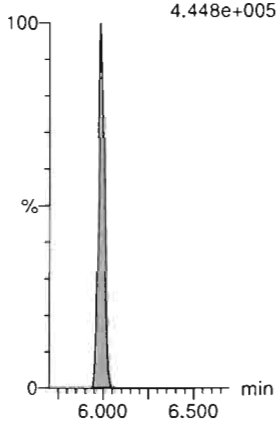
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.215e+004



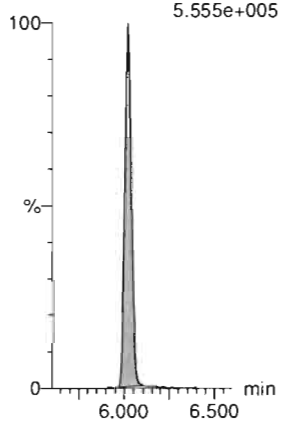
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.366e+005



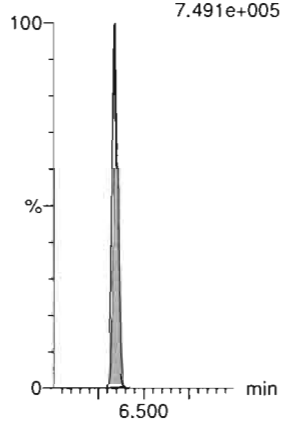
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.448e+005



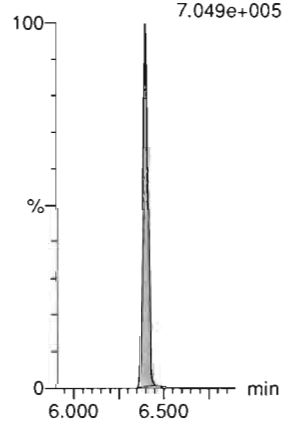
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.555e+005



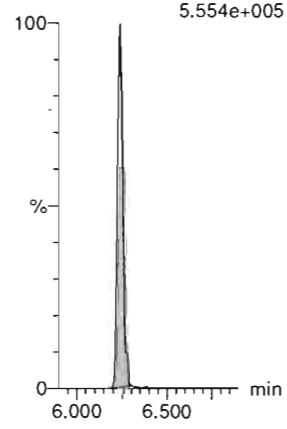
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.491e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
7.049e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.554e+005



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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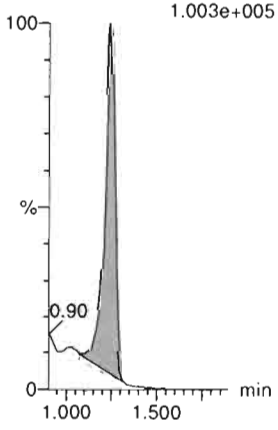
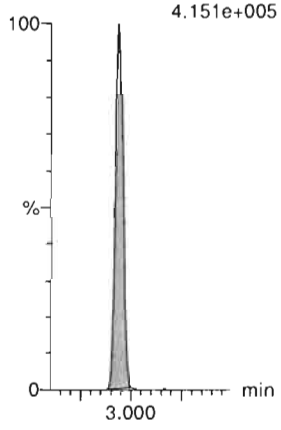
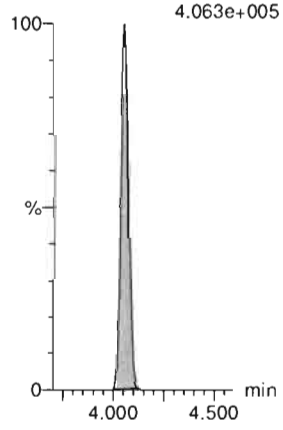
13C4-PFBA



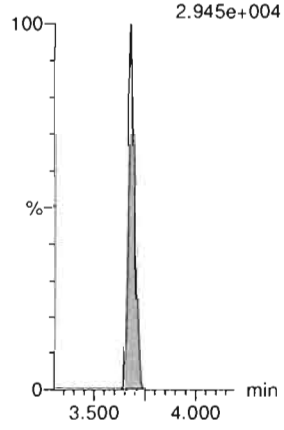
13C5-PFHxA



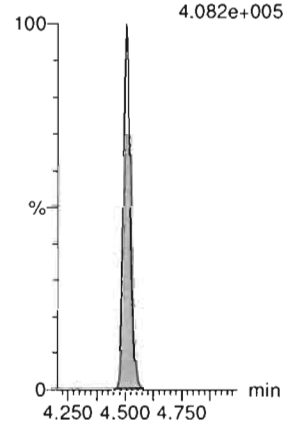
13C8-PFOA



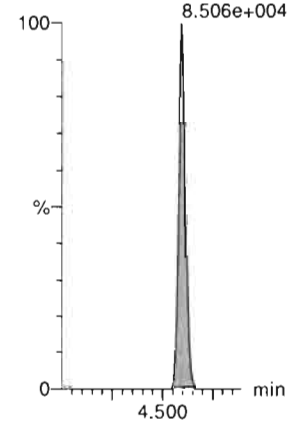
18O2-PFHxS



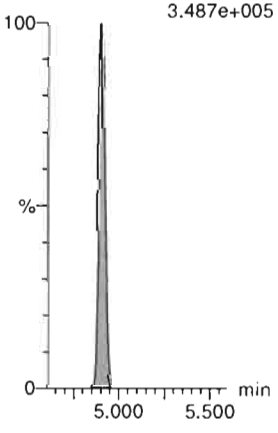
13C9-PFNA



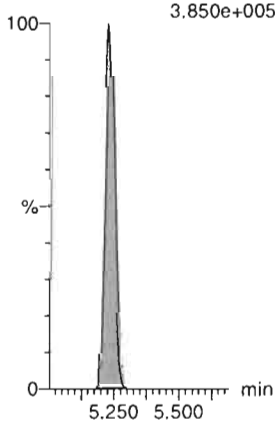
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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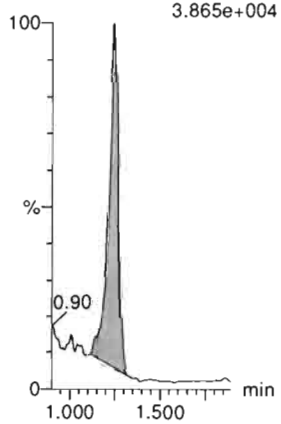
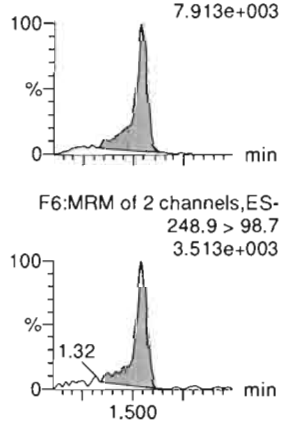
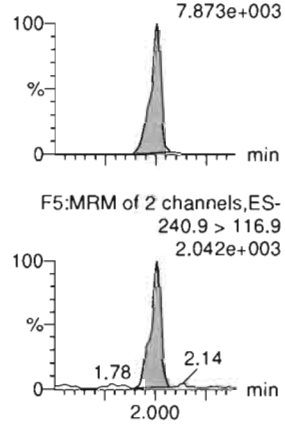
PFBA



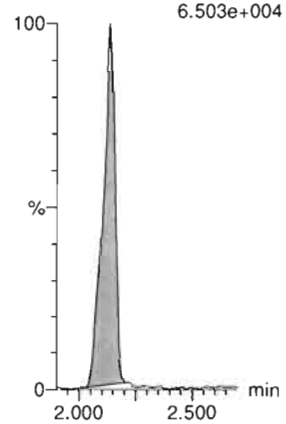
PFPrS



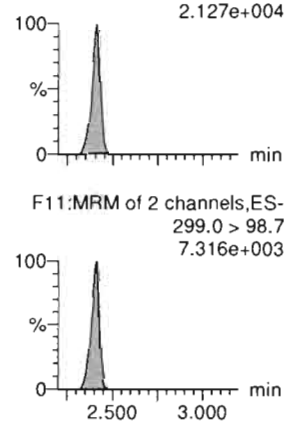
3:3 FTCA



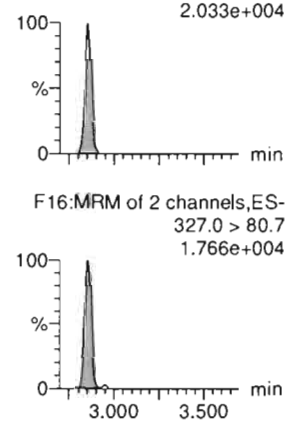
PFPeA



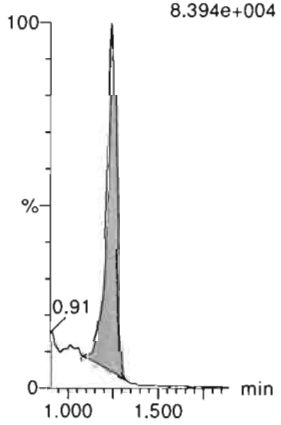
PFBS



4:2 FTS



13C3-PFBA-EIS



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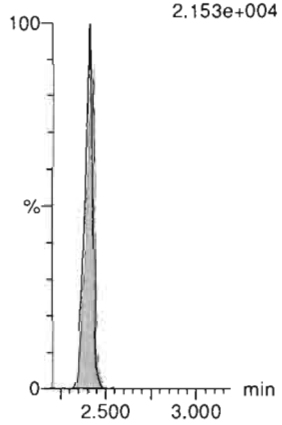
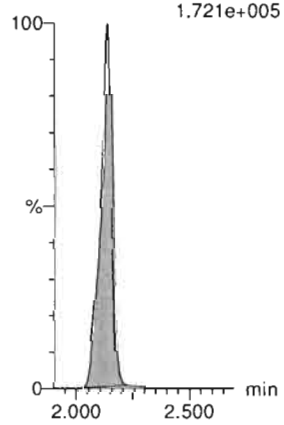
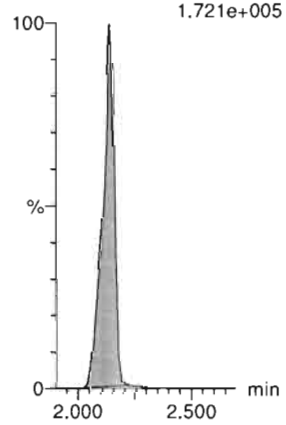


13C3-PFPeA-EIS



13C3-PFPeA-EIS



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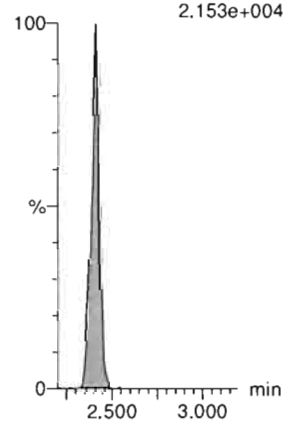

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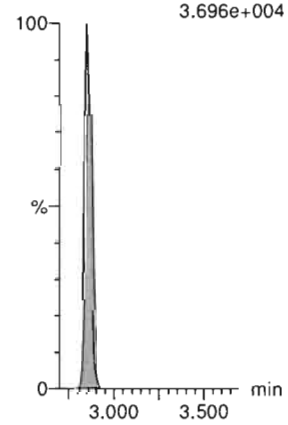

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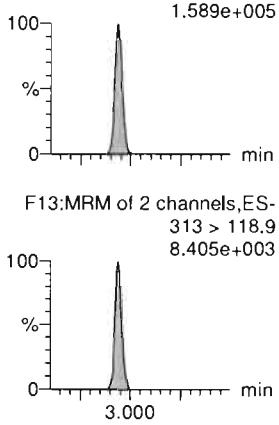

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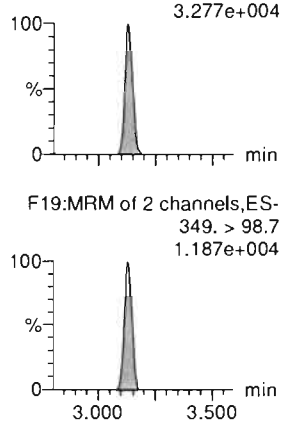

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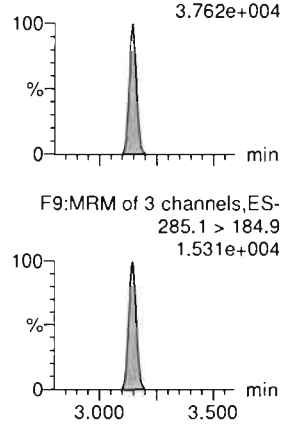

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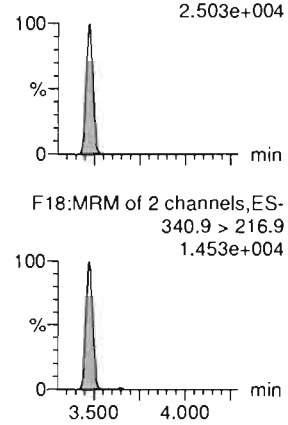

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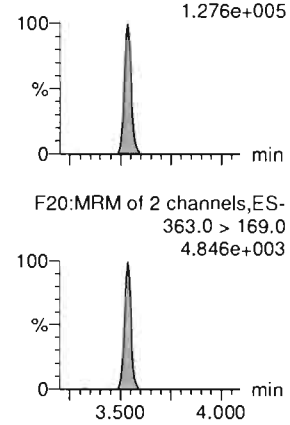

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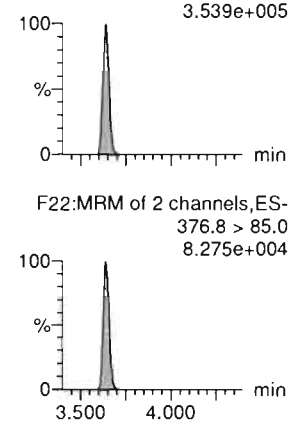

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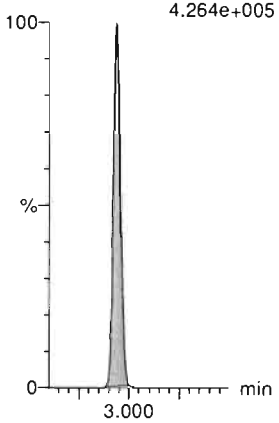

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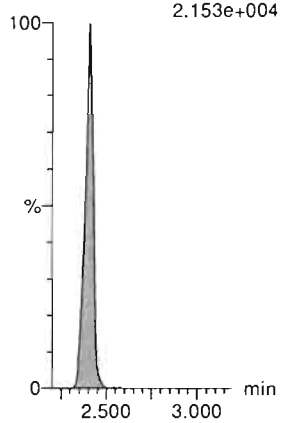

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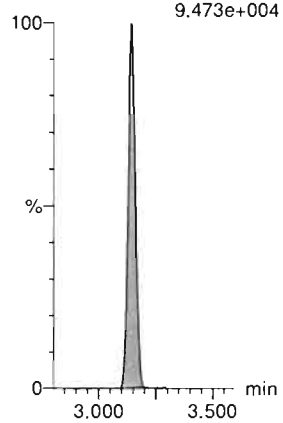

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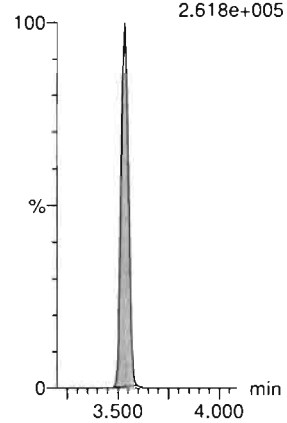

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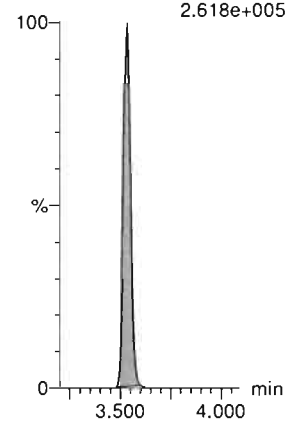

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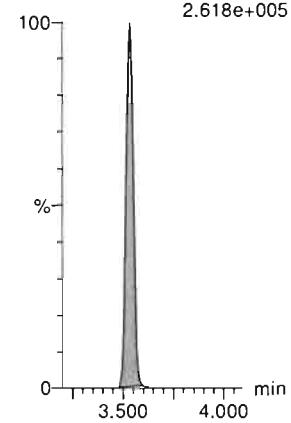

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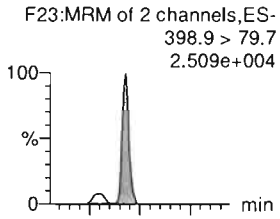
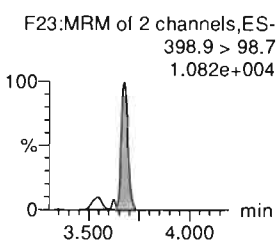
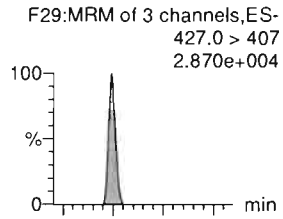
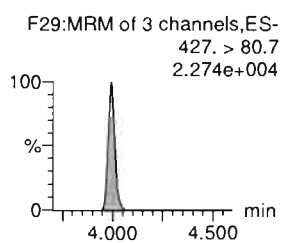




6:2 FTS





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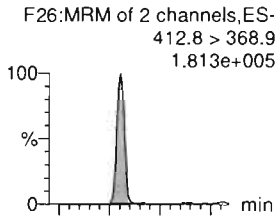

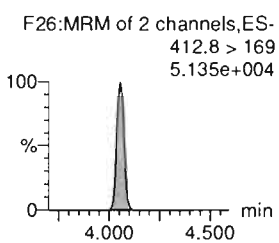

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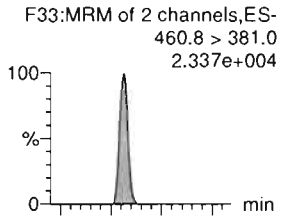

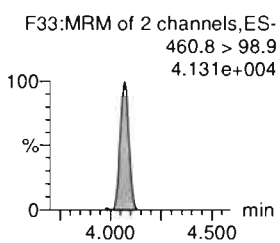

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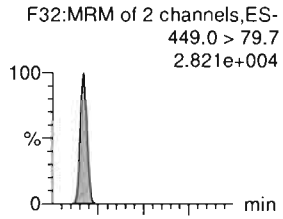

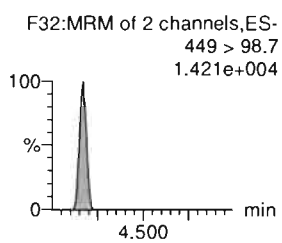

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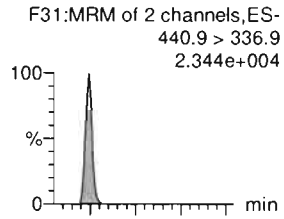

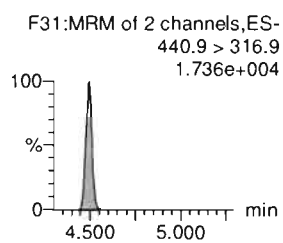

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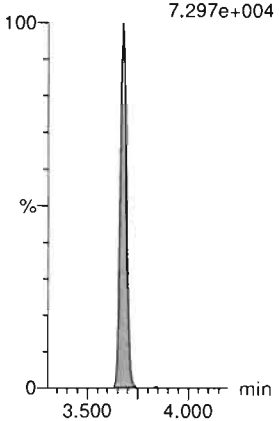

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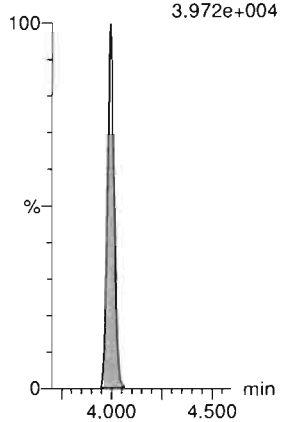

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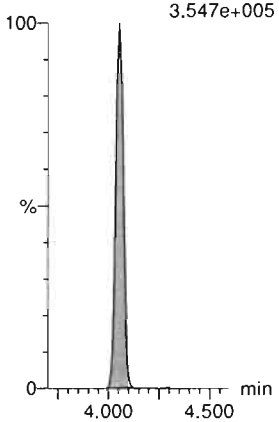

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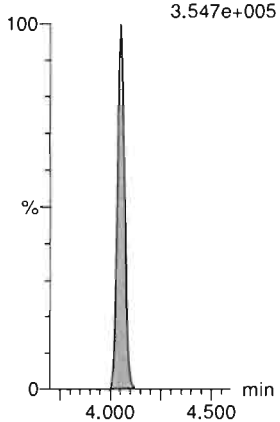

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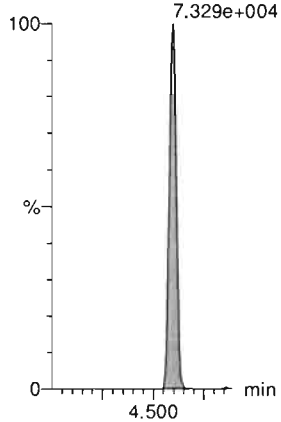

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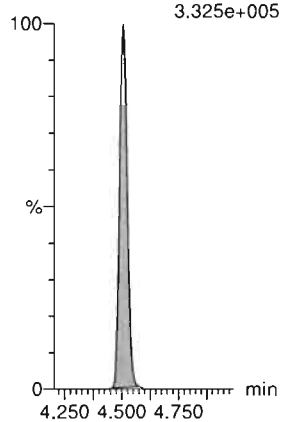

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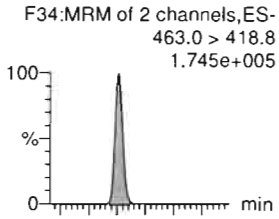

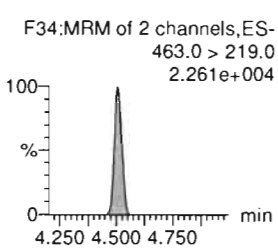

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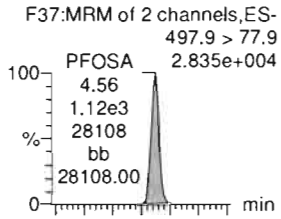

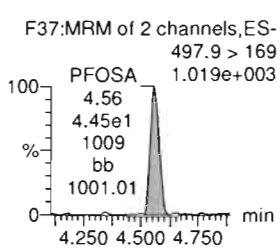

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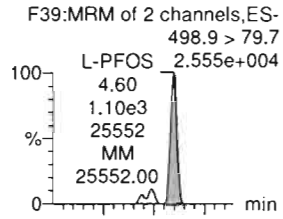

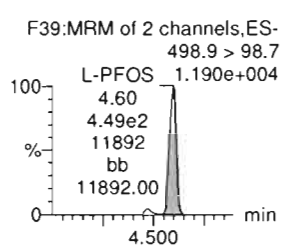

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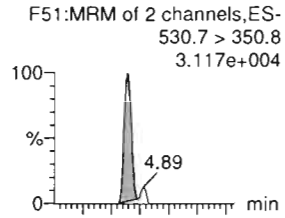

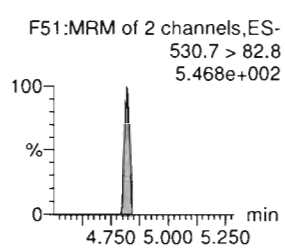

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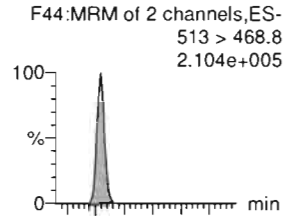

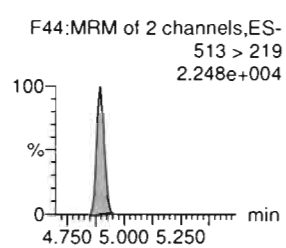

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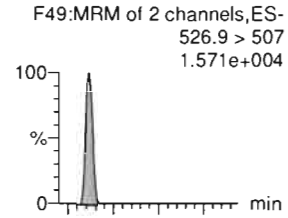

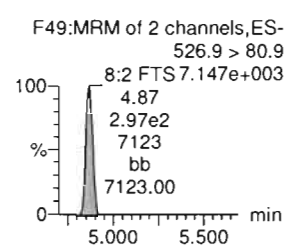

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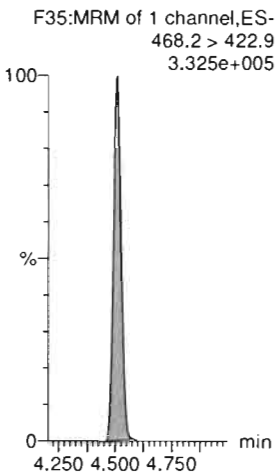

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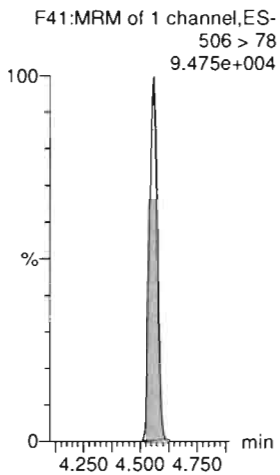

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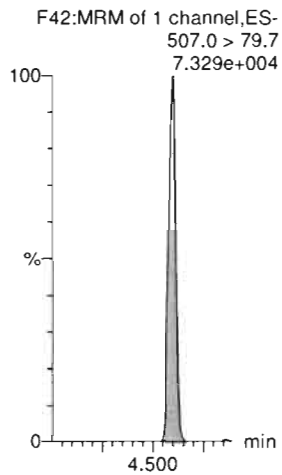

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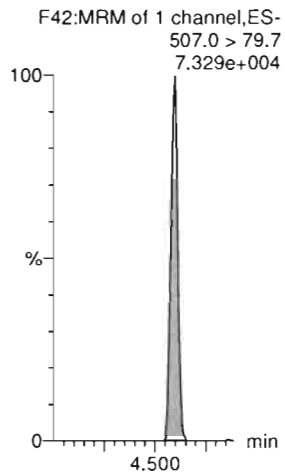

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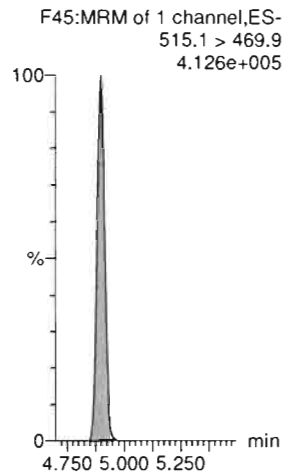

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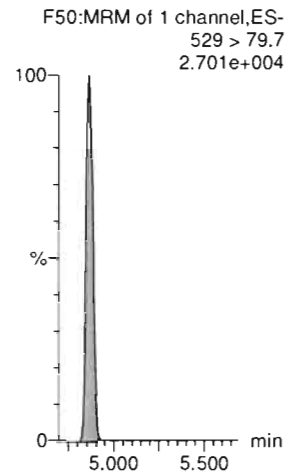

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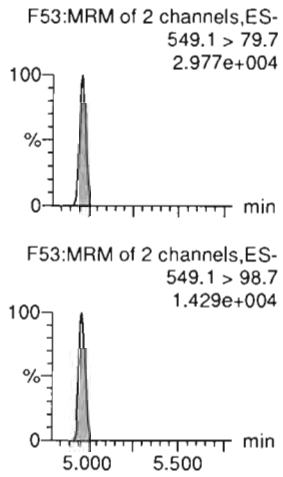
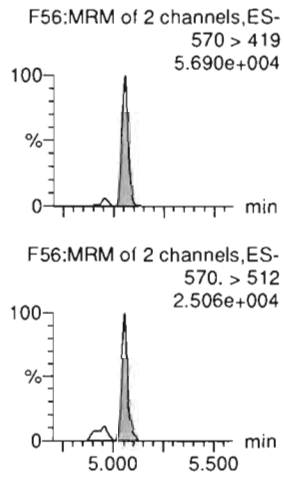


L-MeFOSAA



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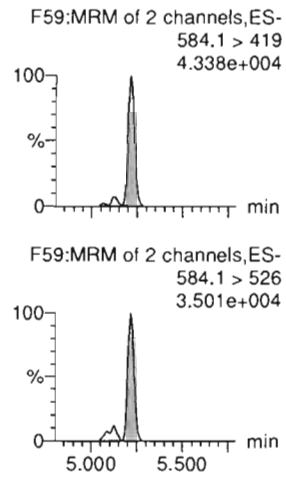

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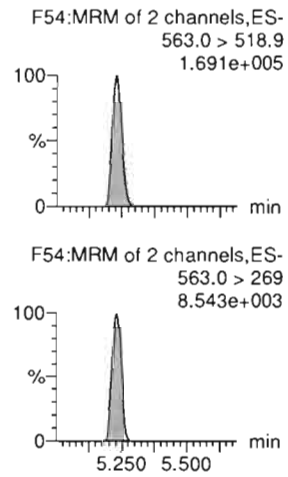

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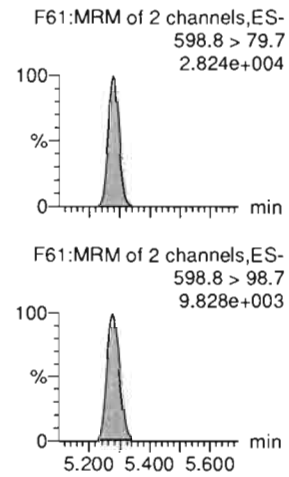

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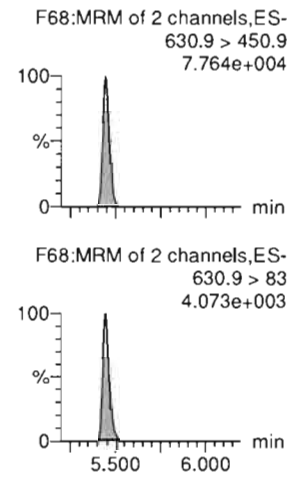
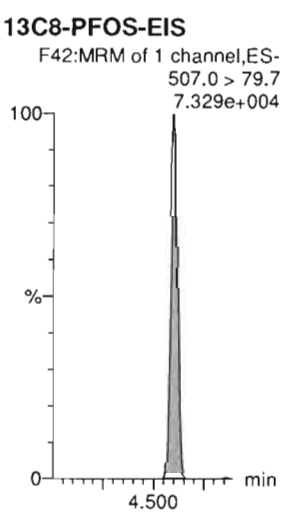
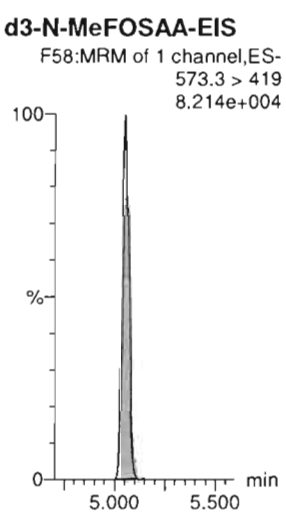


13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



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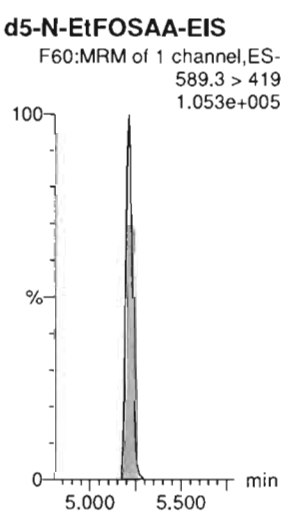

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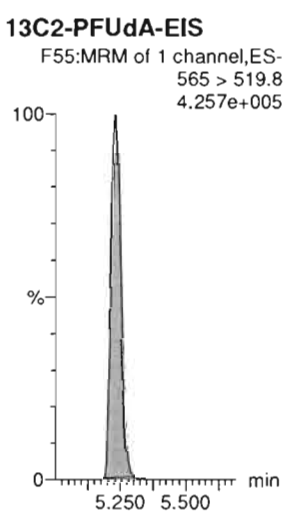

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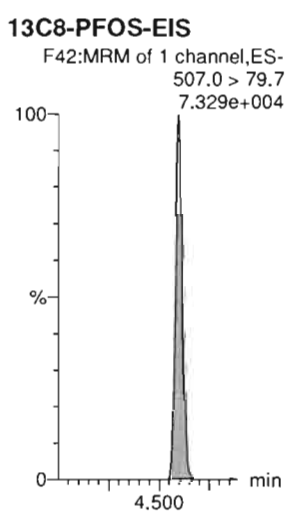
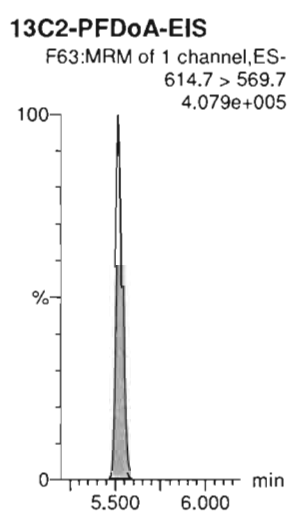


13C2-PFDoA-EIS



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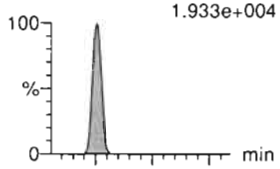
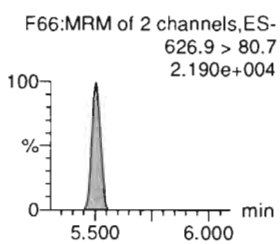
Name: 200305P1-7, Date: 05-Mar-2020, Time: 18:17:23, ID: ST200305P1-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

10:2 FTS





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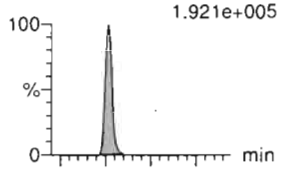
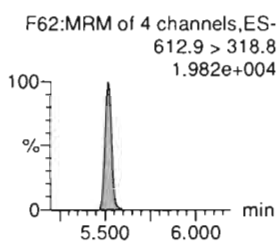
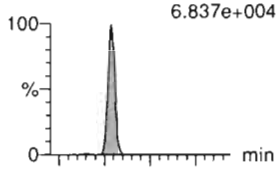
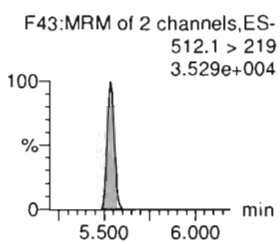




N-MeFOSA





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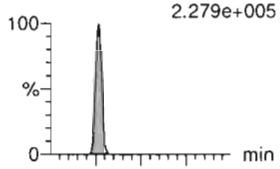

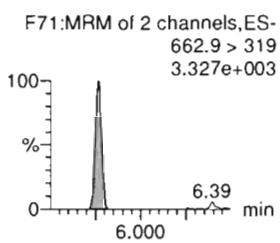

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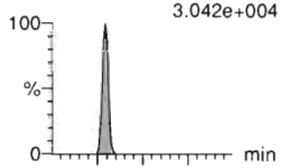
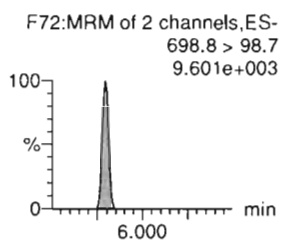
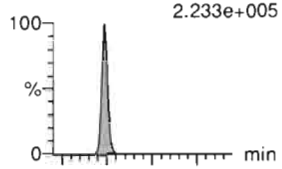
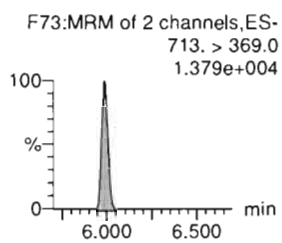


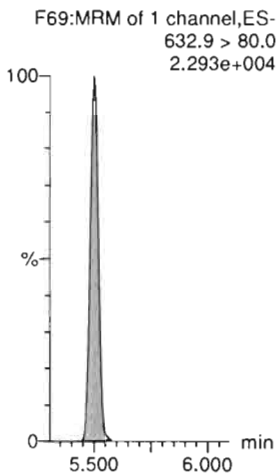


PFTeDA

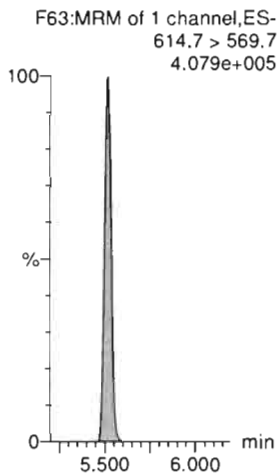




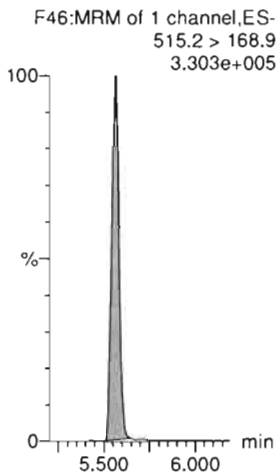
13C2-10:2 FTS-EIS



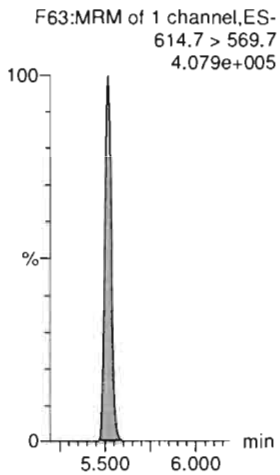
13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



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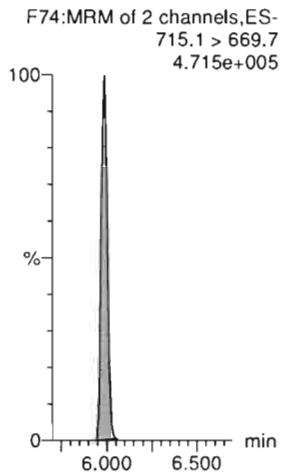

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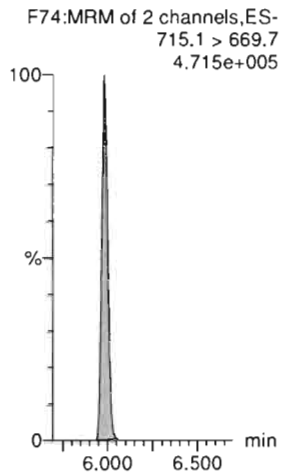

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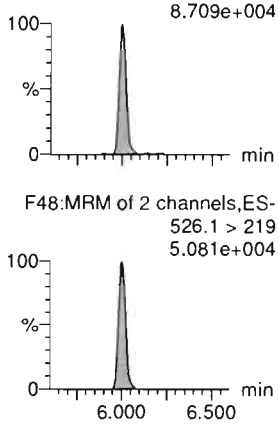
Name: 200305P1-7, Date: 05-Mar-2020, Time: 18:17:23, ID: ST200305P1-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

N-EtFOSA



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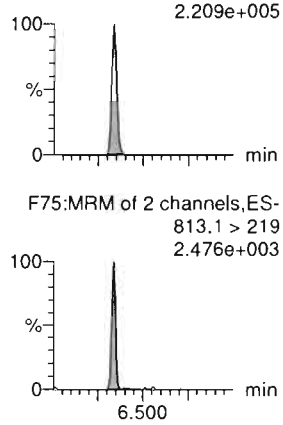

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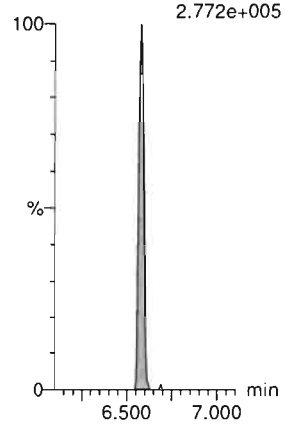
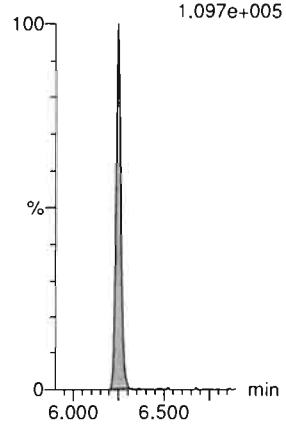
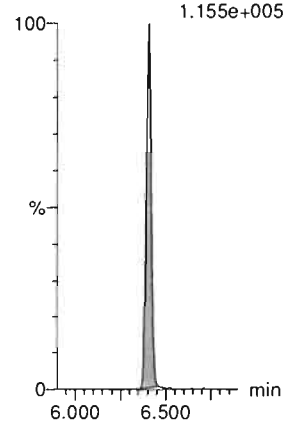


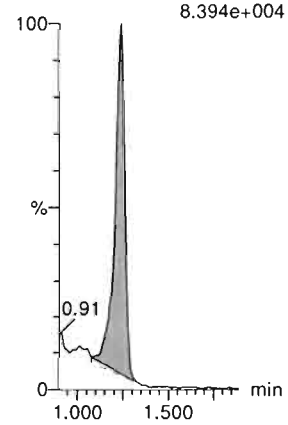
N-MeFOSE



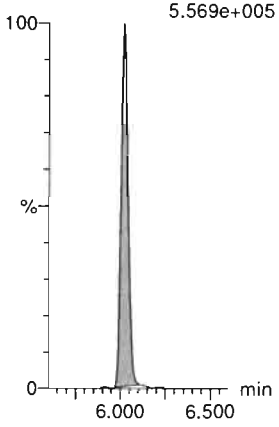
N-EtFOSE



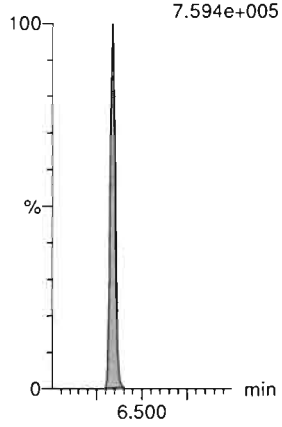
13C3-PFBA-RSD



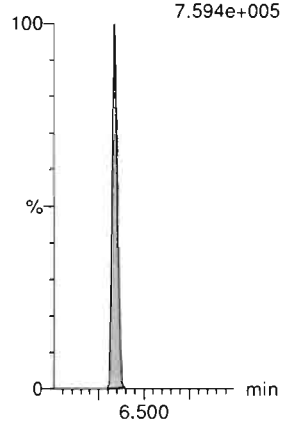
d5-N-ETFOSA-EIS



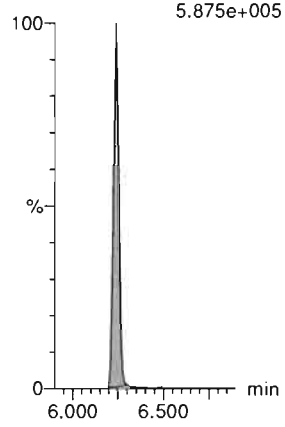
13C2-PFHxDA-EIS



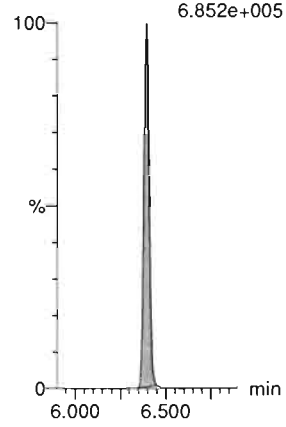
13C2-PFHxDA-EIS



d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



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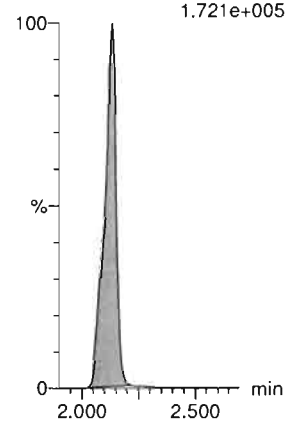

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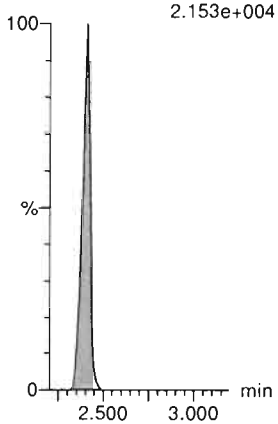
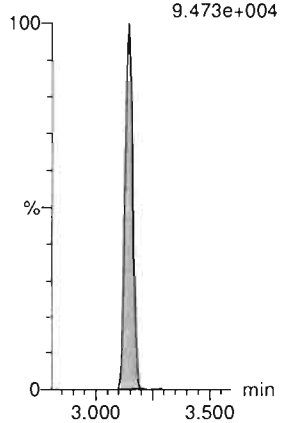
Name: 200305P1-7, Date: 05-Mar-2020, Time: 18:17:23, ID: ST200305P1-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

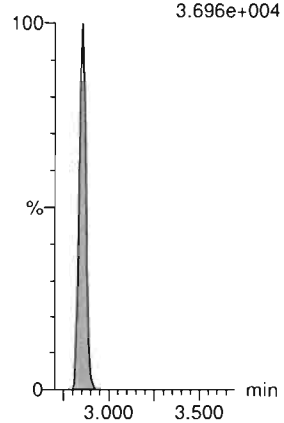
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.153e+004



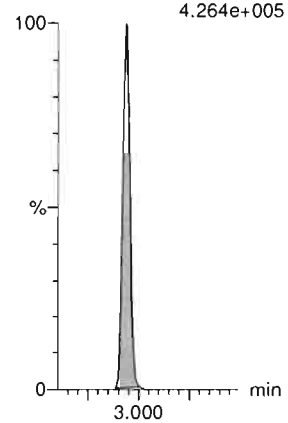
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.473e+004



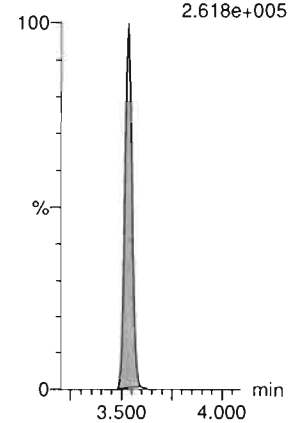
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.696e+004



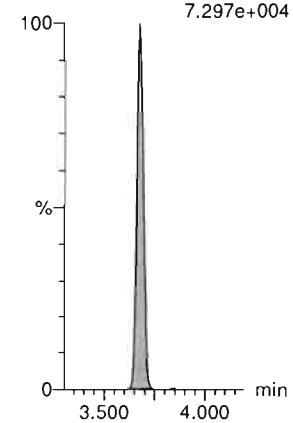
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.264e+005



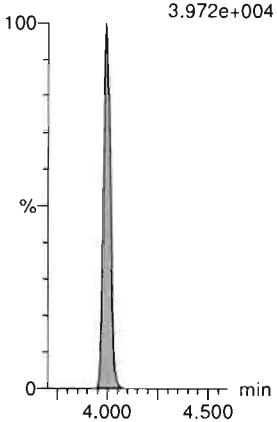
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.618e+005



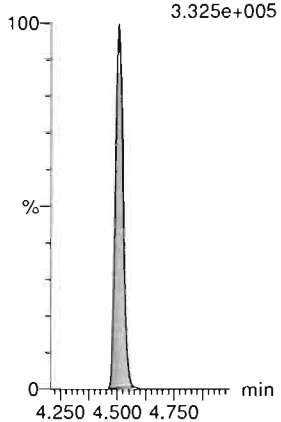
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.297e+004



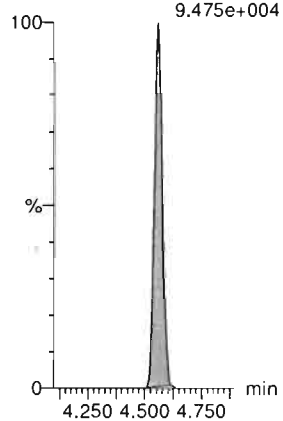
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.972e+004



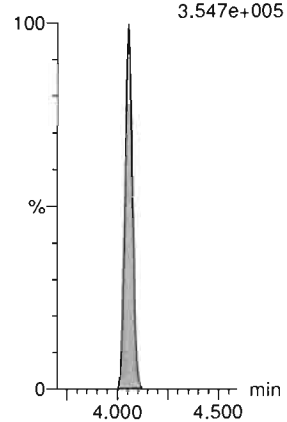
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.325e+005



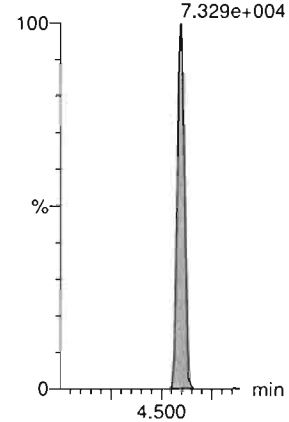
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.475e+004



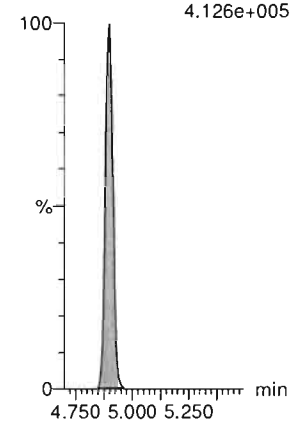
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.547e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.329e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.126e+005



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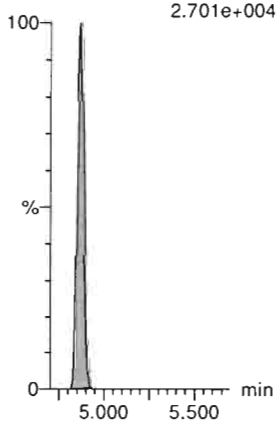
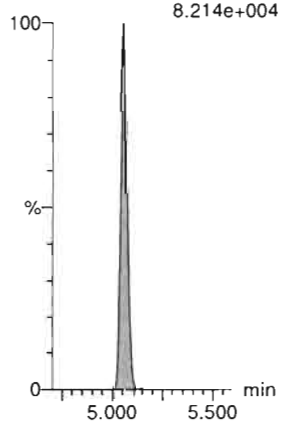
Name: 200305P1-7, Date: 05-Mar-2020, Time: 18:17:23, ID: ST200305P1-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.701e+004



d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
8.214e+004



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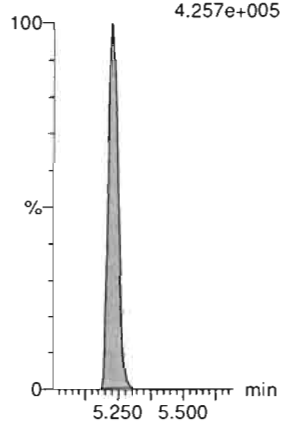
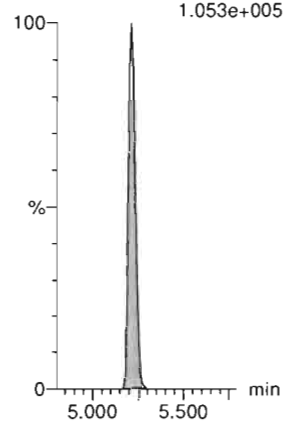
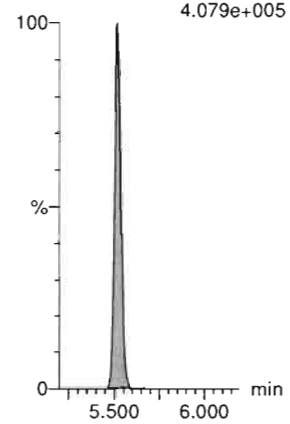
F55:MRM of 1 channel,ES-
565 > 519.8
4.257e+005



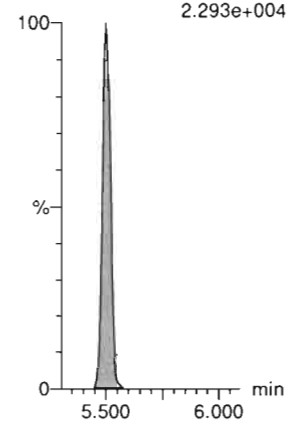
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
1.053e+005



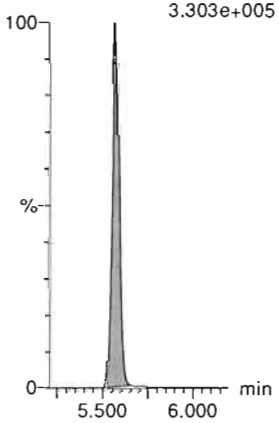
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.079e+005



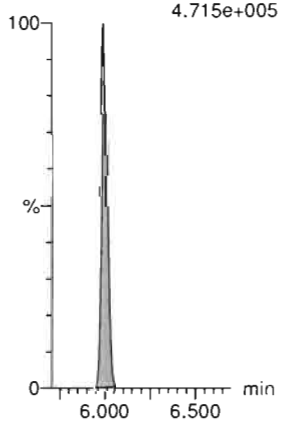
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.293e+004



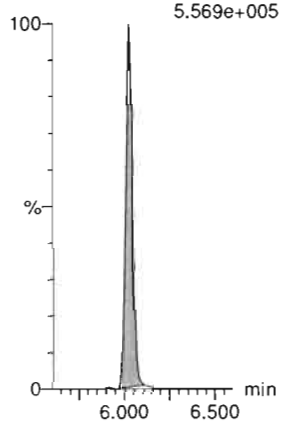
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.303e+005



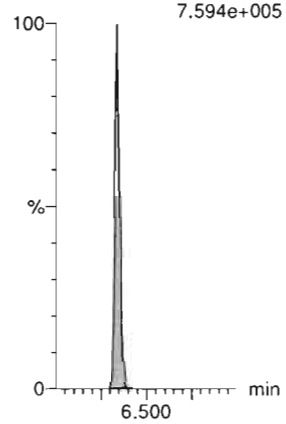
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.715e+005



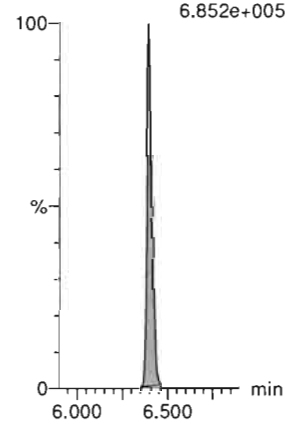
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.569e+005



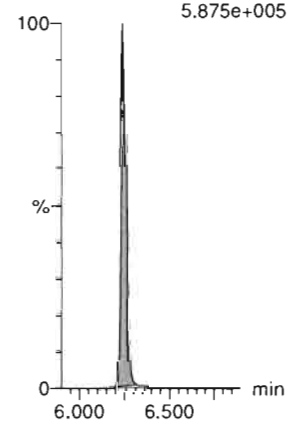
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.594e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.852e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.875e+005



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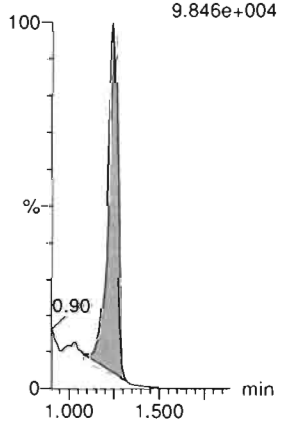
Name: 200305P1-7, Date: 05-Mar-2020, Time: 18:17:23, ID: ST200305P1-5 PFC CS2 20C0308, Description: PFC CS2 20C0308

13C4-PFBA



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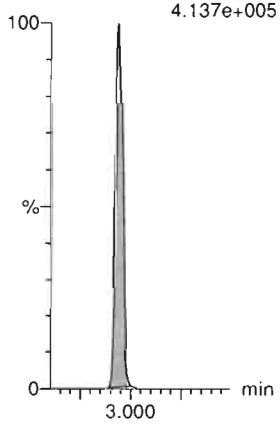

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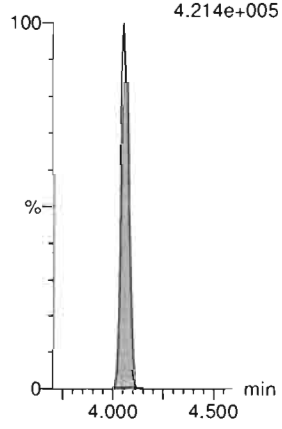
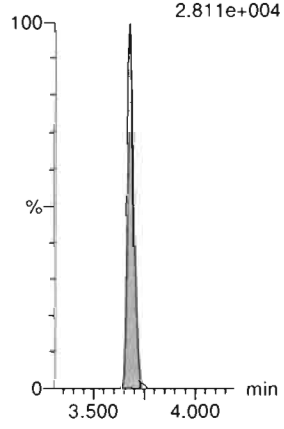
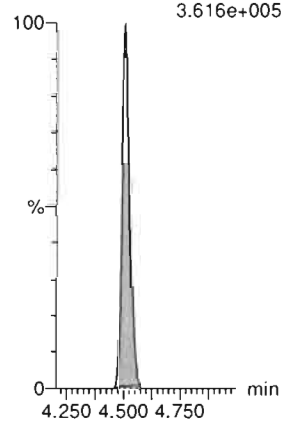


18O2-PFHxS



13C9-PFNA



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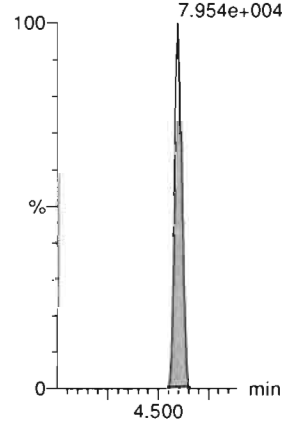

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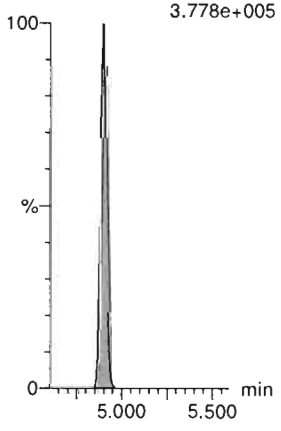
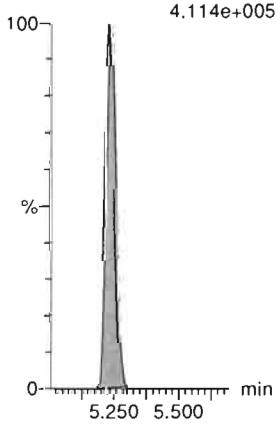


13C7-PFUdA



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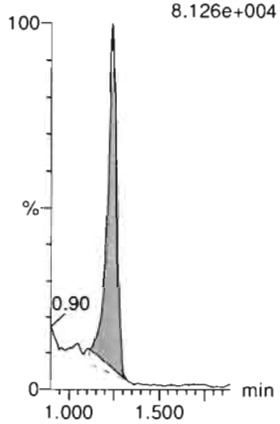
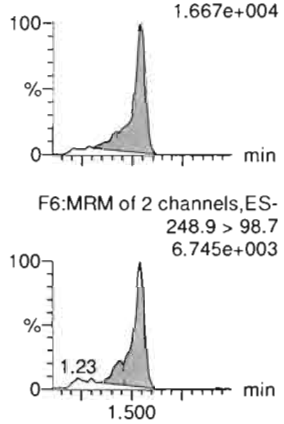
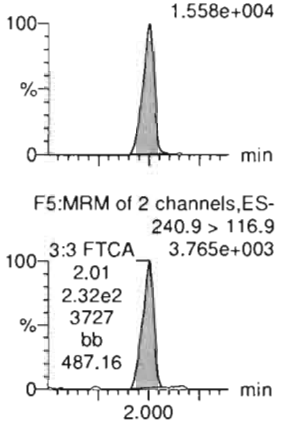
PFBA



PFPrS



3:3 FTCA



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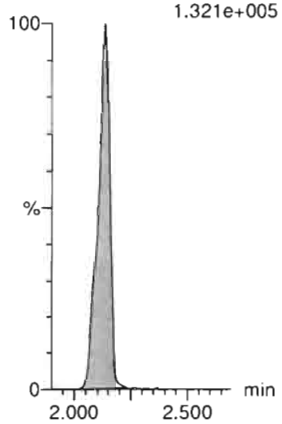
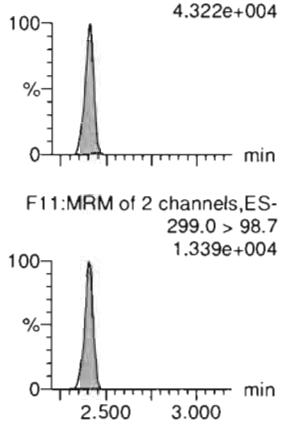
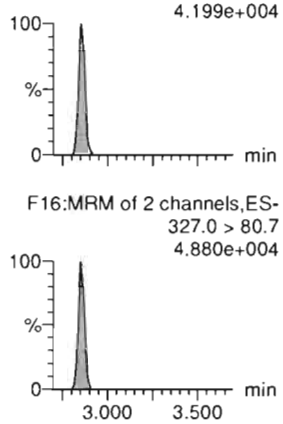


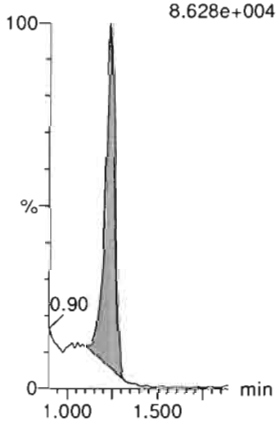
PFBS



4:2 FTS



13C3-PFBA-EIS



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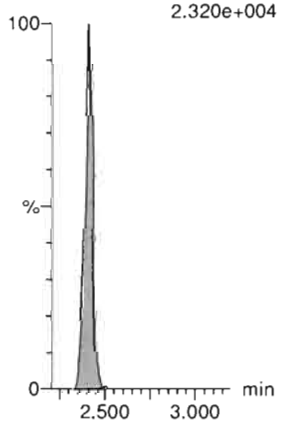
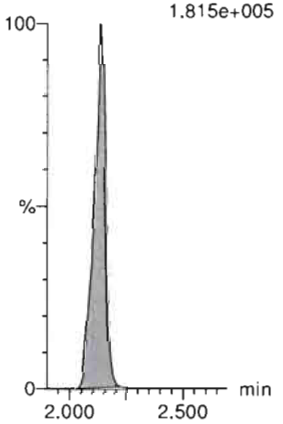


13C3-PFPeA-EIS



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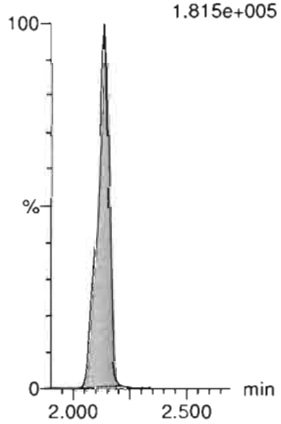

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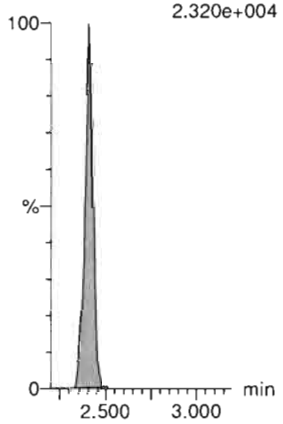
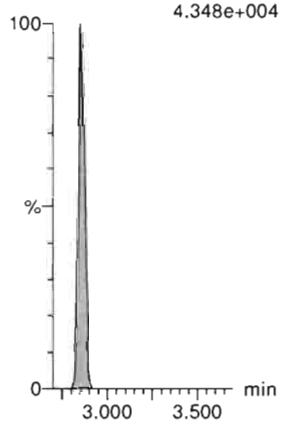


13C2-4:2 FTS-EIS



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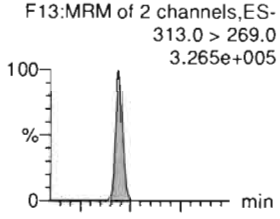
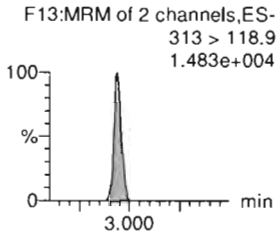
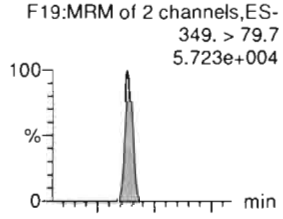
Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

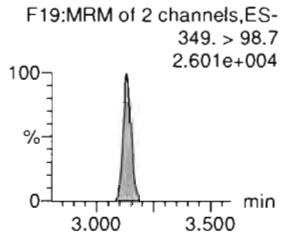
PFHxA



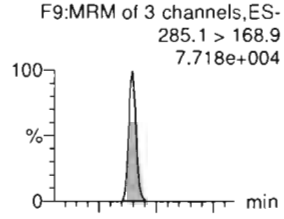


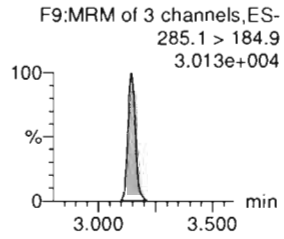
PFPeS



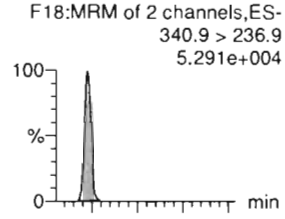


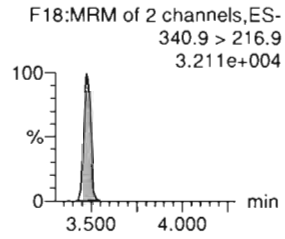
HFPO-DA



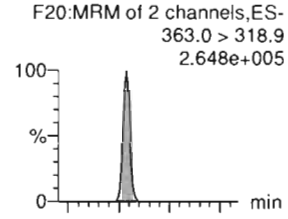


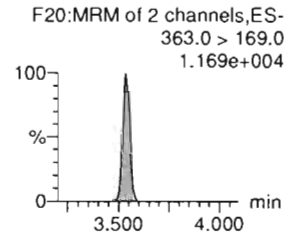
5:3 FTCA





PFHpA





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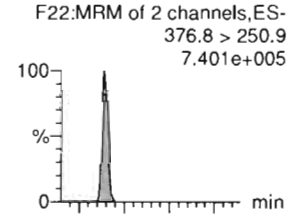
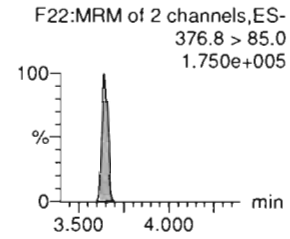
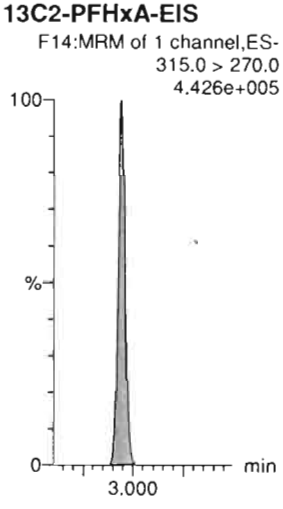
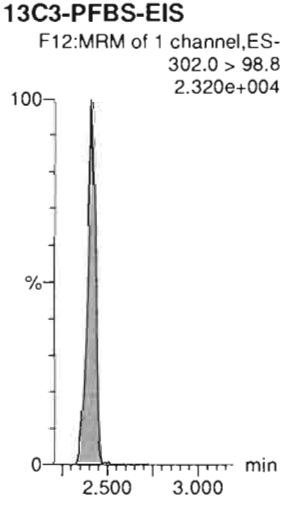




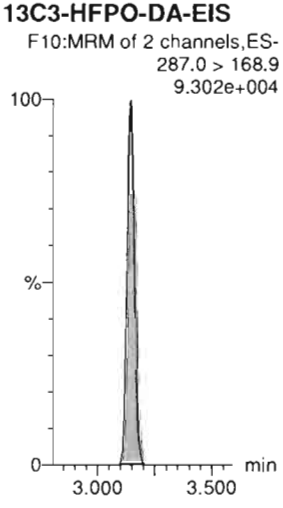
13C2-PFHxA-EIS



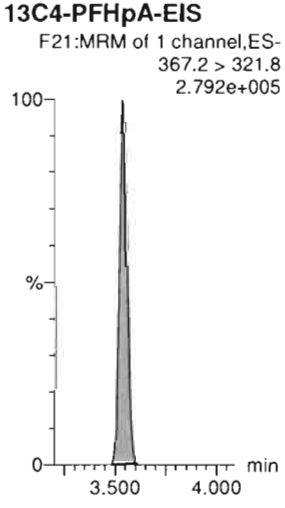
13C3-PFBS-EIS



13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



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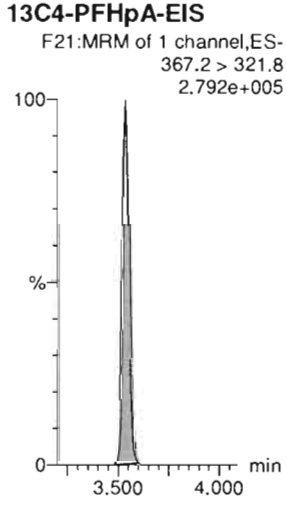

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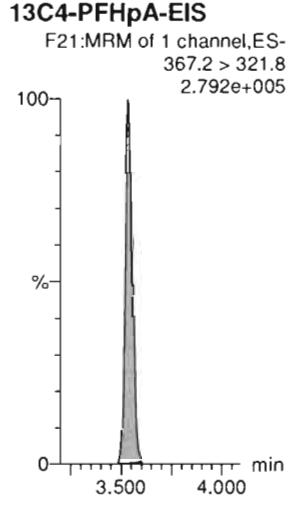

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Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

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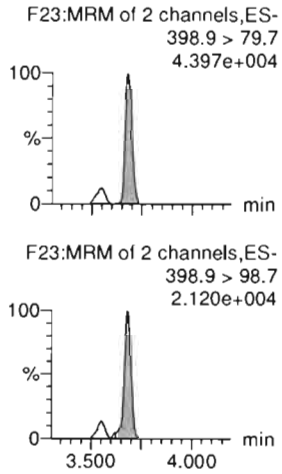

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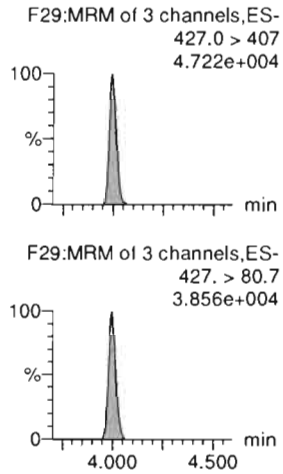

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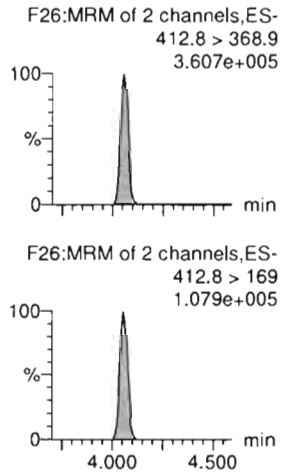

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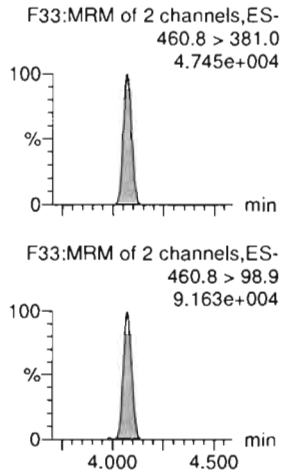

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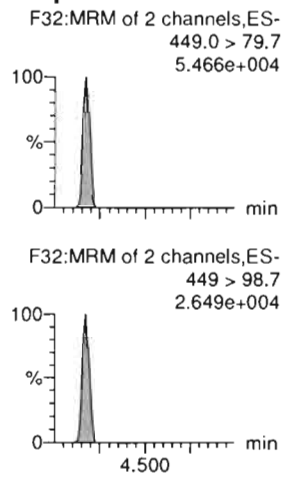

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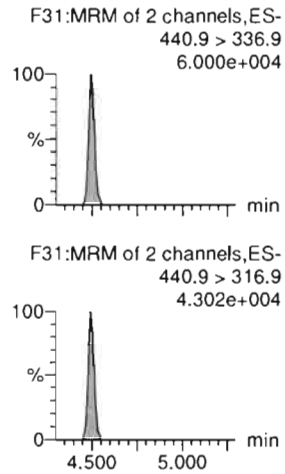

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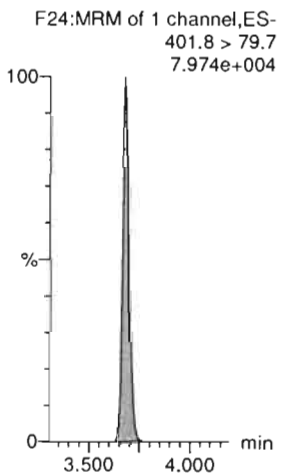

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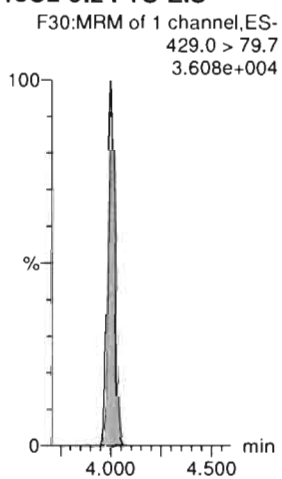

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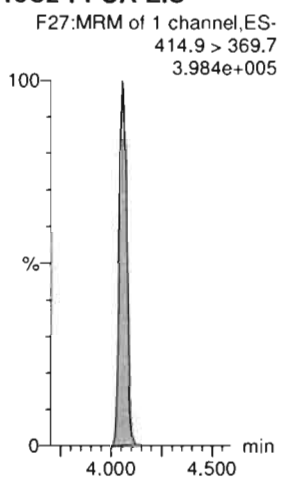

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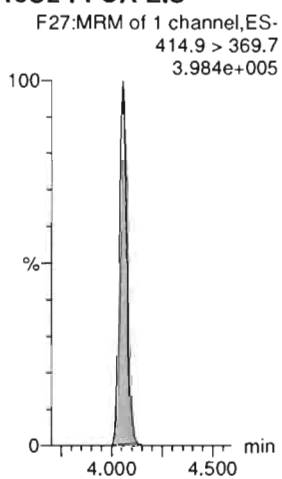

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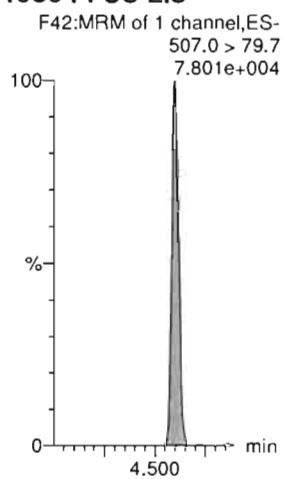

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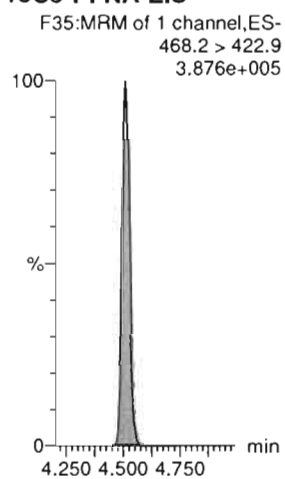

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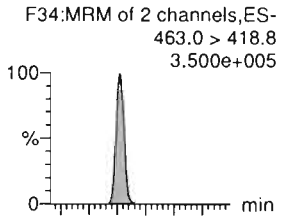

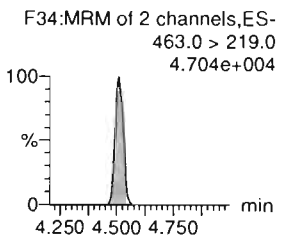

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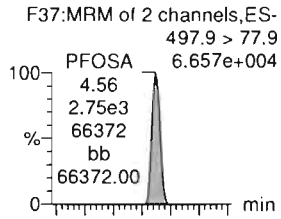

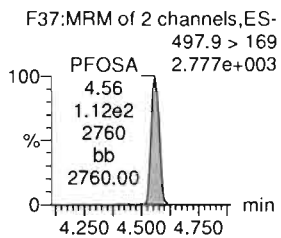

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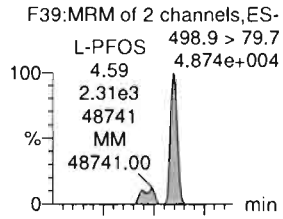

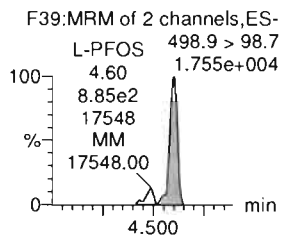

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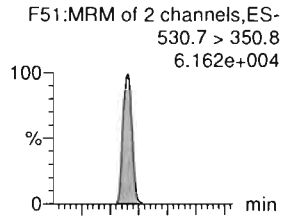

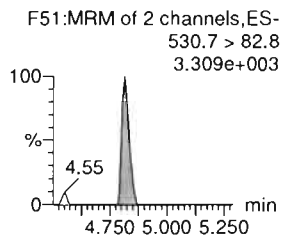

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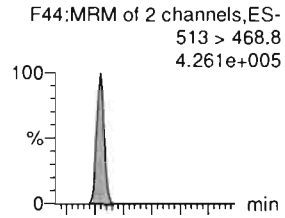

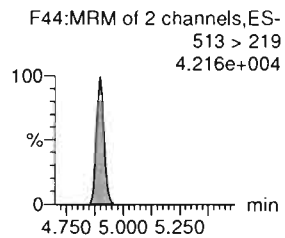

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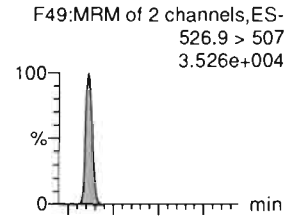

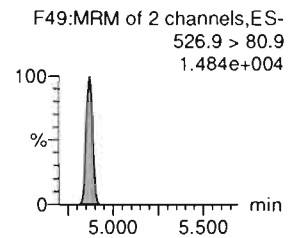

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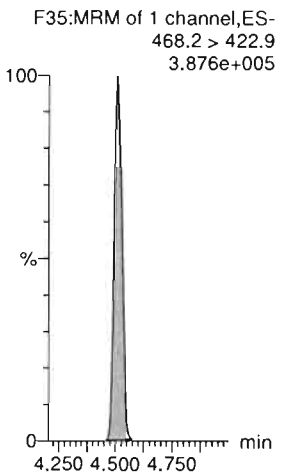

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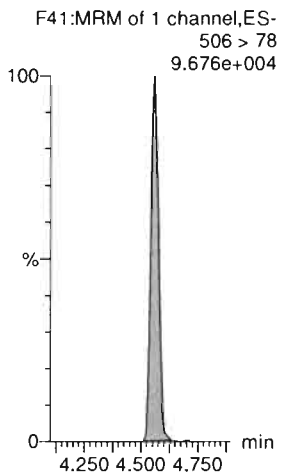

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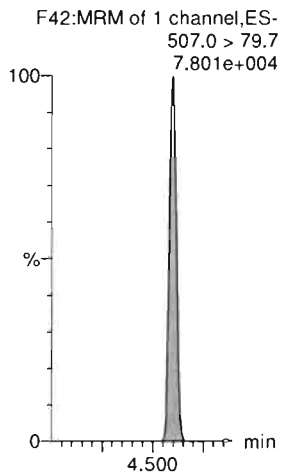

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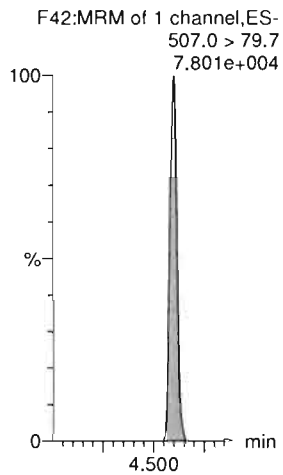

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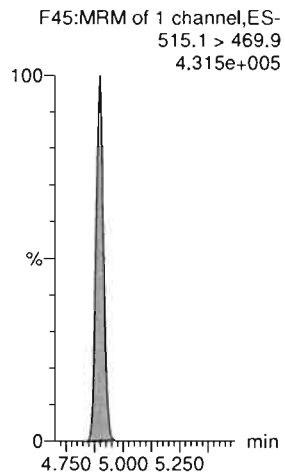

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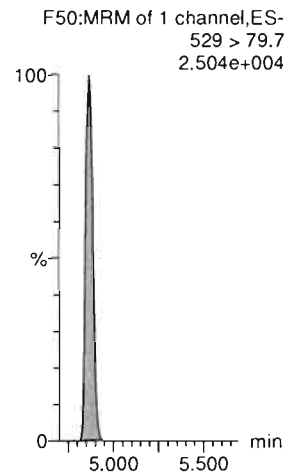

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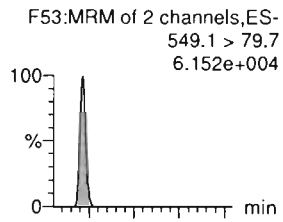

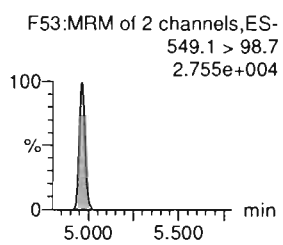

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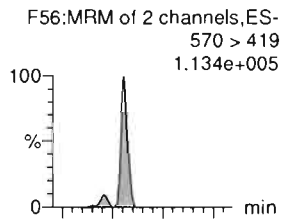

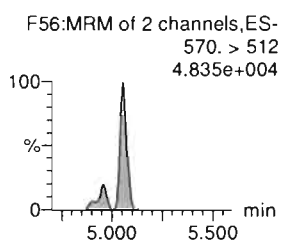

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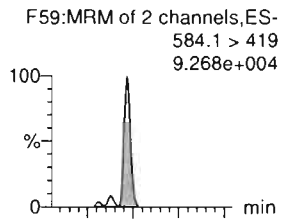

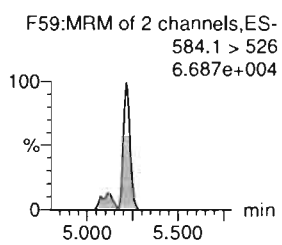

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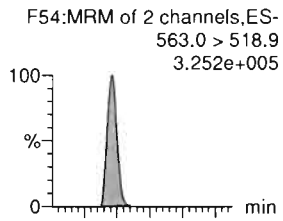

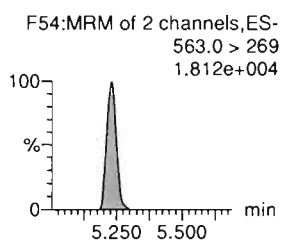

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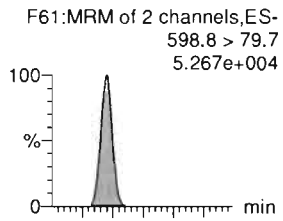

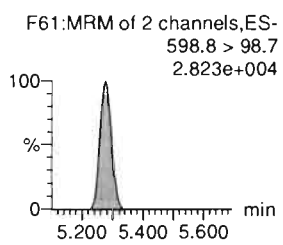

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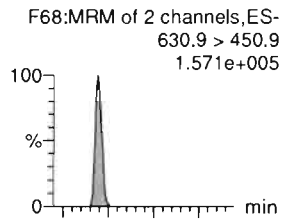

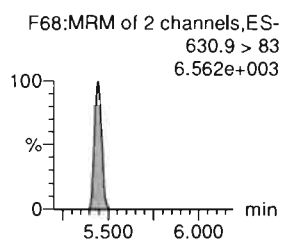

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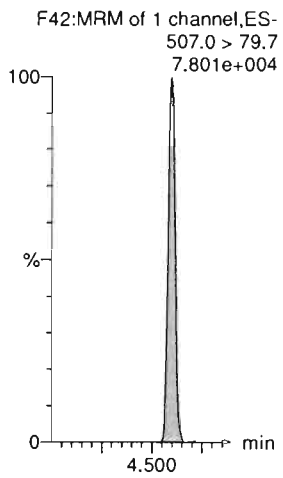

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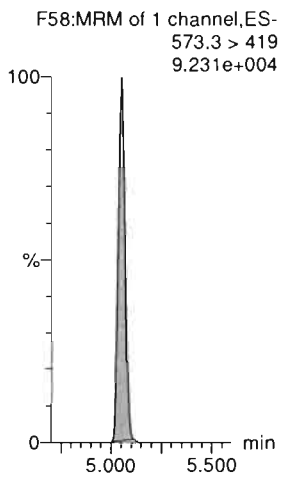

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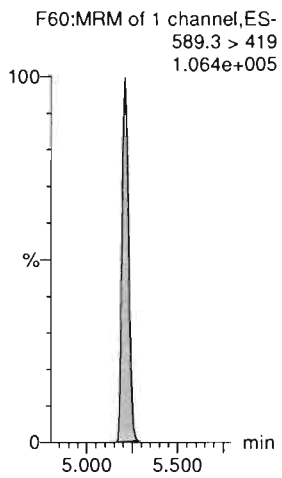

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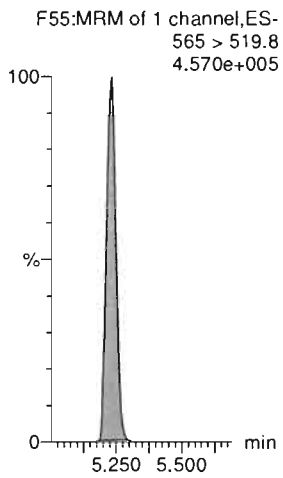

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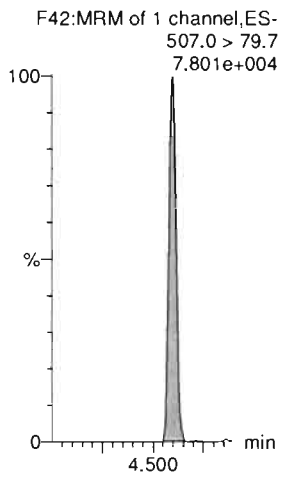

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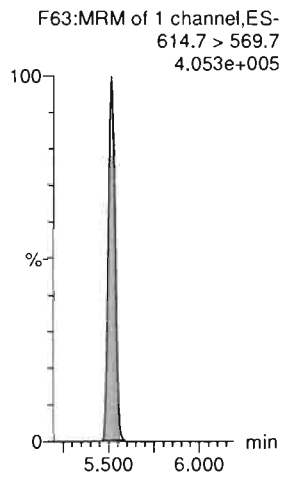

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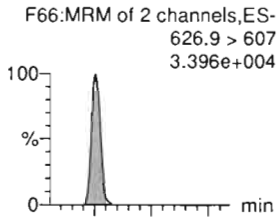
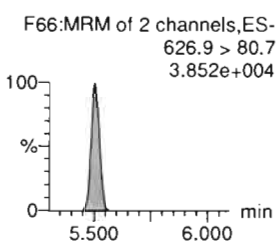
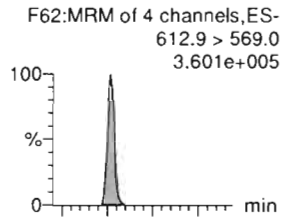
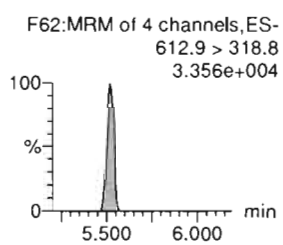
10:2 FTS



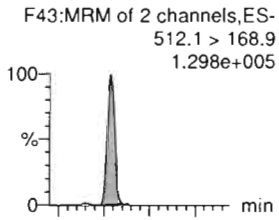


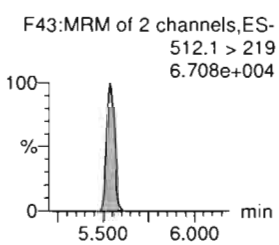
PFDoA



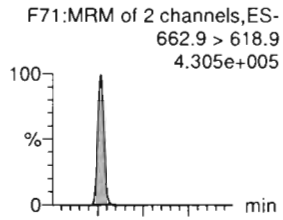


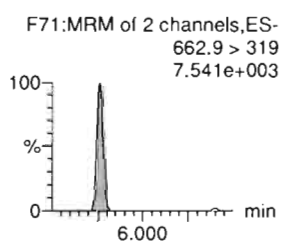
N-MeFOSA



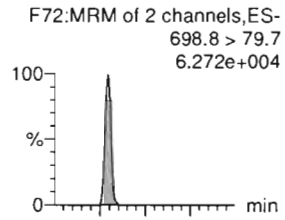


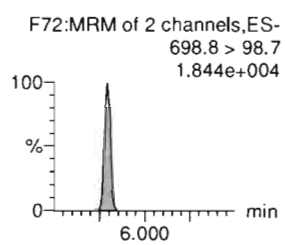
PFTrDA



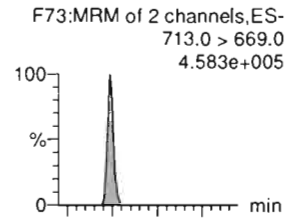


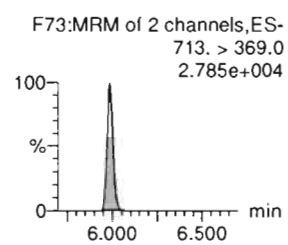
PFDoS



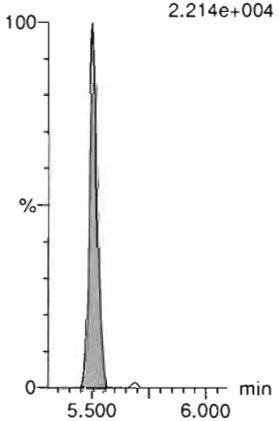


PFTeDA

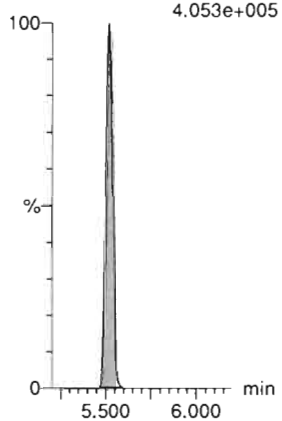




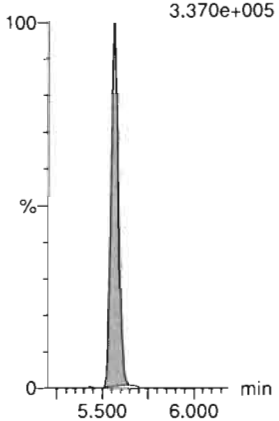
13C2-10:2 FTS-EIS



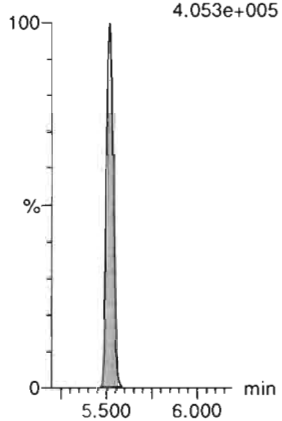
13C2-PFDoA-EIS



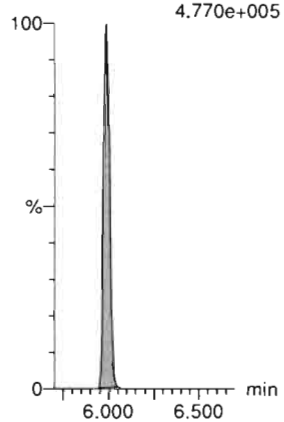
d3-N-MeFOSA-EIS



13C2-PFDoA-EIS



13C2-PFTeDA-EIS



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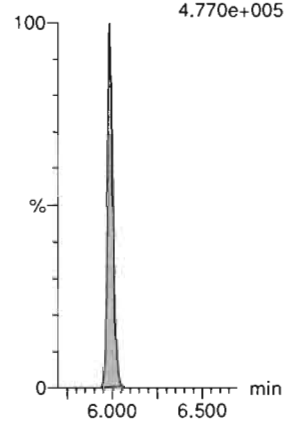

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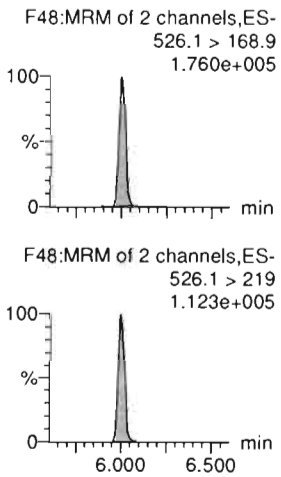
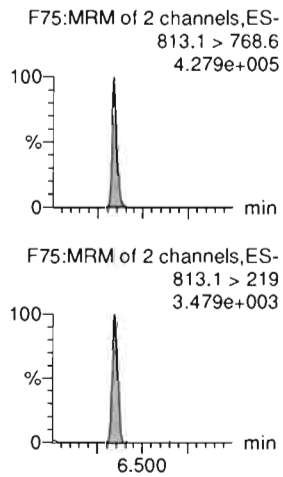
Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

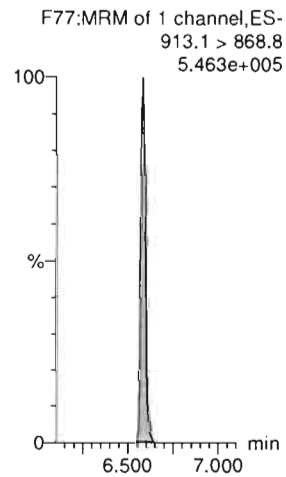
N-EtFOSA



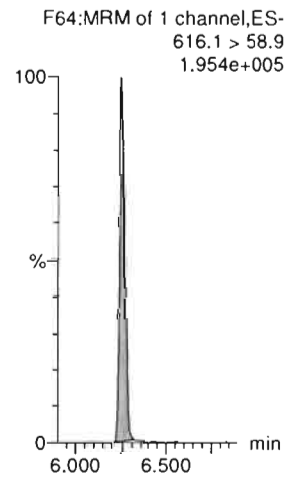
PFHxDA



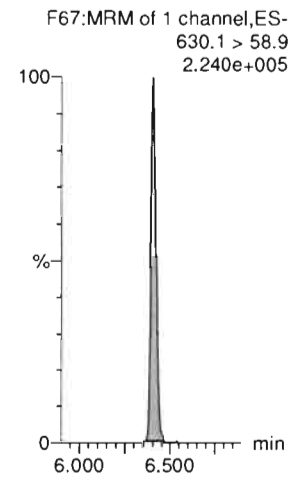
PFODA



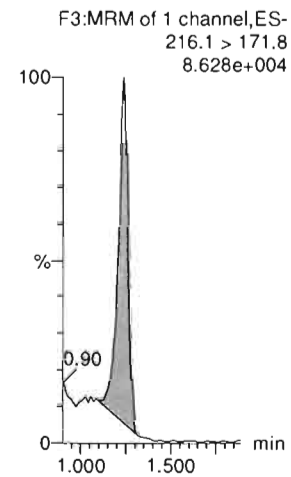
N-MeFOSE



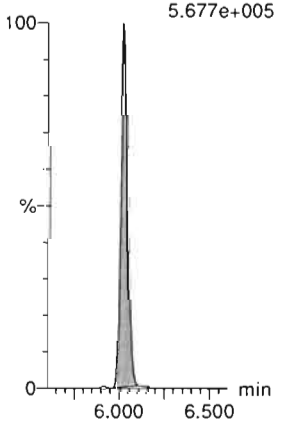
N-EtFOSE



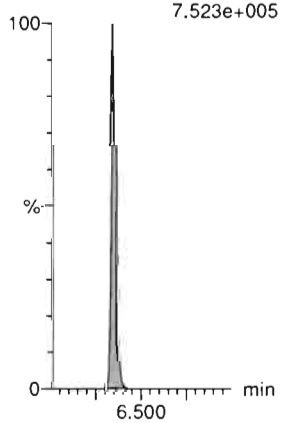
13C3-PFBA-RSD



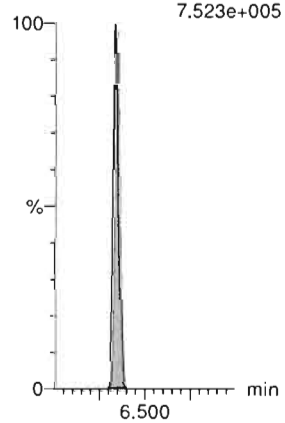
d5-N-ETFOSA-EIS



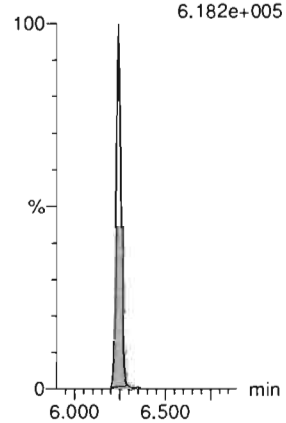
13C2-PFHxDA-EIS



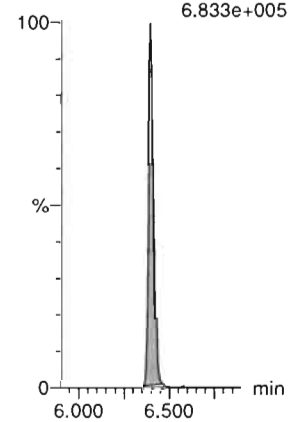
13C2-PFHxDA-EIS



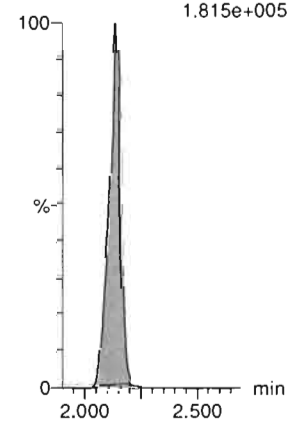
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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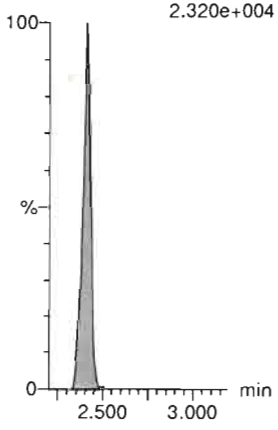
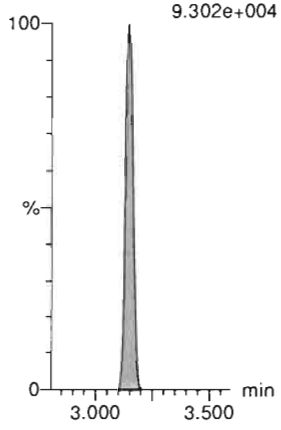
Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

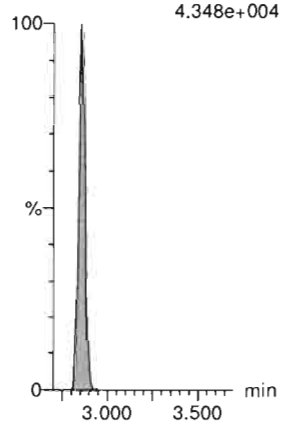
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.320e+004



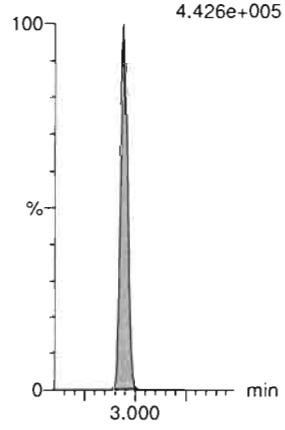
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.302e+004



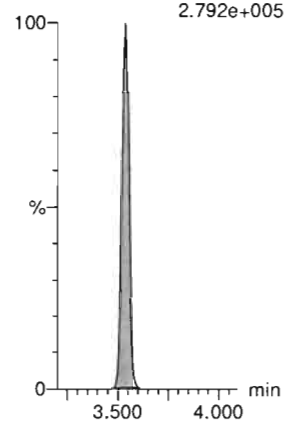
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
4.348e+004



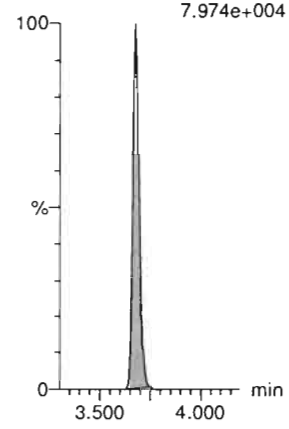
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.426e+005



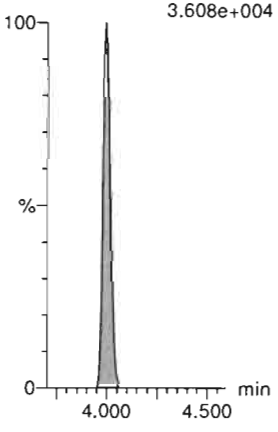
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.792e+005



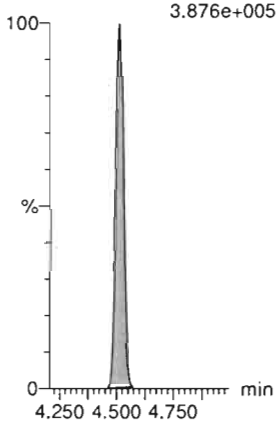
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.974e+004



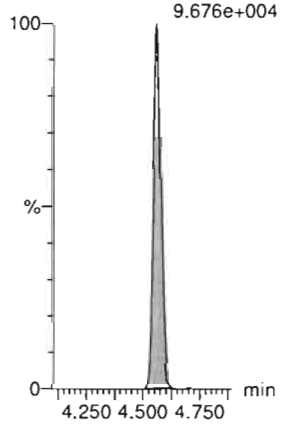
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.608e+004



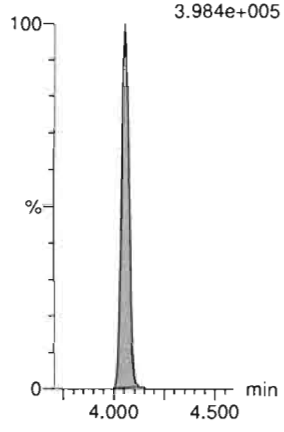
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.876e+005



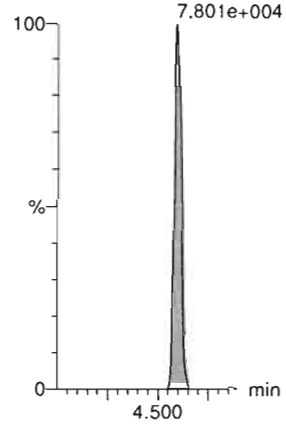
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.676e+004



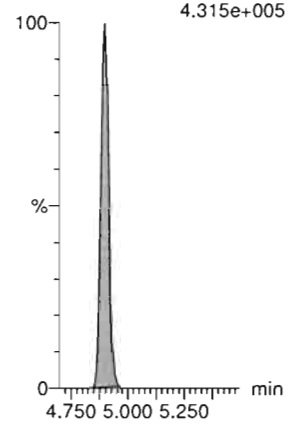
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.984e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.801e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.315e+005



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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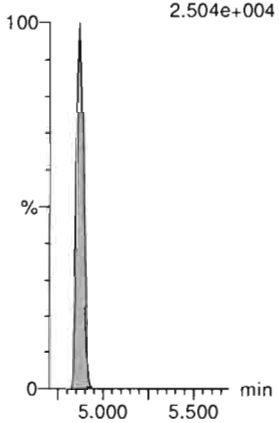
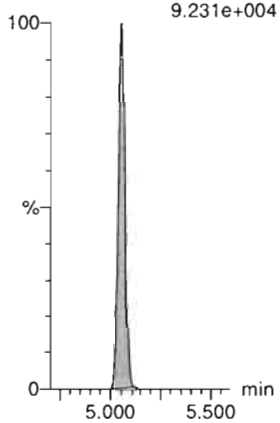
Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

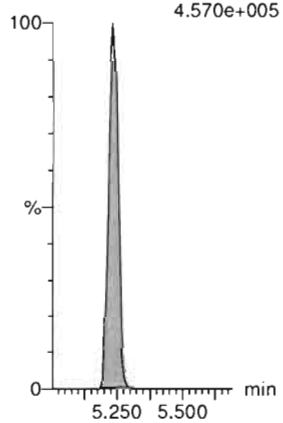
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.504e+004



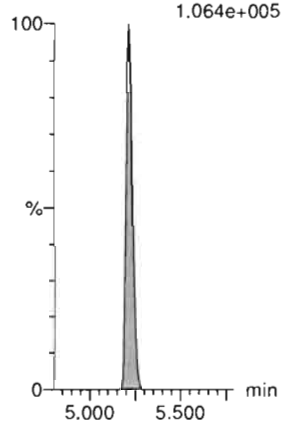
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
9.231e+004



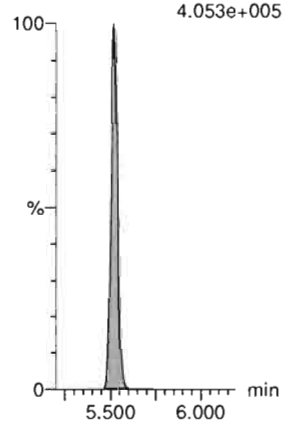
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.570e+005



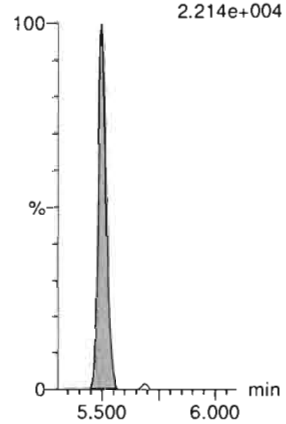
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
1.064e+005



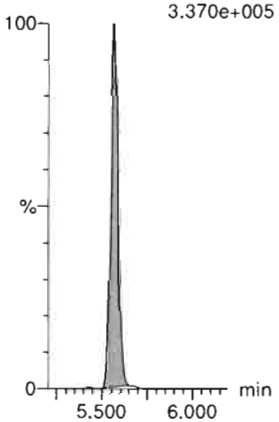
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.053e+005



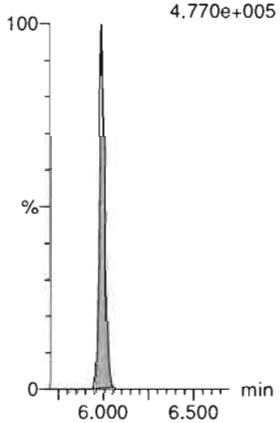
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.214e+004



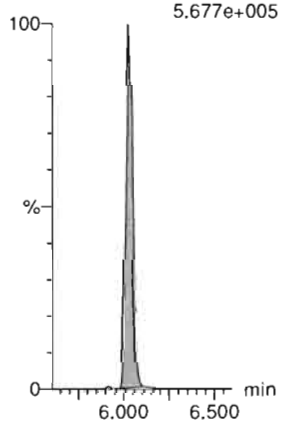
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.370e+005



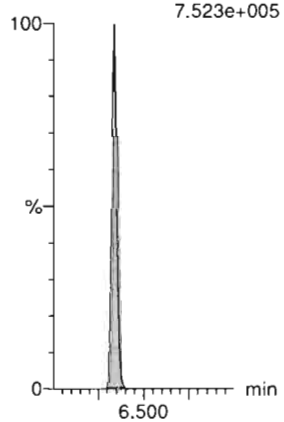
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.770e+005



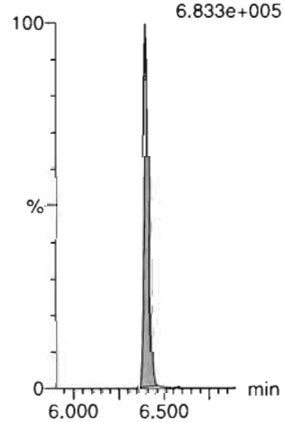
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.677e+005



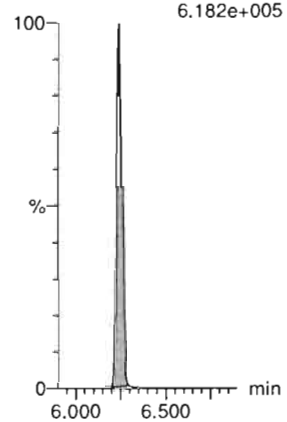
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.523e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.833e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
6.182e+005



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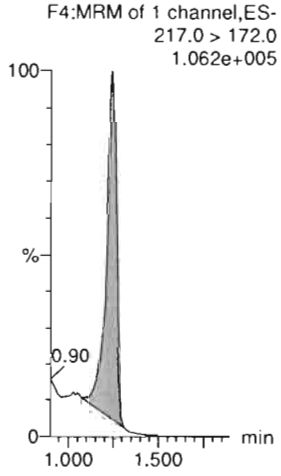
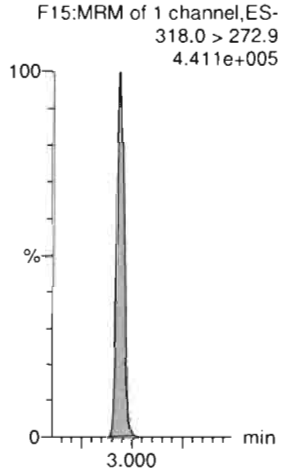
Name: 200305P1-8, Date: 05-Mar-2020, Time: 18:27:54, ID: ST200305P1-6 PFC CS3 20C0309, Description: PFC CS3 20C0309

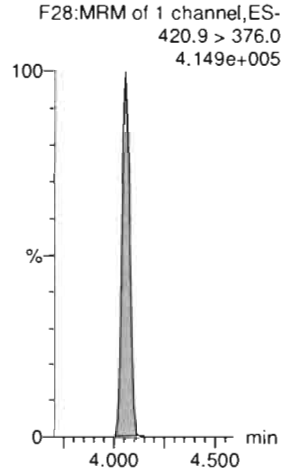
13C4-PFBA



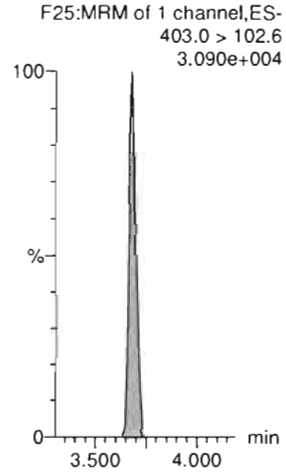
13C5-PFHxA



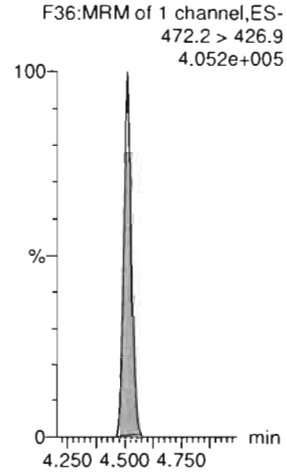
13C8-PFOA



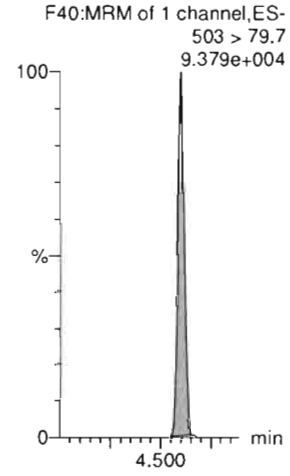
18O2-PFHxS



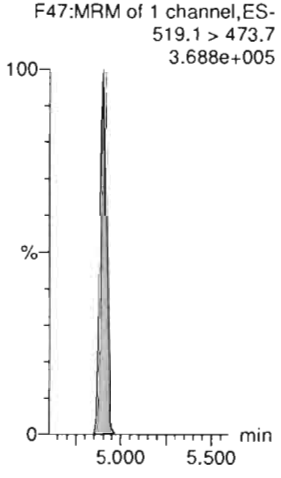
13C9-PFNA



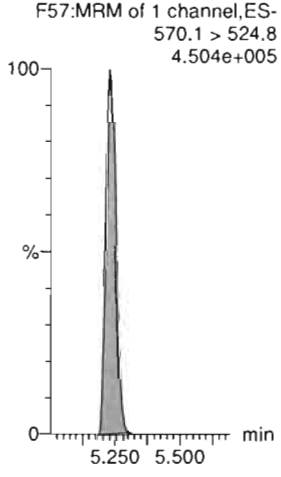
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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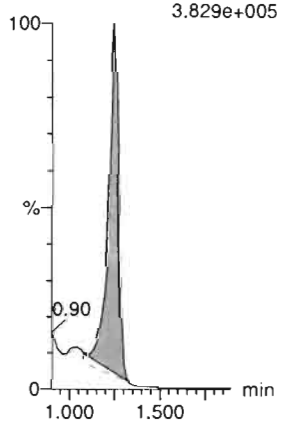
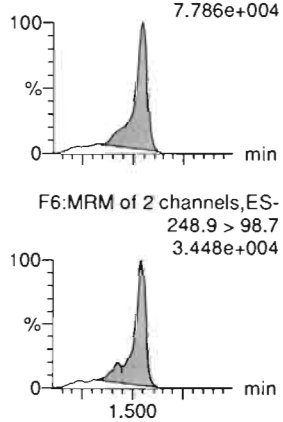
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

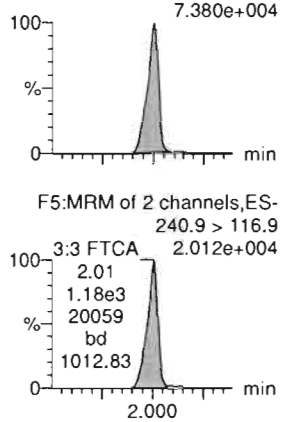
PFBA



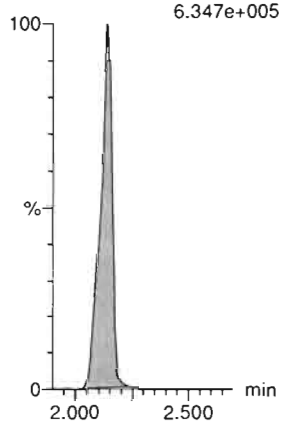
PFPrS



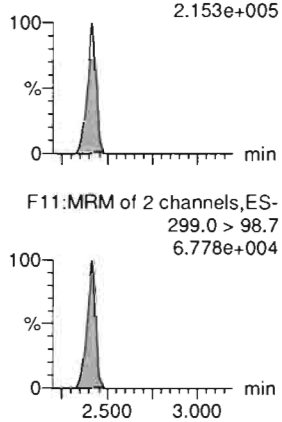
3:3 FTCA



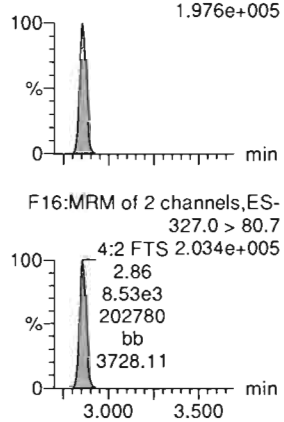
PFPeA



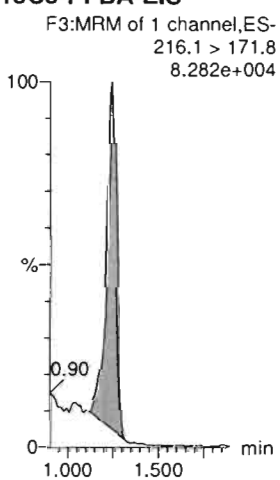
PFBS



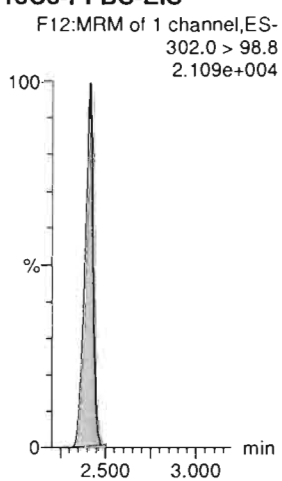
4:2 FTS



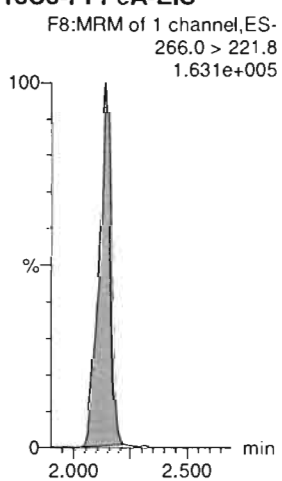
13C3-PFBA-EIS



13C3-PFBS-EIS



13C3-PFPeA-EIS



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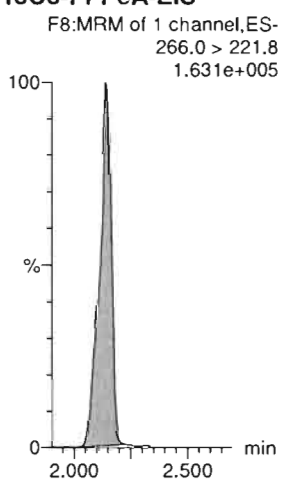

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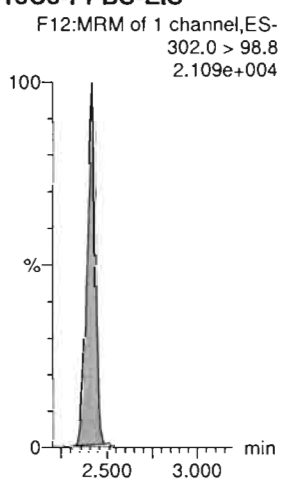
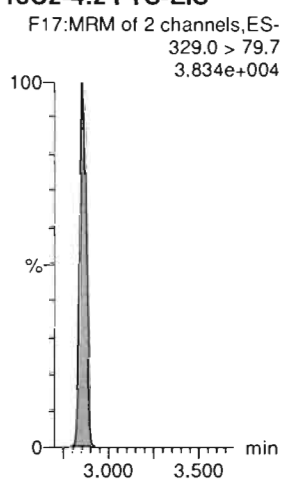


13C2-4:2 FTS-EIS



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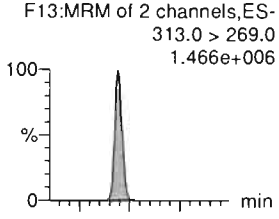
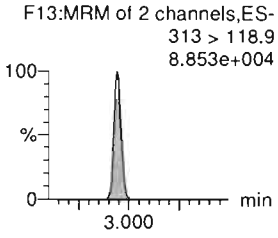
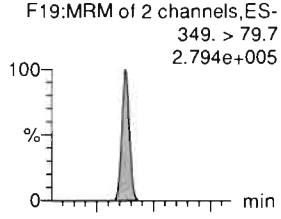
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

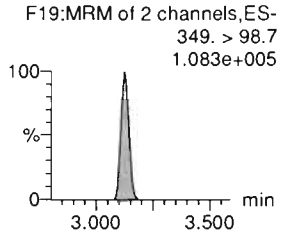
PFHxA



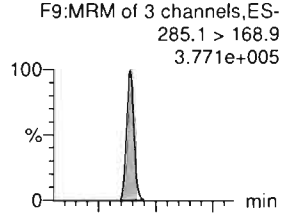


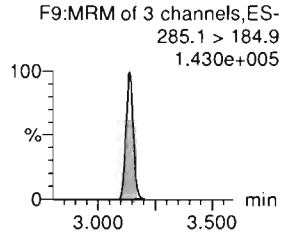
PFPeS



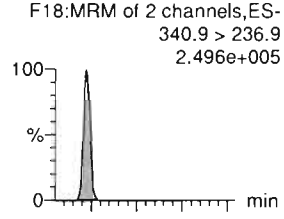


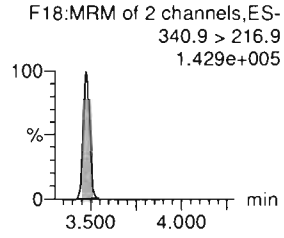
HFPO-DA



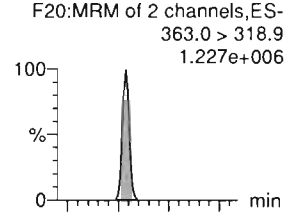


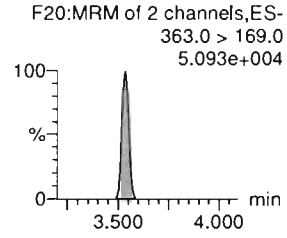
5:3 FTCA



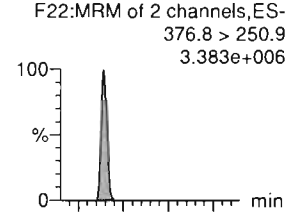


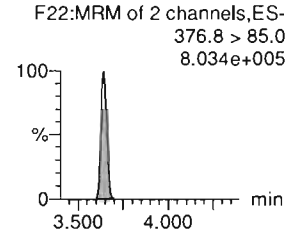
PFHpA



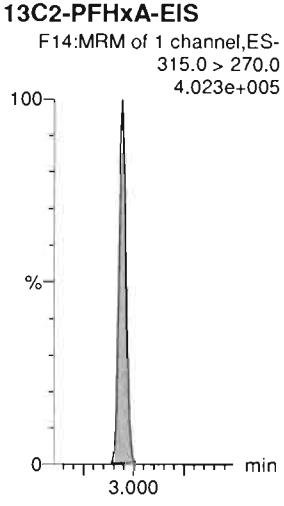


ADONA

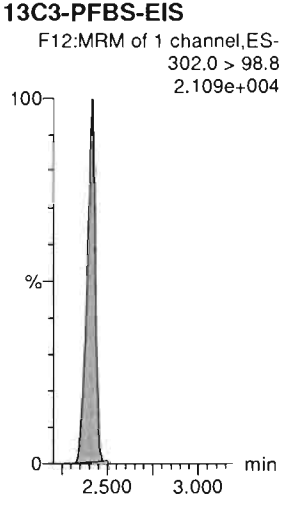




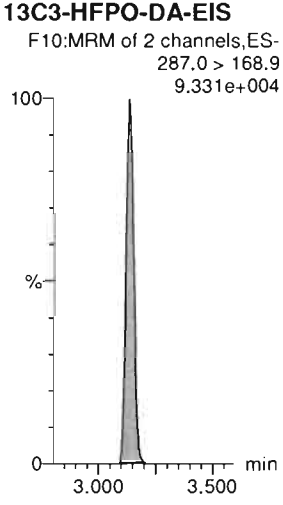
13C2-PFHxA-EIS



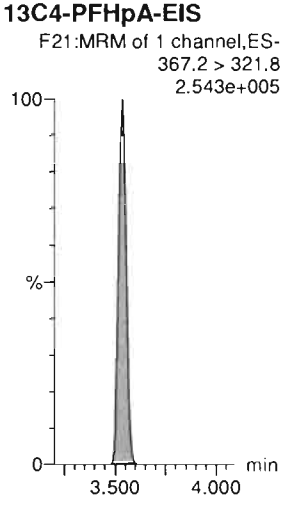
13C3-PFBS-EIS



13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



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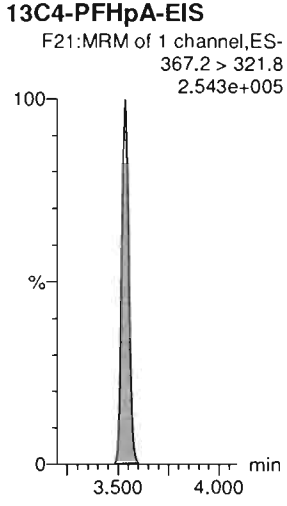
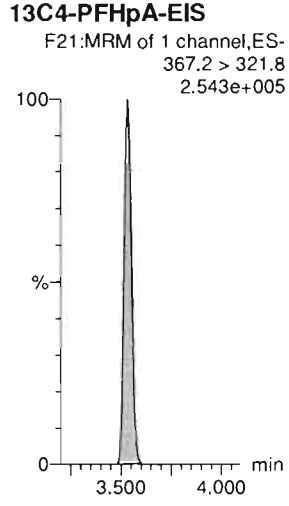


13C4-PFHpA-EIS



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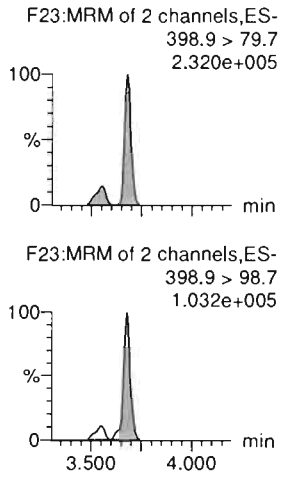
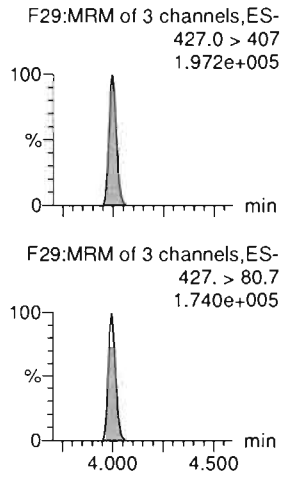
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

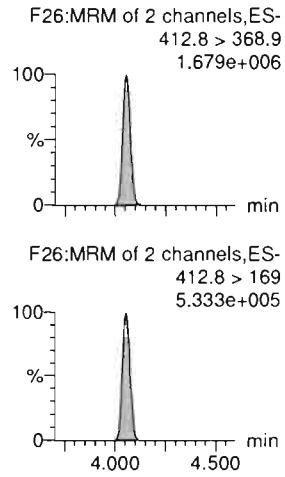
L-PFHxS



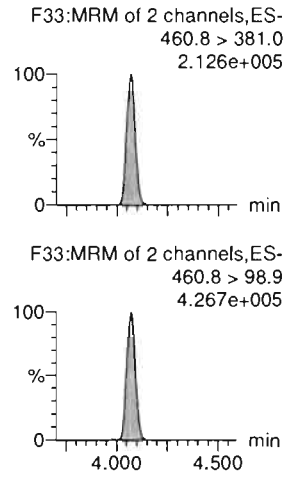
6:2 FTS



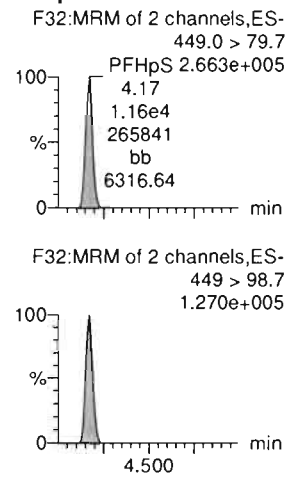
L-PFOA



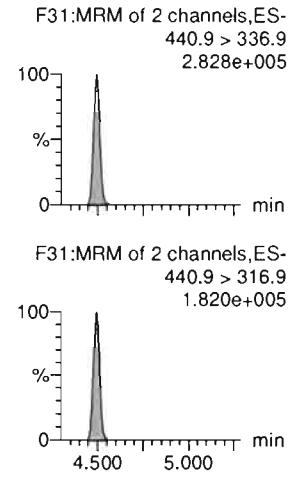
PFEChS



PFHpS



7:3 FTCA



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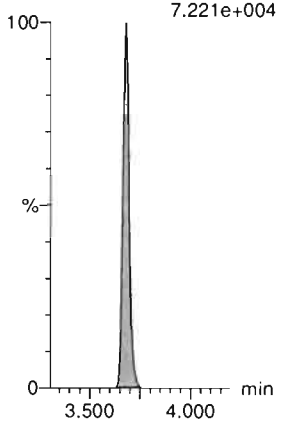
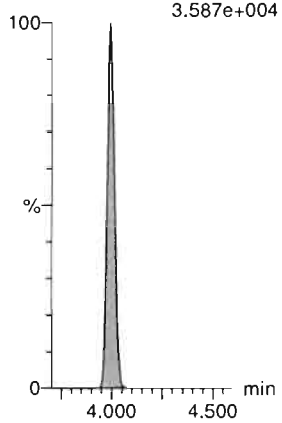
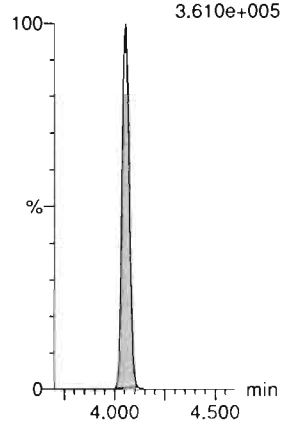


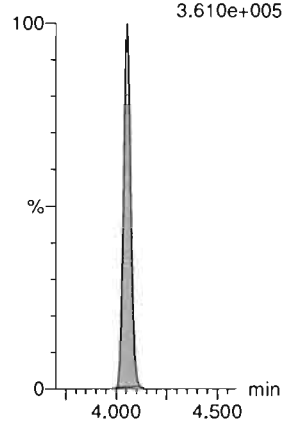
13C2-6:2 FTS-EIS



13C2-PFOA-EIS



13C2-PFOA-EIS



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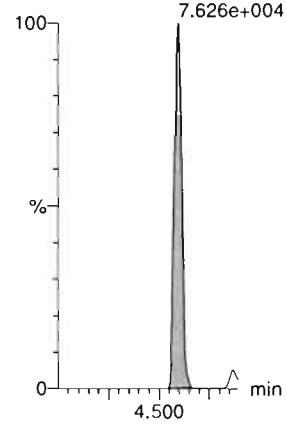
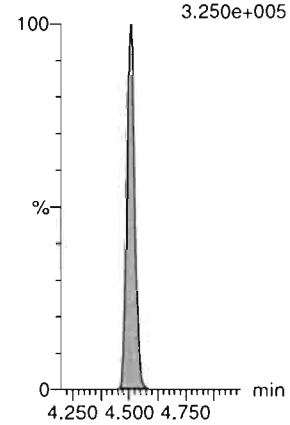


13C5-PFNA-EIS



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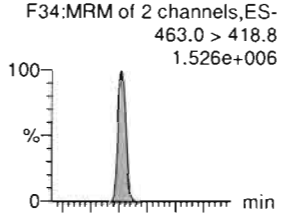

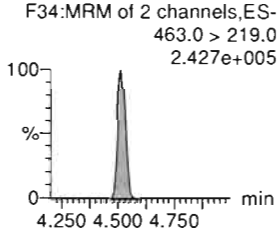

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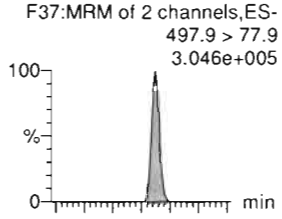

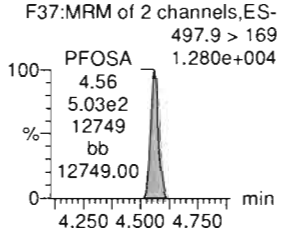

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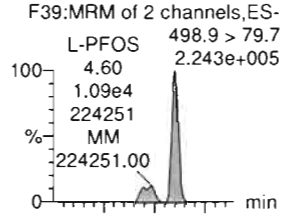

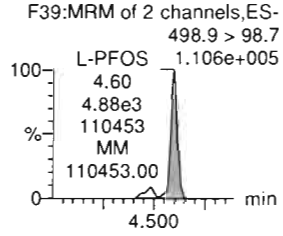

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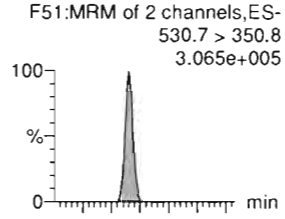

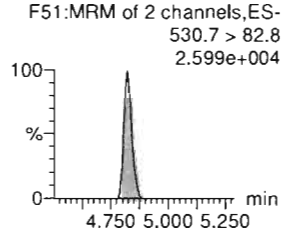

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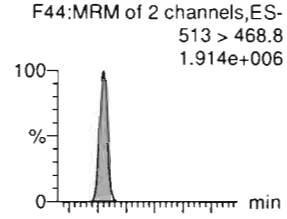
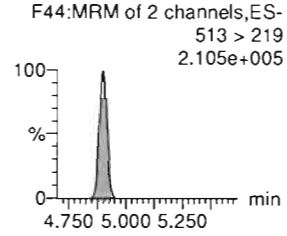
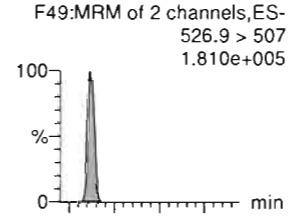
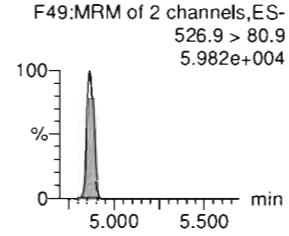




8:2 FTS





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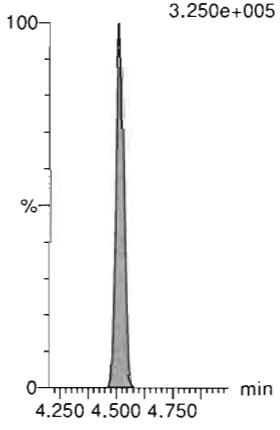

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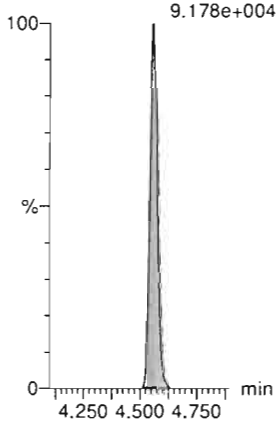

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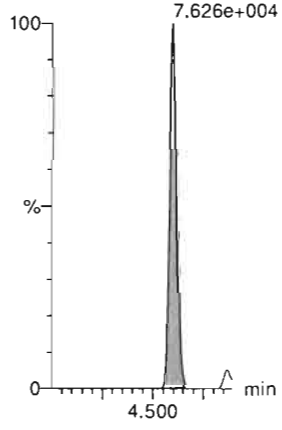

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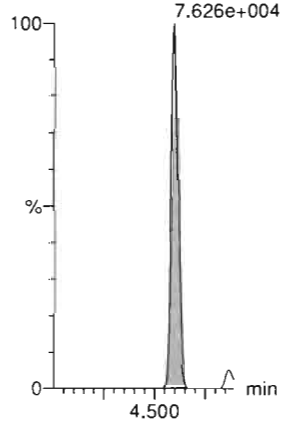

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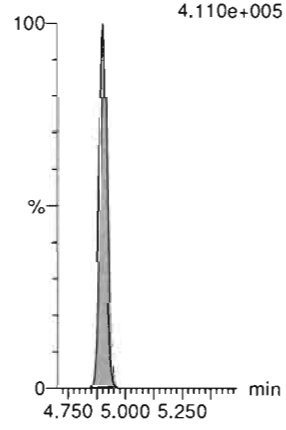

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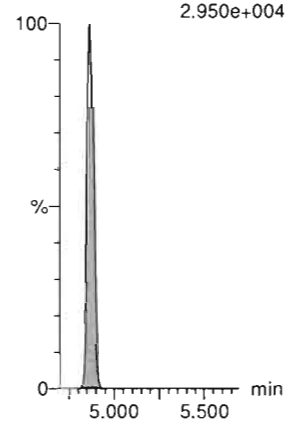

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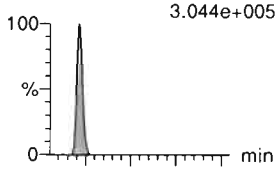

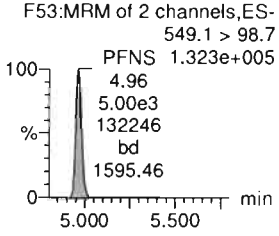

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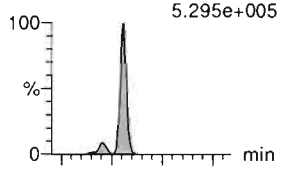

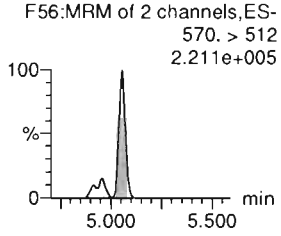

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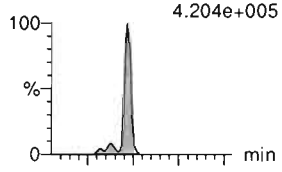

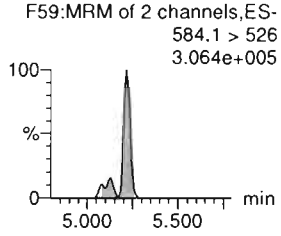

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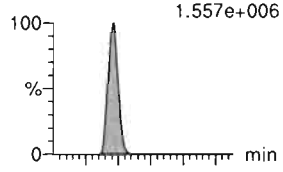

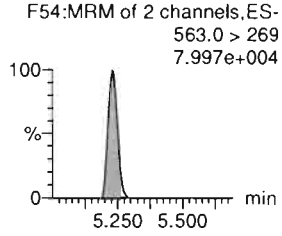

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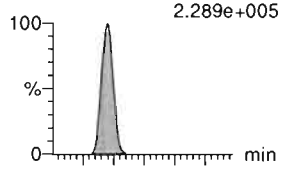

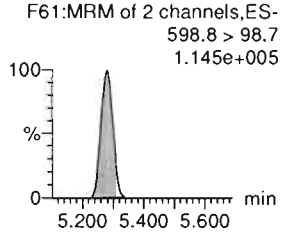

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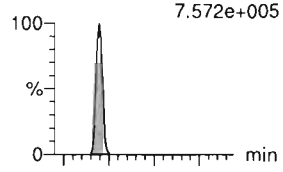

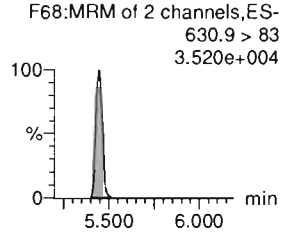

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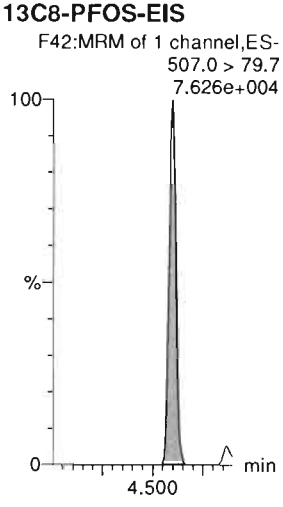

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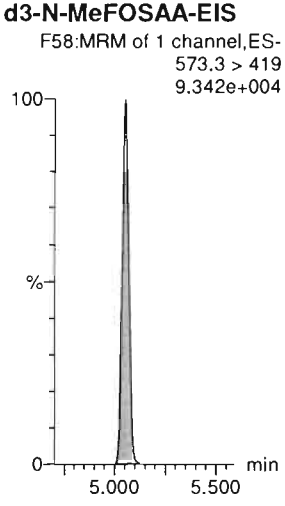

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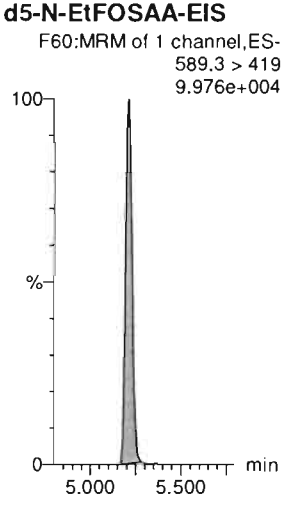

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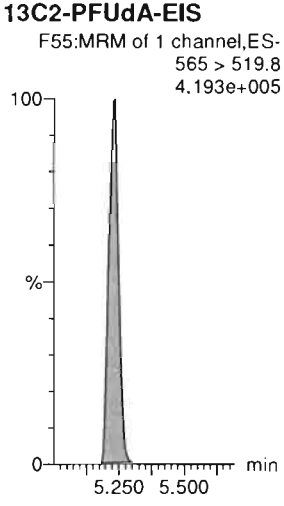

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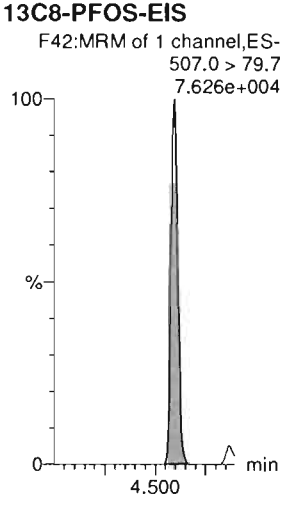

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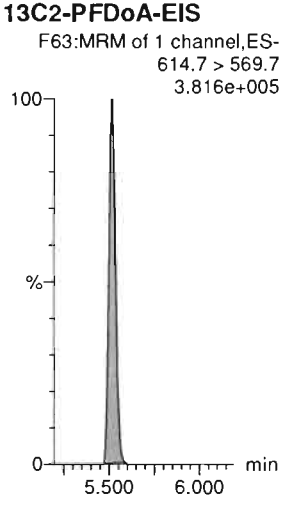

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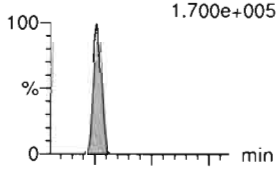
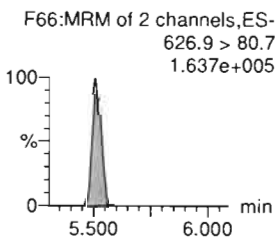
10:2 FTS





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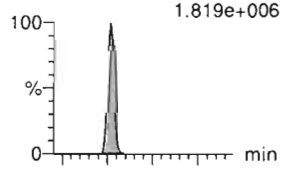

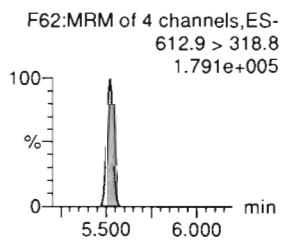

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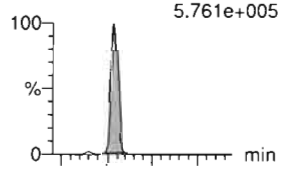

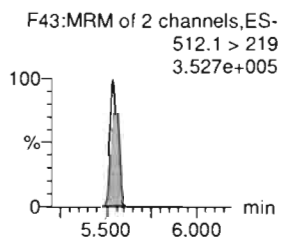

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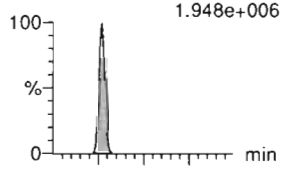

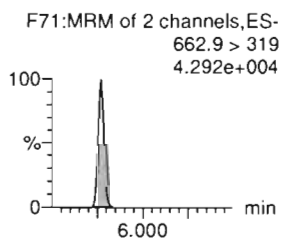

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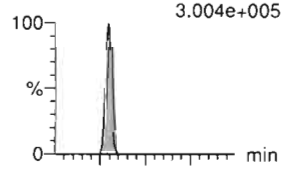

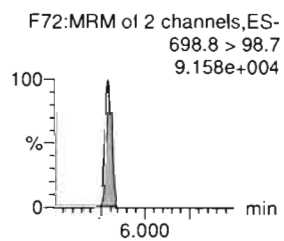

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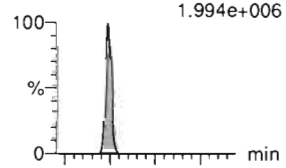

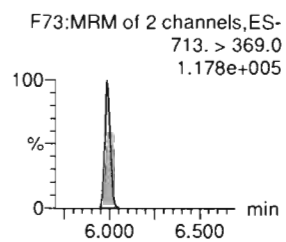

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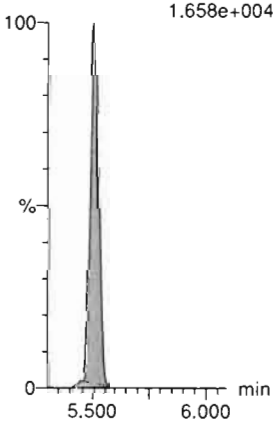

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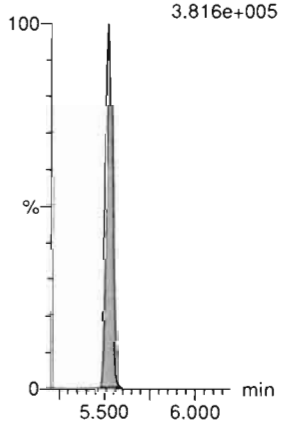

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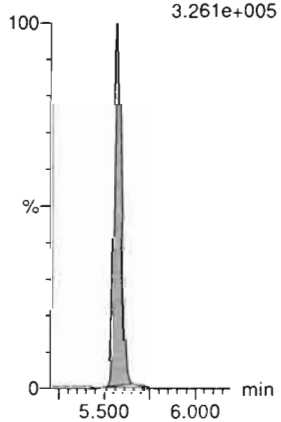
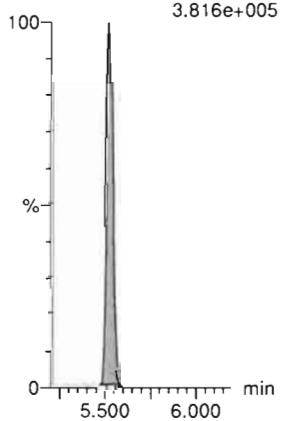


13C2-PFDoA-EIS



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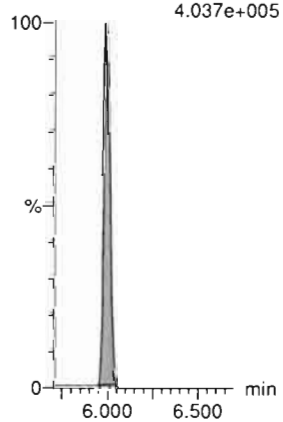

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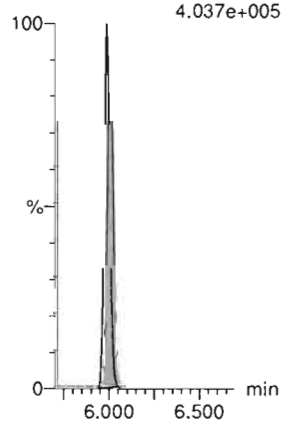

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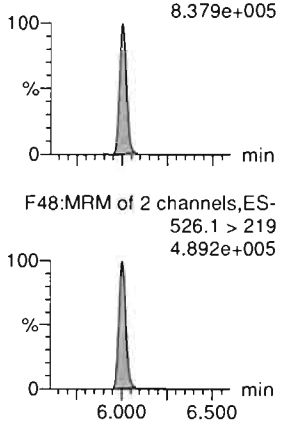
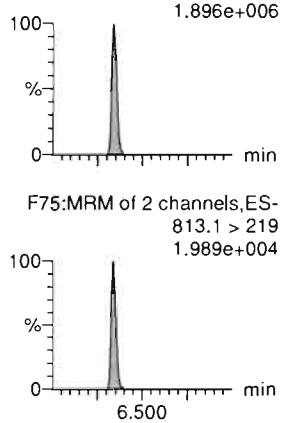
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

N-EtFOSA



PFHxDA



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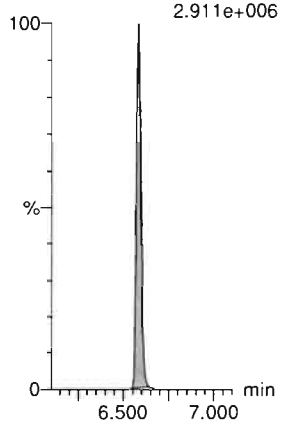
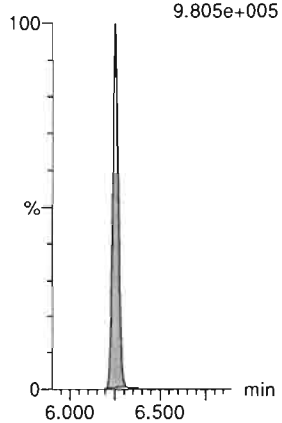
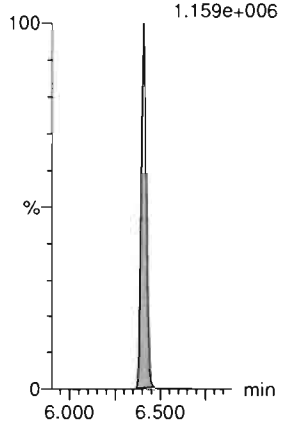


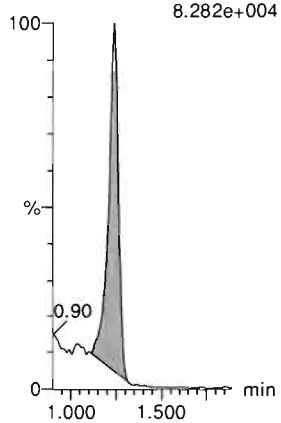
N-MeFOSE



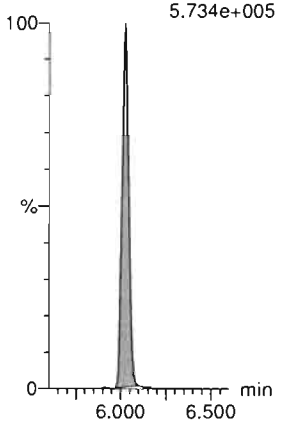
N-EtFOSE



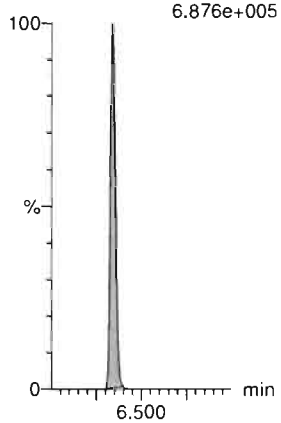
13C3-PFBA-RSD



d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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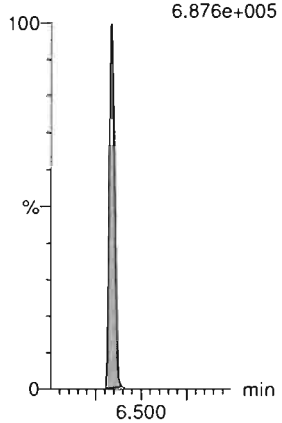
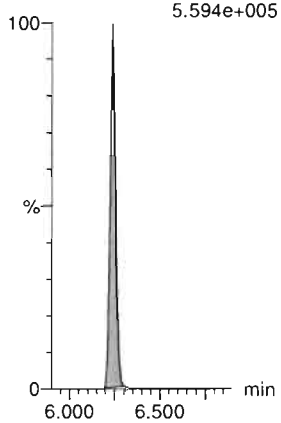
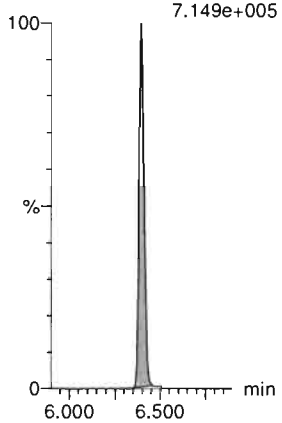


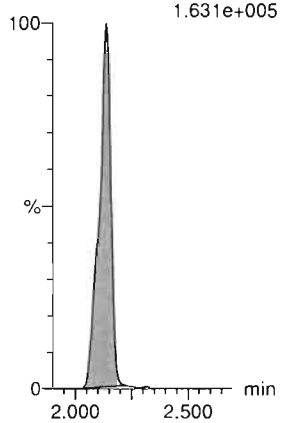
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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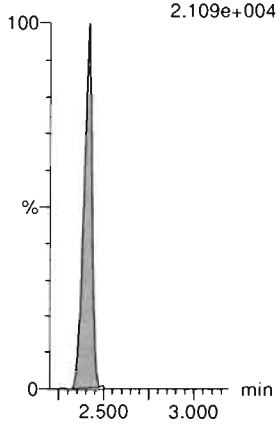
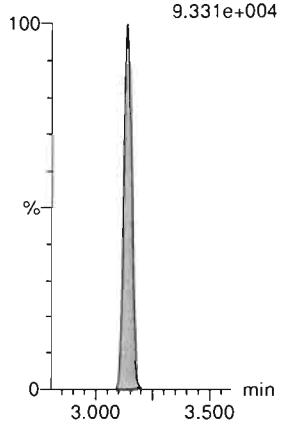
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

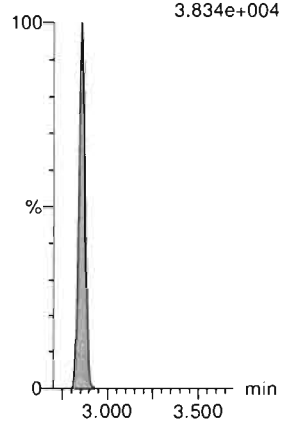
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.109e+004



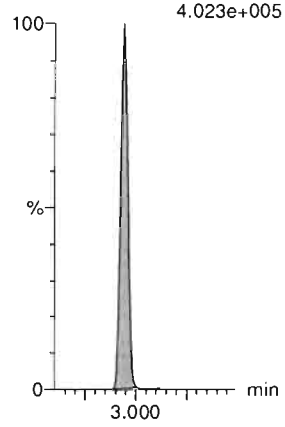
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.331e+004



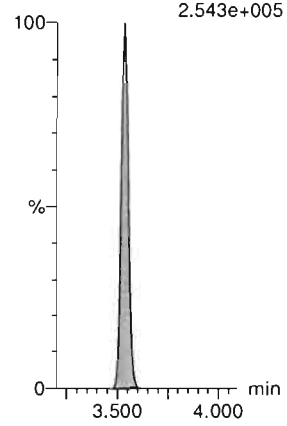
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.834e+004



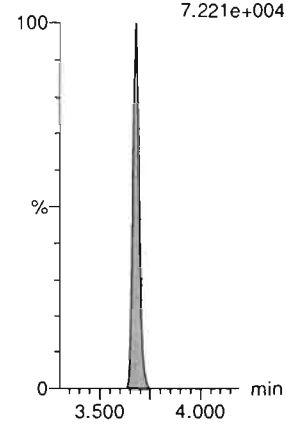
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.023e+005



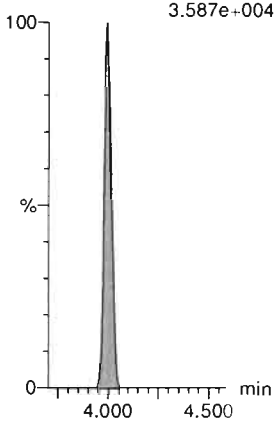
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.543e+005



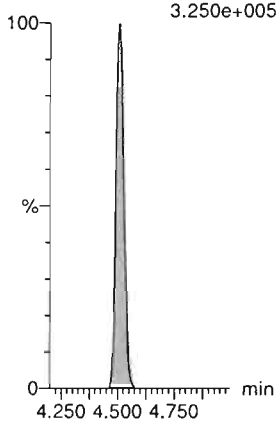
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.221e+004



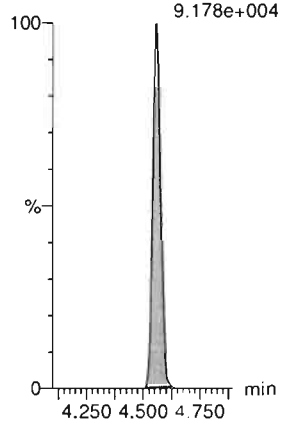
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.587e+004



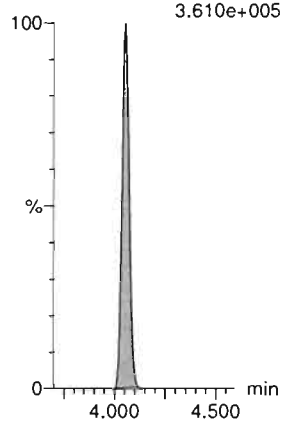
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.250e+005



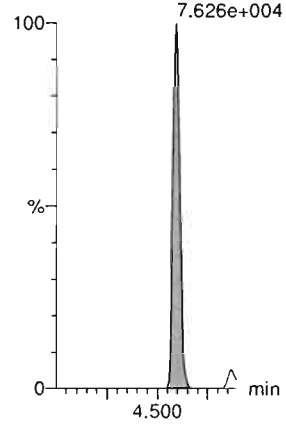
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.178e+004



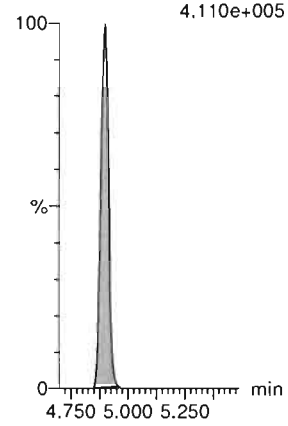
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.610e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.626e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.110e+005



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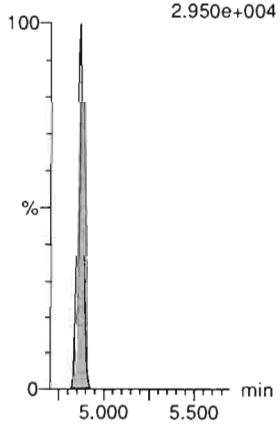
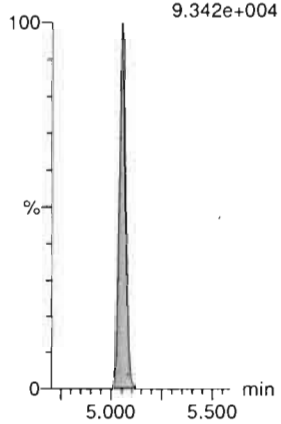
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

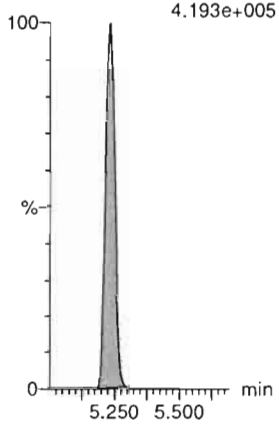
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.950e+004



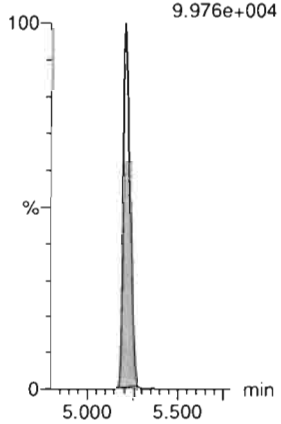
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
9.342e+004



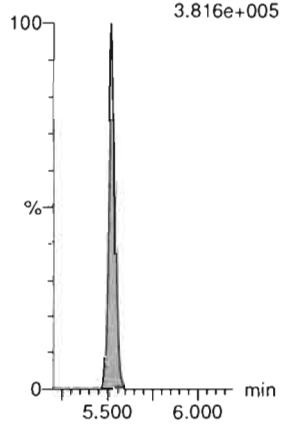
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.193e+005



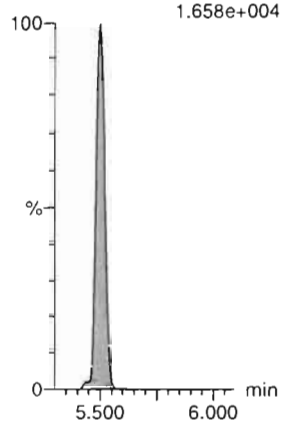
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.976e+004



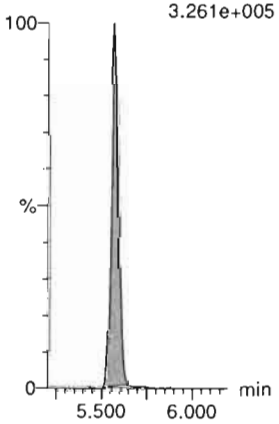
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.816e+005



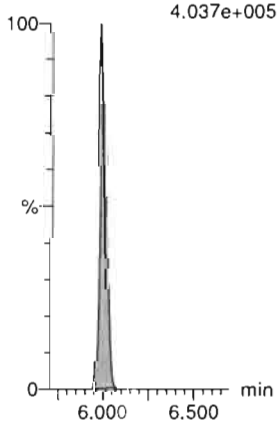
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.658e+004



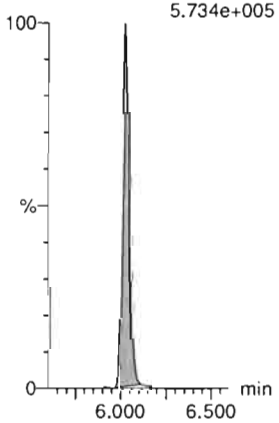
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.261e+005



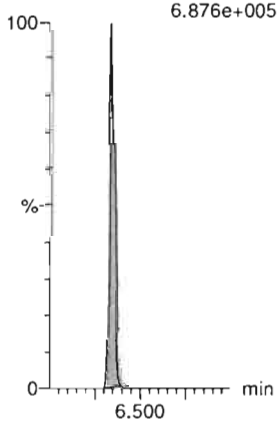
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.037e+005



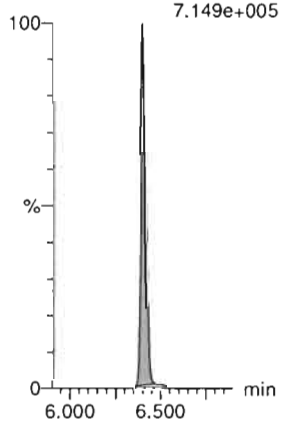
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.734e+005



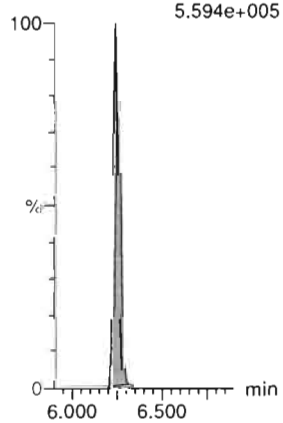
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.876e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
7.149e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.594e+005



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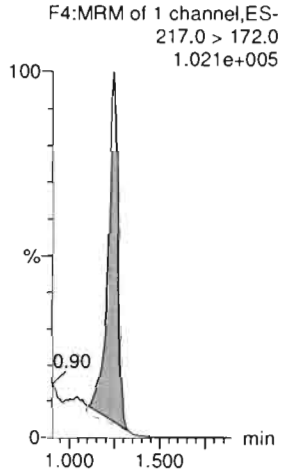
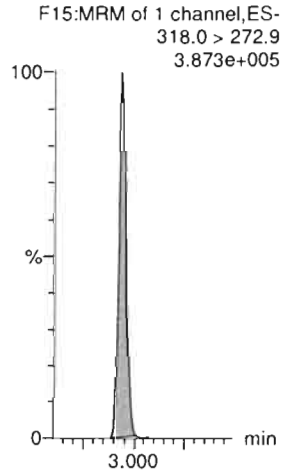
Name: 200305P1-9, Date: 05-Mar-2020, Time: 18:38:35, ID: ST200305P1-7 PFC CS4 20C0310, Description: PFC CS4 20C0310

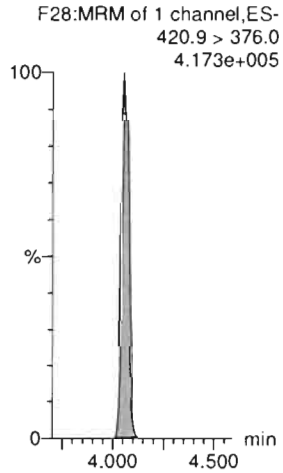
13C4-PFBA



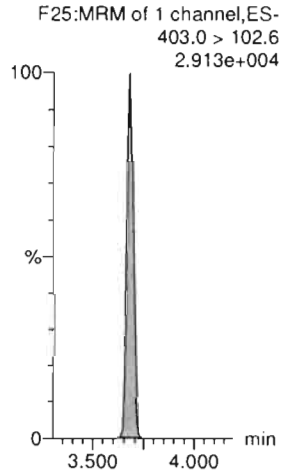
13C5-PFHxA



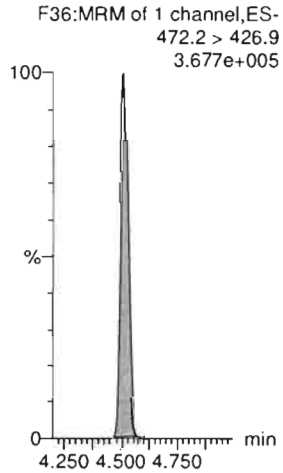
13C8-PFOA



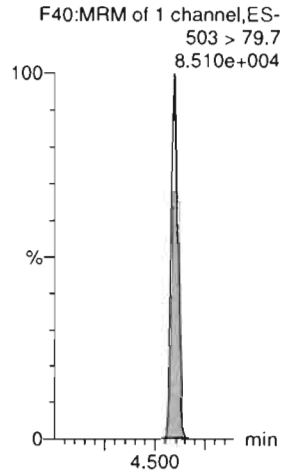
18O2-PFHxS



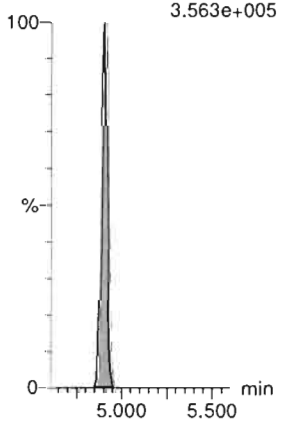
13C9-PFNA



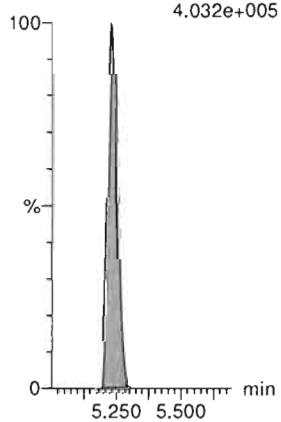
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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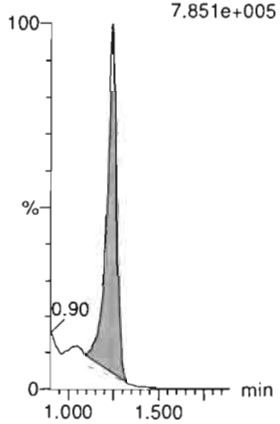
Name: 200305P1-10, Date: 05-Mar-2020, Time: 18:49:11, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

PFBA



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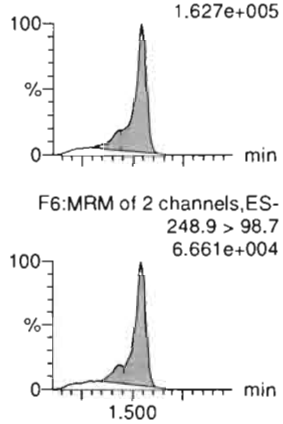
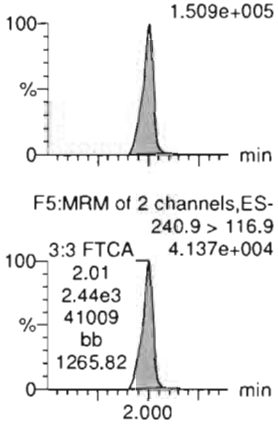


3:3 FTCA



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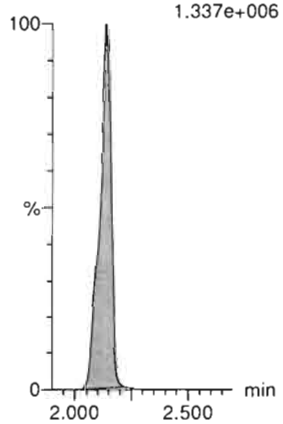

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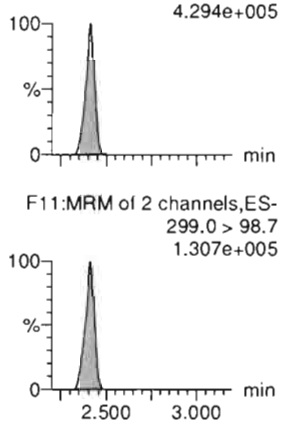

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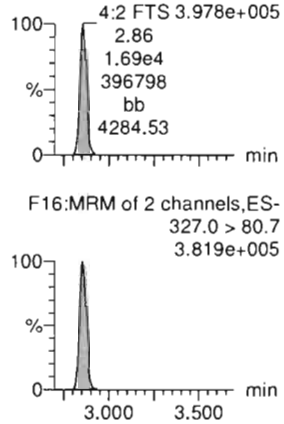

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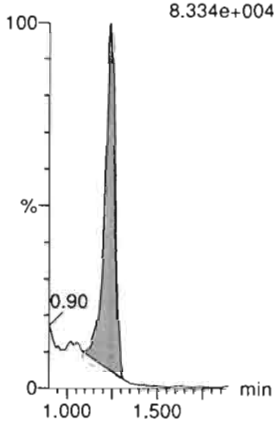

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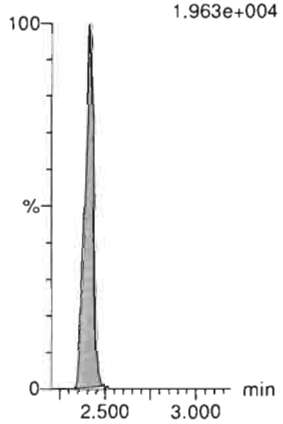

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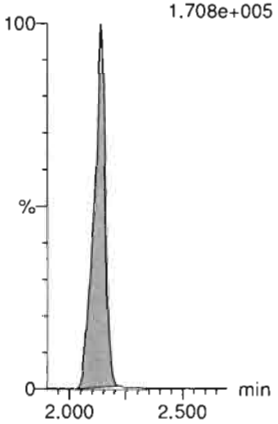

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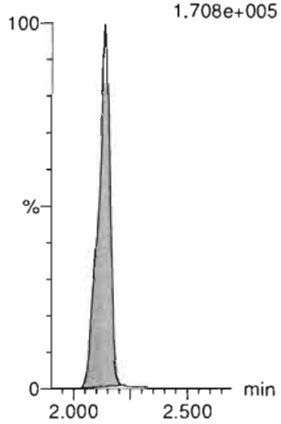

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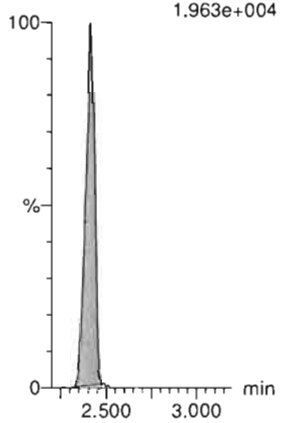

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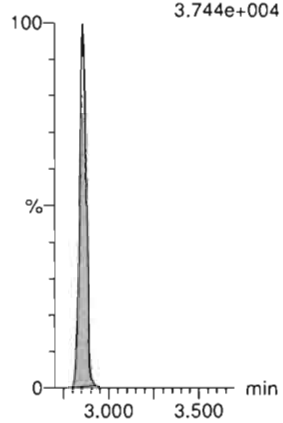

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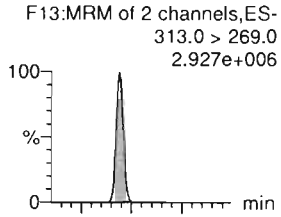
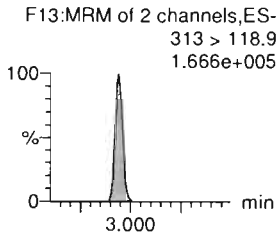
PFHxA





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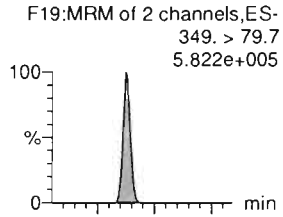

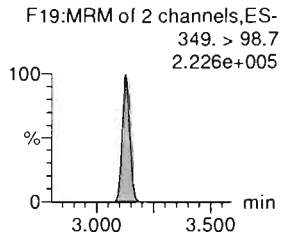

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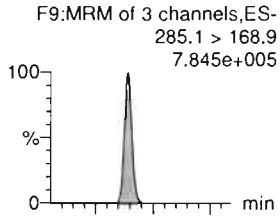

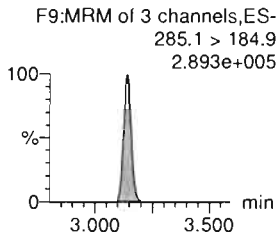

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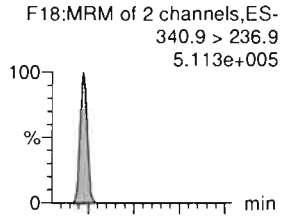

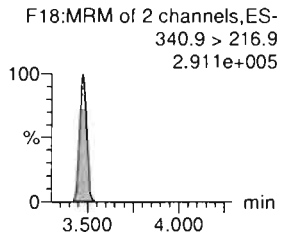

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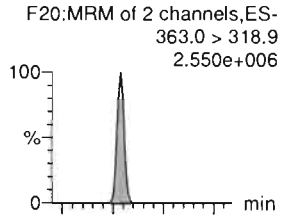

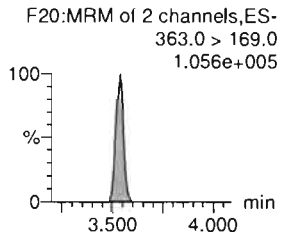

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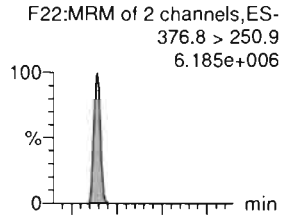

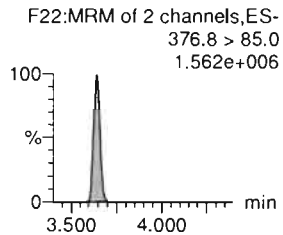

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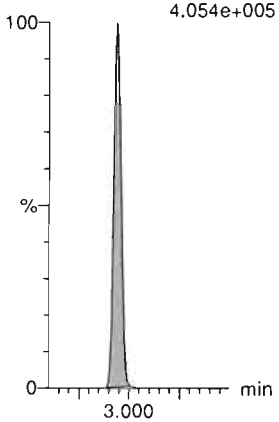

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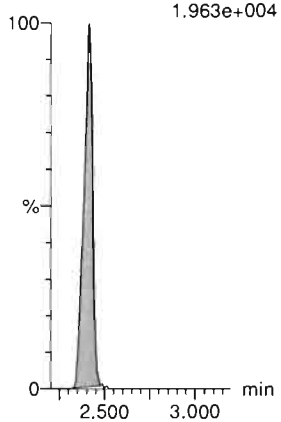

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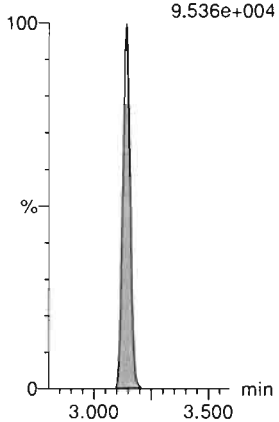

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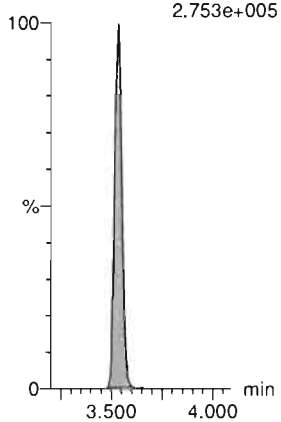

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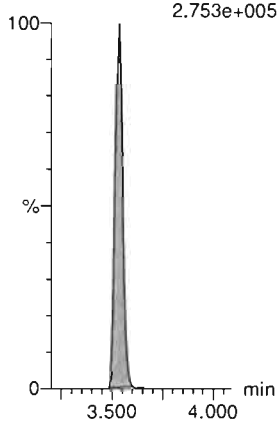

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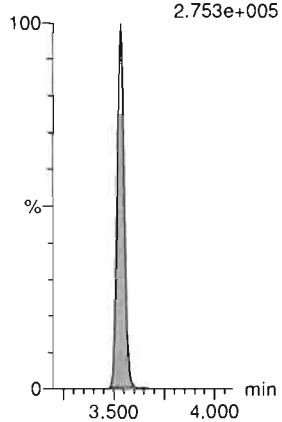

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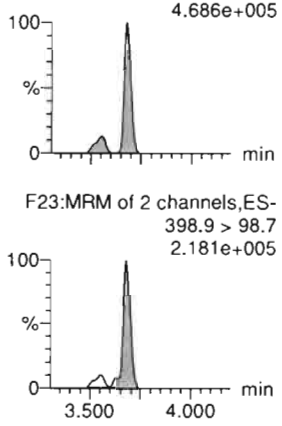
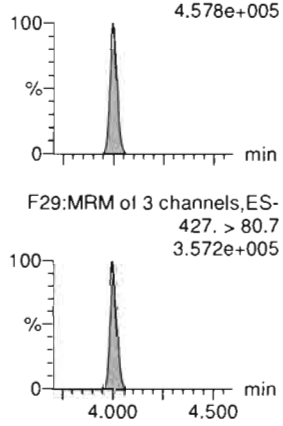
L-PFHxS



6:2 FTS



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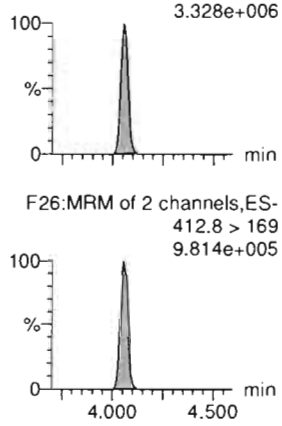

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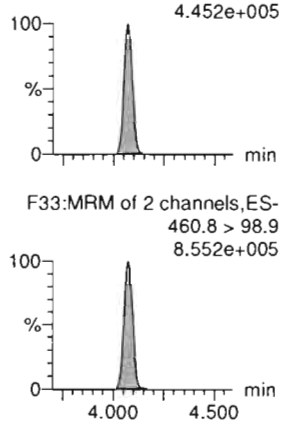

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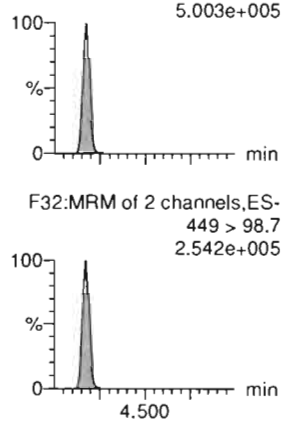
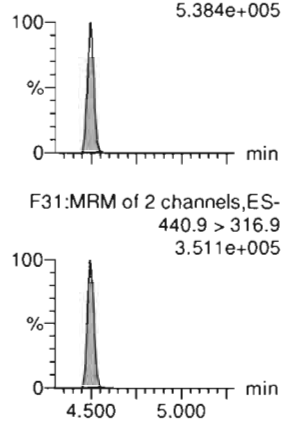


7:3 FTCA



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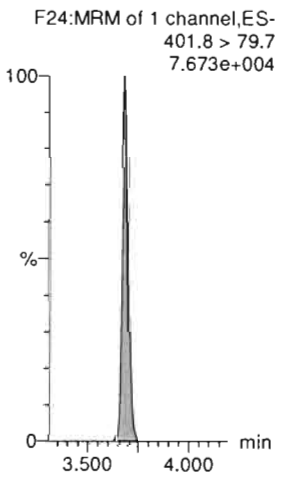

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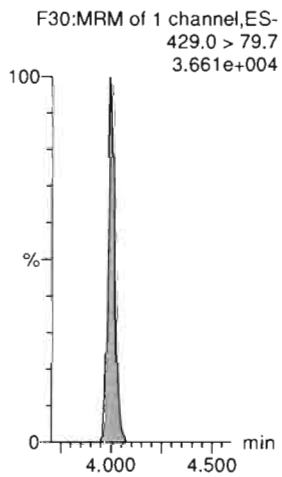

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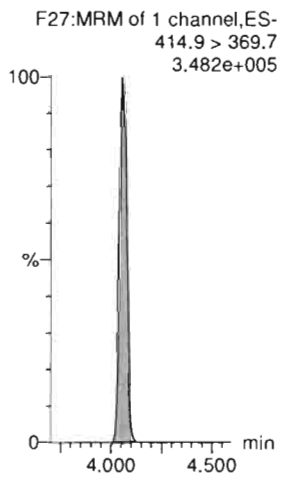

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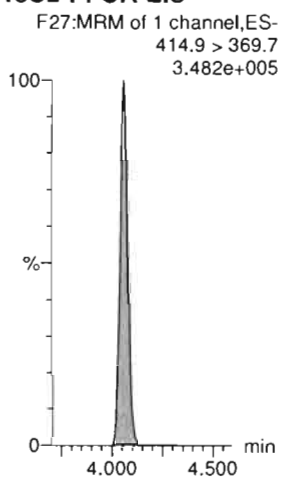

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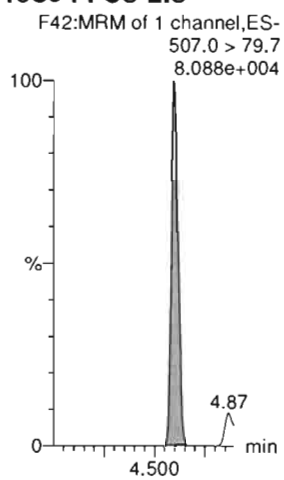

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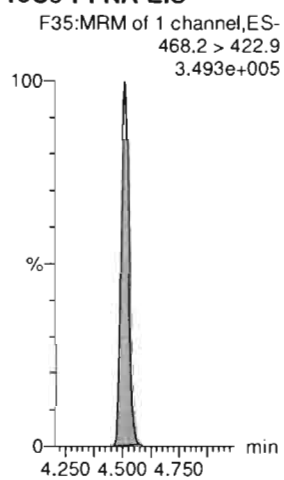

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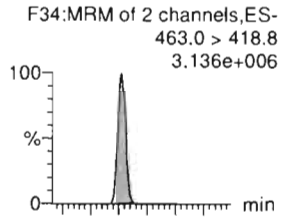
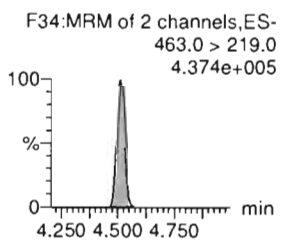
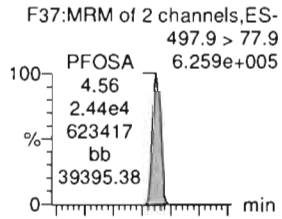
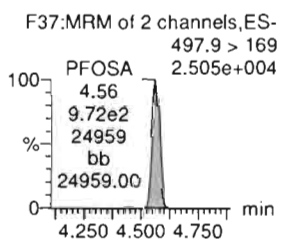


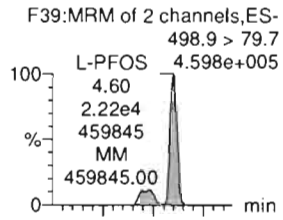


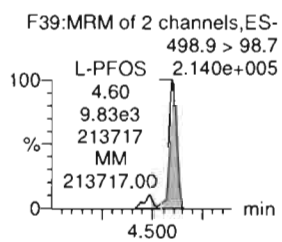
PFOSA





L-PFOS





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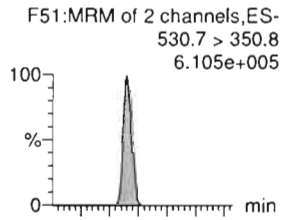

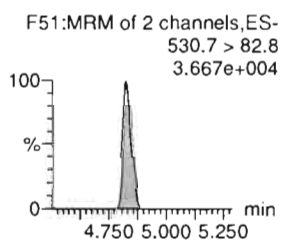

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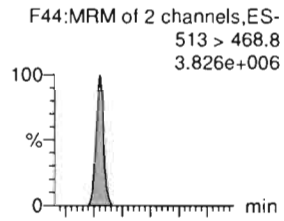
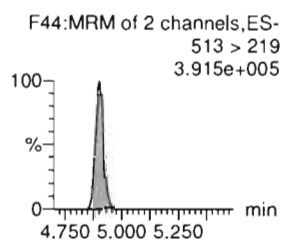
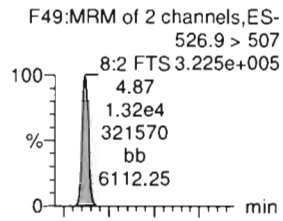
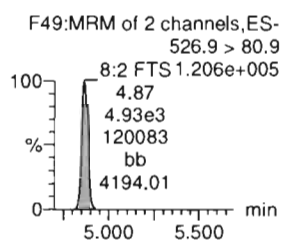


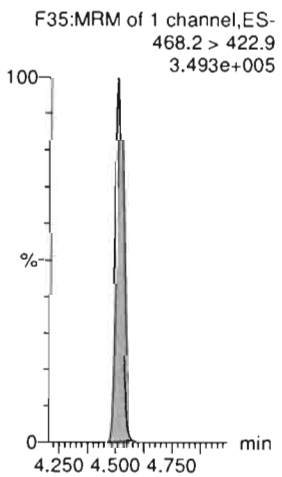


8:2 FTS





13C5-PFNA-EIS



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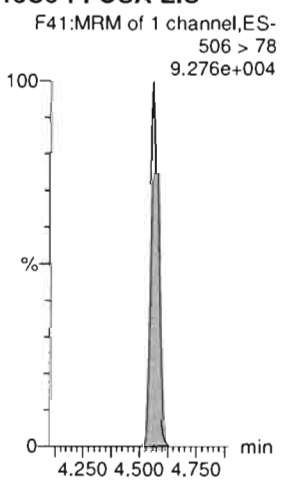

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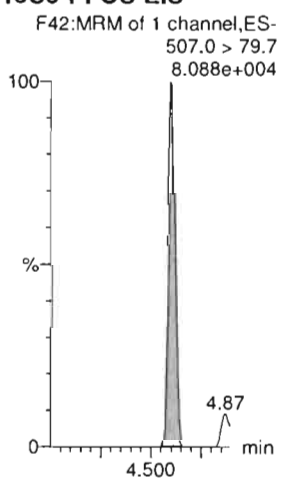

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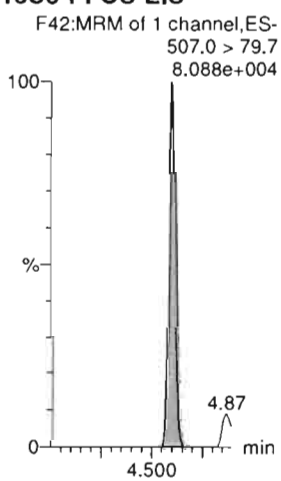

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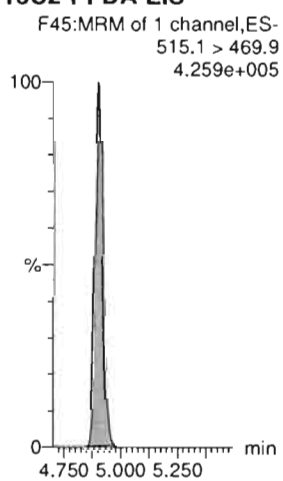

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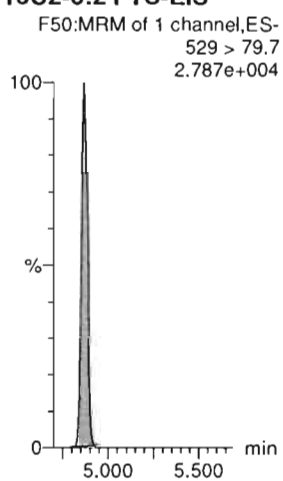

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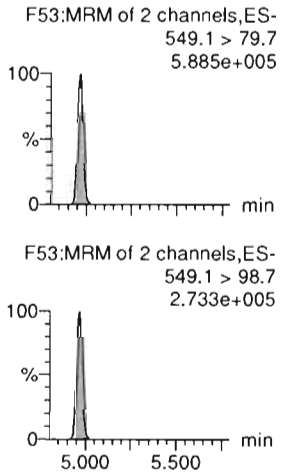
Name: 200305P1-10, Date: 05-Mar-2020, Time: 18:49:11, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

PFNS



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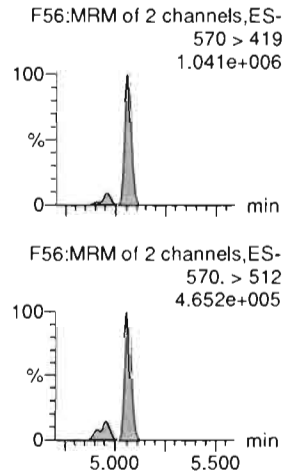

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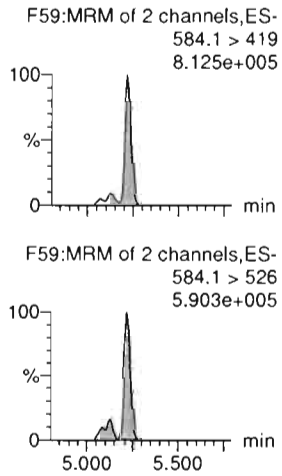

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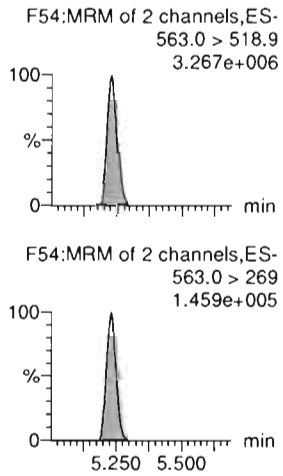

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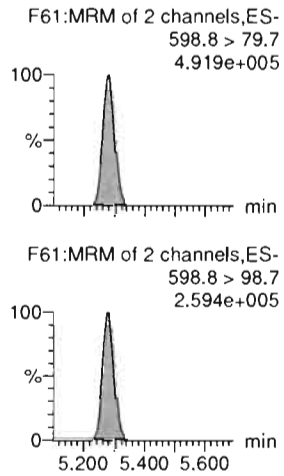

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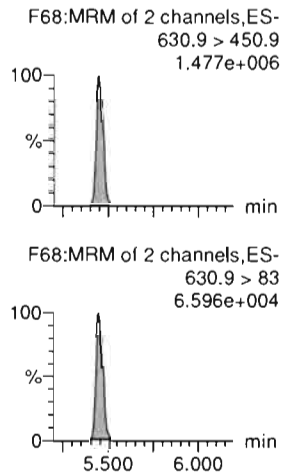

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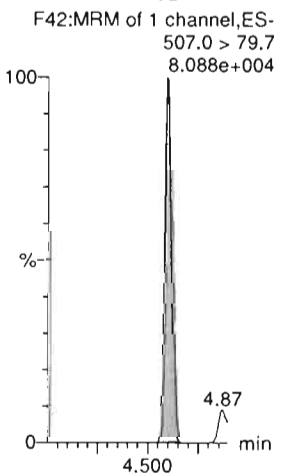
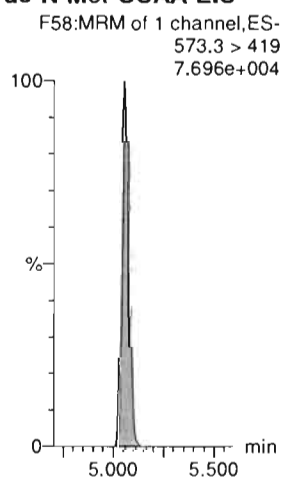


d3-N-MeFOSAA-EIS



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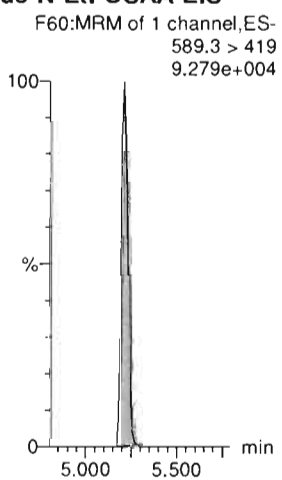

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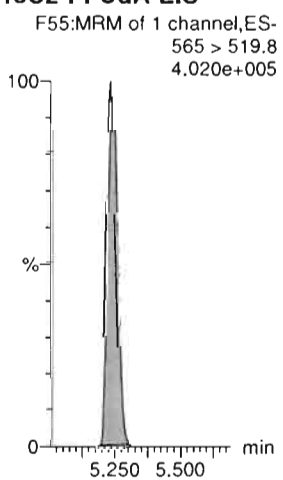

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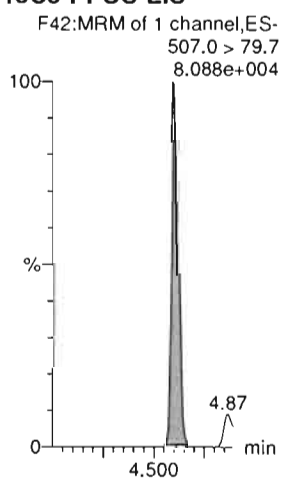

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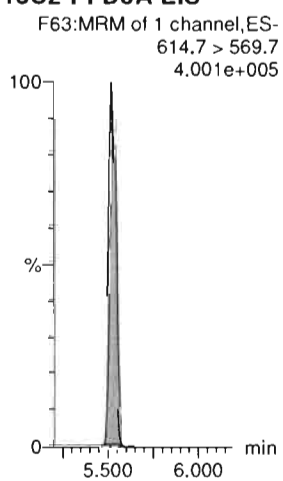

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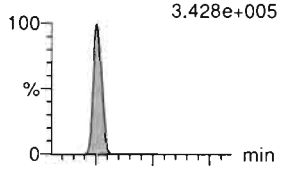
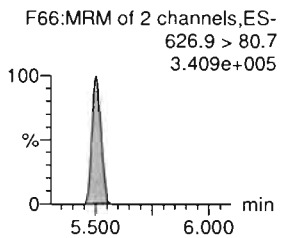
10:2 FTS





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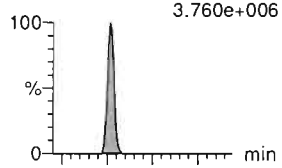

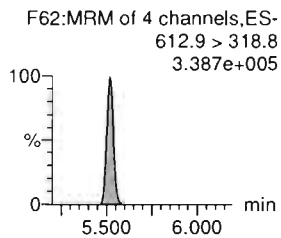

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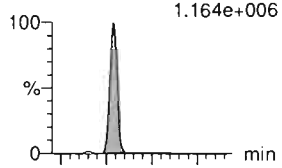

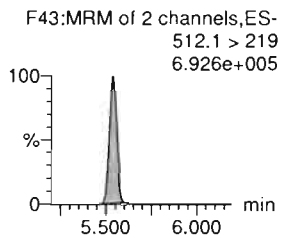

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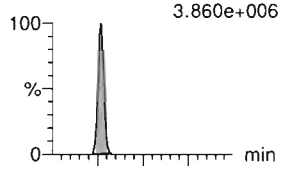

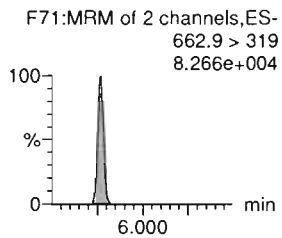

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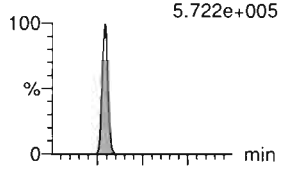

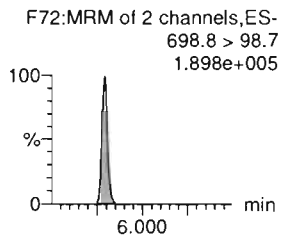

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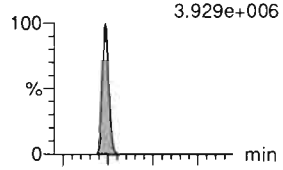

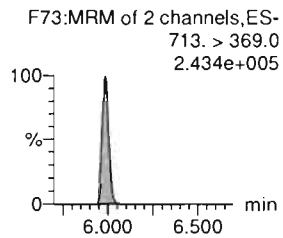

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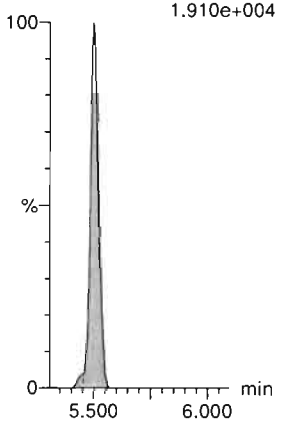
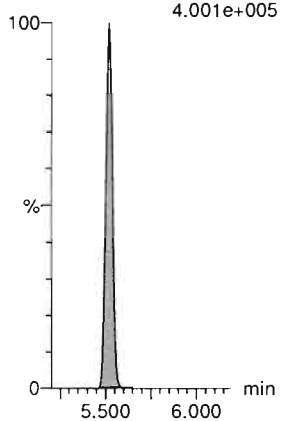
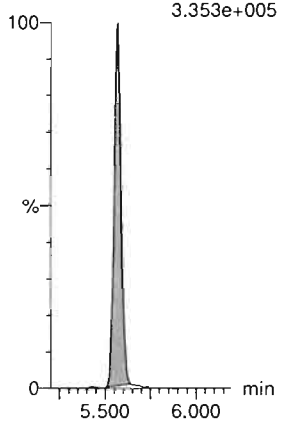


13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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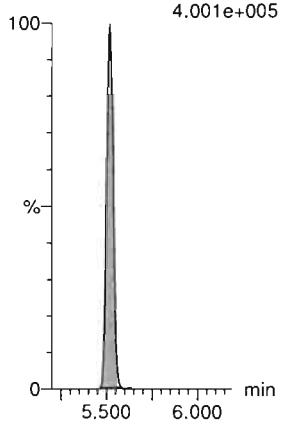

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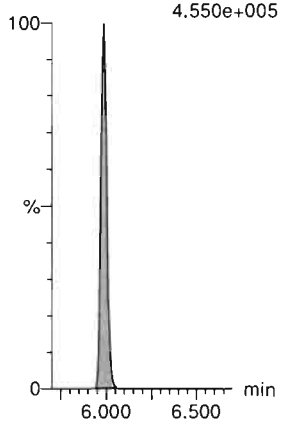

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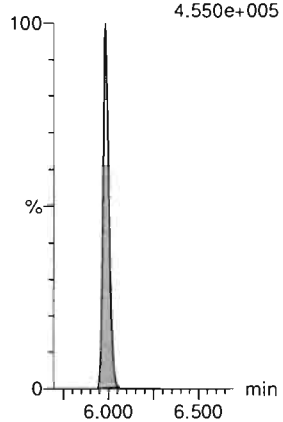

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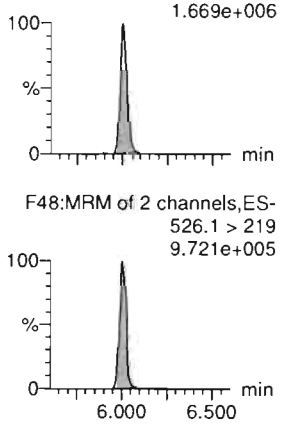
N-EtFOSA



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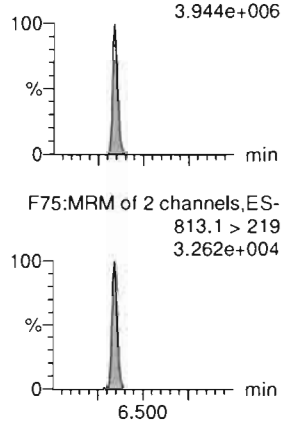

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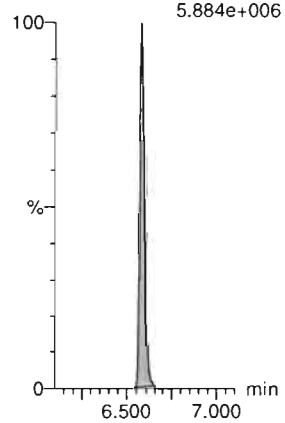

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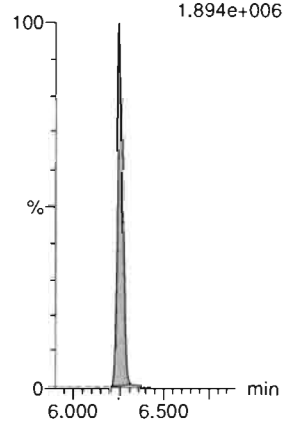

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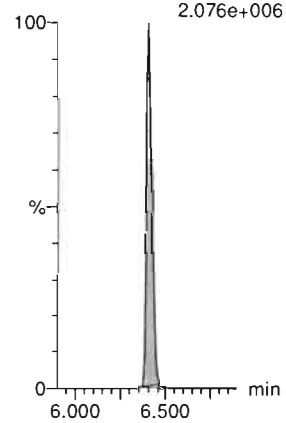

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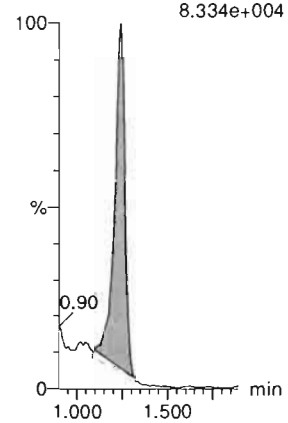
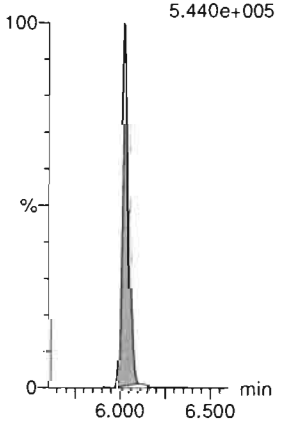
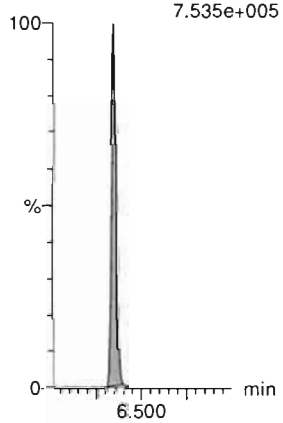


d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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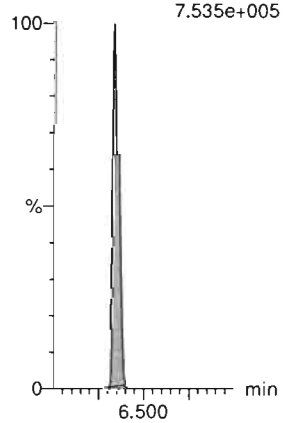
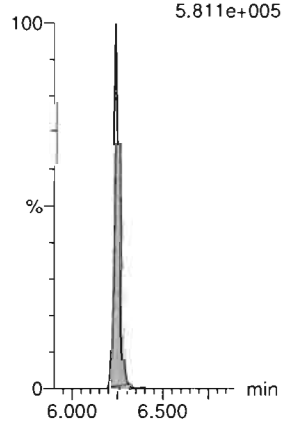
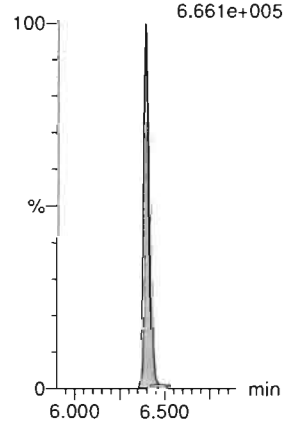


d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



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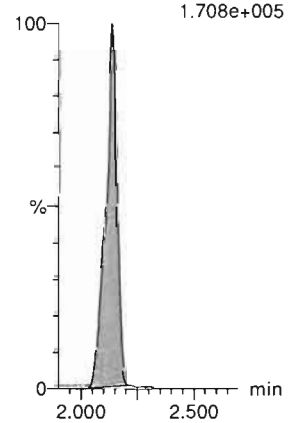

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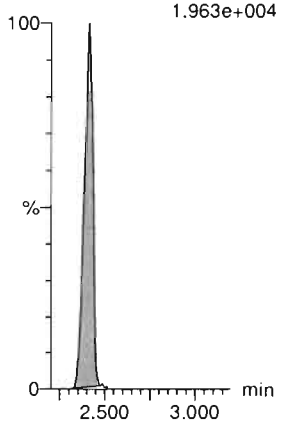
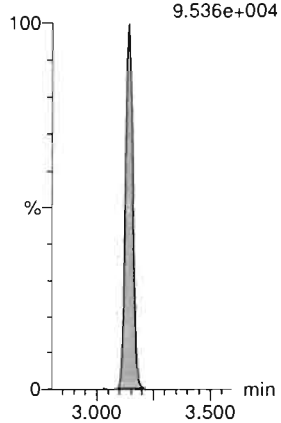
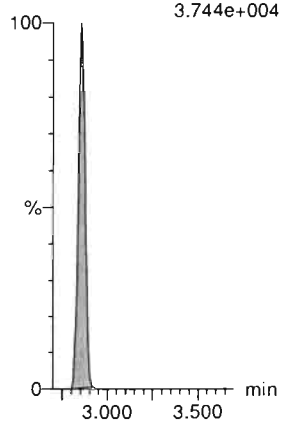
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.963e+004



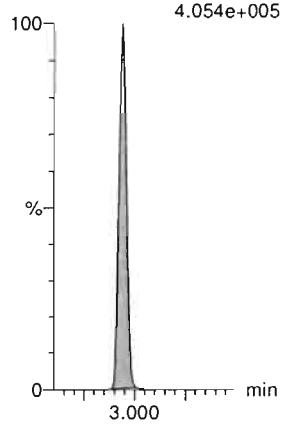
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.536e+004



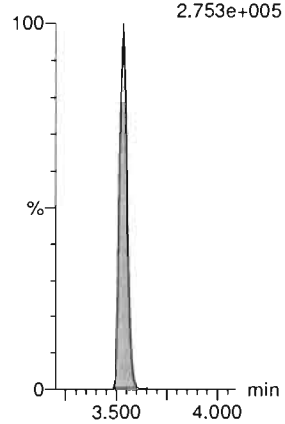
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
3.744e+004



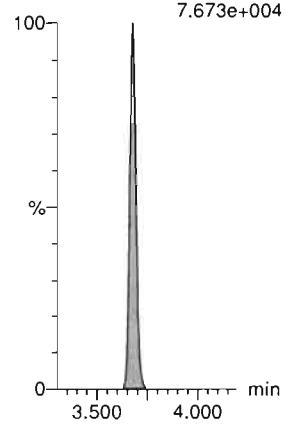
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.054e+005



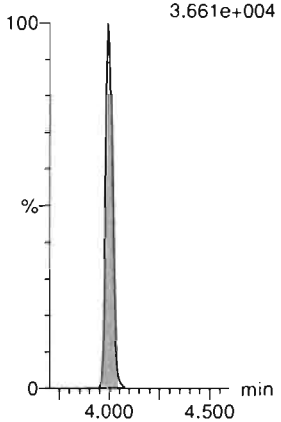
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.753e+005



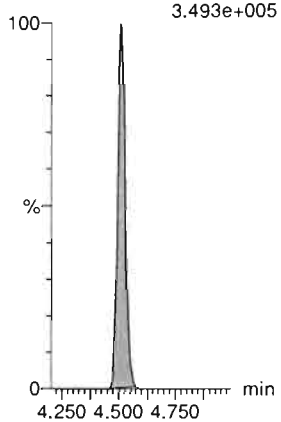
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.673e+004



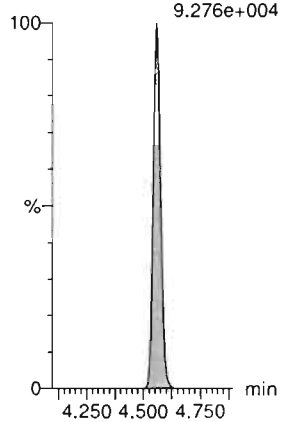
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.661e+004



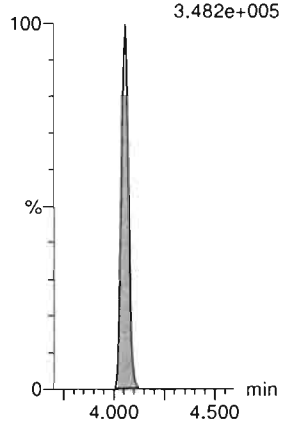
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.493e+005



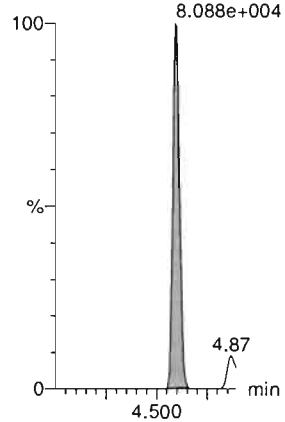
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.276e+004



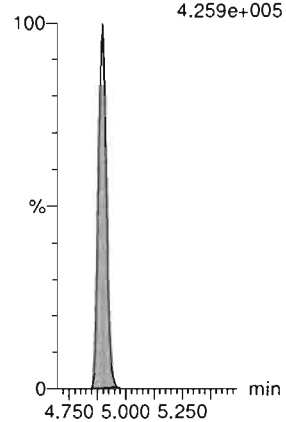
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.482e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
8.088e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
4.259e+005



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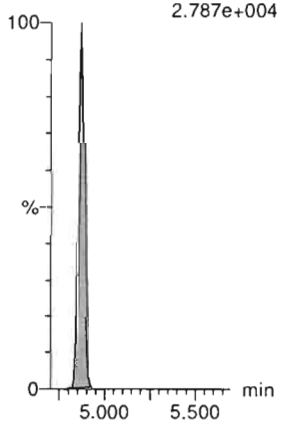
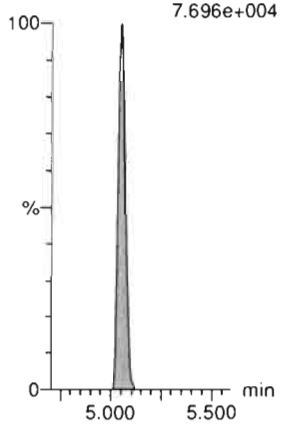
Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-10, Date: 05-Mar-2020, Time: 18:49:11, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

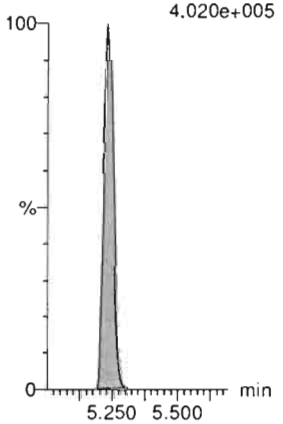
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.787e+004



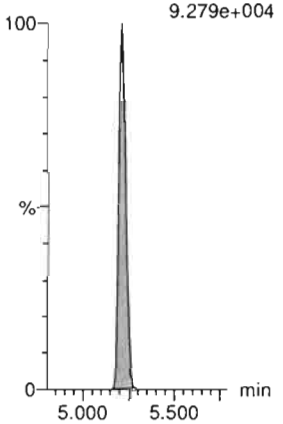
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.696e+004



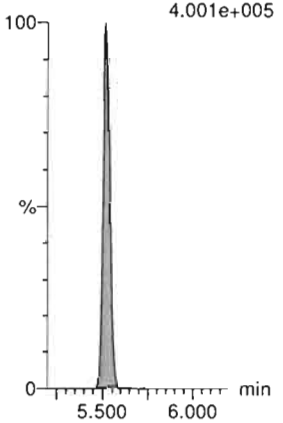
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.020e+005



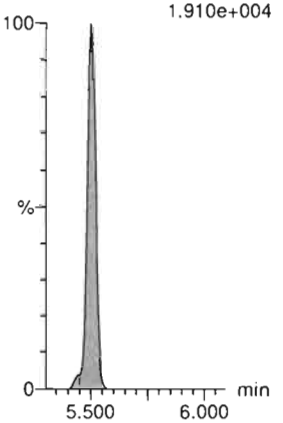
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
9.279e+004



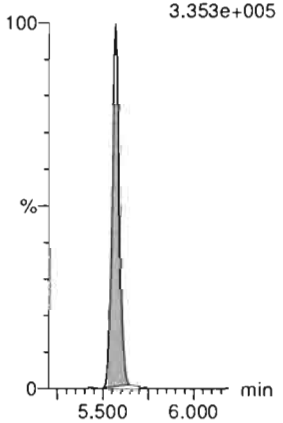
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.001e+005



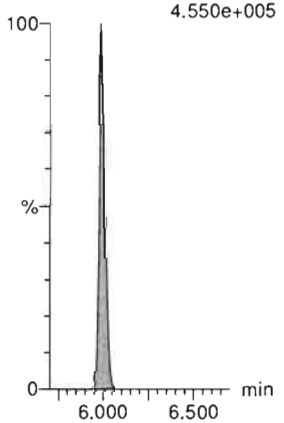
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.910e+004



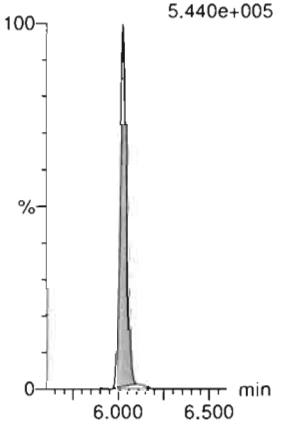
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.353e+005



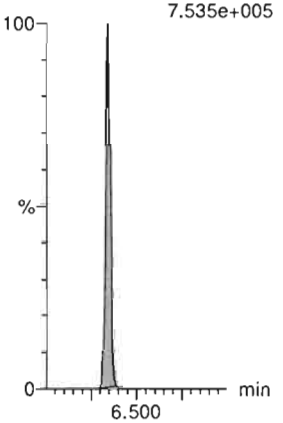
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
4.550e+005



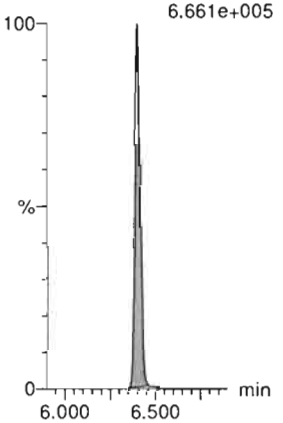
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.440e+005



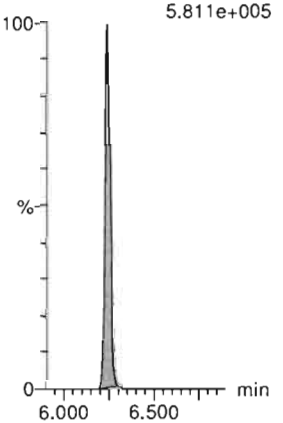
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.535e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.661e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.811e+005



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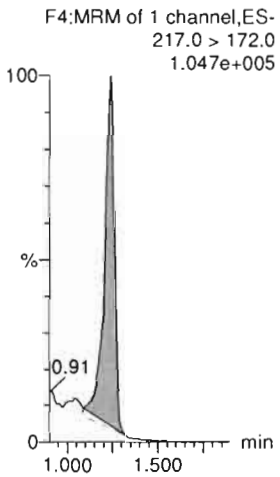
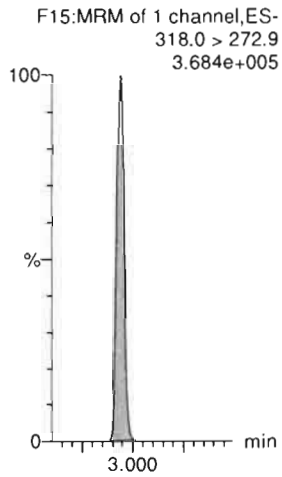
Name: 200305P1-10, Date: 05-Mar-2020, Time: 18:49:11, ID: ST200304P2-8 PFC CS5 20C0311, Description: PFC CS5 20C0311

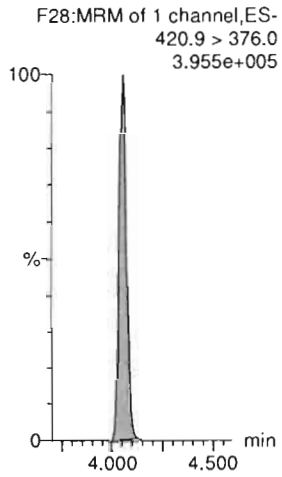
13C4-PFBA



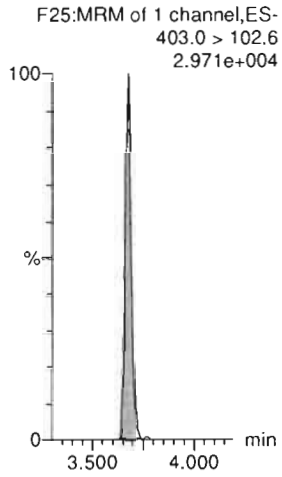
13C5-PFHxA



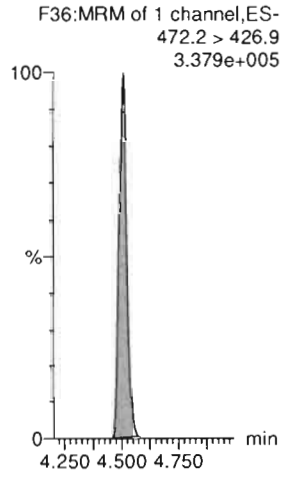
13C8-PFOA



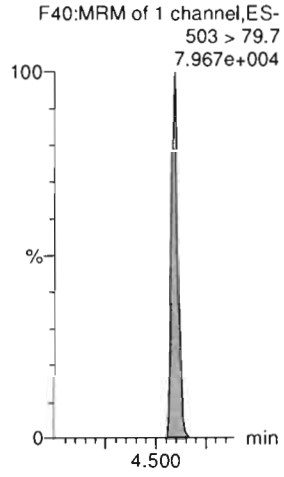
18O2-PFHxS



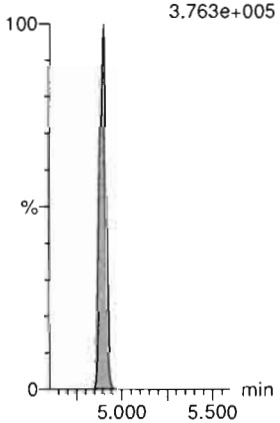
13C9-PFNA



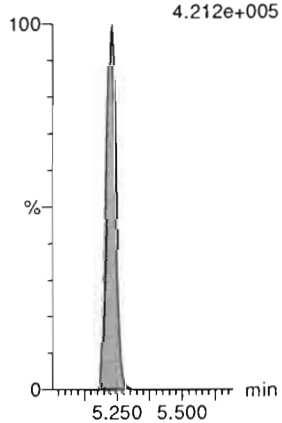
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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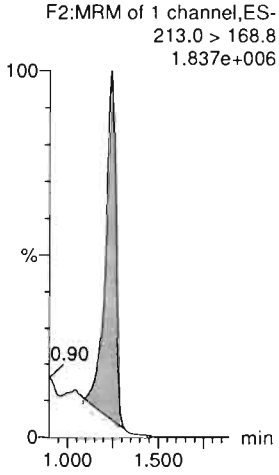
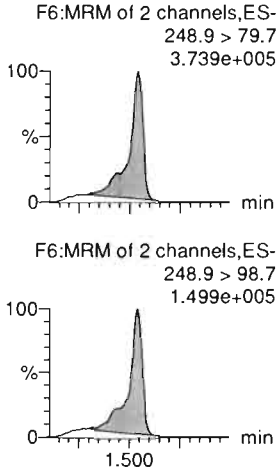
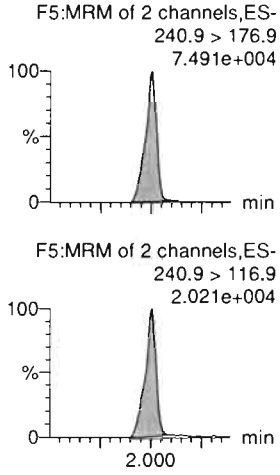
PFBA



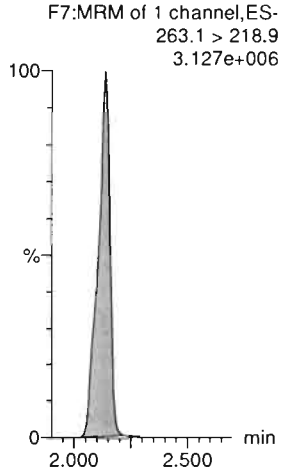
PFPrS



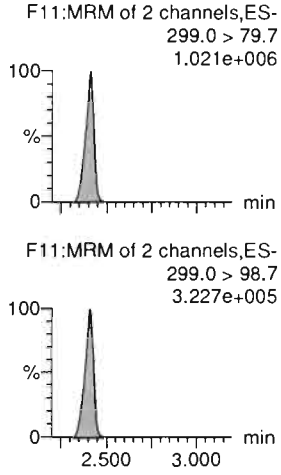
3:3 FTCA



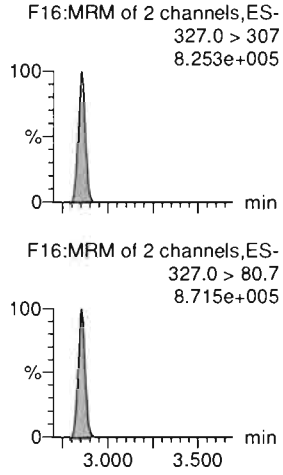
PFPeA



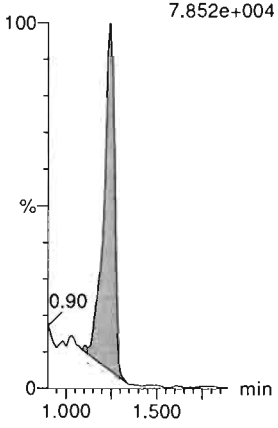
PFBS



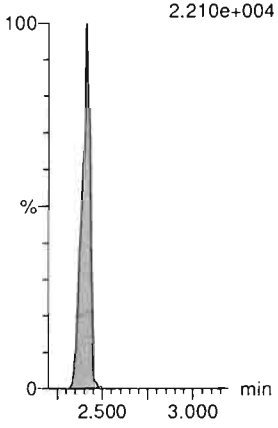
4:2 FTS



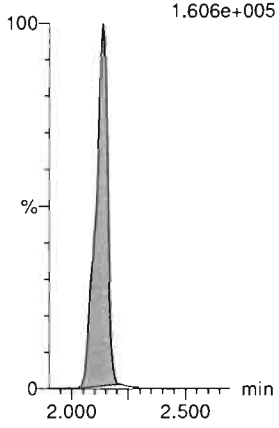
13C3-PFBA-EIS



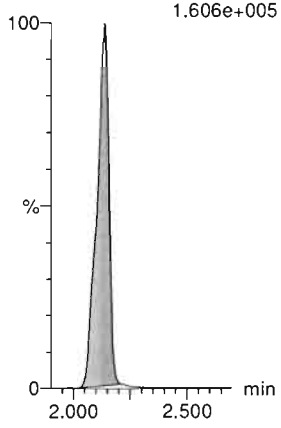
13C3-PFBS-EIS



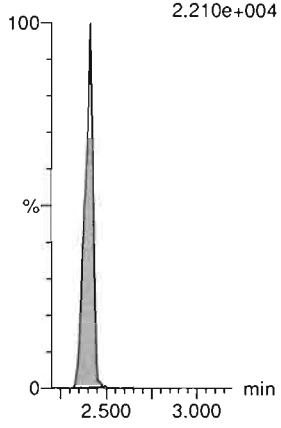
13C3-PFPeA-EIS



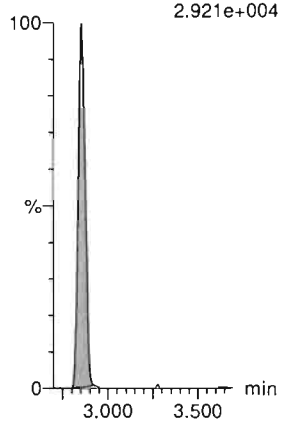
13C3-PFPeA-EIS



13C3-PFBS-EIS



13C2-4:2 FTS-EIS



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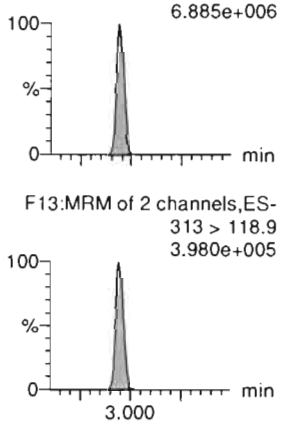
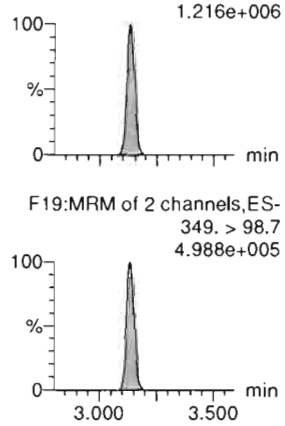
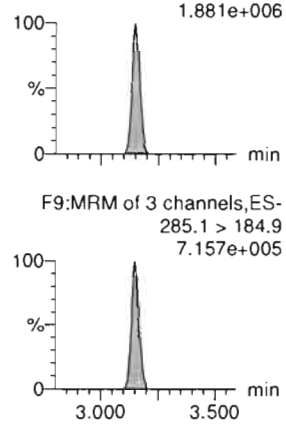
PFHxA



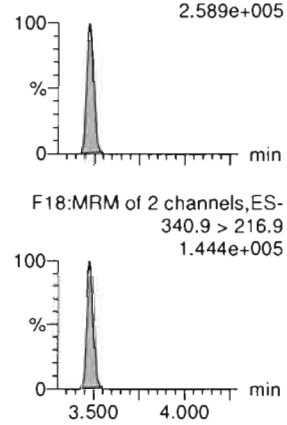
PFPeS



HFPO-DA



5:3 FTCA



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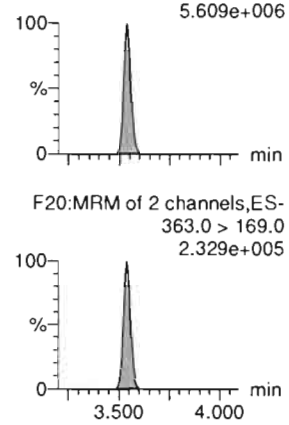

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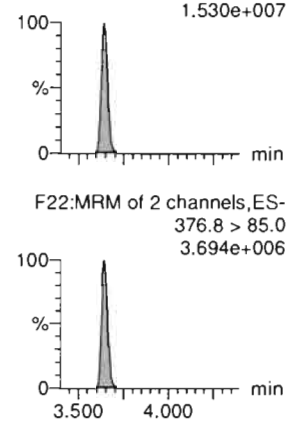

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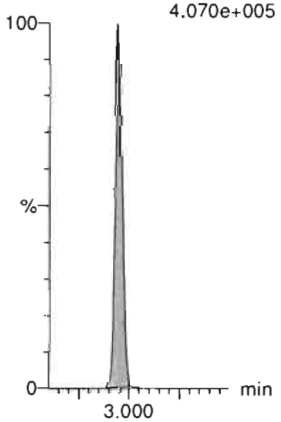

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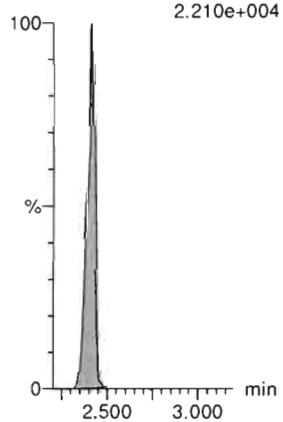

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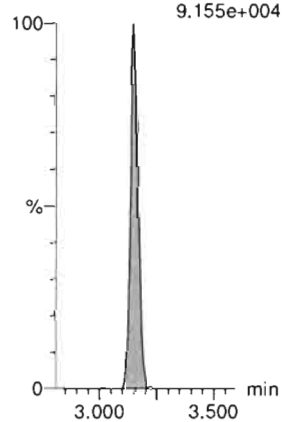

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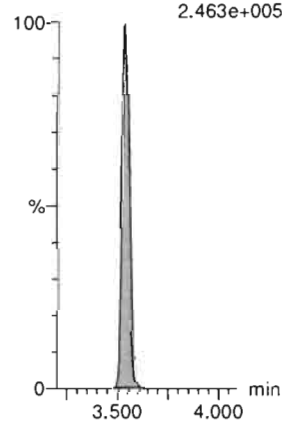

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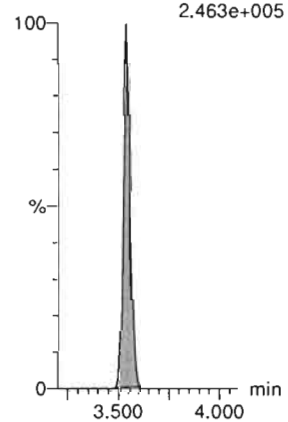

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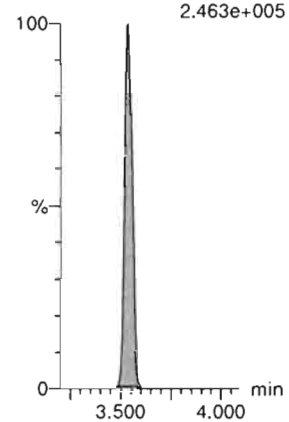

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Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

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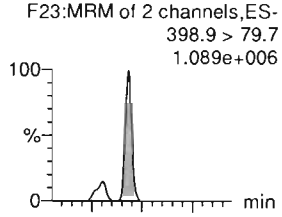

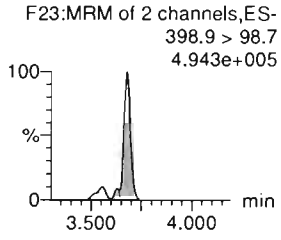

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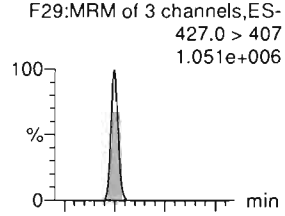

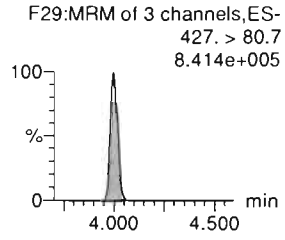

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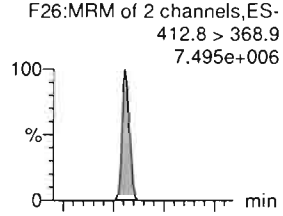

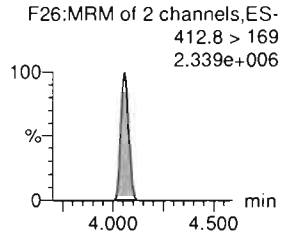

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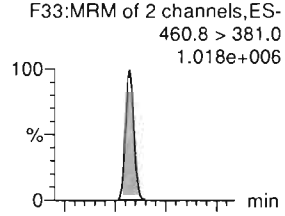

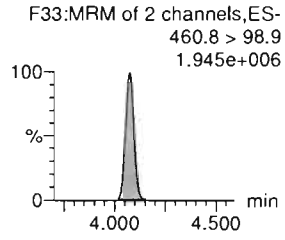

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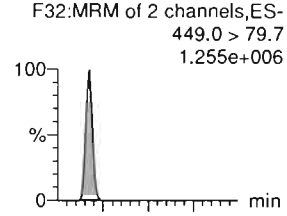

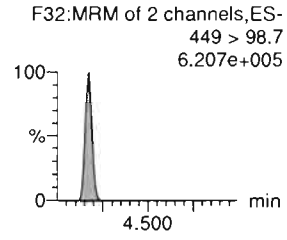

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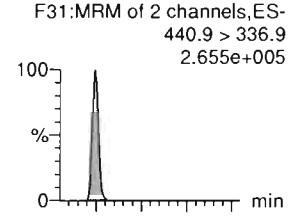

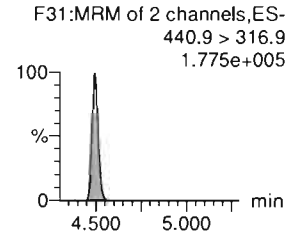

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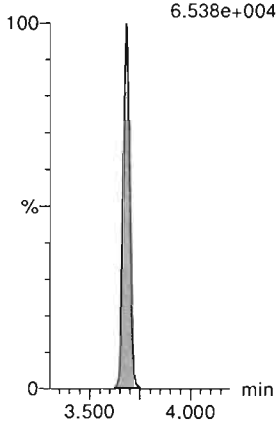

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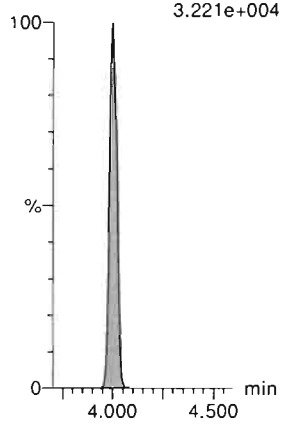

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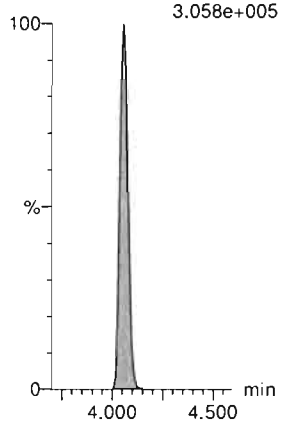

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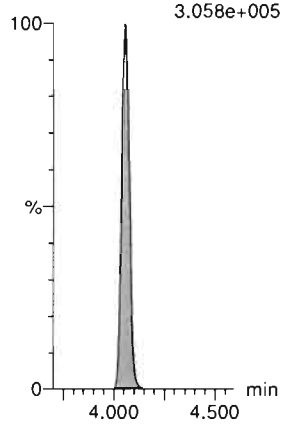

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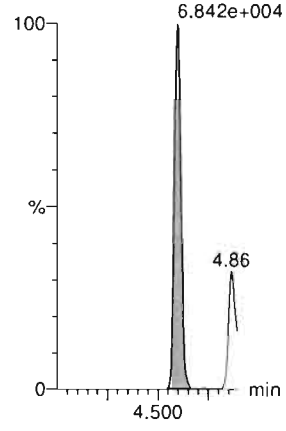

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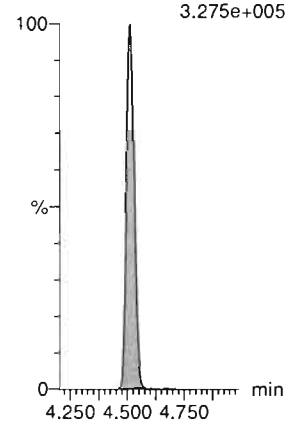

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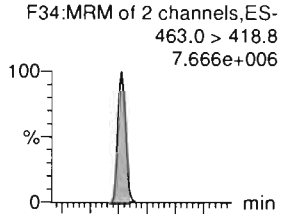

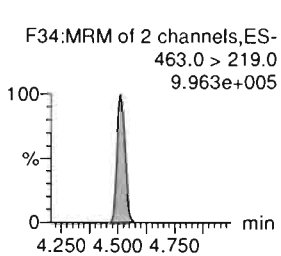

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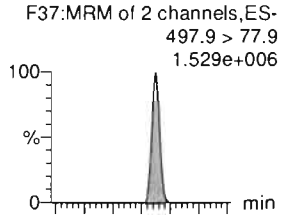

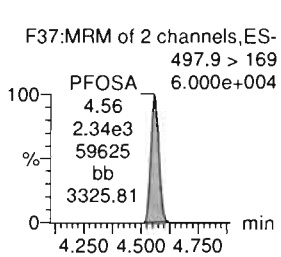

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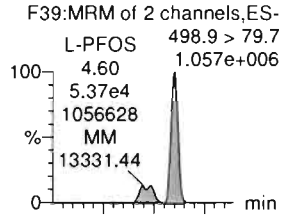

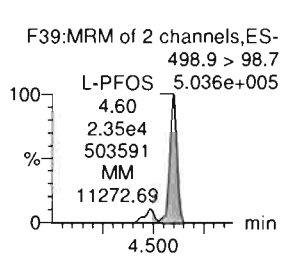

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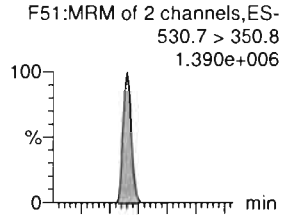

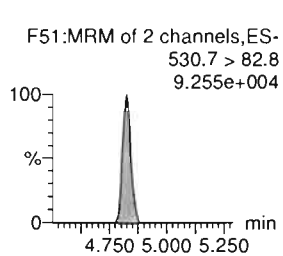

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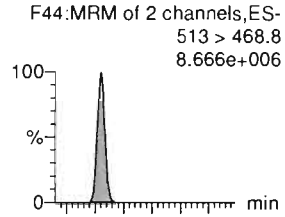

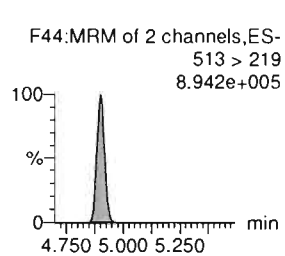

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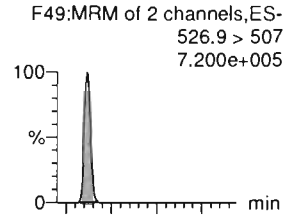

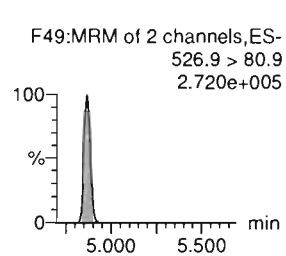

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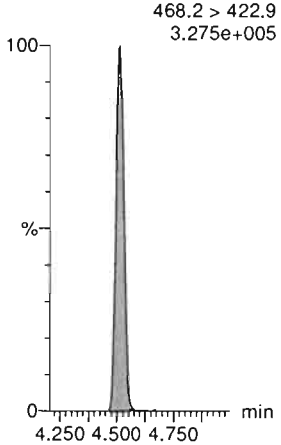

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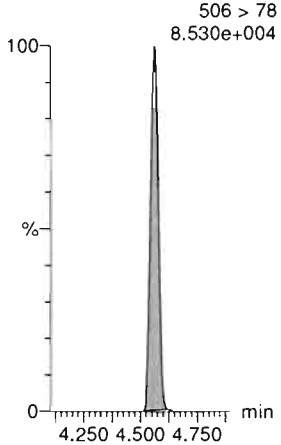

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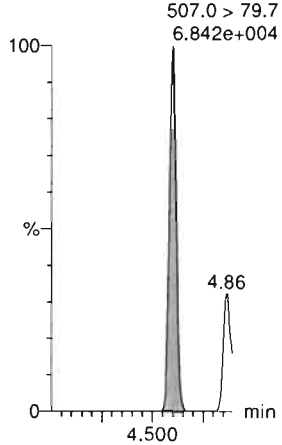

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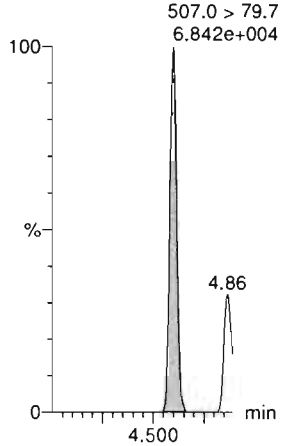

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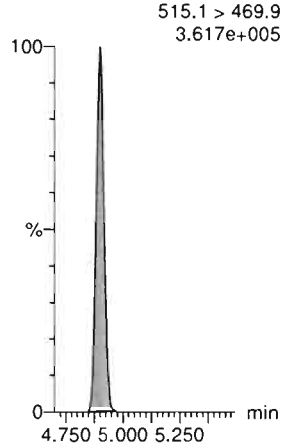

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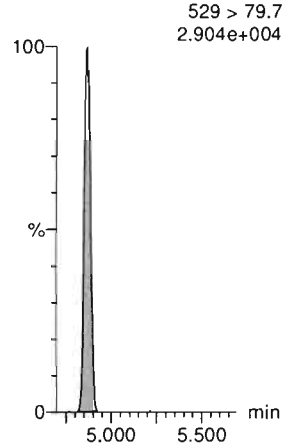

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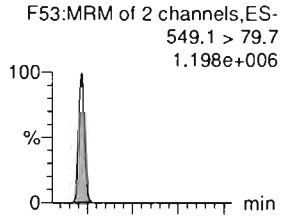

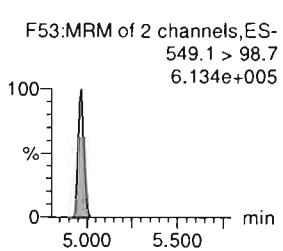

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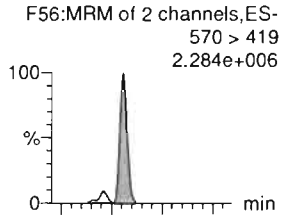

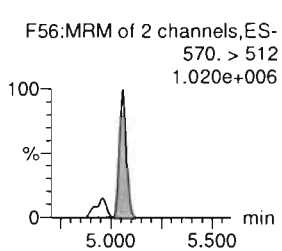

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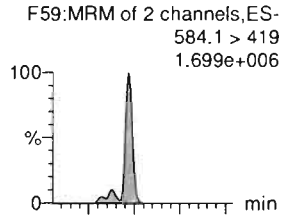

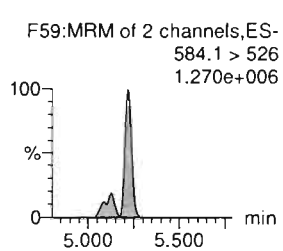

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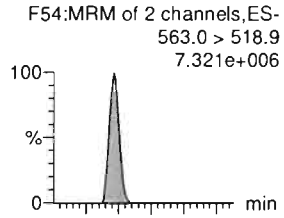
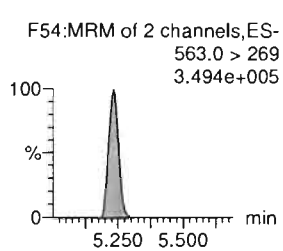
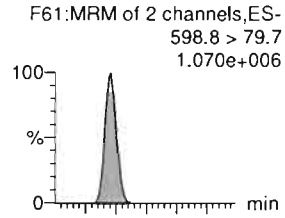
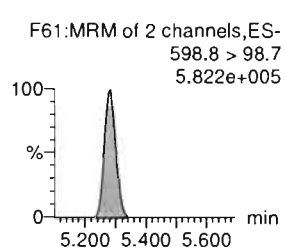


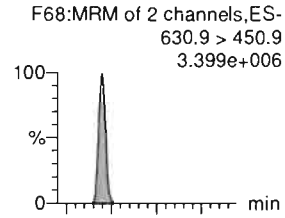


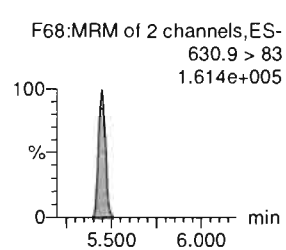
PFDS



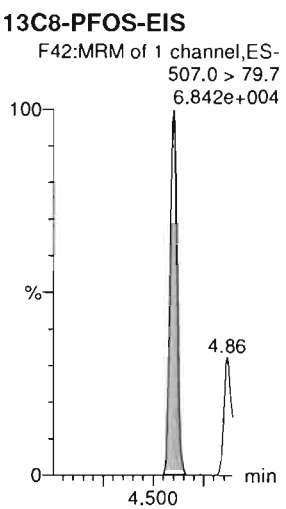


11Cl-PF30UdS

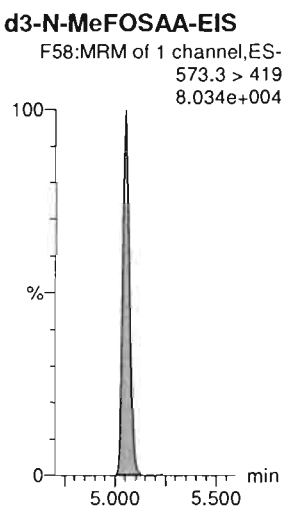




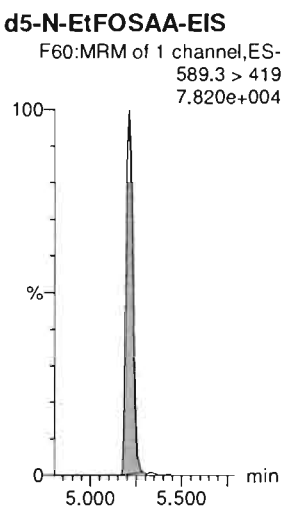
13C8-PFOS-EIS



d3-N-MeFOSAA-EIS



d5-N-EtFOSAA-EIS



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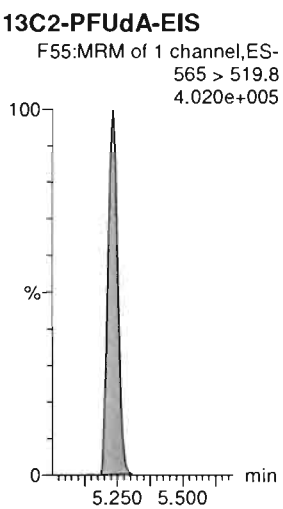

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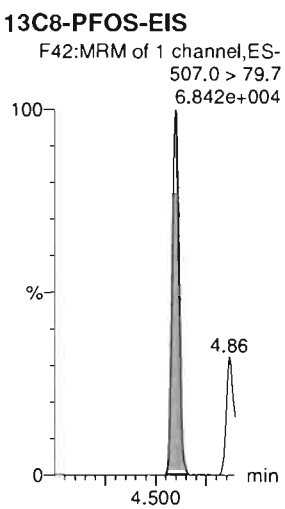
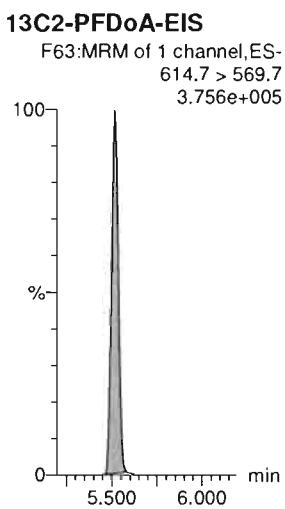


13C2-PFDoA-EIS



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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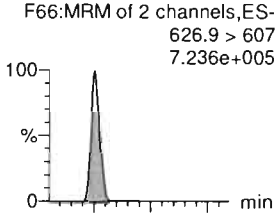
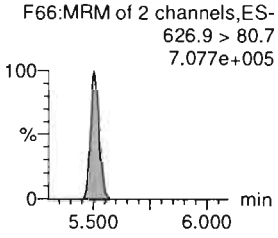
Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

10:2 FTS





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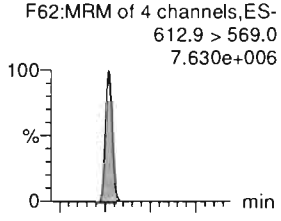
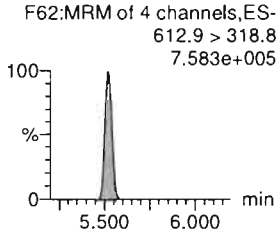
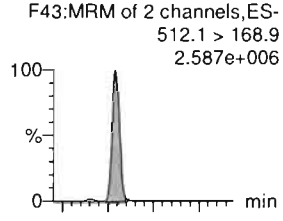
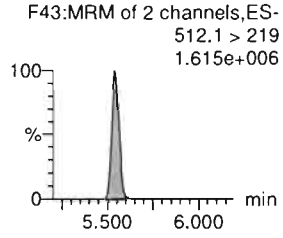




N-MeFOSA





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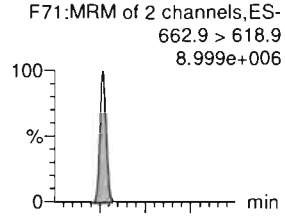
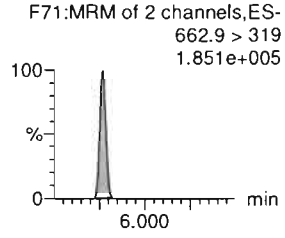
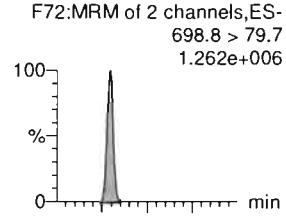
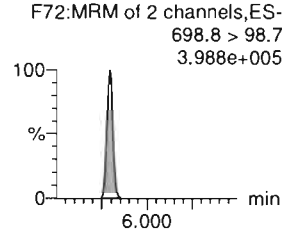




PFDoS





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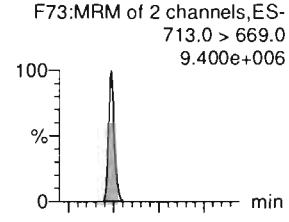
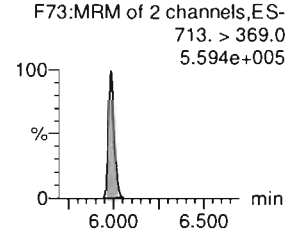
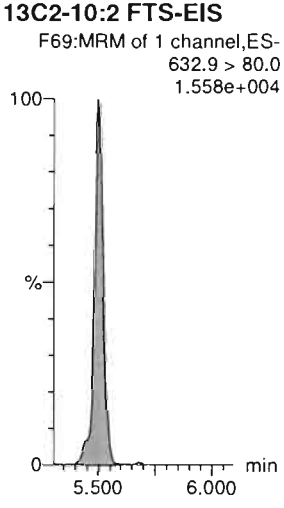
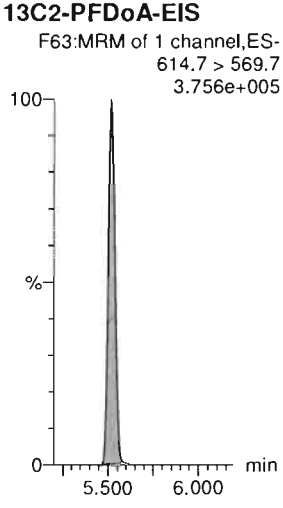




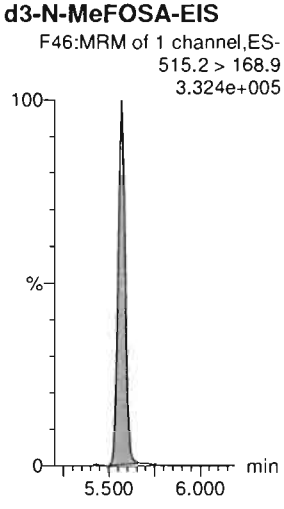
13C2-10:2 FTS-EIS



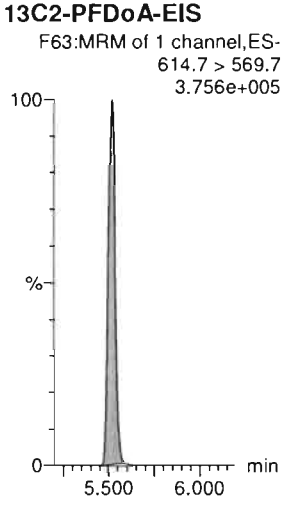
13C2-PFDoA-EIS



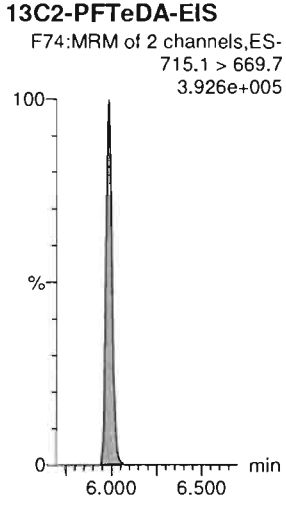
d3-N-MeFOSA-EIS



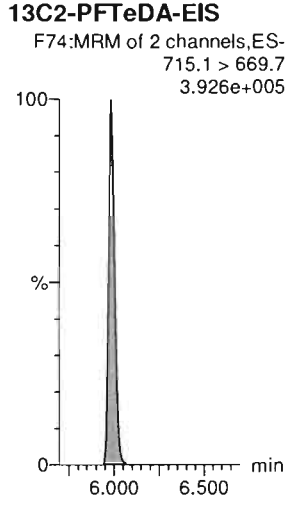
13C2-PFDoA-EIS



13C2-PFTeDA-EIS



13C2-PFTeDA-EIS



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Last Altered: Friday, March 06, 2020 08:28:28 Pacific Standard Time
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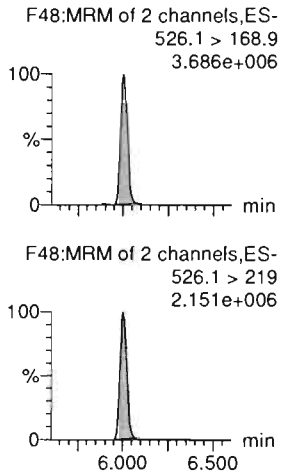
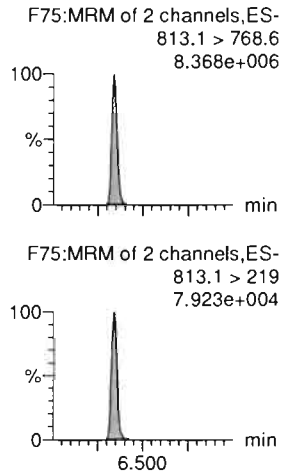
Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

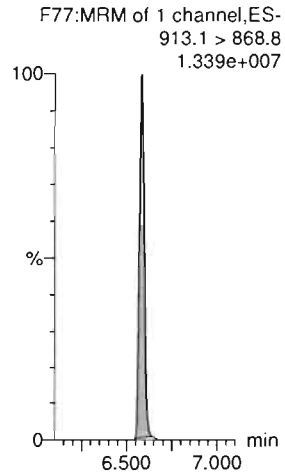
N-EtFOSA



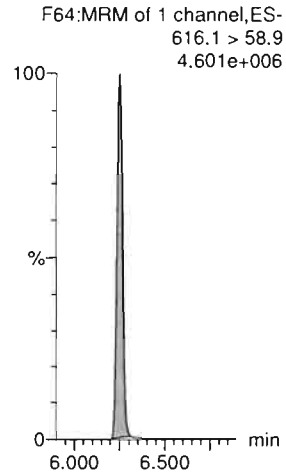
PFHxDA



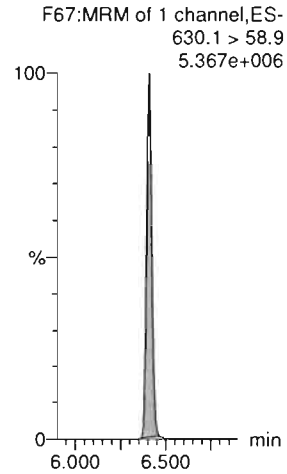
PFODA



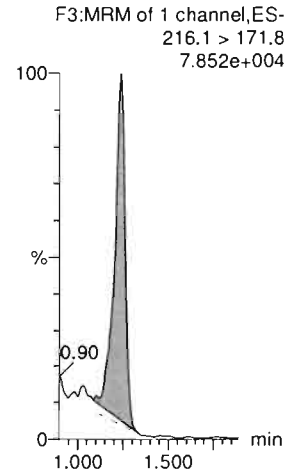
N-MeFOSE



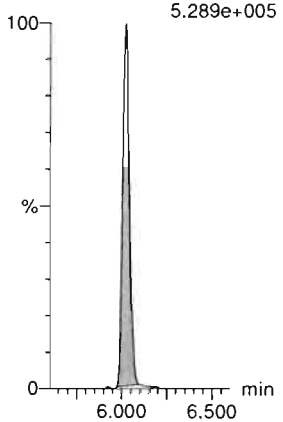
N-EtFOSE



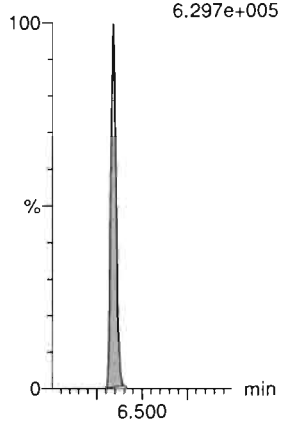
13C3-PFBA-RSD



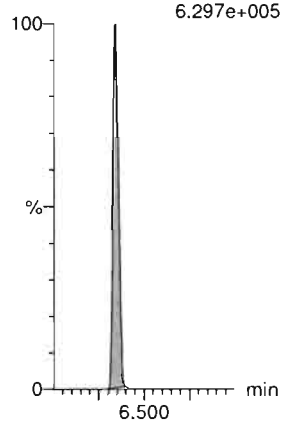
d5-N-ETFOSA-EIS



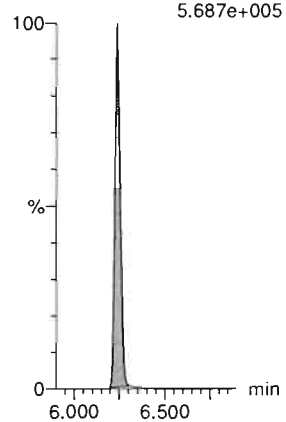
13C2-PFHxDA-EIS



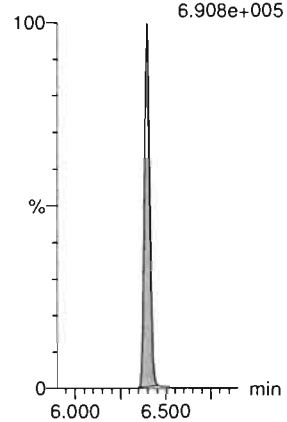
13C2-PFHxDA-EIS



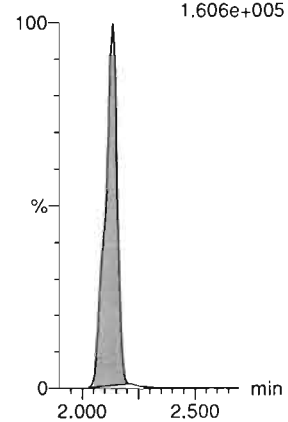
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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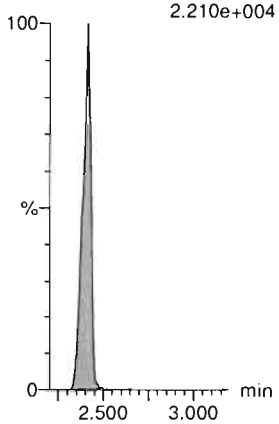
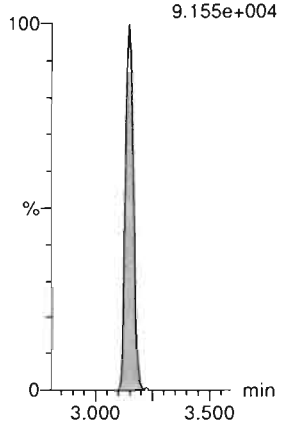
Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

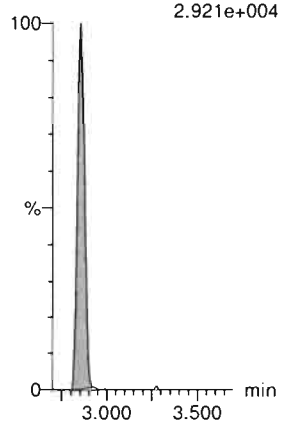
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.210e+004



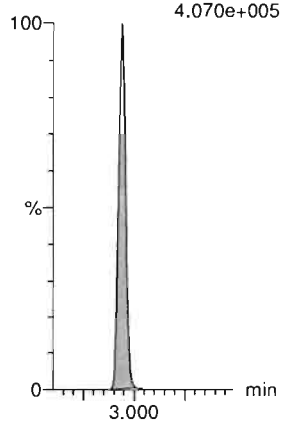
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
9.155e+004



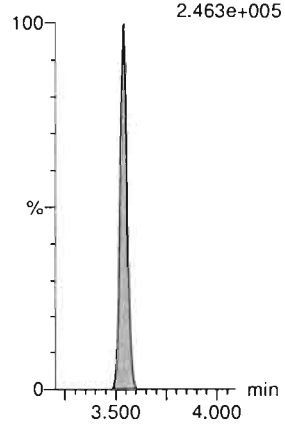
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
2.921e+004



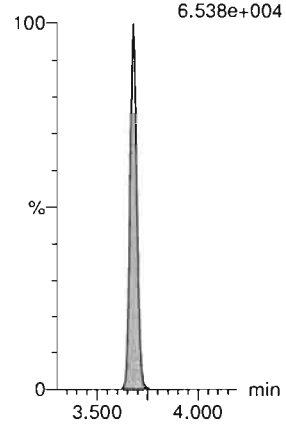
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.070e+005



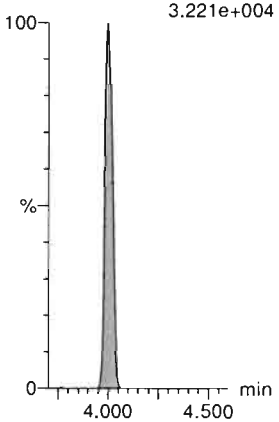
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.463e+005



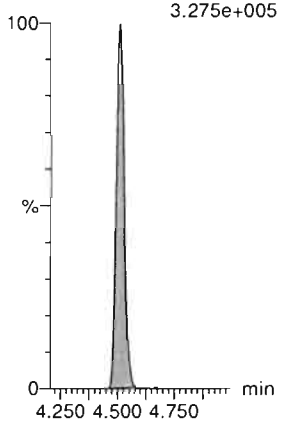
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.538e+004



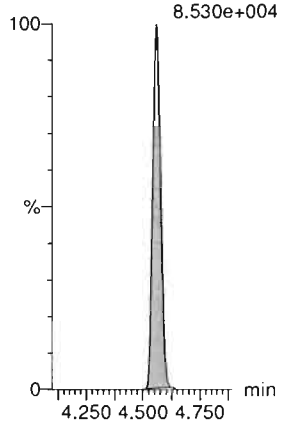
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.221e+004



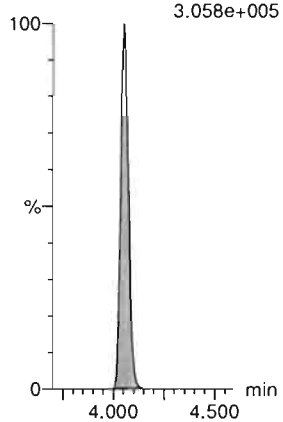
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.275e+005



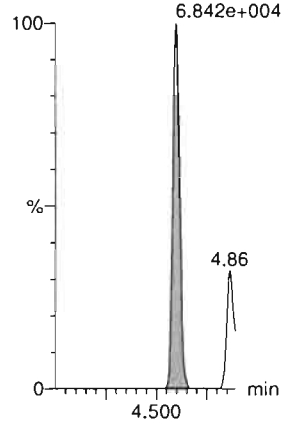
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.530e+004



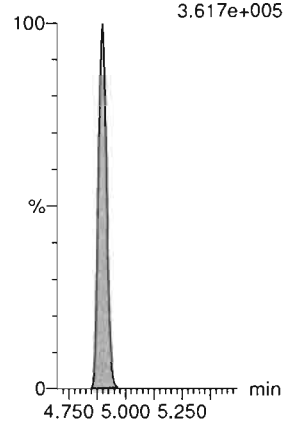
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.058e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.842e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.617e+005



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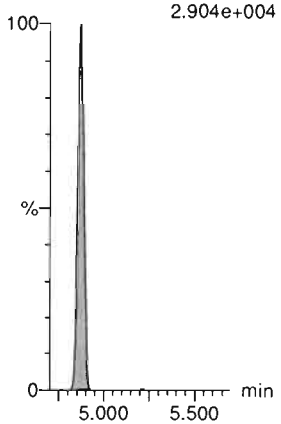
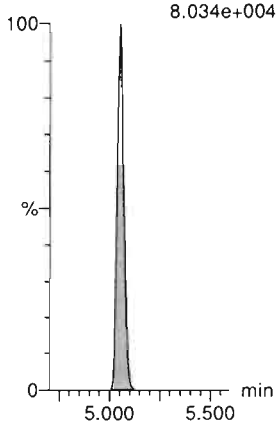
Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

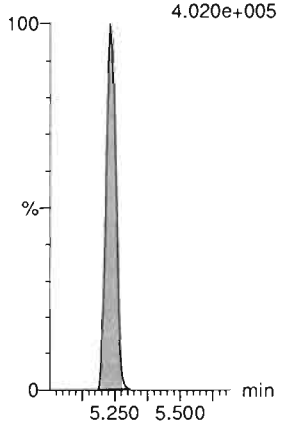
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.904e+004



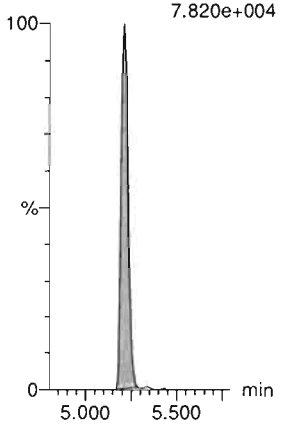
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
8.034e+004



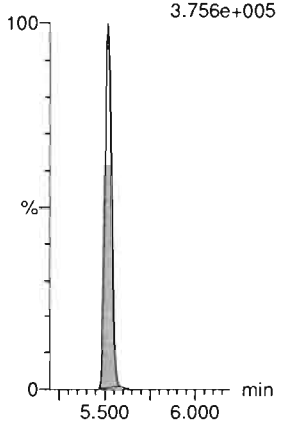
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
4.020e+005



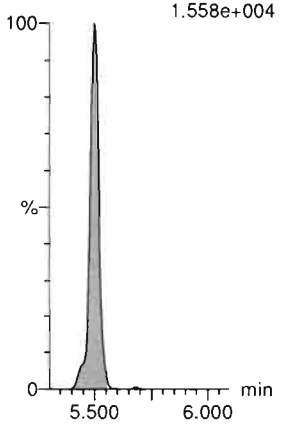
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
7.820e+004



13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.756e+005



13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.558e+004



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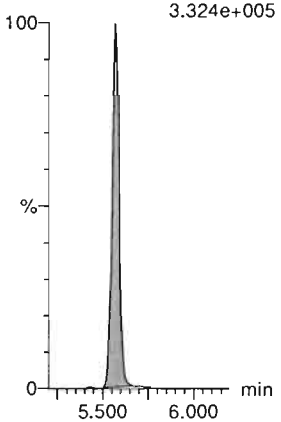
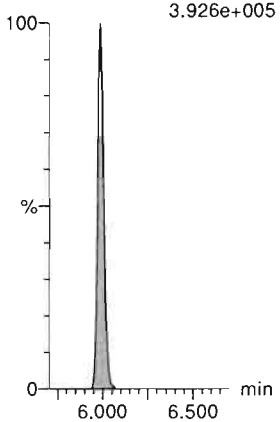
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.324e+005



13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.926e+005



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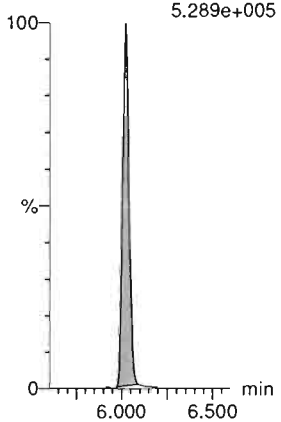
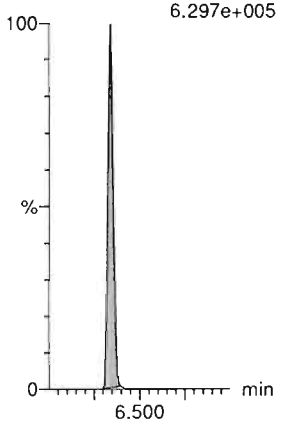
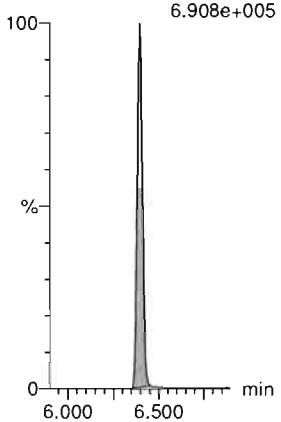
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.289e+005



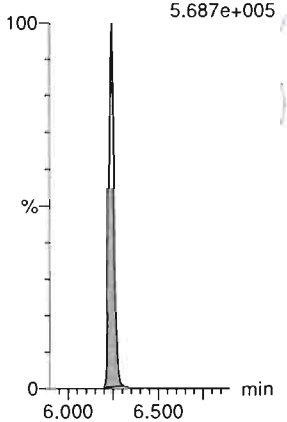
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.297e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.908e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.687e+005



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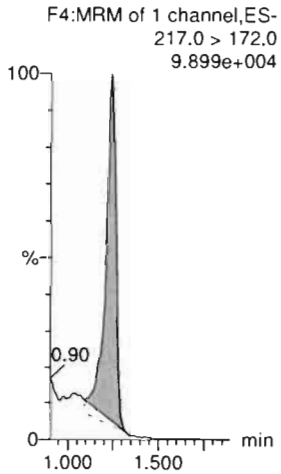
Name: 200305P1-11, Date: 05-Mar-2020, Time: 18:59:40, ID: ST200304P2-9 PFC CS6 20C0312, Description: PFC CS6 20C0312

13C4-PFBA



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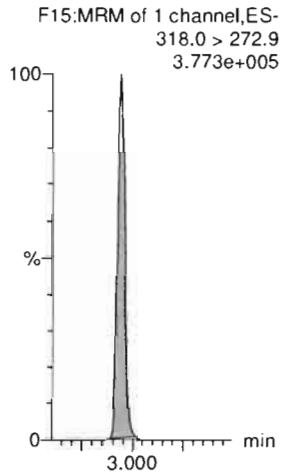

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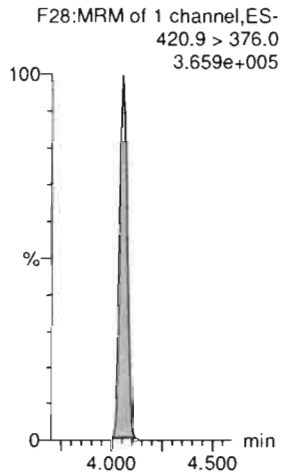

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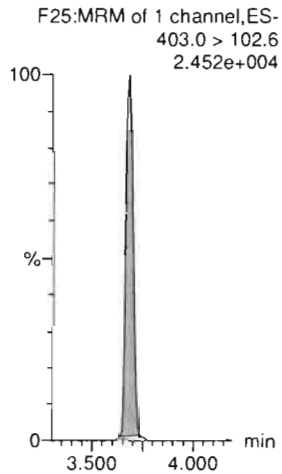

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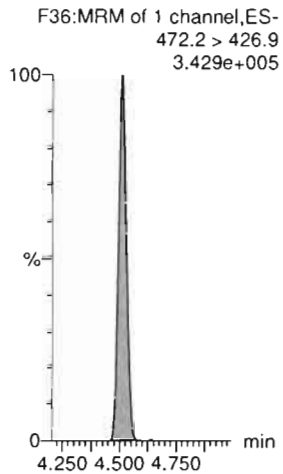

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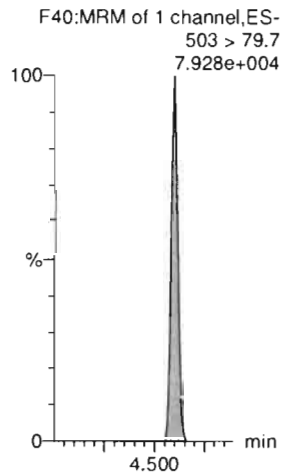

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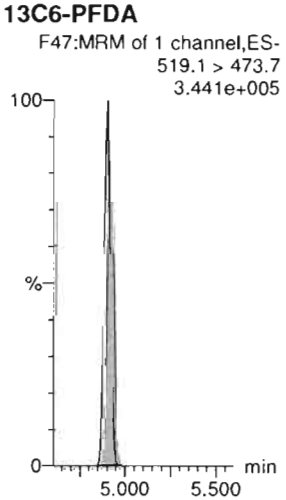

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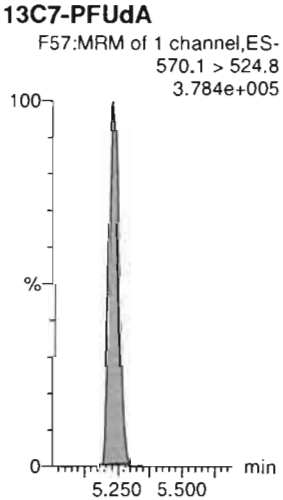

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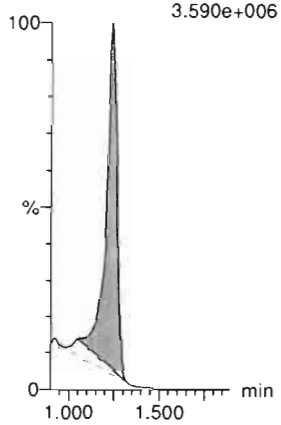

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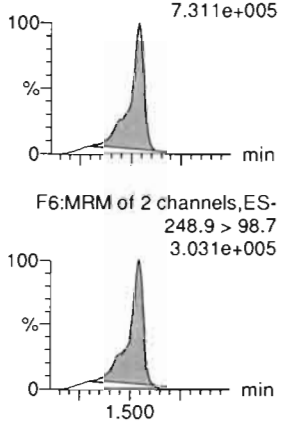
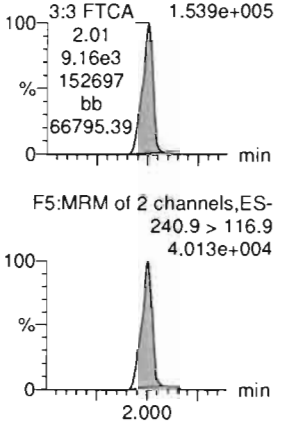


3:3 FTCA



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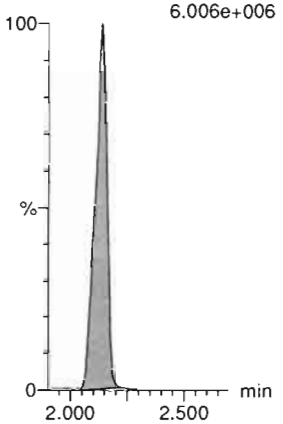

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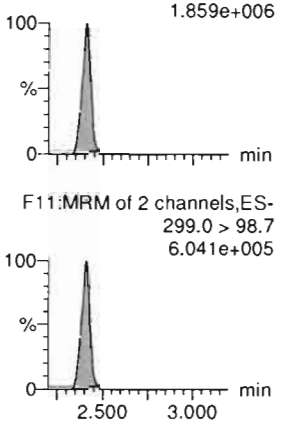
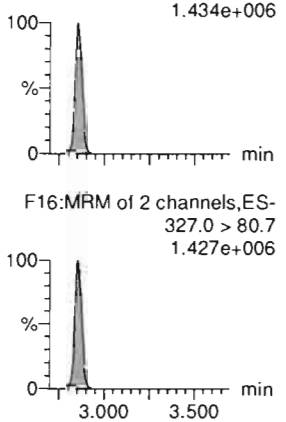


4:2 FTS



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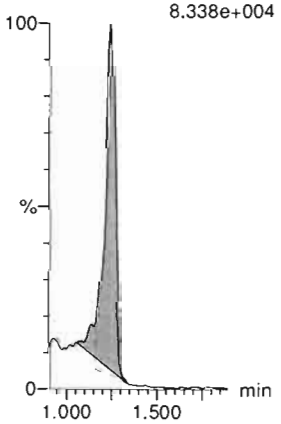

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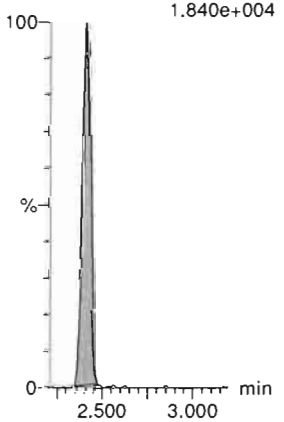

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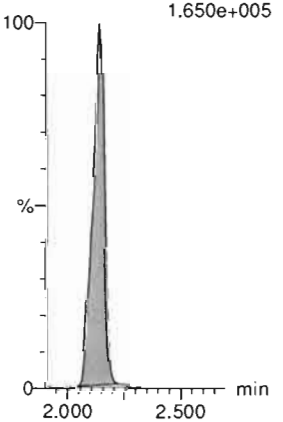

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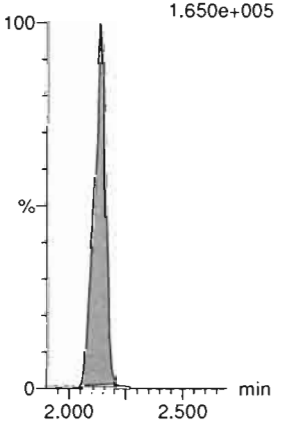

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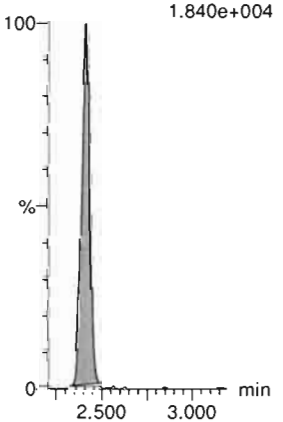

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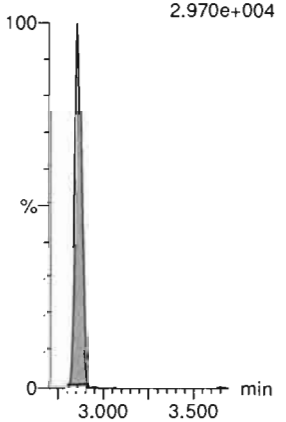

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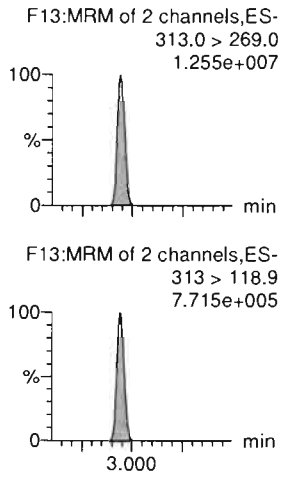
PFHxA



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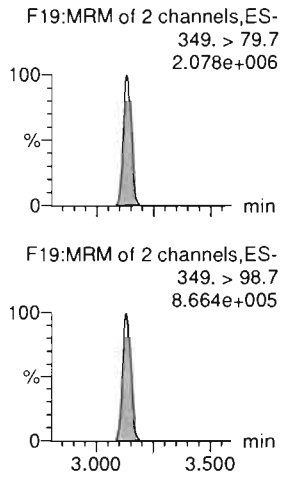

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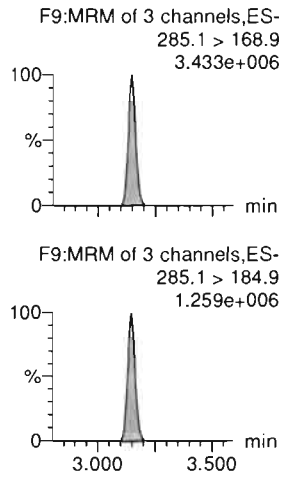
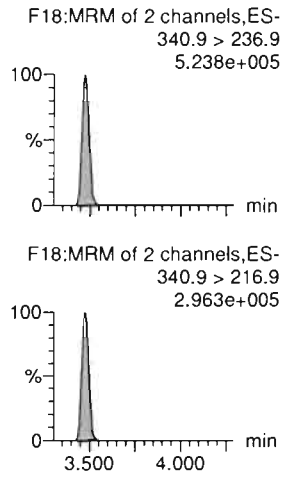
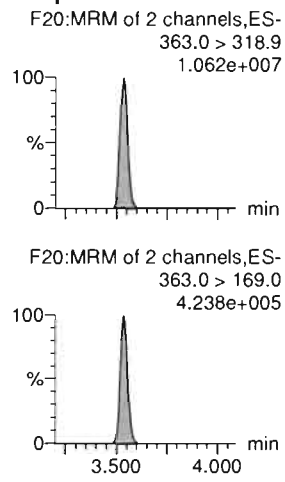


5:3 FTCA



PFHpA



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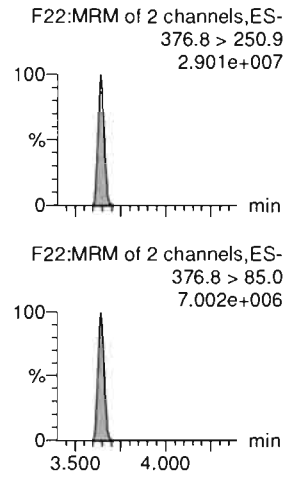

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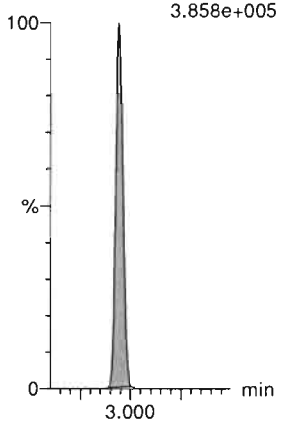

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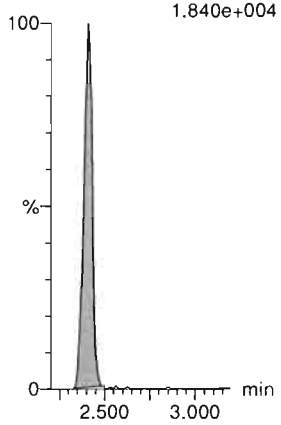

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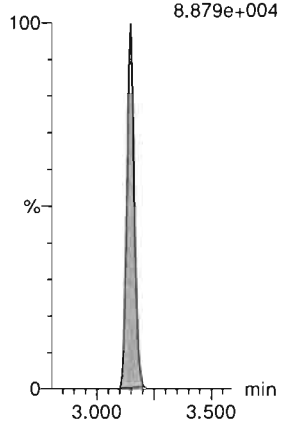

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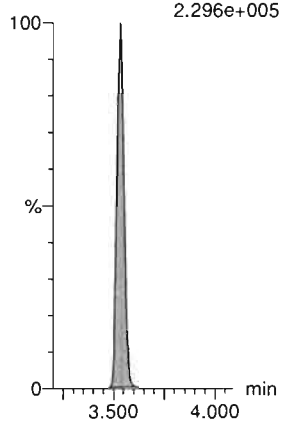

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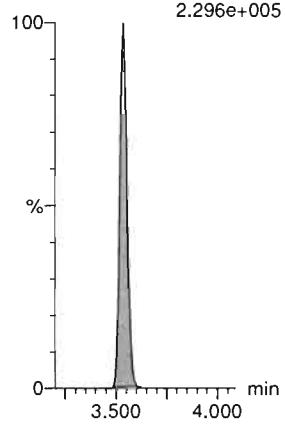

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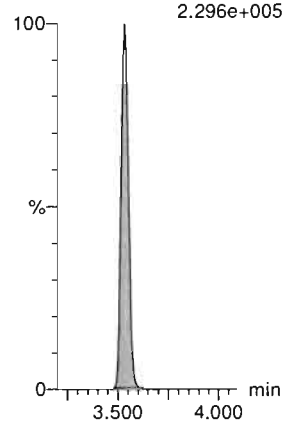

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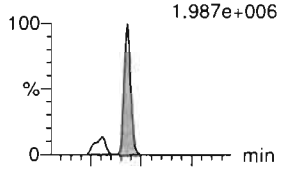

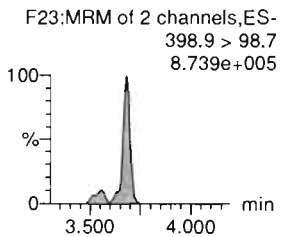

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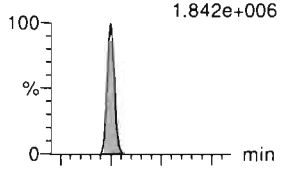

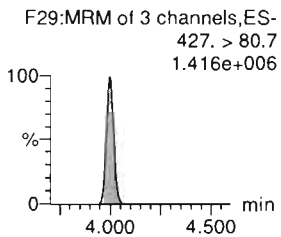

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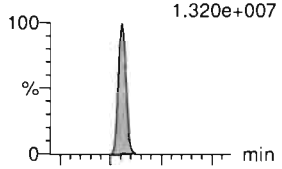

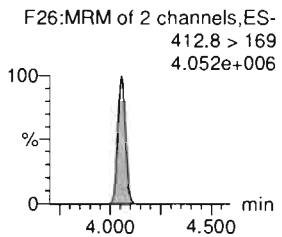

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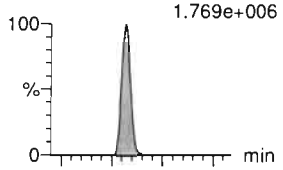

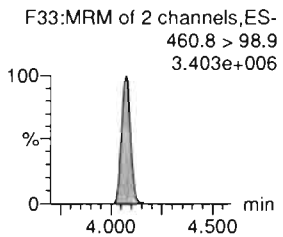

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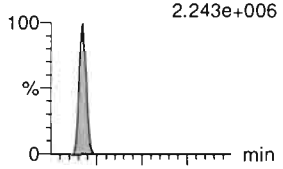

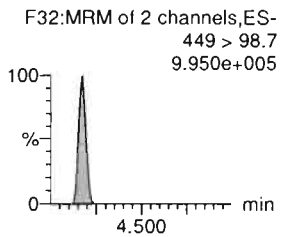

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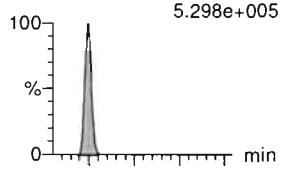

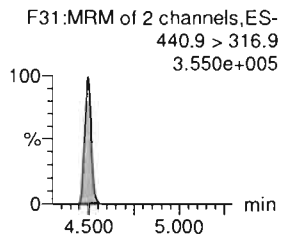

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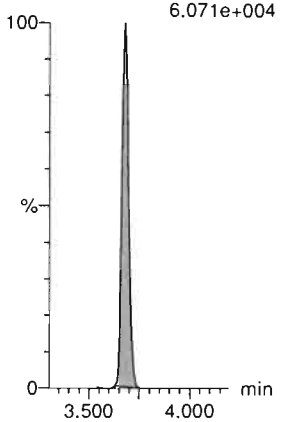
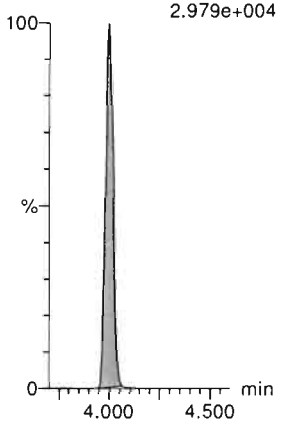


13C2-6:2 FTS-EIS



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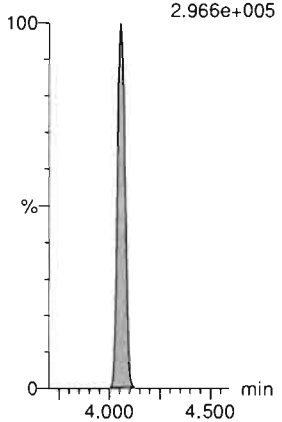

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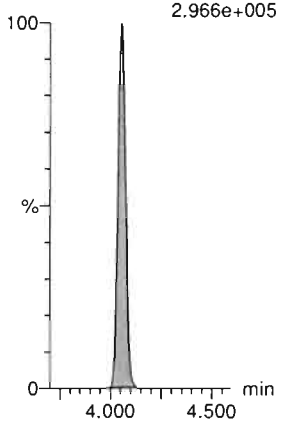

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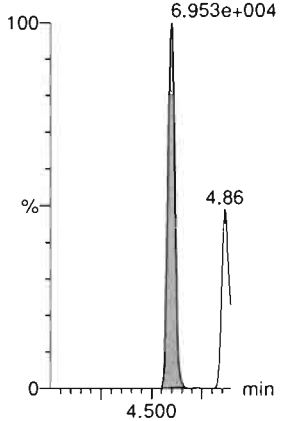

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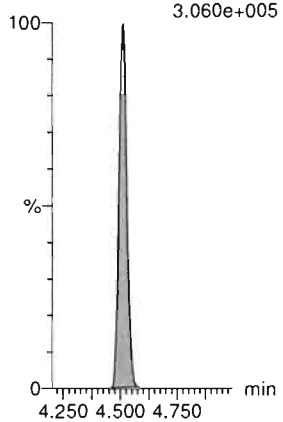

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Printed: Friday, March 06, 2020 08:29:48 Pacific Standard Time

Name: 200305P1-12, Date: 05-Mar-2020, Time: 19:10:11, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

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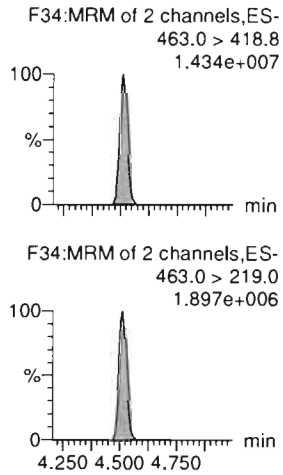

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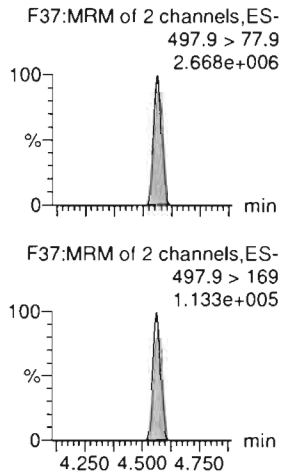

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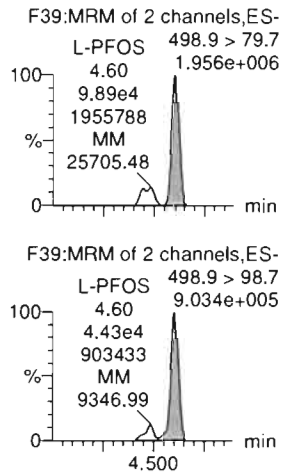

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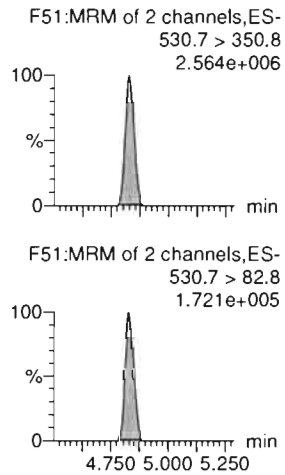

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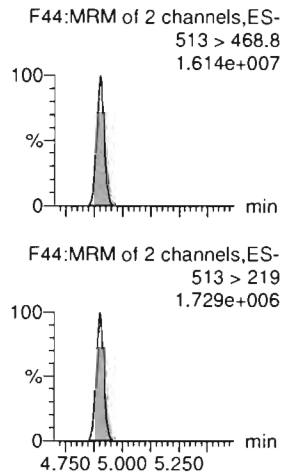
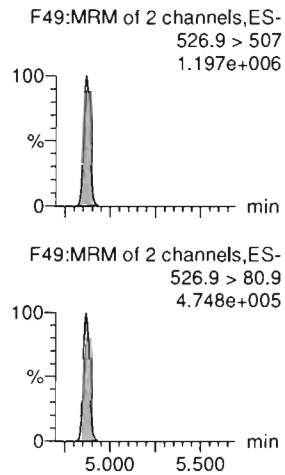


8:2 FTS



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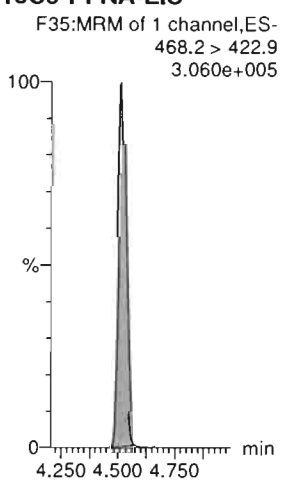
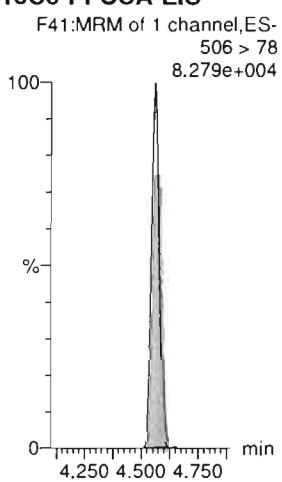


13C8-PFOSA-EIS



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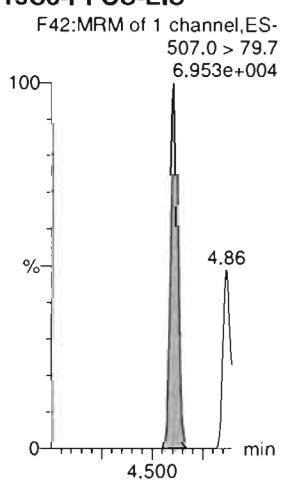

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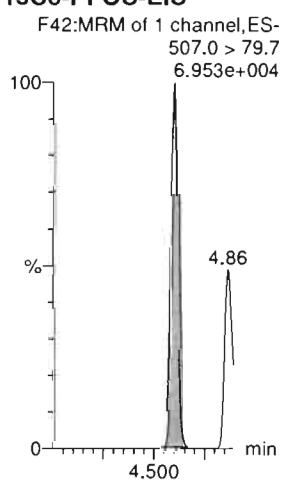

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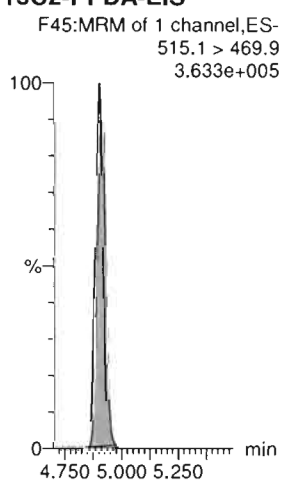

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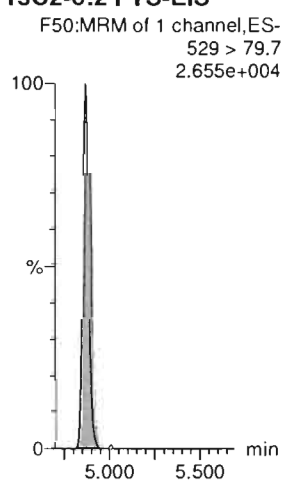

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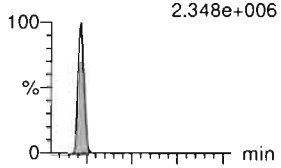
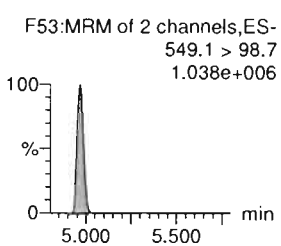
Name: 200305P1-12, Date: 05-Mar-2020, Time: 19:10:11, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

PFNS





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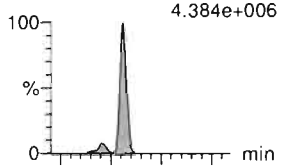

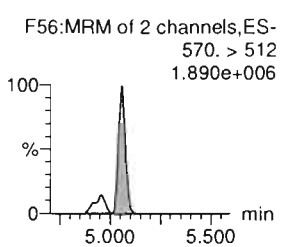

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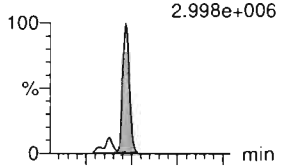

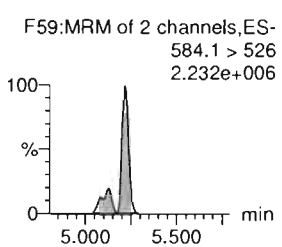

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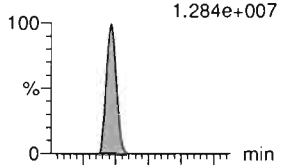

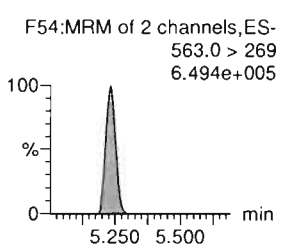

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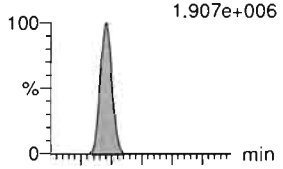
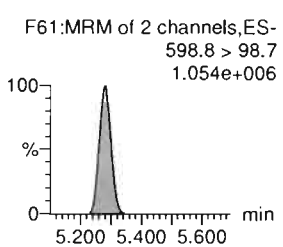
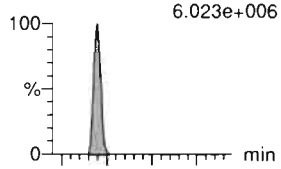
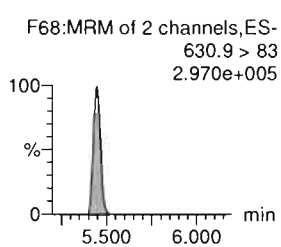




11Cl-PF30UdS





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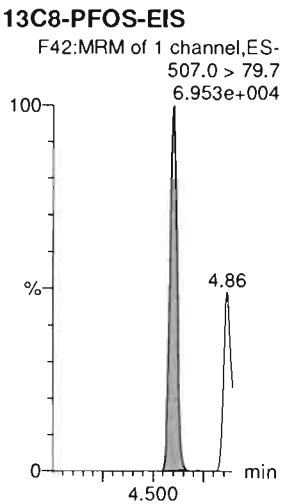

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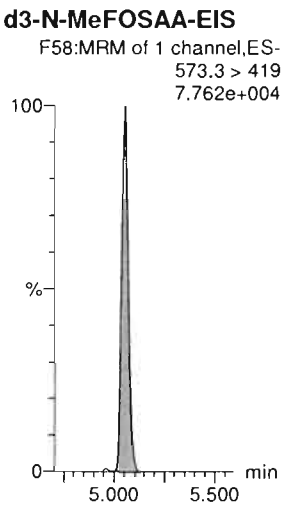

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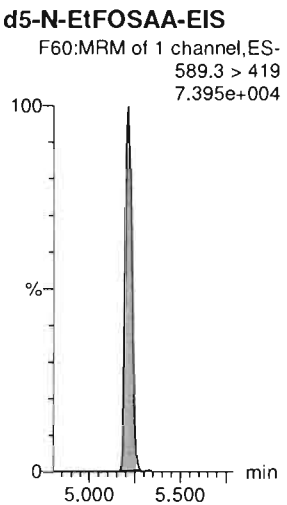
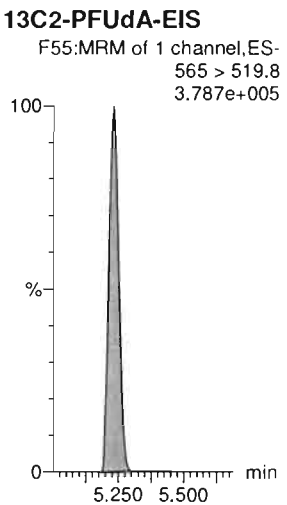


13C2-PFUdA-EIS



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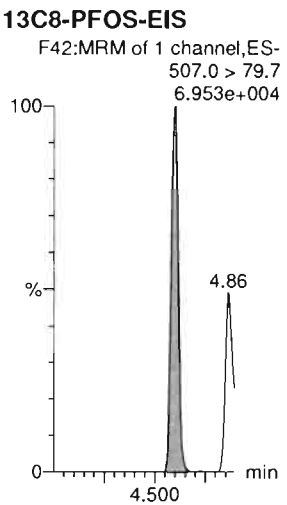

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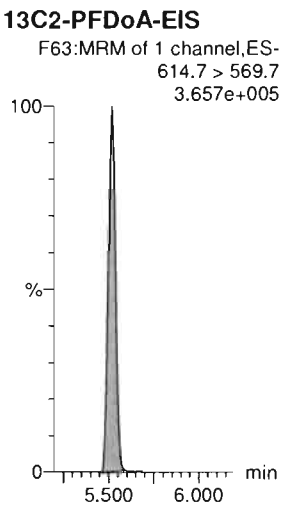

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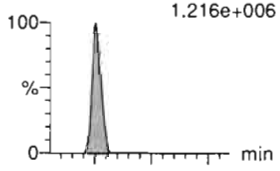
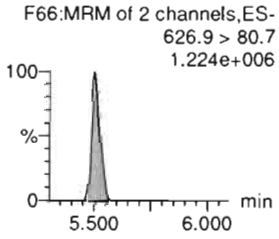
10:2 FTS





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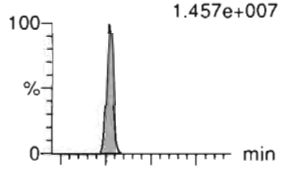
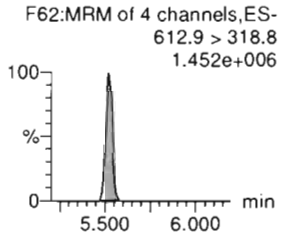
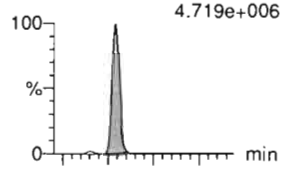
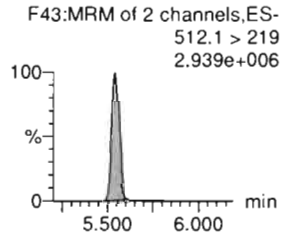




N-MeFOSA





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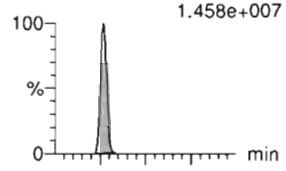
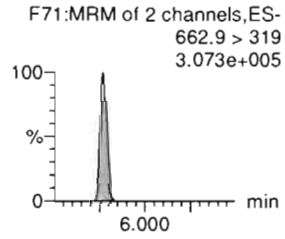
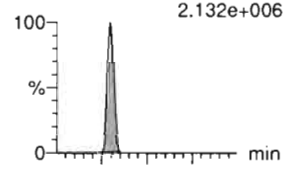
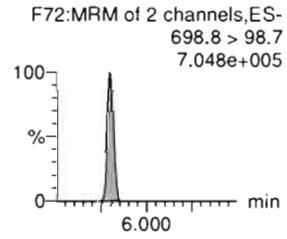




PFDoS





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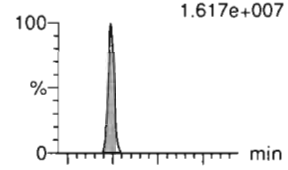
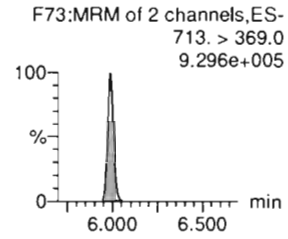
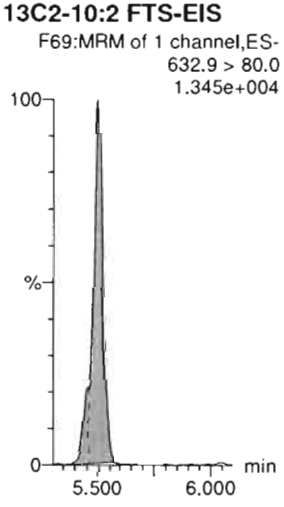
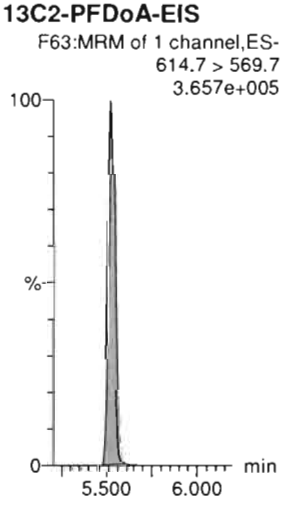




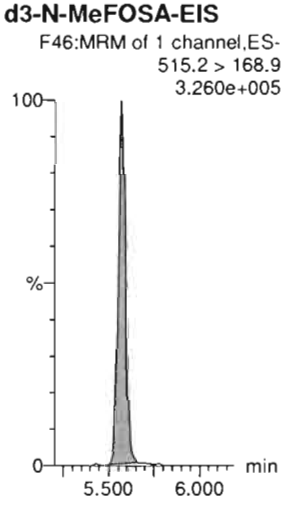
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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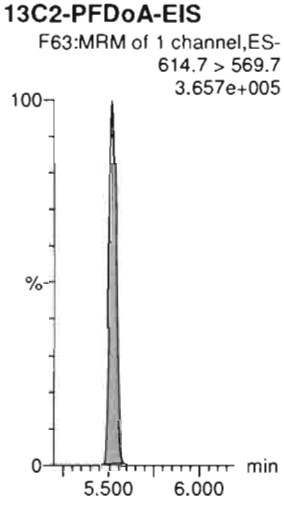

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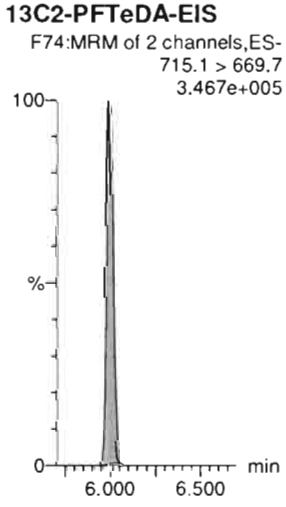

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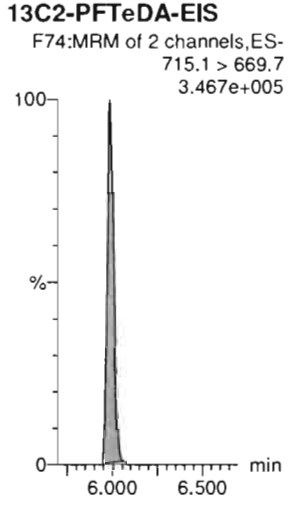

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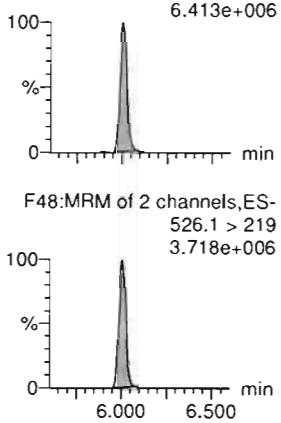
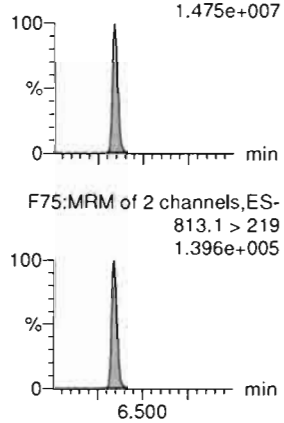
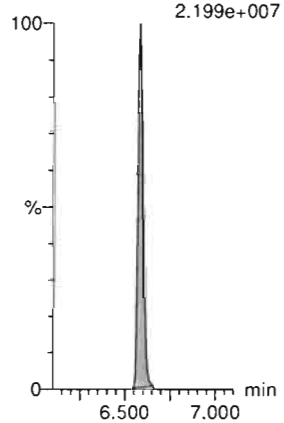
N-EtFOSA



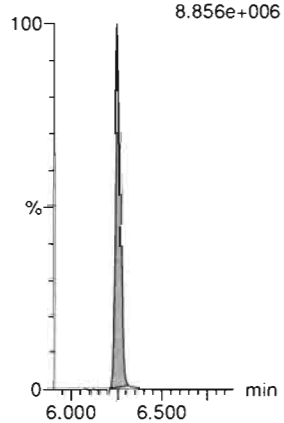
PFHxDA



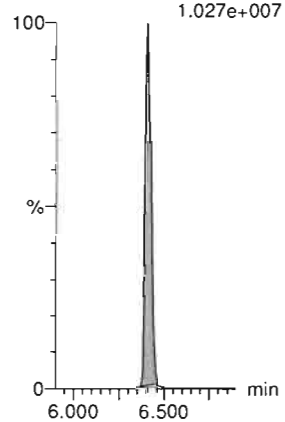
PFODA



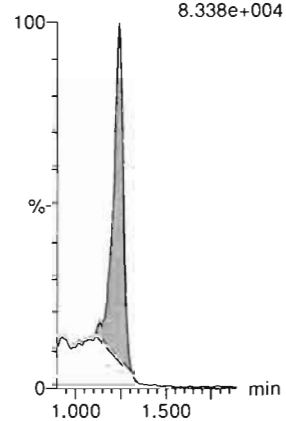
N-MeFOSE



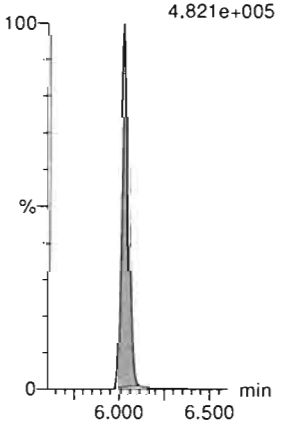
N-EtFOSE



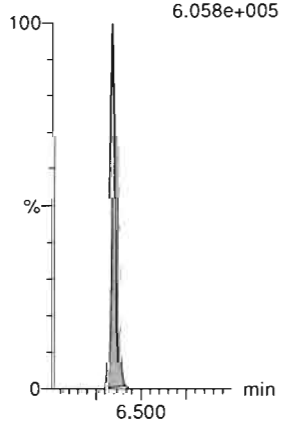
13C3-PFBA-RSD



d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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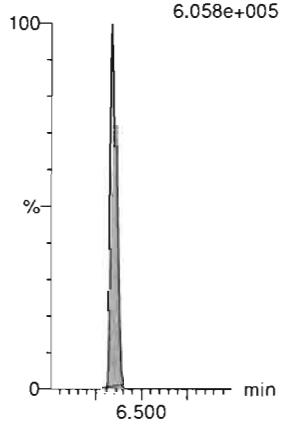
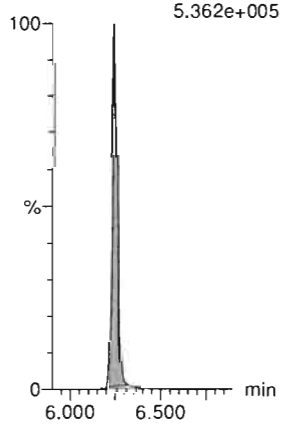
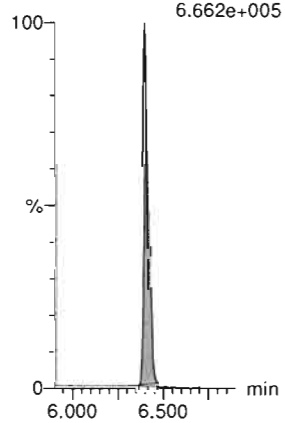


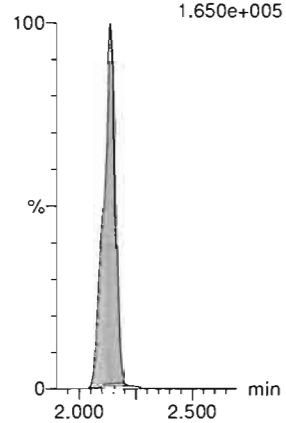
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C3-PFPeA-RSD



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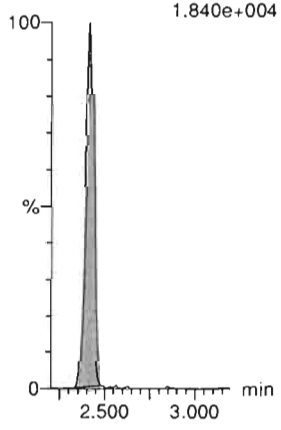
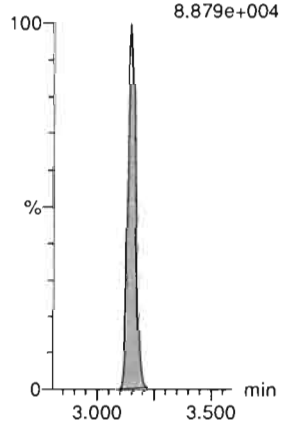
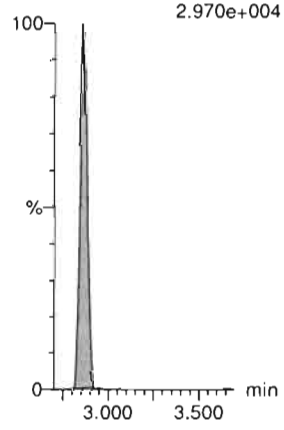
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
1.840e+004



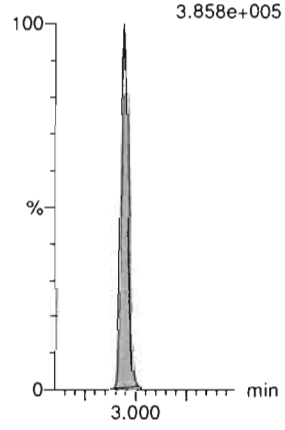
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
8.879e+004



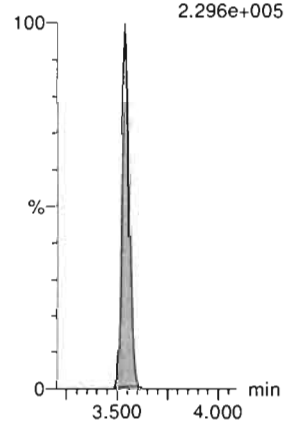
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
2.970e+004



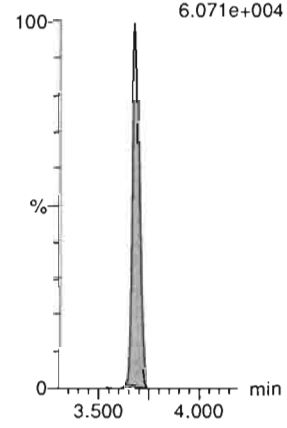
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
3.858e+005



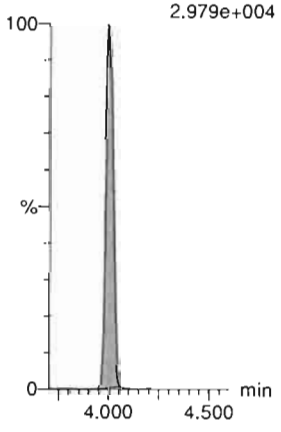
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.296e+005



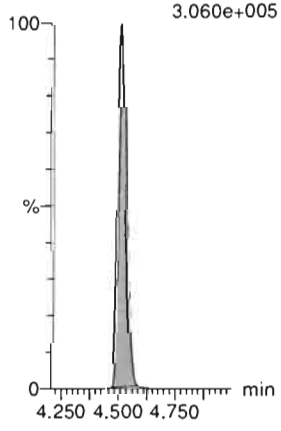
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
6.071e+004



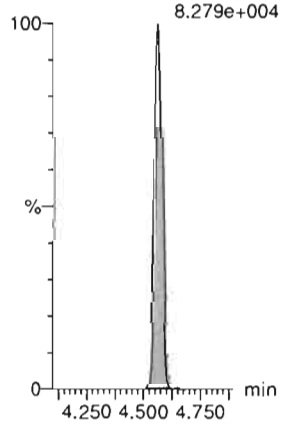
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
2.979e+004



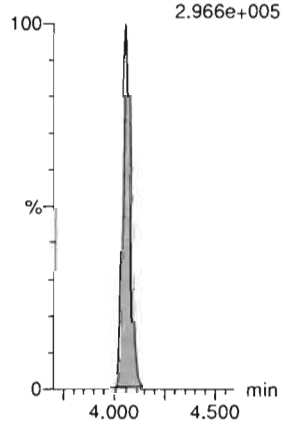
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.060e+005



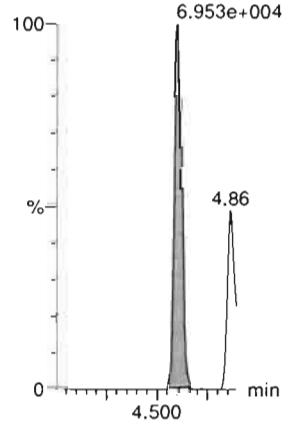
13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
8.279e+004



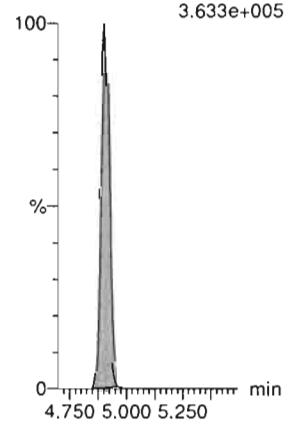
13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
2.966e+005



13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
6.953e+004



13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.633e+005



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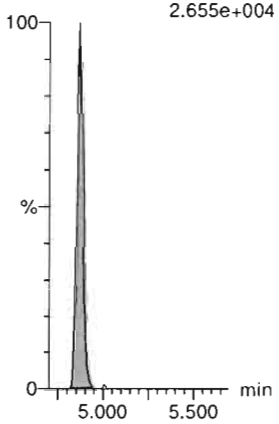
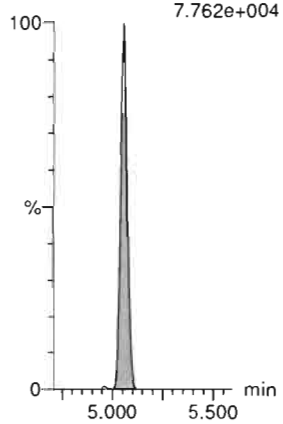
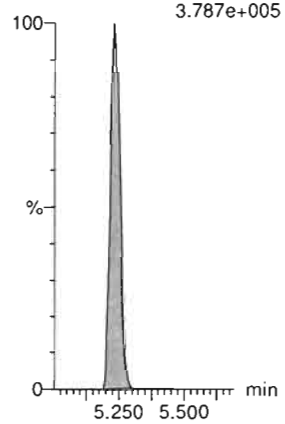
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.655e+004



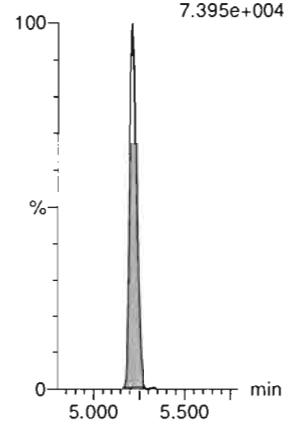
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
7.762e+004



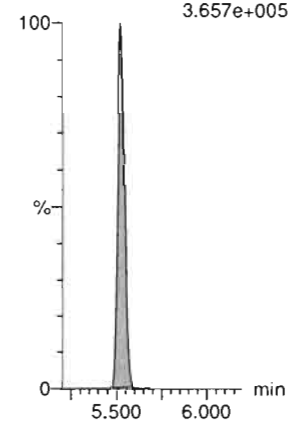
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.787e+005



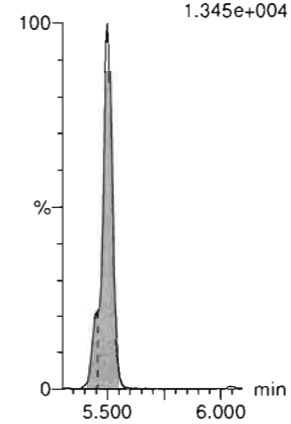
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
7.395e+004



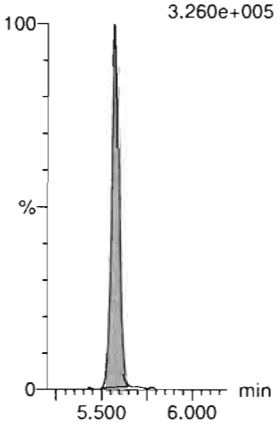
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
3.657e+005



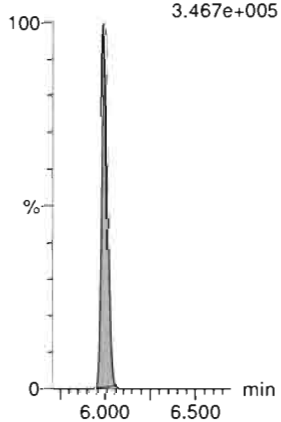
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
1.345e+004



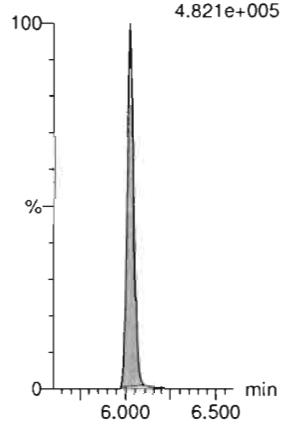
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.260e+005



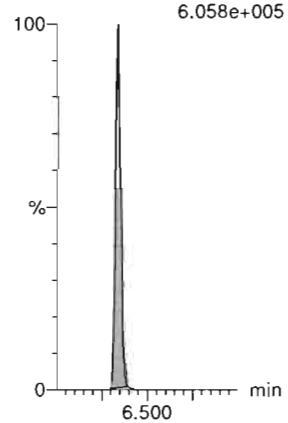
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.467e+005



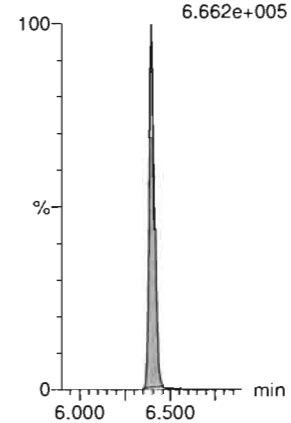
d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
4.821e+005



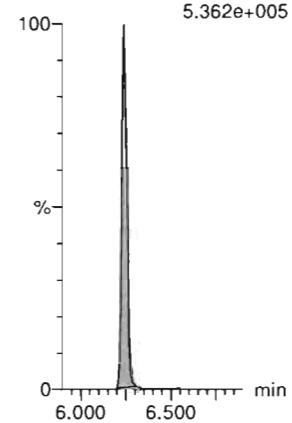
13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
6.058e+005



d9-N-EtFOSE-RSD
F70:MRM of 1 channel,ES-
639.2 > 58.8
6.662e+005



d7-N-MeFOSE-RSD
F65:MRM of 1 channel,ES-
623.1 > 58.9
5.362e+005



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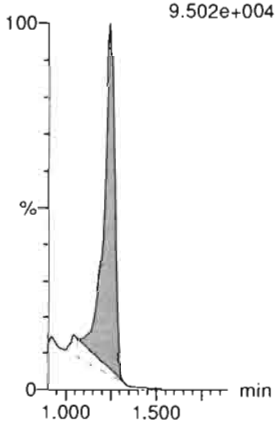
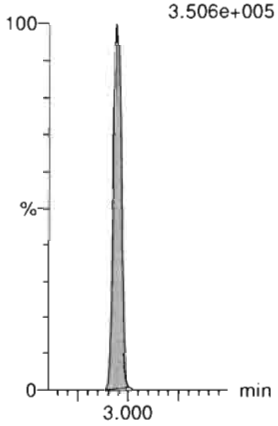
Name: 200305P1-12, Date: 05-Mar-2020, Time: 19:10:11, ID: ST200304P2-10 PFC CS7 20C0313, Description: PFC CS7 20C0313

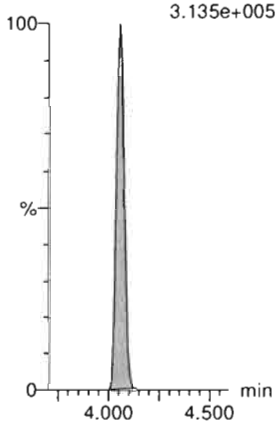
13C4-PFBA



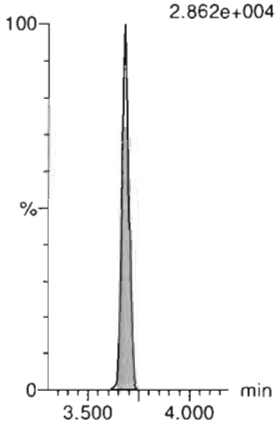
13C5-PFHxA



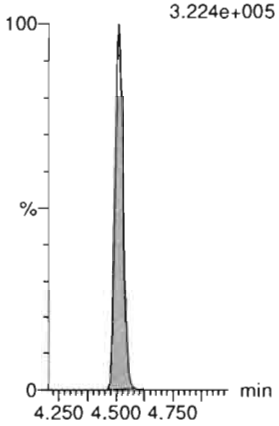
13C8-PFOA



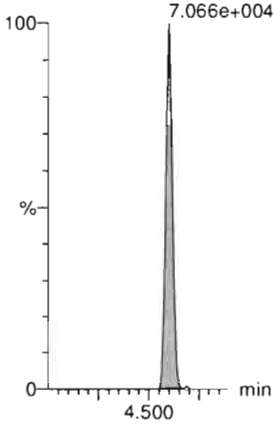
18O2-PFHxS



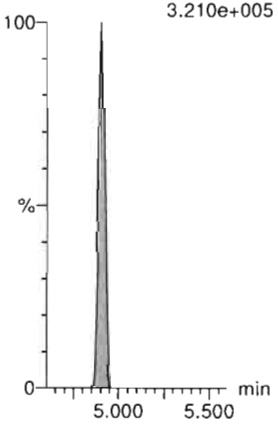
13C9-PFNA



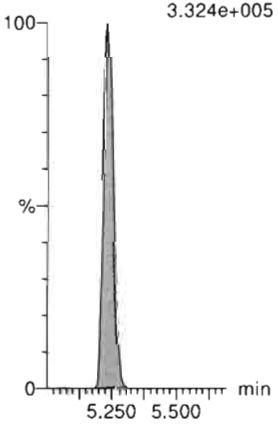
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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(A) Not in ICV

Name: 200305P1-14, Date: 05-Mar-2020, Time: 19:31:12, ID: ICV200305P1-1 PFC ICV 20C0314, Description: PFC ICV 20C0314

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4386.369	5335.862	1.00	1.24	10.276	10.000	9.19	91.9	NO		
2	2	PFPrS	248.9 > 79.7		1138.701	1.00			10.000		(A)	NO		YES
3	3	3:3 FTCA	240.9 > 176.9		10224.206	1.00			10.000			NO		YES
4	4	PFPeA	263.1 > 218.9	7416.888	10224.206	1.00	2.14	9.068	10.000	9.27	92.7	NO		
5	5	PFBS	299.0 > 79.7	1854.827	1138.701	1.00	2.41	20.361	8.840	8.12	91.9	NO	3.244	NO
6	6	4:2 FTS	327.0 > 307	1526.927	1672.378	1.00	2.85	11.413	9.360	8.88	94.8	NO	0.974	NO
7	47	13C3-PFBA-EIS	216.1 > 171.8	5335.862		1.00	1.24	5335.862	12.500	12.7	101.3	NO		
8	51	13C3-PFBS-EIS	302.0 > 98.8	1138.701		1.00	2.41	1138.701	12.500	12.0	95.6	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	10224.206		1.00	2.14	10224.206	12.500	12.2	97.3	NO		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	10224.206		1.00	2.14	10224.206	12.500	12.2	97.3	NO		
11	51	13C3-PFBS-EIS	302.0 > 98.8	1138.701		1.00	2.41	1138.701	12.500	12.0	95.6	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1672.378		1.00	2.85	1672.378	12.500	11.7	93.6	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	11762.546	17719.342	1.00	2.94	8.298	10.000	9.64	96.4	NO	17.040	NO
15	8	PFPeS	349.>79.7	1967.637	1138.701	1.00	3.13	21.600	9.360	9.82	104.9	NO	2.491	NO
16	9	HFPO-DA	285.1 > 168.9	2796.587	3308.825	1.00	3.14	10.565	10.000	10.4	103.6	NO	2.727	NO
17	10	5:3 FTCA	340.9 > 236.9		10644.797	1.00			10.000		(A)	NO		YES
18	11	PFHpA	363.0 > 318.9	9562.313	10644.797	1.00	3.54	11.229	10.000	9.47	94.7	NO	23.438	NO
19	12	ADONA	376.8 > 250.9	23631.496	10644.797	1.00	3.64	27.750	10.000	9.77	97.7	NO	4.249	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	17719.342		1.00	2.94	17719.342	12.500	12.3	98.4	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	1138.701		1.00	2.41	1138.701	12.500	12.0	95.6	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	3308.825		1.00	3.14	3308.825	12.500	11.6	92.6	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	10644.797		1.00	3.54	10644.797	12.500	11.6	92.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	10644.797		1.00	3.54	10644.797	12.500	11.6	92.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	10644.797		1.00	3.54	10644.797	12.500	11.6	92.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7	1912.982	2684.459	1.00	3.68	8.908	9.120	8.83	96.8	NO	2.478	NO
28	15	6:2 FTS	427.0 > 407	1896.520	1432.498	1.00	4.00	16.549	9.480	10.3	108.9	NO	1.213	NO
29	16	L-PFOA	412.8 > 368.9	14082.150	14770.569	1.00	4.05	11.917	10.000	9.72	97.2	NO	3.248	NO
30	18	PFecHS	460.8 > 381.0		14770.569	1.00			10.000		(A)	NO		YES
31	19	PFHpS	449.0 > 79.7	2097.769	3105.936	1.00	4.17	8.443	9.480	8.48	89.5	NO	1.882	NO
32	20	7:3 FTCA	440.9 > 336.9		14593.727	1.00			10.000		(A)	NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2684.459		1.00	3.68	2684.459	12.500	11.7	93.8	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1432.498		1.00	4.00	1432.498	12.500	11.9	94.8	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	14770.569		1.00	4.05	14770.569	12.500	11.1	88.5	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	14770.569		1.00	4.05	14770.569	12.500	11.1	88.5	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	14593.727		1.00	4.51	14593.727	12.500	12.0	95.8	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	12275.803	14593.727	1.00	4.51	10.515	10.000	9.03	90.3	NO	7.251	NO
41	22	PFOSA	497.9 > 77.9	2393.397	3686.789	1.00	4.56	8.115	10.000	9.26	92.6	NO	24.362	NO
42	23	L-PFOS	498.9 > 79.7	1912.979	3105.936	1.00	4.60	7.699	9.280	7.94	85.6	NO	2.069	NO
43	25	9Cl-PF30NS	530.7 > 350.8	1969.639	3105.936	1.00	4.82	7.927	9.280	7.94	85.5	NO	14.370	NO
44	26	PFDA	513 > 468.8	14110.164	15243.063	1.00	4.90	11.571	10.000	9.80	98.0	NO	9.771	NO
45	27	8:2 FTS	526.9 > 507	1182.314	1197.076	1.00	4.87	12.346	9.600	8.35	87.0	NO	2.749	YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	14593.727		1.00	4.51	14593.727	12.500	12.0	95.8	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3686.789		1.00	4.56	3686.789	12.500	12.4	98.9	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	15243.063		1.00	4.90	15243.063	12.500	11.2	90.0	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1197.076		1.00	4.87	1197.076	12.500	12.9	102.9	NO		
52	-1													
53	28	PFNS	549.1 > 79.7	1941.204	3105.936	1.00	4.96	7.812	9.600	9.31	97.0	NO	2.307	NO
54	29	L-MeFOSAA	570 > 419	4318.970	3172.613	1.00	5.06	17.017	10.000	9.82	98.2	NO	2.085	NO
55	31	L-EtFOSAA	584.1 > 419	3764.928	4198.031	1.00	5.22	11.210	10.000	9.11	91.1	NO	1.148	NO
56	33	PFUdA	563.0 > 518.9	12791.300	17012.836	1.00	5.23	9.398	10.000	9.94	99.4	NO	22.853	NO
57	34	PFDS	598.8 > 79.7	1895.312	3105.936	1.00	5.28	7.628	9.600	8.54	89.0	NO	1.885	NO
58	35	11Cl-PF30UdS	630.9 > 450.9	5430.843	17598.617	1.00	5.45	3.857	9.440	8.99	95.2	NO	19.099	NO
59	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	3172.613		1.00	5.05	3172.613	12.500	11.5	92.3	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	4198.031		1.00	5.21	4198.031	12.500	11.6	93.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	17012.836		1.00	5.23	17012.836	12.500	10.9	87.1	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	17598.617		1.00	5.52	17598.617	12.500	12.6	100.8	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		858.737	1.00			10.000		(A)	NO		YES
67	37	PFDoA	612.9 > 569.0	15088.341	17598.617	1.00	5.52	10.717	10.000	9.13	91.3	NO	9.557	NO
68	38	N-MeFOSA	512.1 > 168.9		15553.611	1.00			9.600		(A)	NO		YES
69	39	PFTrDA	662.9 > 618.9	14857.532	17598.617	1.00	5.77	10.553	10.000	8.60	86.0	NO	53.980	NO
70	40	PFDoS	698.8 > 79.7		15681.148	1.00			10.000		(A)	NO		YES
71	41	PFTeDA	713.0 > 669.0	15493.752	15681.148	1.00	5.99	12.351	10.000	10.6	105.6	NO	16.793	NO
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	858.737		1.00	5.50	858.737	12.500	11.9	95.3	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	17598.617		1.00	5.52	17598.617	12.500	12.6	100.8	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	15553.611		1.00	5.57	15553.611	149.200	149	99.9	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	17598.617		1.00	5.52	17598.617	12.500	12.6	100.8	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	15681.148		1.00	5.99	15681.148	12.500	11.1	88.5	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	15681.148		1.00	5.99	15681.148	12.500	11.1	88.5	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9		25569.943	1.00			9.600			NO		YES
80	43	PFHxDA	813.1 > 768.6		24138.824	1.00			10.000			NO		YES
81	44	PFODA	913.1 > 868.8		24138.824	1.00			10.000			NO		
82	45	N-MeFOSE	616.1 > 58.9		20438.184	1.00			9.600			NO		
83	46	N-EtFOSE	630.1 > 58.9		24496.895	1.00			9.600			NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	25569.943		1.00	6.03	25569.943	149.200	154	103.5	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	24138.824		1.00	6.34	24138.824	12.500	12.0	96.4	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	24138.824		1.00	6.34	24138.824	12.500	12.0	96.4	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	20438.184		1.00	6.24	20438.184	149.200	145	97.1	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	24496.895		1.00	6.40	24496.895	149.200	158	106.1	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	3105.936		1.00	4.60	3105.936	12.500	12.3	98.7	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	5335.862	6292.808	1.00	1.24	10.599	12.500	12.8	102.4	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	10223.310	16808.244	1.00	2.14	7.603	12.500	12.6	100.4	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	1138.701	1101.747	1.00	2.41	12.919	12.500	12.7	101.9	NO		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	3308.825	16808.244	1.00	3.14	2.461	12.500	11.4	91.5	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1672.378	1101.747	1.00	2.85	18.974	12.500	13.4	107.3	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	17719.342	16808.244	1.00	2.94	13.178	12.500	12.8	102.3	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	10644.797	16808.244	1.00	3.54	7.916	12.500	12.2	97.8	NO		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2684.459	1101.747	1.00	3.68	30.457	12.500	12.6	100.7	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1432.498	3142.751	1.00	4.00	5.698	12.500	12.1	96.5	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	14593.727	14849.229	1.00	4.51	12.285	12.500	13.0	103.7	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3686.789	17706.402	1.00	4.56	2.603	12.500	12.8	102.8	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	14770.569	17848.938	1.00	4.05	10.344	12.500	11.7	93.4	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	3105.936	3142.751	1.00	4.60	12.354	12.500	12.9	103.1	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	15243.063	11549.287	1.00	4.90	16.498	12.500	15.0	119.9	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1197.076	3142.751	1.00	4.87	4.761	12.500	12.5	99.7	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	3172.613	17706.402	1.00	5.05	2.240	12.500	12.5	99.8	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	17012.836	17706.402	1.00	5.23	12.010	12.500	11.8	94.1	NO		

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	4198.031	17706.402	1.00	5.21	2.964	12.500	13.1	105.2	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	17598.617	11549.287	1.00	5.52	19.047	12.500	16.4	131.0	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	858.737	3142.751	1.00	5.50	3.416	12.500	11.9	95.1	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	15553.611	17706.402	1.00	5.57	10.980	149.200	151	101.4	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	15681.148	17706.402	1.00	5.99	11.070	12.500	11.4	91.3	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	25569.943	17706.402	1.00	6.03	18.051	149.200	160	107.0	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	24138.824	17706.402	1.00	6.34	17.041	12.500	12.3	98.1	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	20438.184	17706.402	1.00	6.24	14.429	149.200	153	102.2	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	24496.895	17706.402	1.00	6.40	17.294	149.200	156	104.7	NO		
119	99	13C4-PFBA	217.0 > 172.0	6292.808	6292.808	1.00	1.24	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	16808.244	16808.244	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	17848.938	17848.938	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1101.747	1101.747	1.00	3.68	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	14849.229	14849.229	1.00	4.51	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	3142.751	3142.751	1.00	4.60	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	11549.287	11549.287	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	17706.402	17706.402	1.00	5.23	12.500	12.500	12.5	100.0	NO		

Dataset: D:\PFAS5.PRO\RESULTS\200305P1\200305P1-ICV.qld

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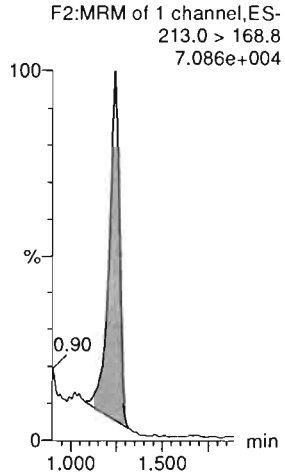
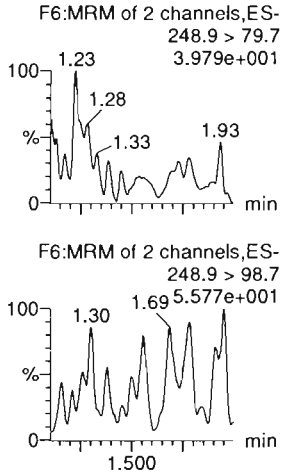
Calibration: D:\PFAS5.PRO\CurveDB\C18_VAL-PFAS_Q5_03-05-20.cdb 06 Mar 2020 10:35:12

Name: 200305P1-14, Date: 05-Mar-2020, Time: 19:31:12, ID: ICV200305P1-1 PFC ICV 20C0314, Description: PFC ICV 20C0314

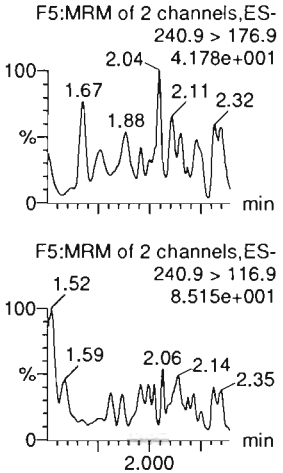
PFBA



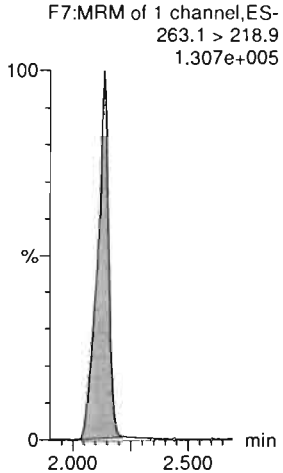
PFPrS



3:3 FTCA



PFPeA



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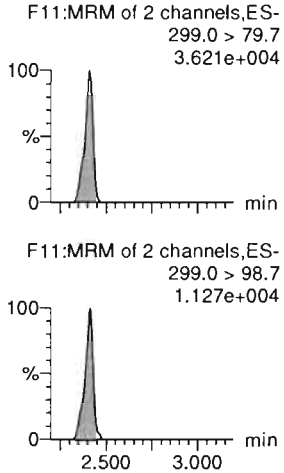
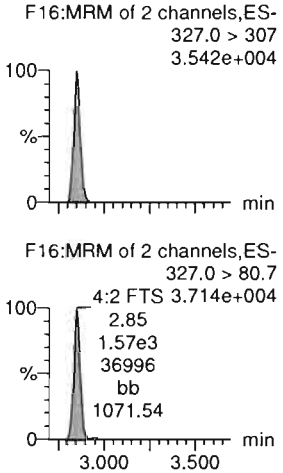
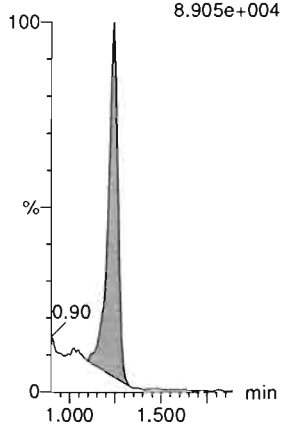


4:2 FTS



13C3-PFBA-EIS



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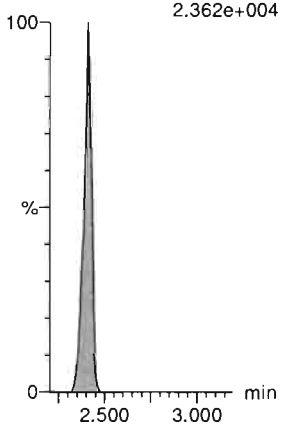

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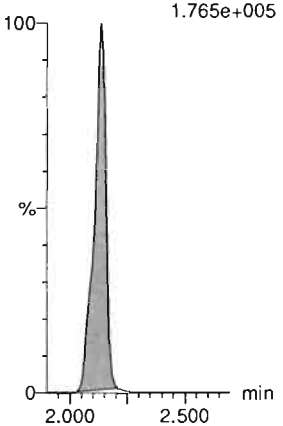

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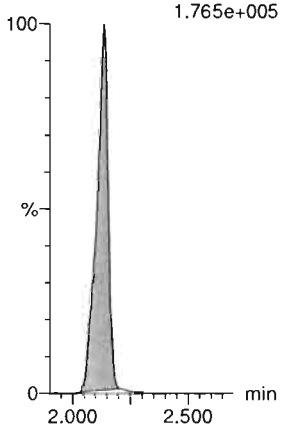

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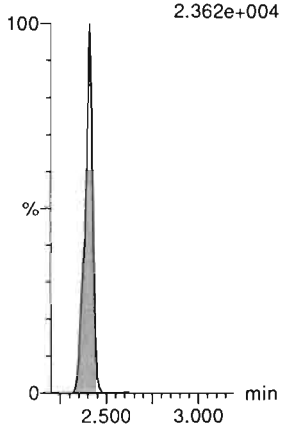
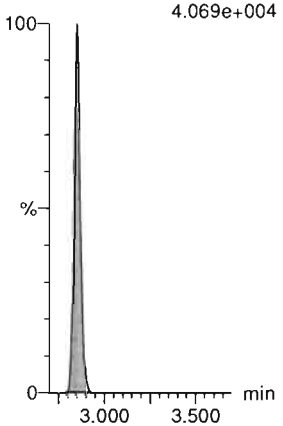


13C2-4:2 FTS-EIS



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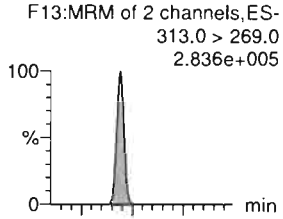
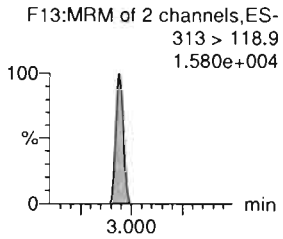
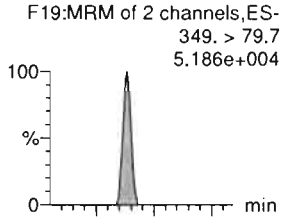
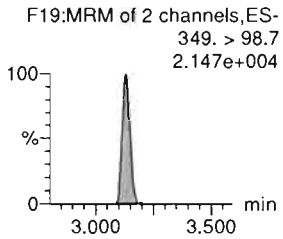
PFHxA



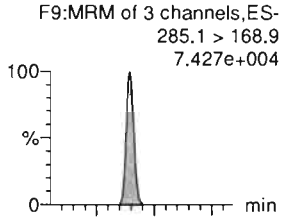


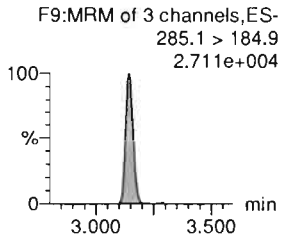
PFPeS



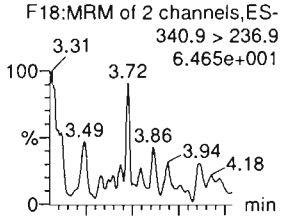


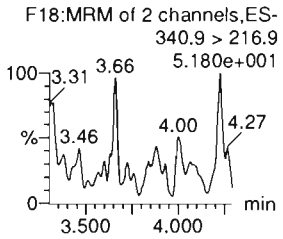
HFPO-DA





5:3 FTCA





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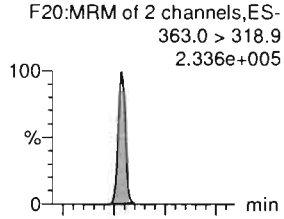
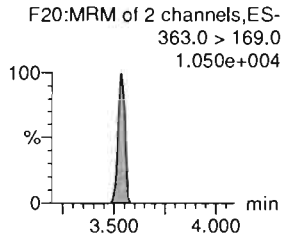
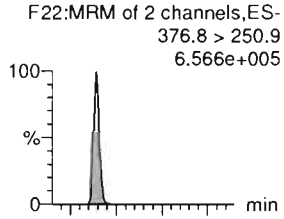
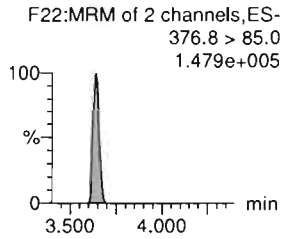


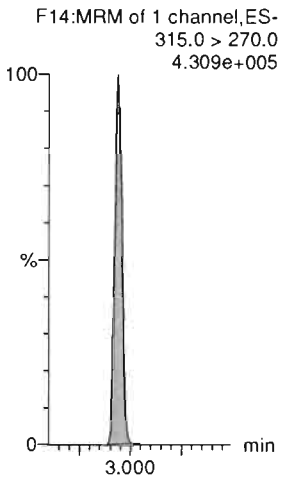


ADONA

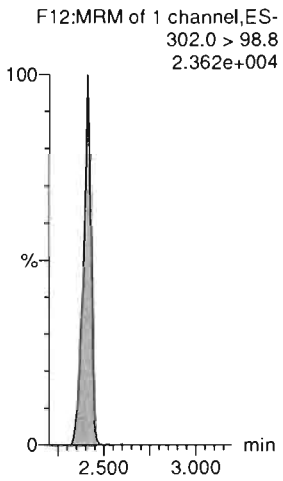




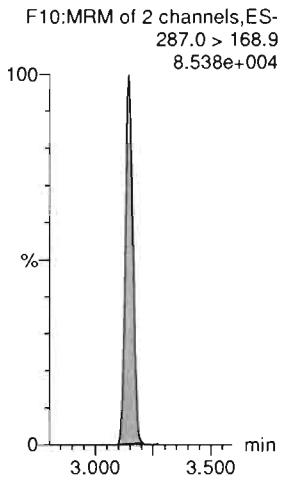
13C2-PFHxA-EIS



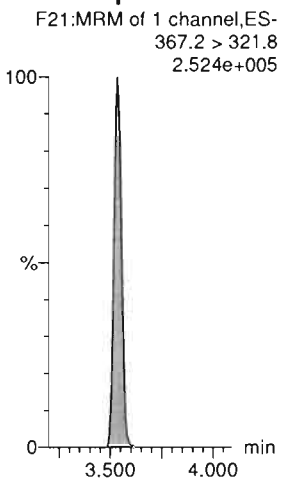
13C3-PFBS-EIS



13C3-HFPO-DA-EIS



13C4-PFHpA-EIS



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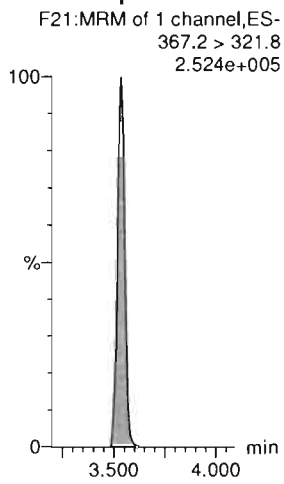

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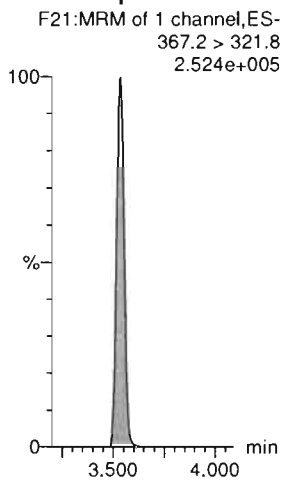

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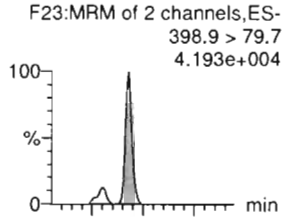
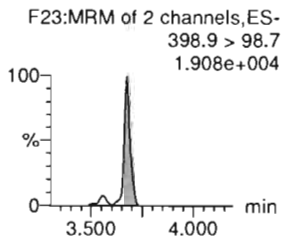
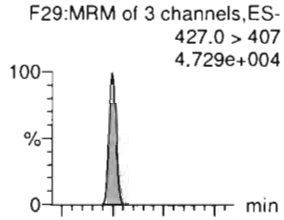
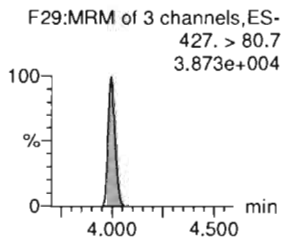
L-PFHxS



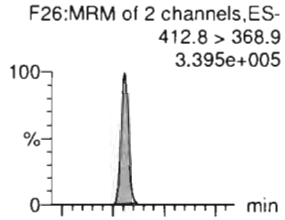


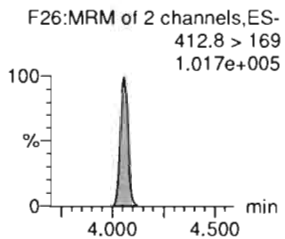
6:2 FTS





L-PFOA





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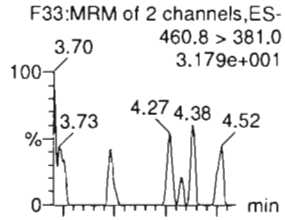
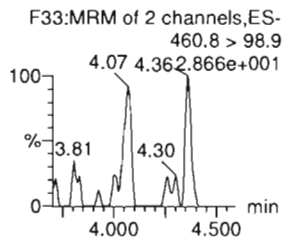
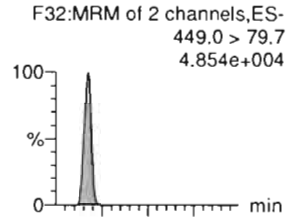
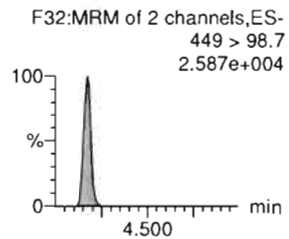


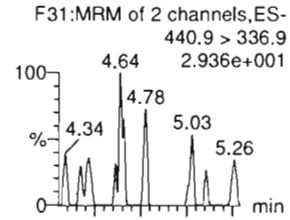


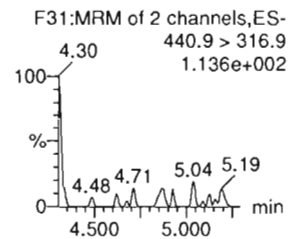
PFHpS



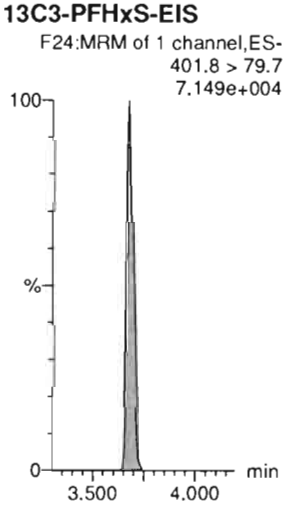


7:3 FTCA

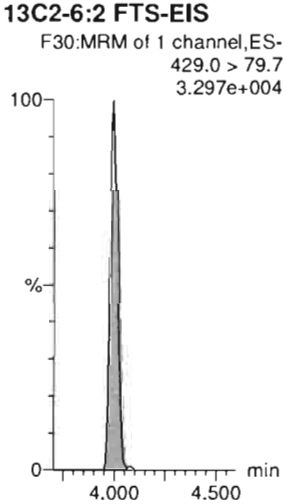




13C3-PFHxS-EIS



13C2-6:2 FTS-EIS



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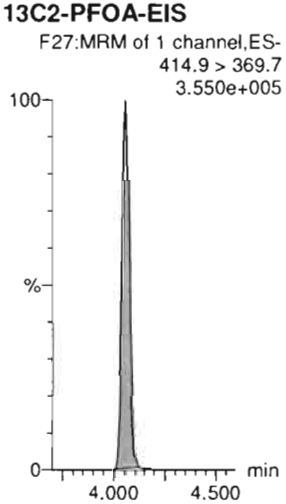
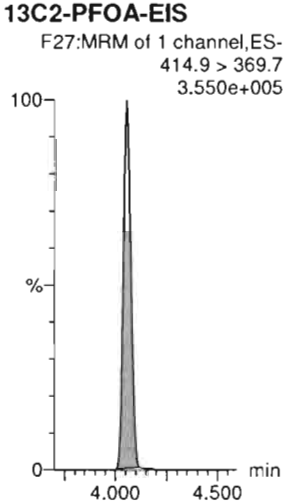
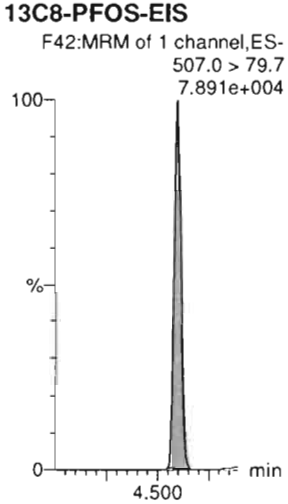


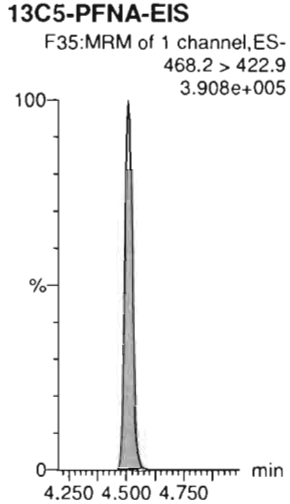
13C2-PFOA-EIS



13C8-PFOS-EIS



13C5-PFNA-EIS



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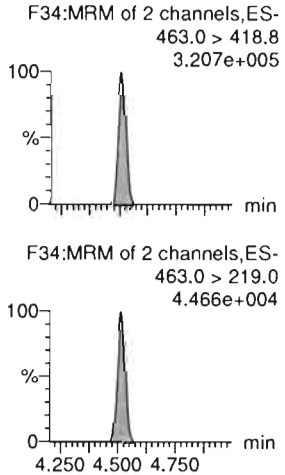
PFNA



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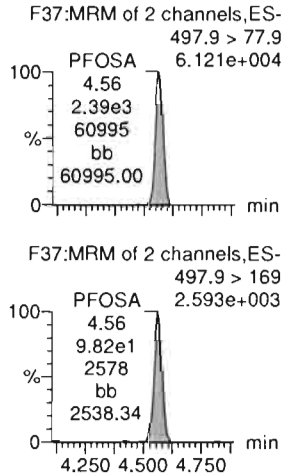

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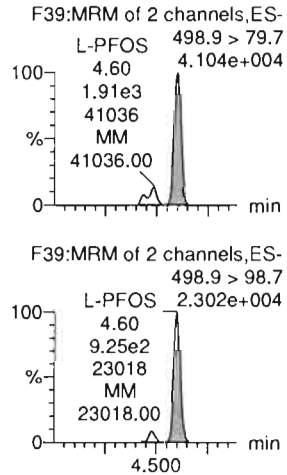

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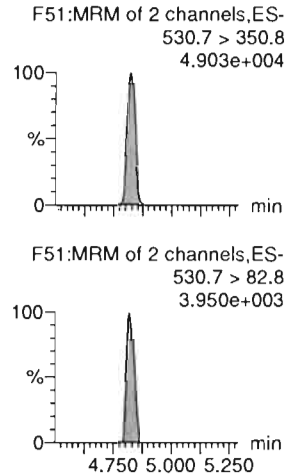

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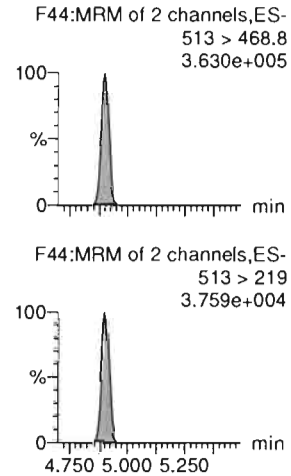
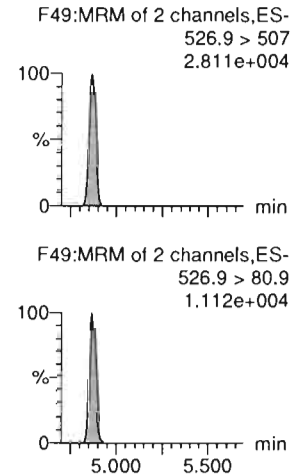
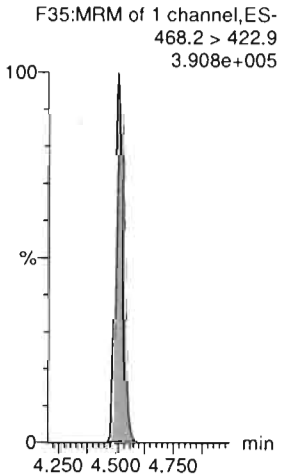


8:2 FTS



13C5-PFNA-EIS



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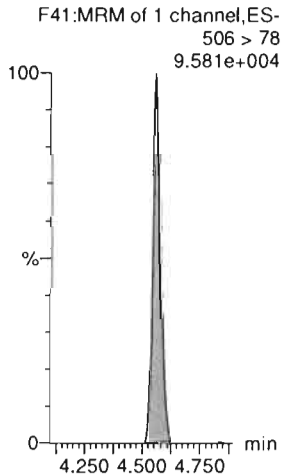

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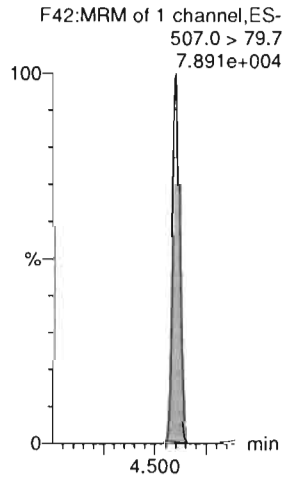

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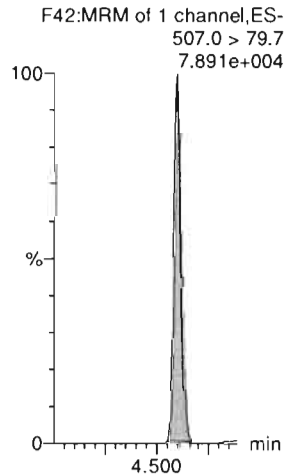

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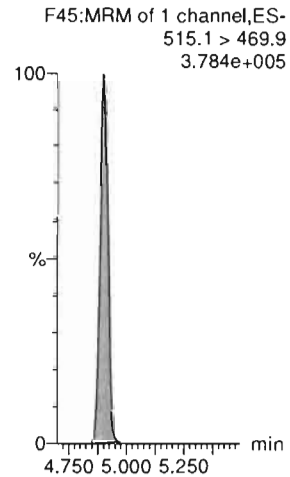
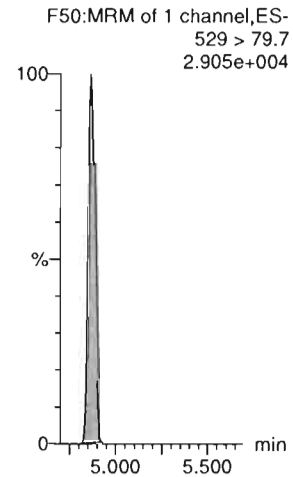


13C2-8:2 FTS-EIS



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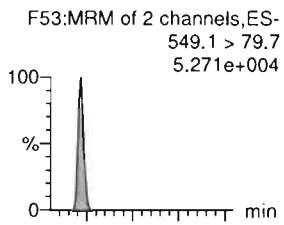

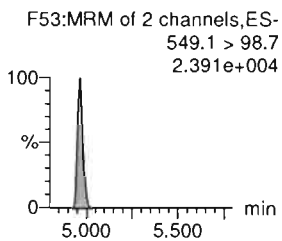

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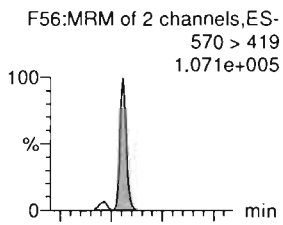

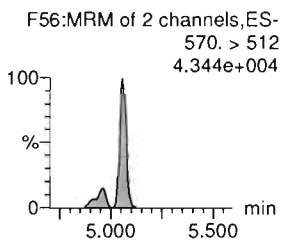

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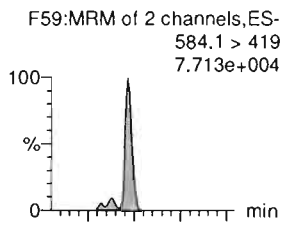

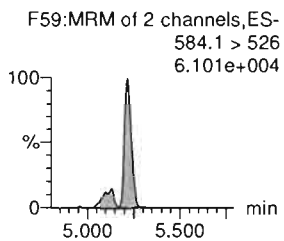

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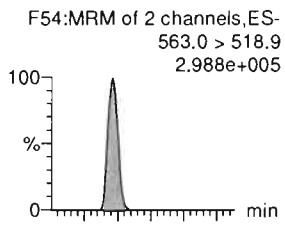

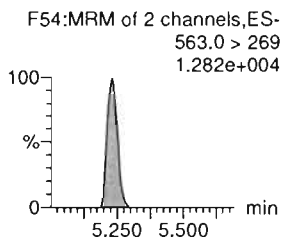

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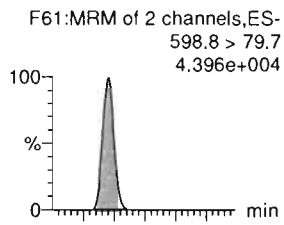

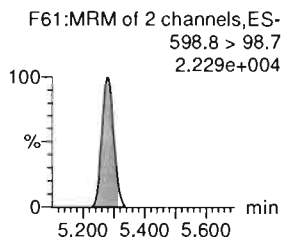

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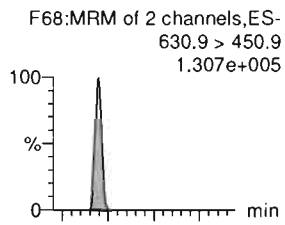

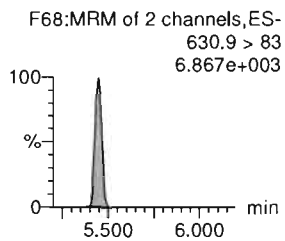

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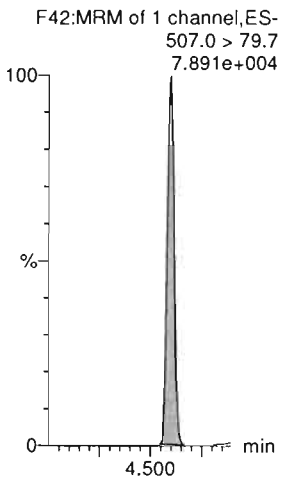

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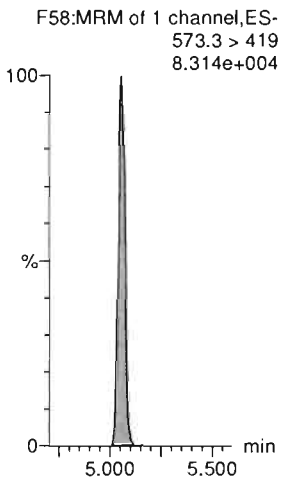

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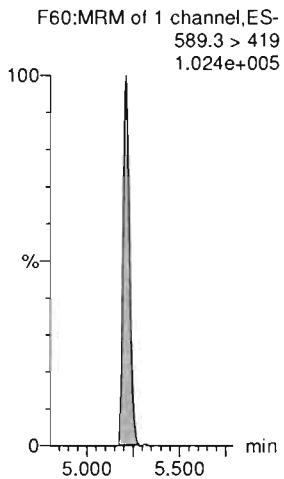

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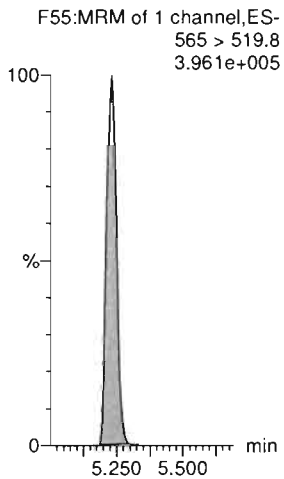

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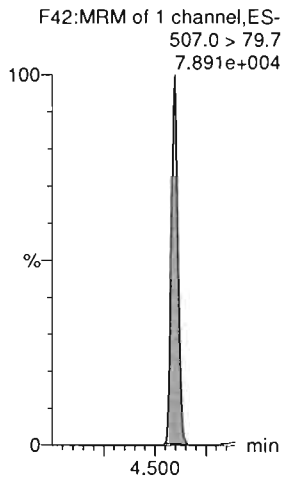

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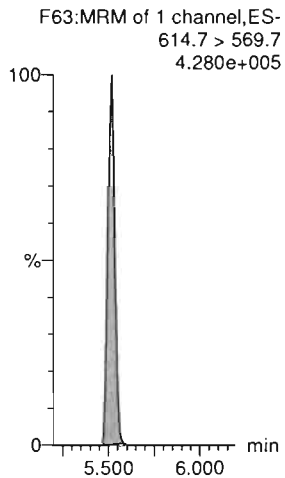

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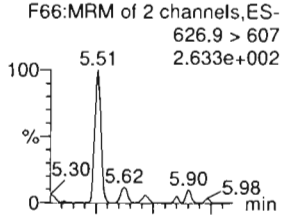
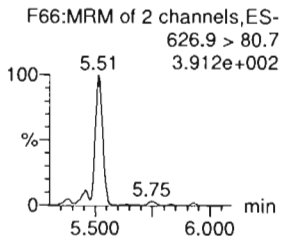
10:2 FTS





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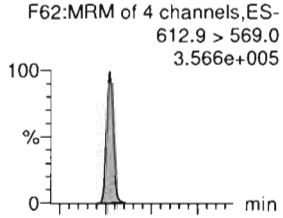
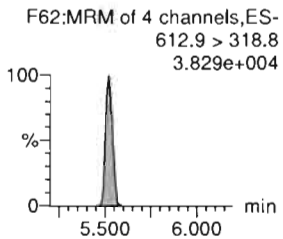
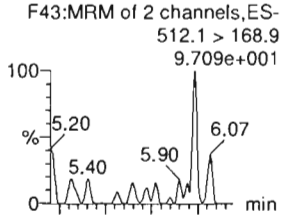
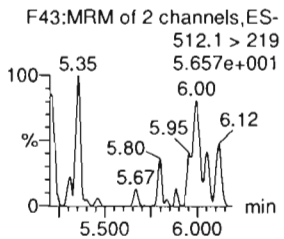




N-MeFOSA





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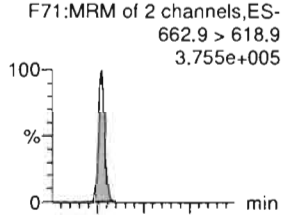

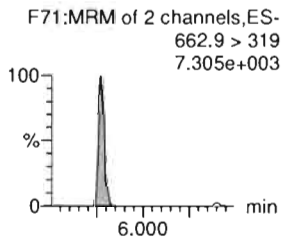

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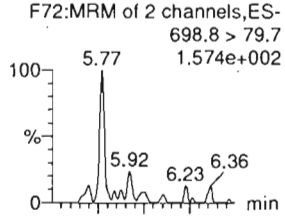

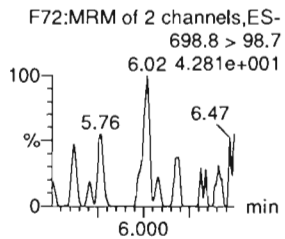

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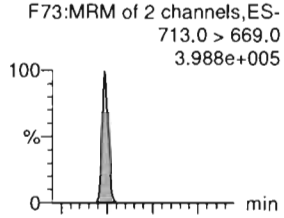

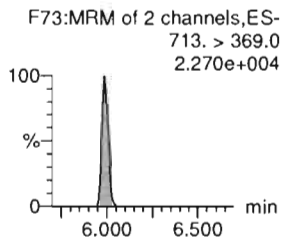

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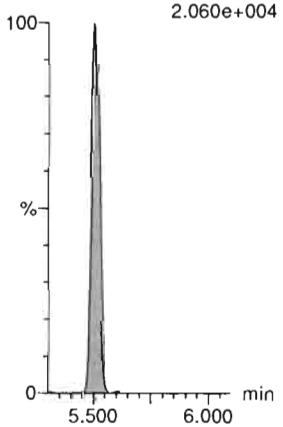
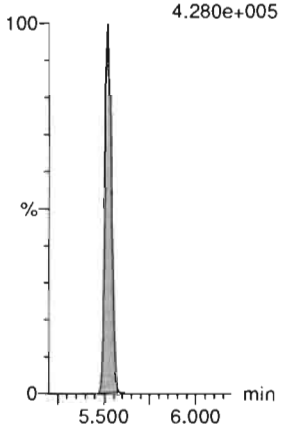
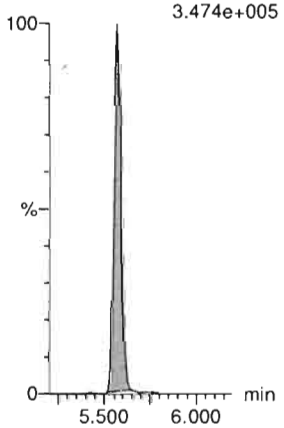


13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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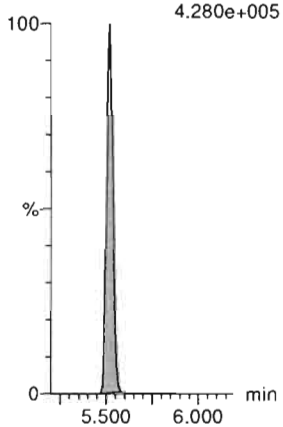

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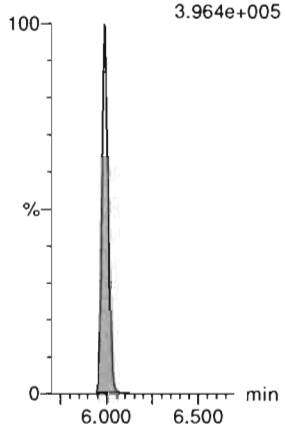

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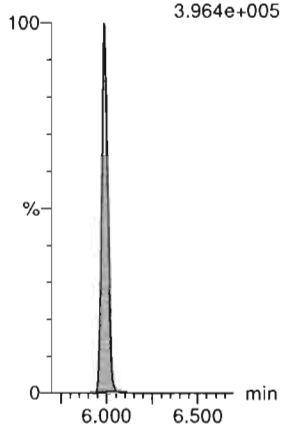

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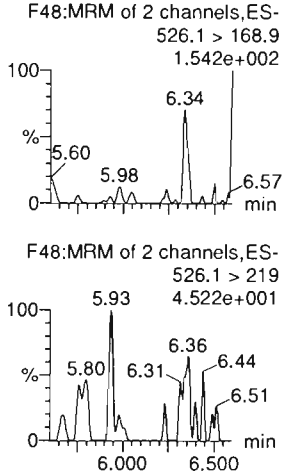
N-EtFOSA



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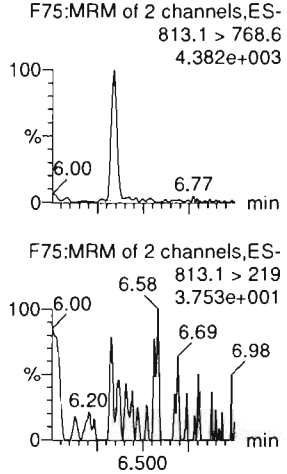

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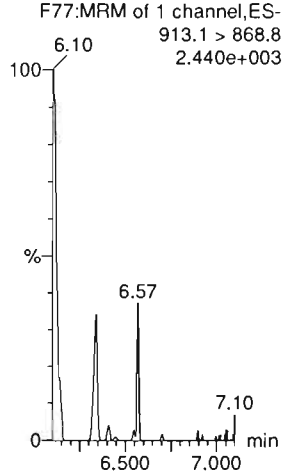
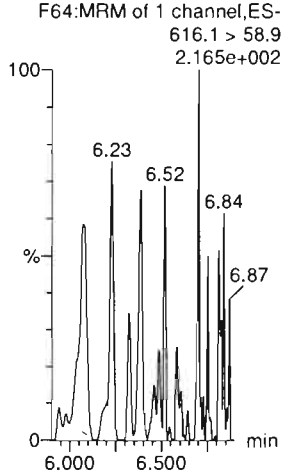


N-MeFOSE



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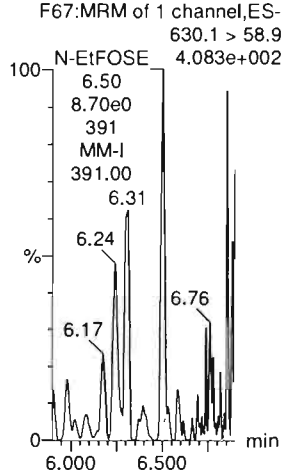
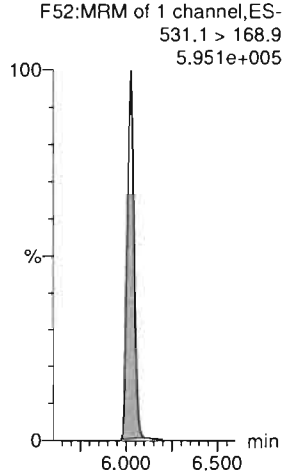
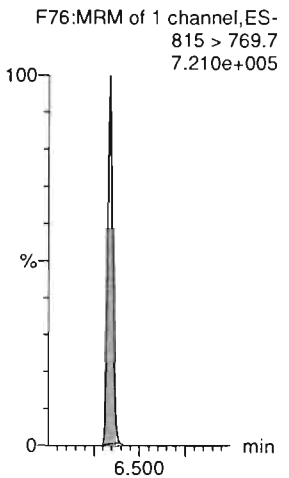


d5-N-ETFOSA-EIS



13C2-PFHxDA-EIS



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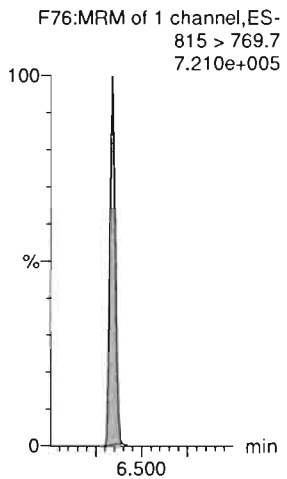
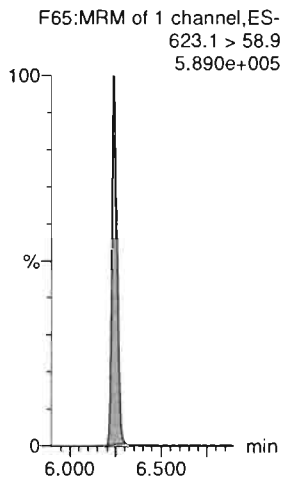
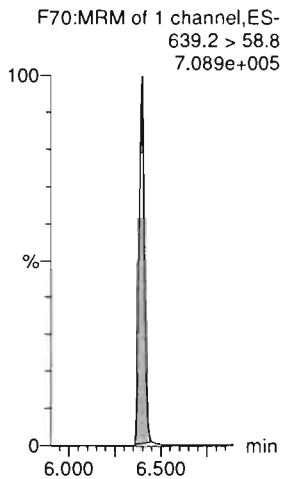


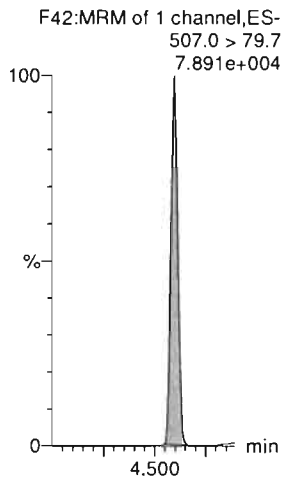
d7-N-MeFOSE-EIS



d9-N-EtFOSE-EIS



13C8-PFOS-EIS



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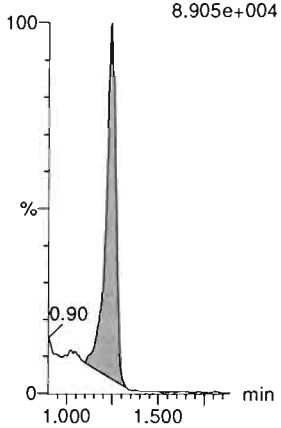
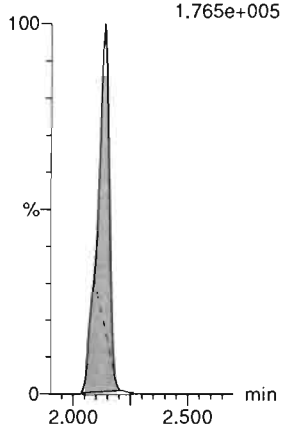
Name: 200305P1-14, Date: 05-Mar-2020, Time: 19:31:12, ID: ICV200305P1-1 PFC ICV 20C0314, Description: PFC ICV 20C0314

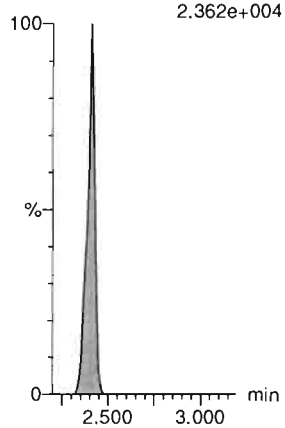
13C3-PFBA-RSD
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.905e+004



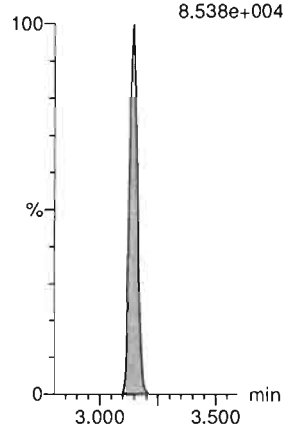
13C3-PFPeA-RSD
F8:MRM of 1 channel,ES-
266.0 > 221.8
1.765e+005



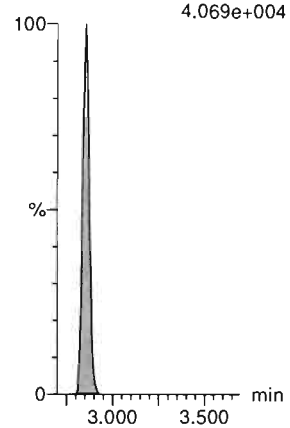
13C3-PFBS-RSD
F12:MRM of 1 channel,ES-
302.0 > 98.8
2.362e+004



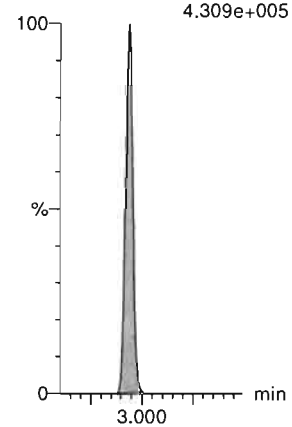
13C3-HFPO-DA-RSD
F10:MRM of 2 channels,ES-
287.0 > 168.9
8.538e+004



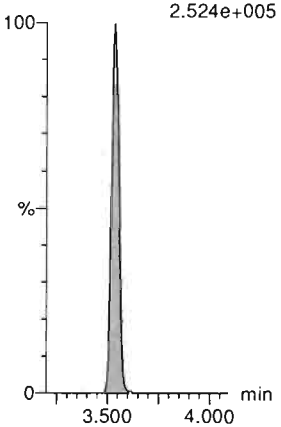
13C2-4:2 FTS-RSD
F17:MRM of 2 channels,ES-
329.0 > 79.7
4.069e+004



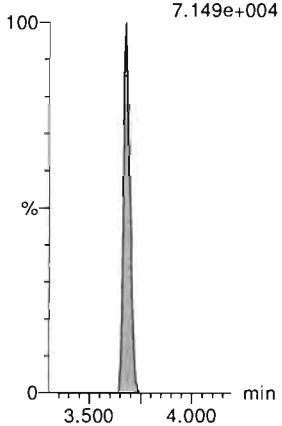
13C2-PFHxA-RSD
F14:MRM of 1 channel,ES-
315.0 > 270.0
4.309e+005



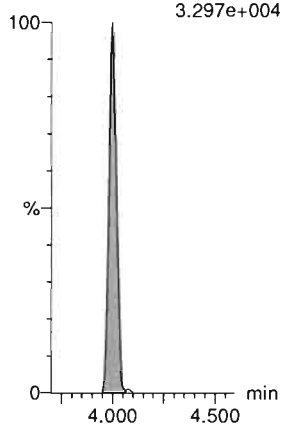
13C4-PFHpA-RSD
F21:MRM of 1 channel,ES-
367.2 > 321.8
2.524e+005



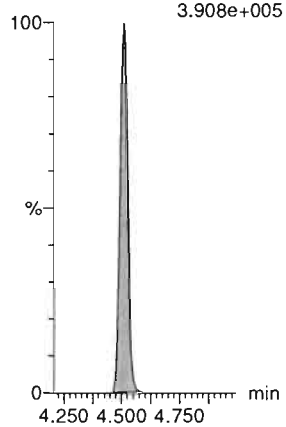
13C3-PFHxS-RSD
F24:MRM of 1 channel,ES-
401.8 > 79.7
7.149e+004



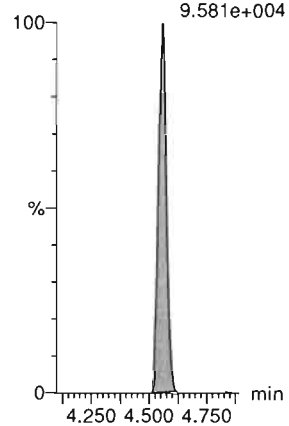
13C2-6:2 FTS-RSD
F30:MRM of 1 channel,ES-
429.0 > 79.7
3.297e+004



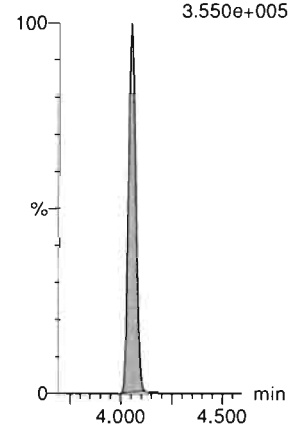
13C5-PFNA-RSD
F35:MRM of 1 channel,ES-
468.2 > 422.9
3.908e+005



13C8-PFOSA-RSD
F41:MRM of 1 channel,ES-
506 > 78
9.581e+004



13C2-PFOA-RSD
F27:MRM of 1 channel,ES-
414.9 > 369.7
3.550e+005



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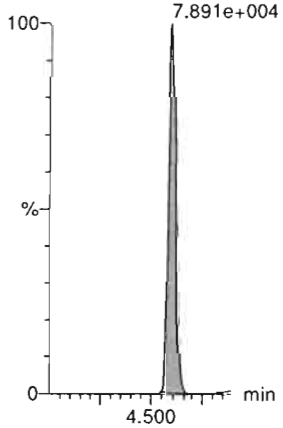
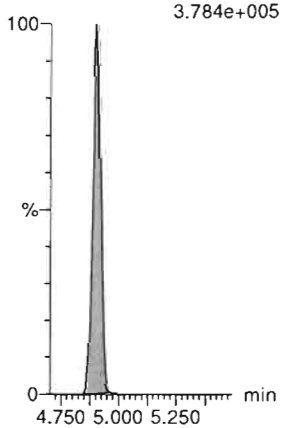
Name: 200305P1-14, Date: 05-Mar-2020, Time: 19:31:12, ID: ICV200305P1-1 PFC ICV 20C0314, Description: PFC ICV 20C0314

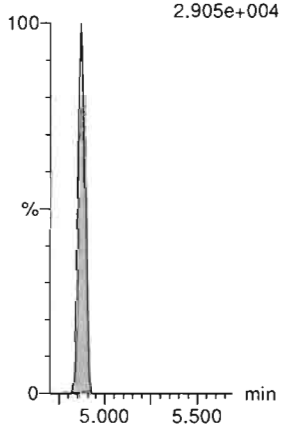
13C8-PFOS-RSD
F42:MRM of 1 channel,ES-
507.0 > 79.7
7.891e+004



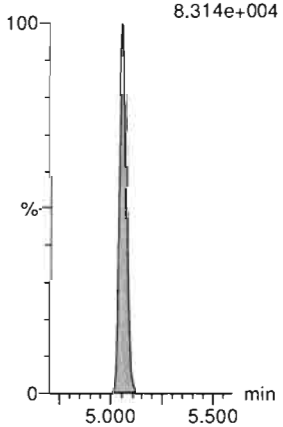
13C2-PFDA-RSD
F45:MRM of 1 channel,ES-
515.1 > 469.9
3.784e+005



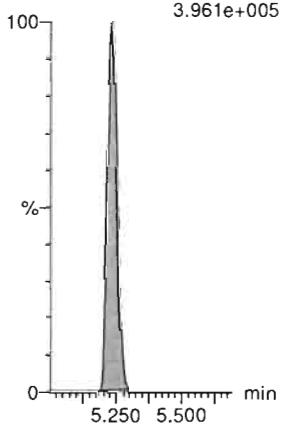
13C2-8:2 FTS-RSD
F50:MRM of 1 channel,ES-
529 > 79.7
2.905e+004



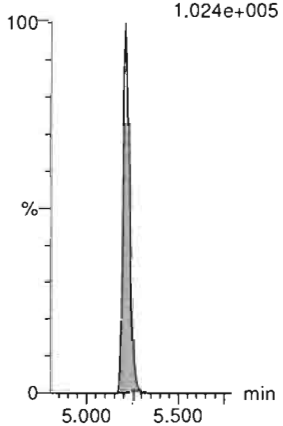
d3-N-MeFOSAA-RSD
F58:MRM of 1 channel,ES-
573.3 > 419
8.314e+004



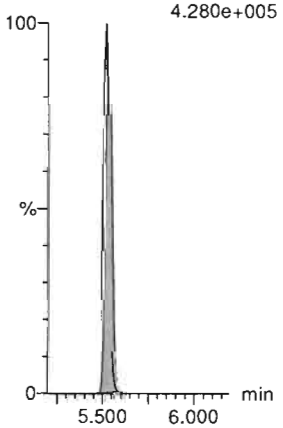
13C2-PFUdA-RSD
F55:MRM of 1 channel,ES-
565 > 519.8
3.961e+005



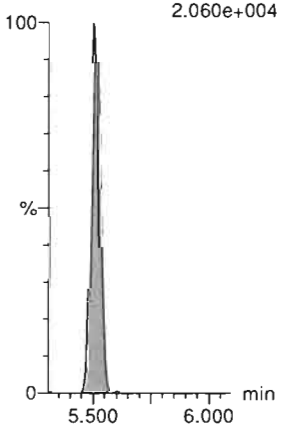
d5-N-EtFOSAA-RSD
F60:MRM of 1 channel,ES-
589.3 > 419
1.024e+005



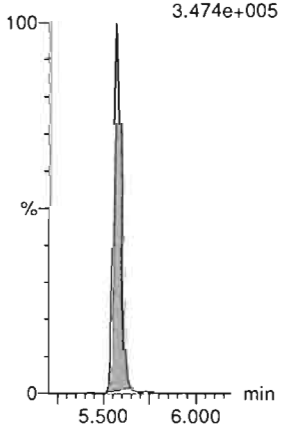
13C2-PFDoA-RSD
F63:MRM of 1 channel,ES-
614.7 > 569.7
4.280e+005



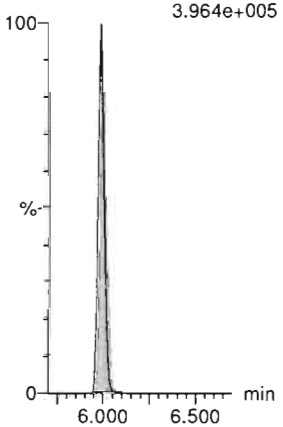
13C2-10:2 FTS-RSD
F69:MRM of 1 channel,ES-
632.9 > 80.0
2.060e+004



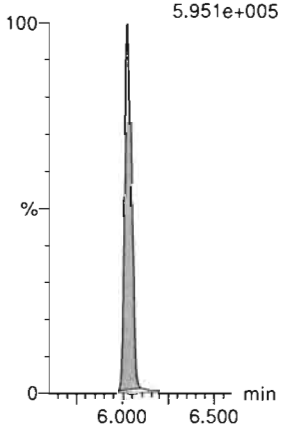
d3-N-MeFOSA-RSD
F46:MRM of 1 channel,ES-
515.2 > 168.9
3.474e+005



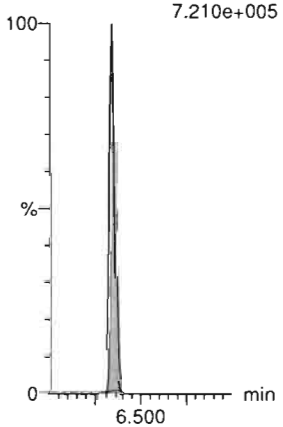
13C2-PFTeDA-RSD
F74:MRM of 2 channels,ES-
715.1 > 669.7
3.964e+005



d5-N-ETFOSA-RSD
F52:MRM of 1 channel,ES-
531.1 > 168.9
5.951e+005



13C2-PFHxDA-RSD
F76:MRM of 1 channel,ES-
815 > 769.7
7.210e+005



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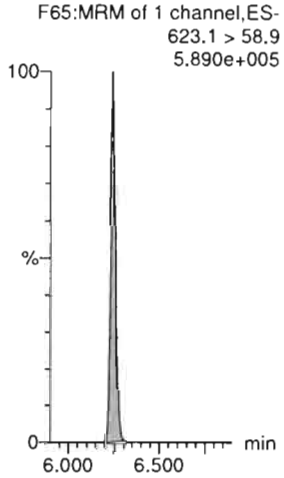
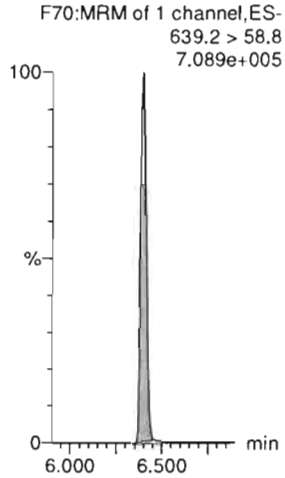
Printed: Friday, March 06, 2020 10:59:09 Pacific Standard Time

Name: 200305P1-14, Date: 05-Mar-2020, Time: 19:31:12, ID: ICV200305P1-1 PFC ICV 20C0314, Description: PFC ICV 20C0314

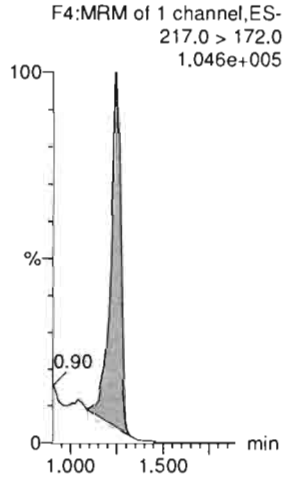
d7-N-MeFOSE-RSD



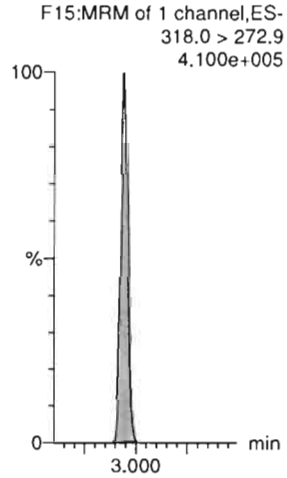
d9-N-EtFOSE-RSD



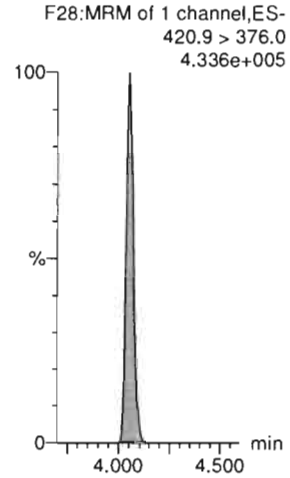
13C4-PFBA



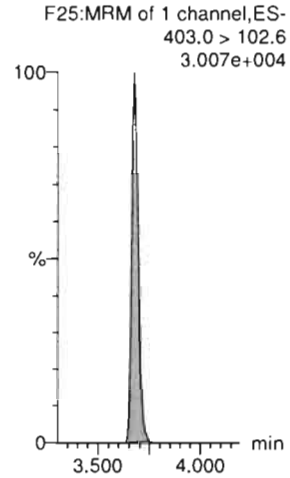
13C5-PFHxA



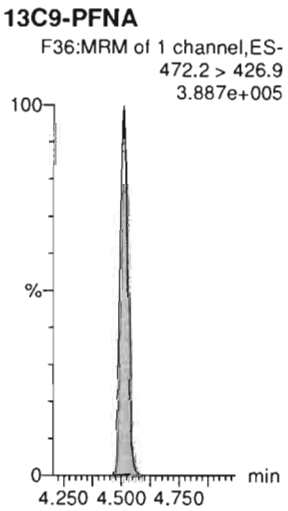
13C8-PFOA



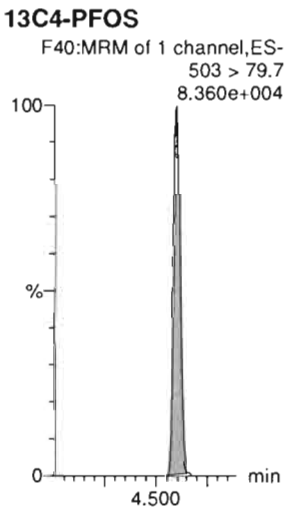
18O2-PFHxS



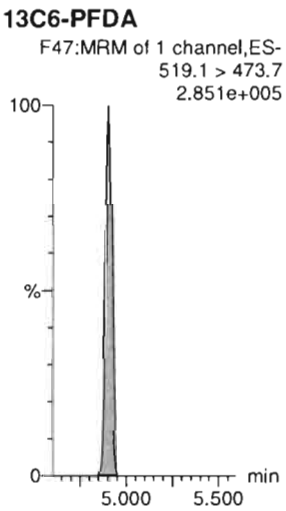
13C9-PFNA



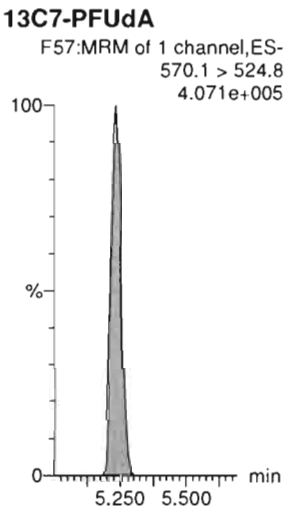
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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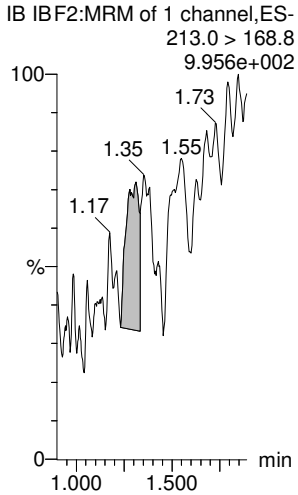
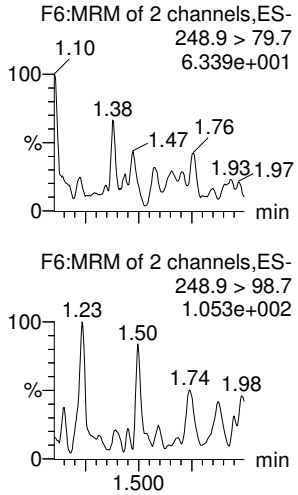
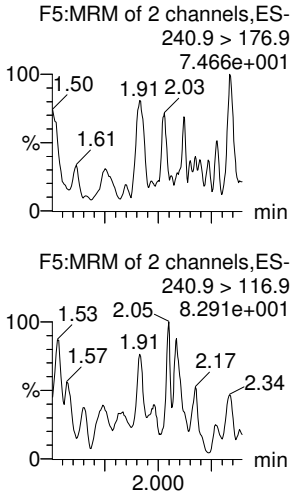
PFBA



PFPrS



3:3 FTCA



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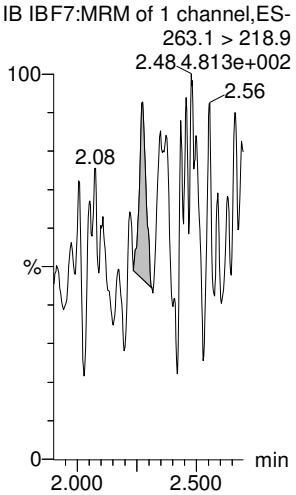
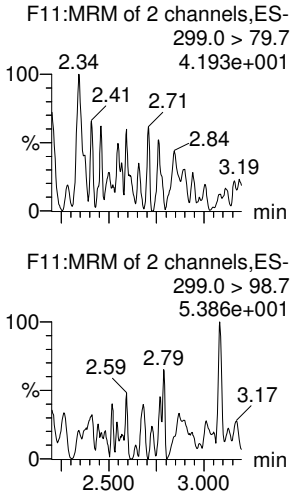
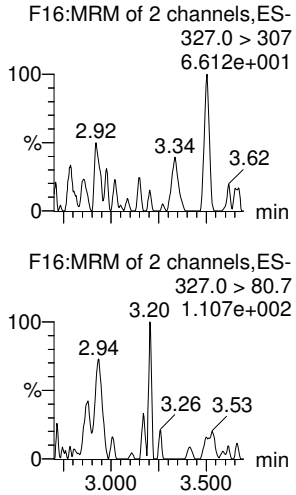


PFBS



4:2 FTS



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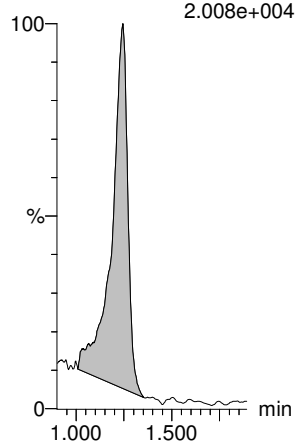

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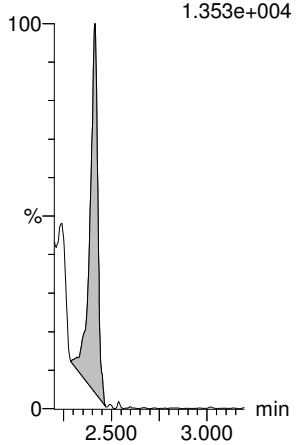

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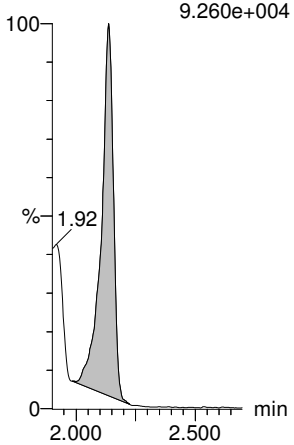

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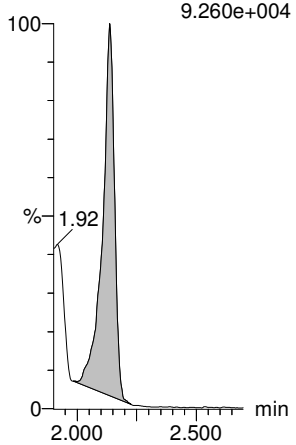

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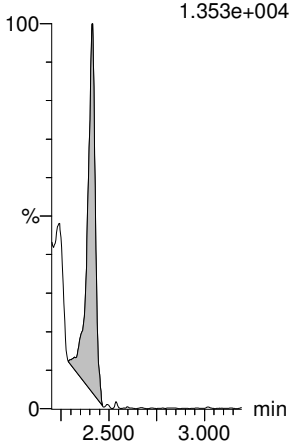

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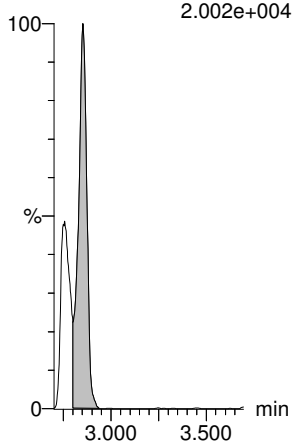

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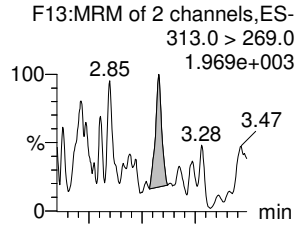
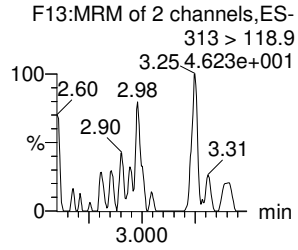
Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

PFHxA





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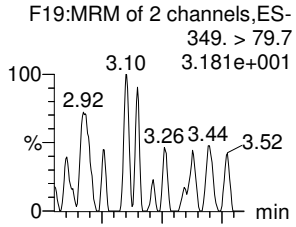

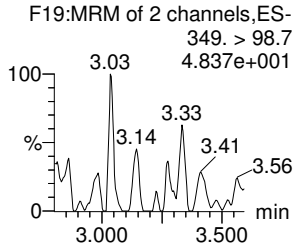

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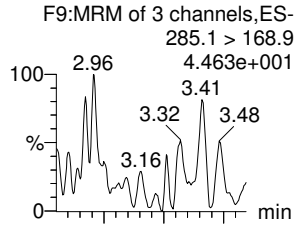

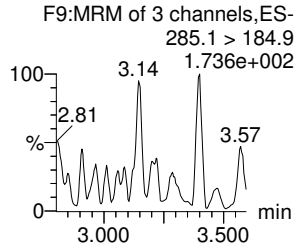

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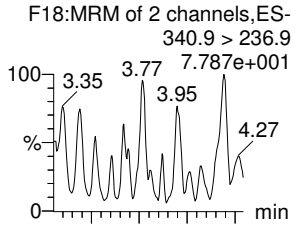

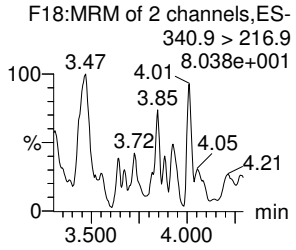

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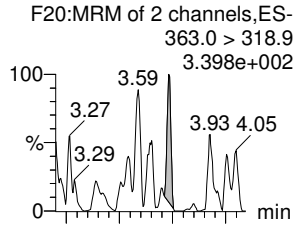

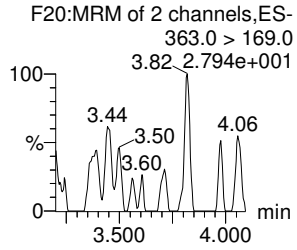

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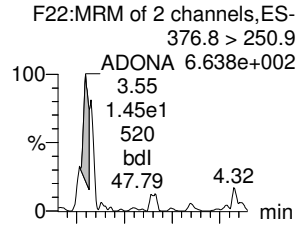

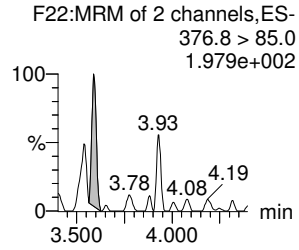

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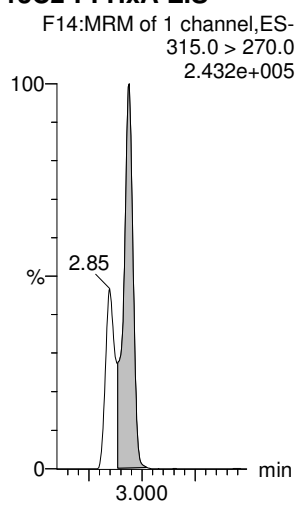

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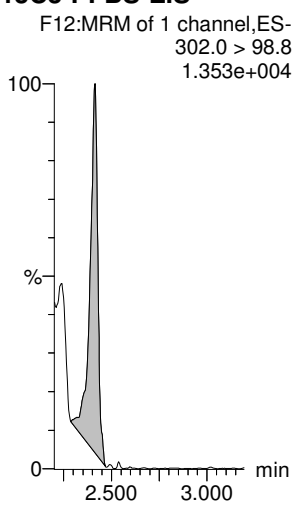

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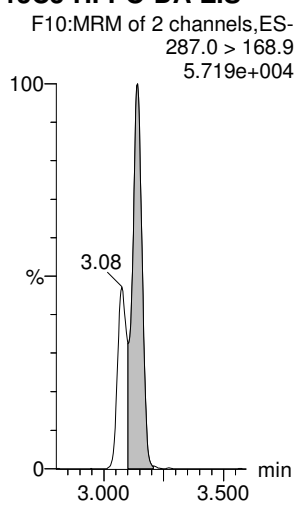

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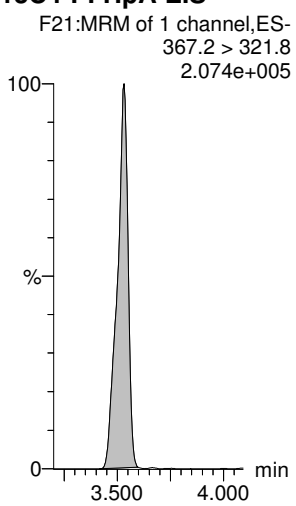

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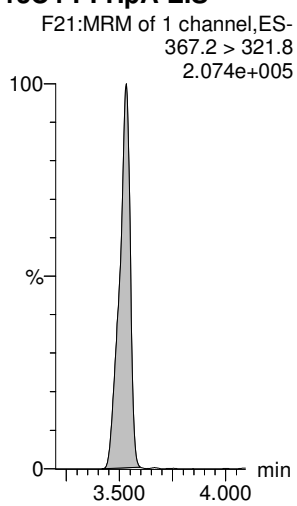

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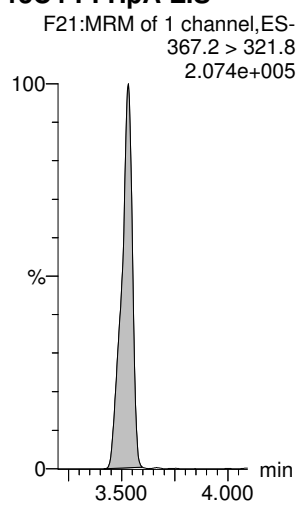

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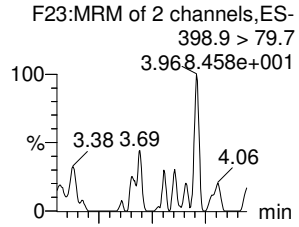
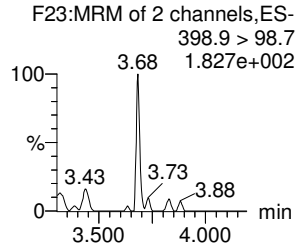
Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

L-PFHxS





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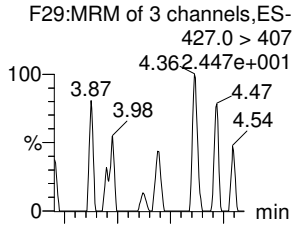

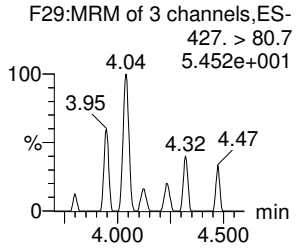

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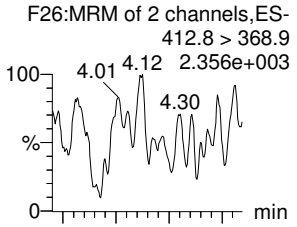

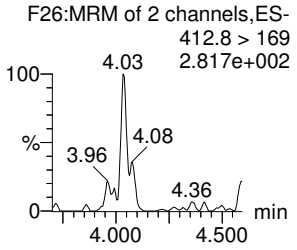

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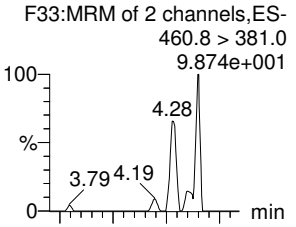

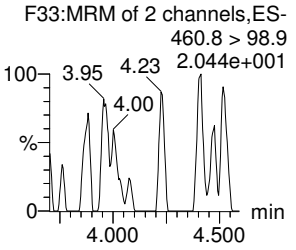

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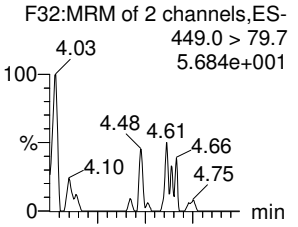

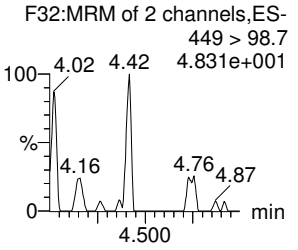

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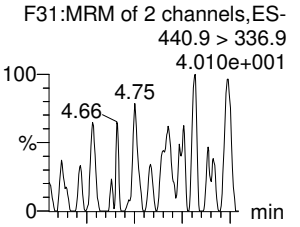

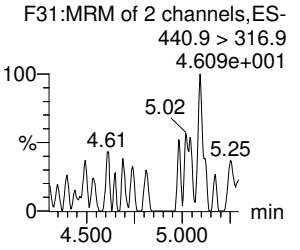

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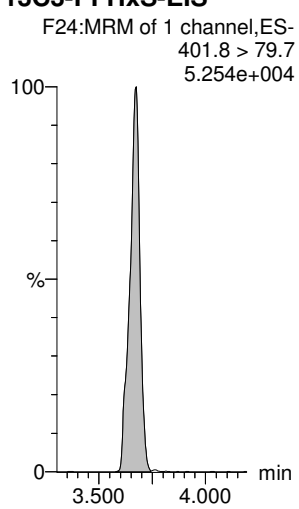

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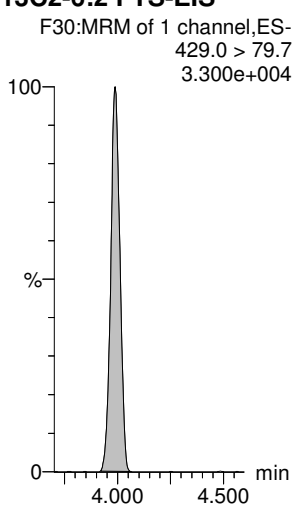

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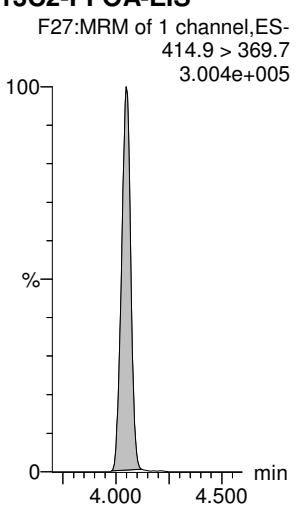

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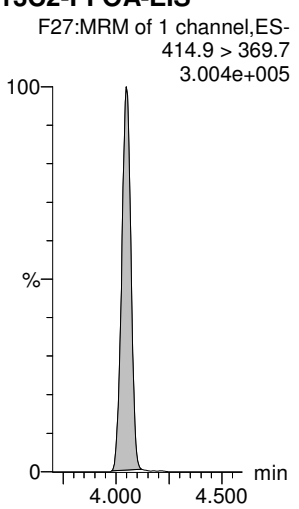

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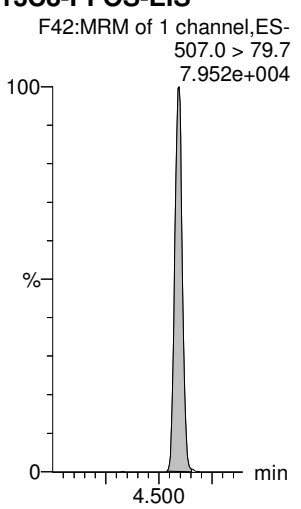

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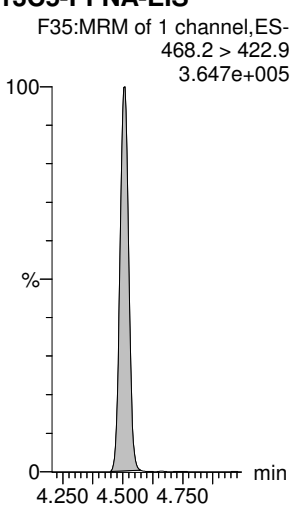

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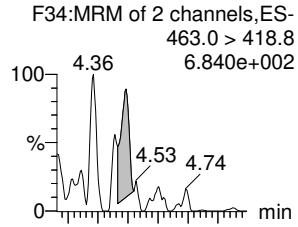

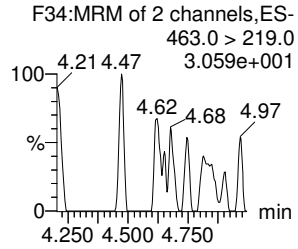

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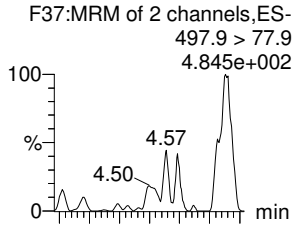
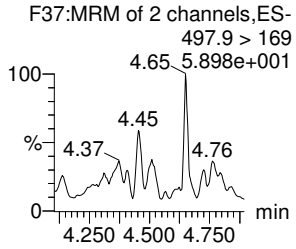
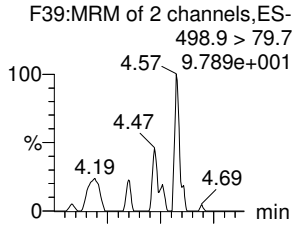
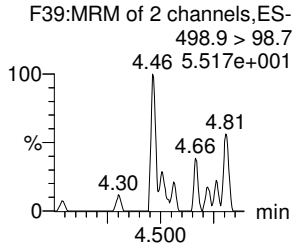




L-PFOS





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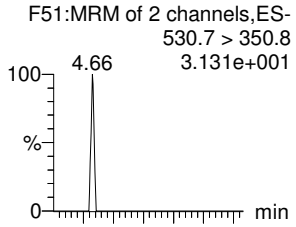

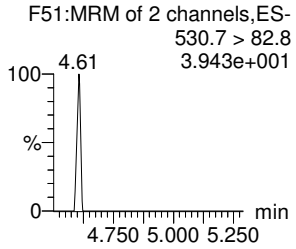

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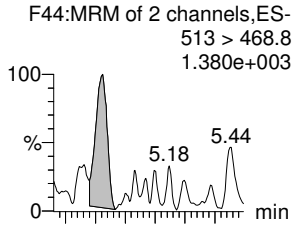

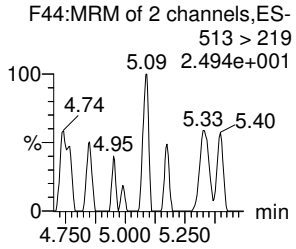

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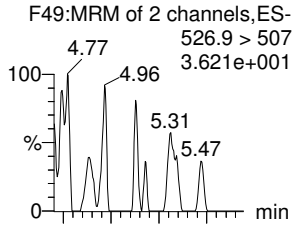
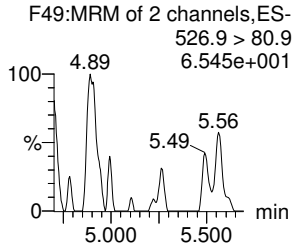
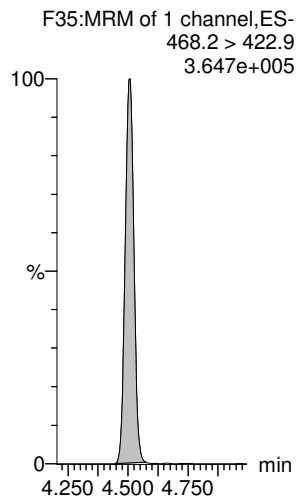
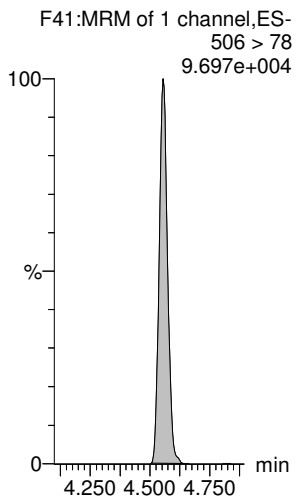




13C5-PFNA-EIS



13C8-PFOSA-EIS



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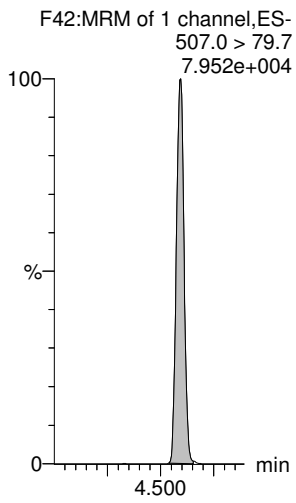

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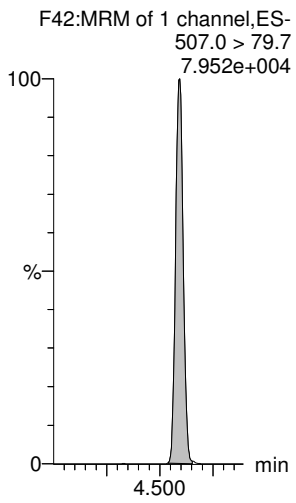

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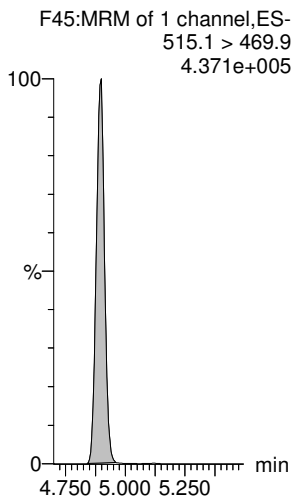

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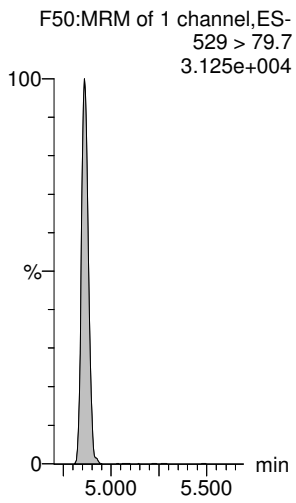

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Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

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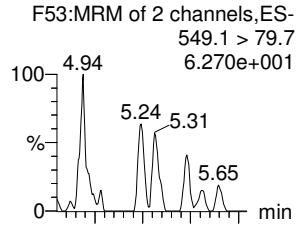
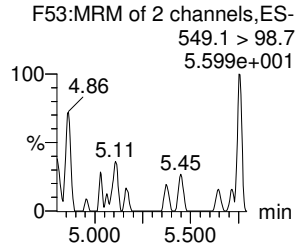
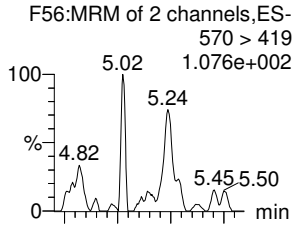
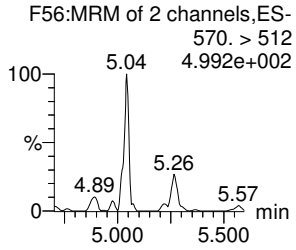




L-MeFOSAA





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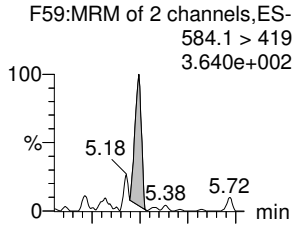

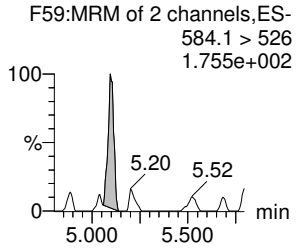

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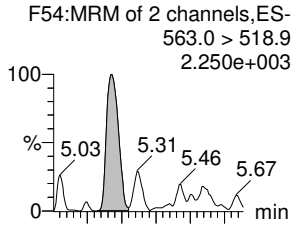

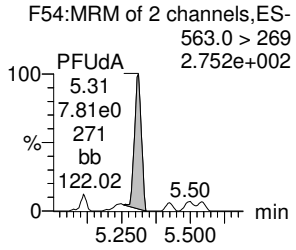

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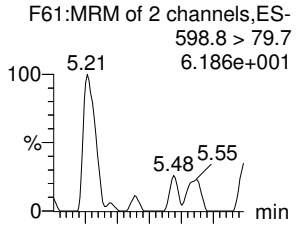

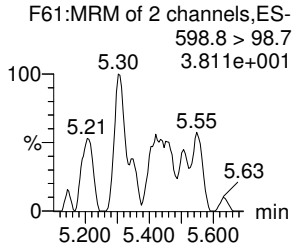

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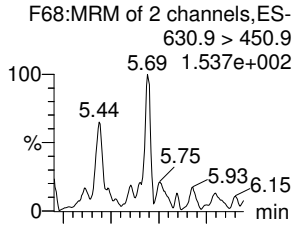

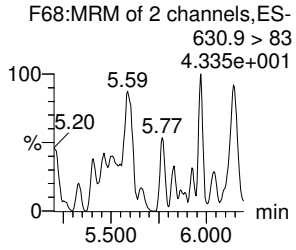

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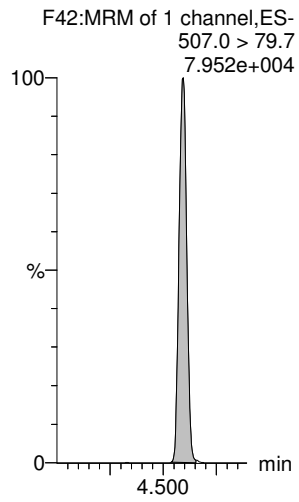
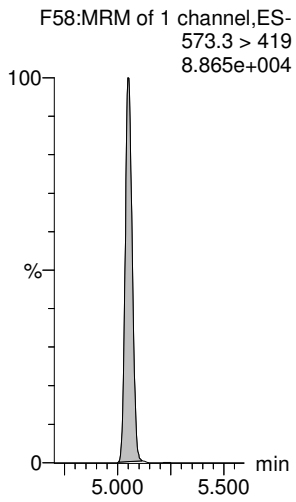


d3-N-MeFOSAA-EIS



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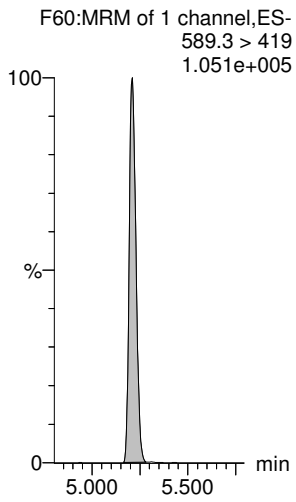

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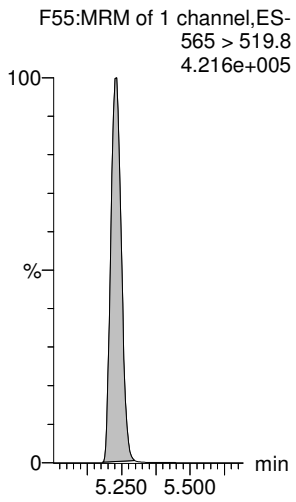

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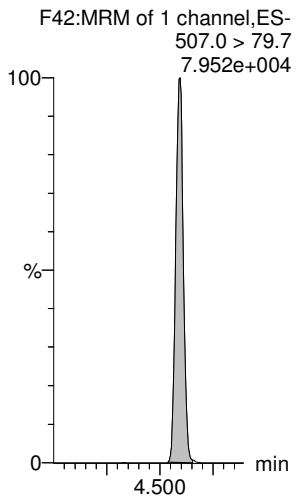

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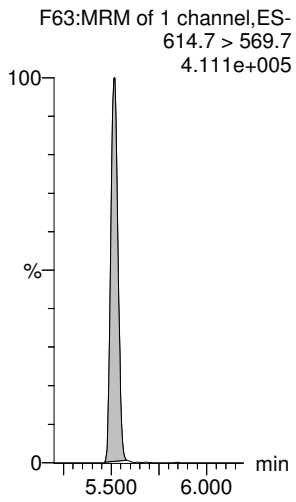

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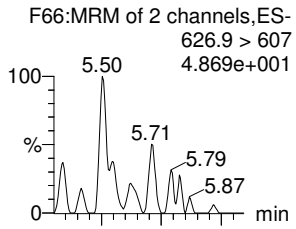
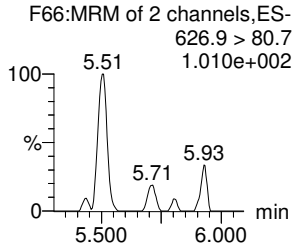
Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

10:2 FTS





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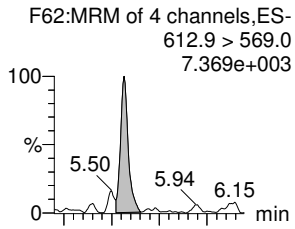

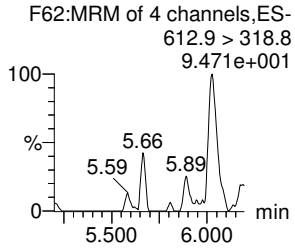

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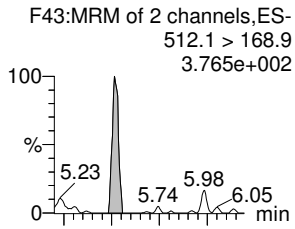

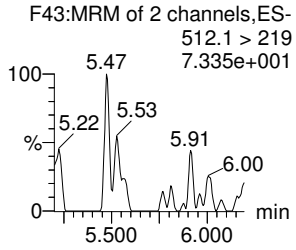

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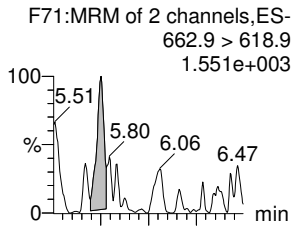

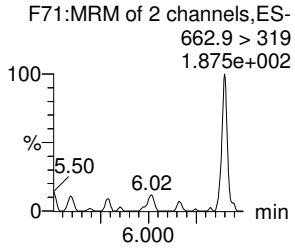

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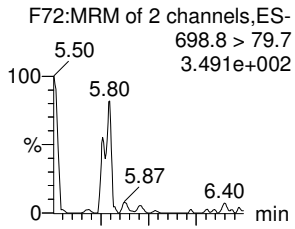

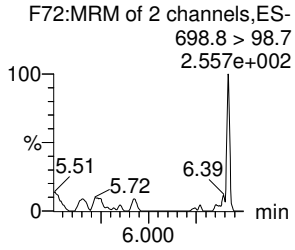

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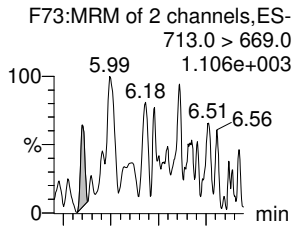
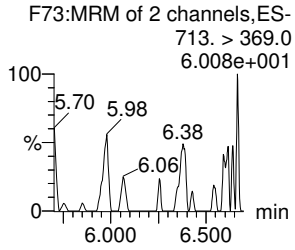
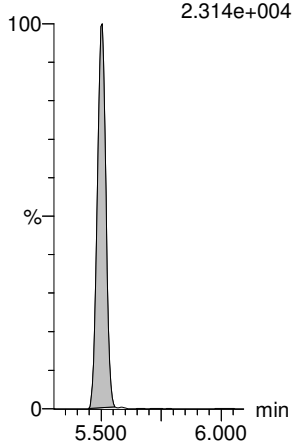
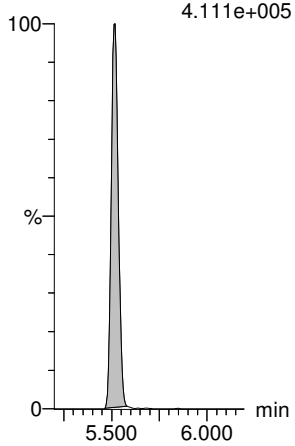




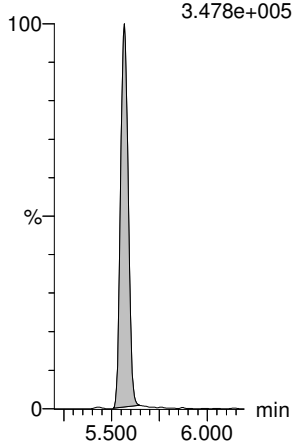
13C2-10:2 FTS-EIS



13C2-PFDoA-EIS



d3-N-MeFOSA-EIS



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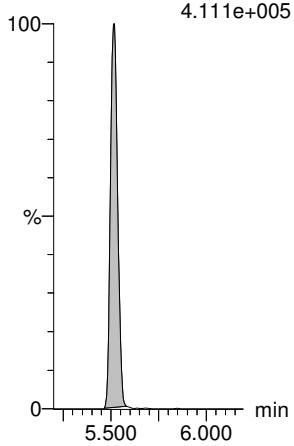

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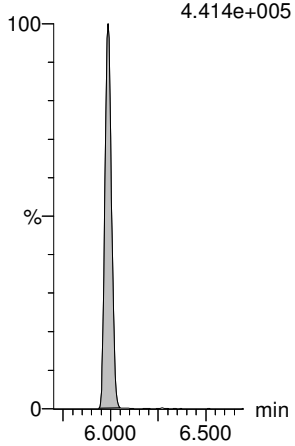

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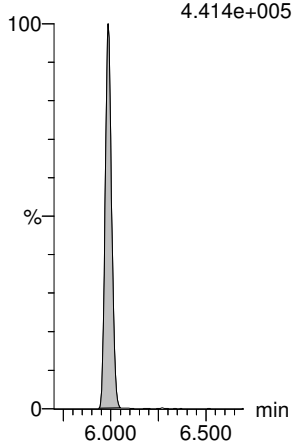

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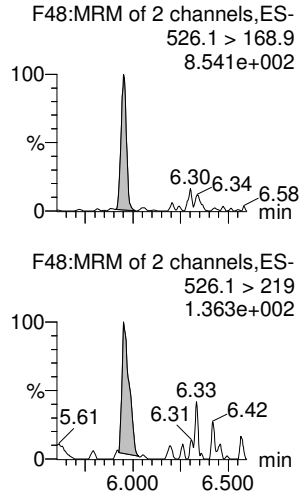
N-EtFOSA



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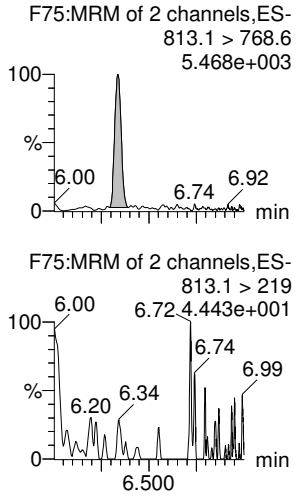

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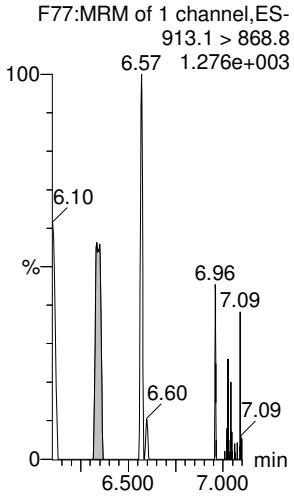

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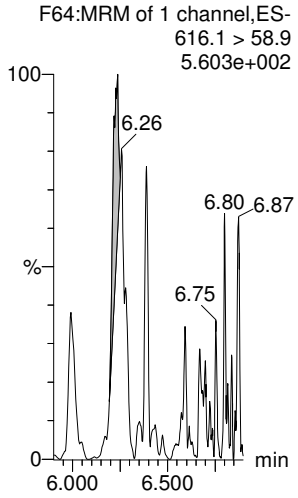

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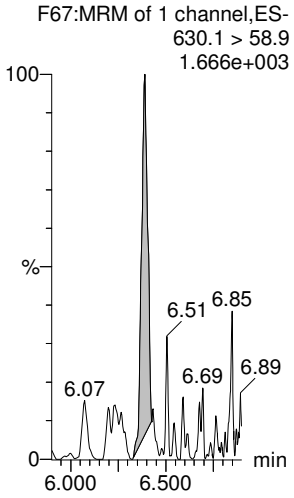
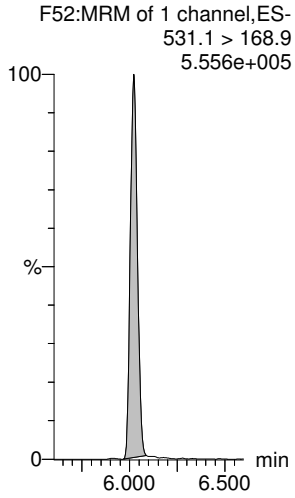


d5-N-ETFOSA-EIS



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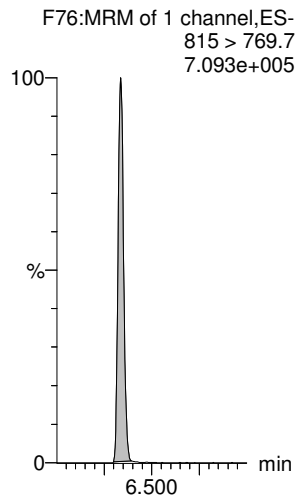

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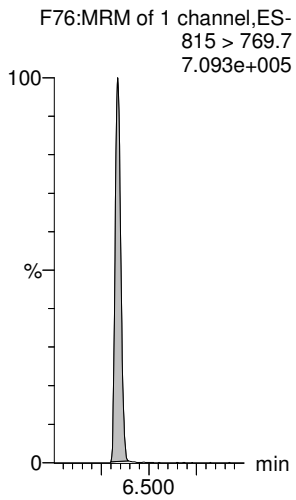

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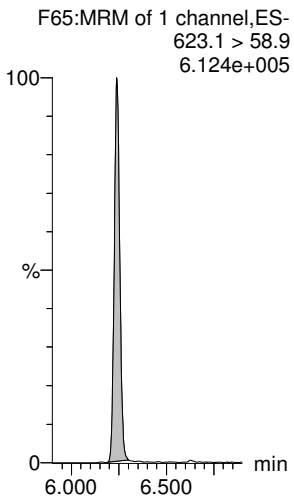

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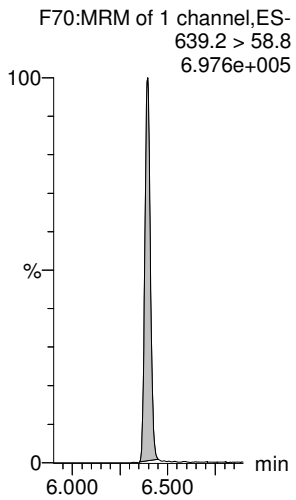
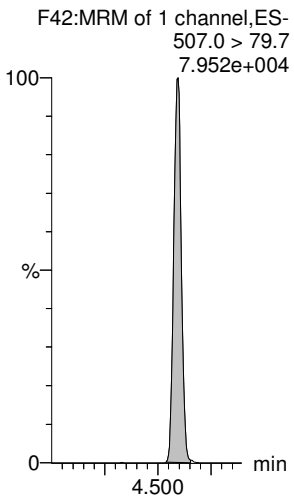


13C8-PFOS-EIS



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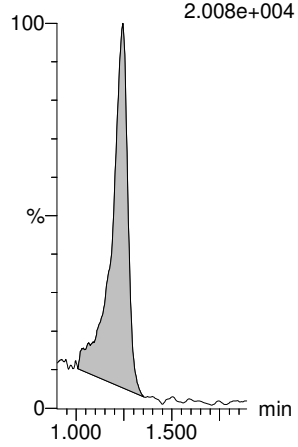
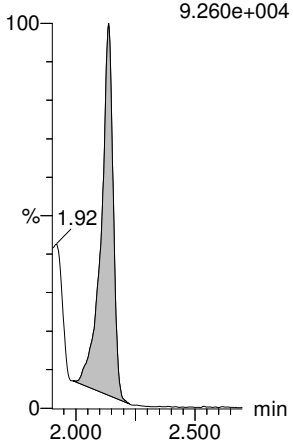
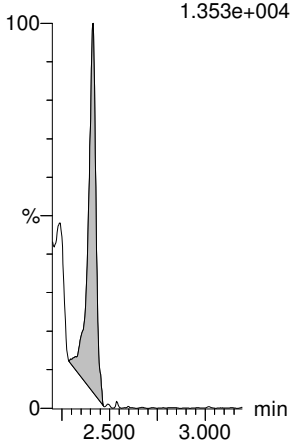
13C3-PFBA-RSD



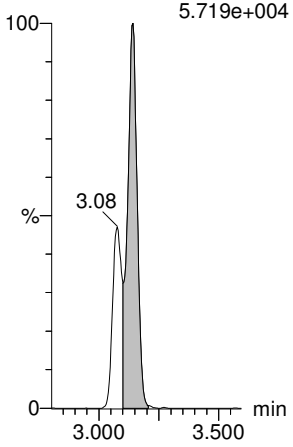
13C3-PFPeA-RSD



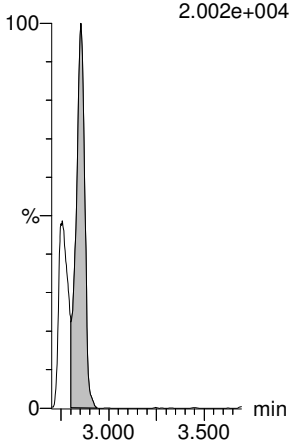
13C3-PFBS-RSD



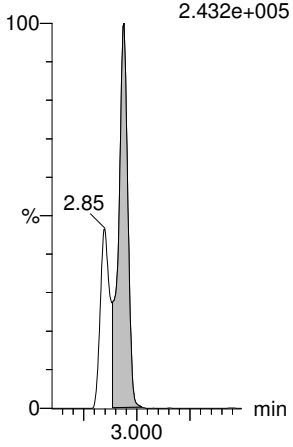
13C3-HFPO-DA-RSD



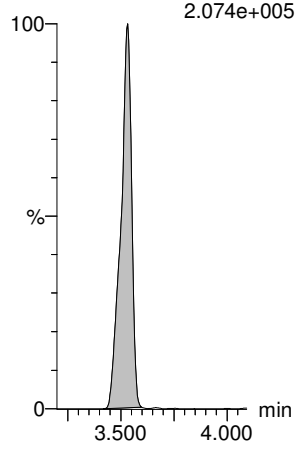
13C2-4:2 FTS-RSD



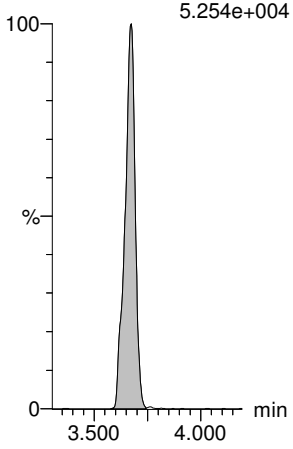
13C2-PFHxA-RSD



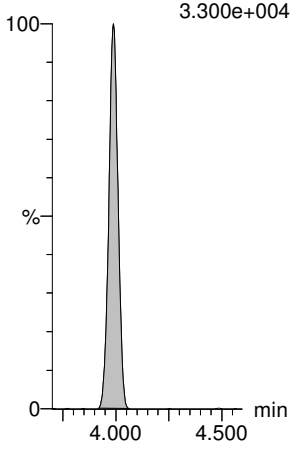
13C4-PFHpA-RSD



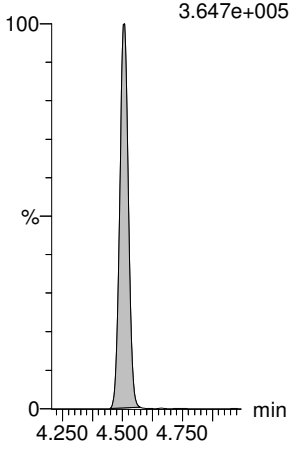
13C3-PFHxS-RSD



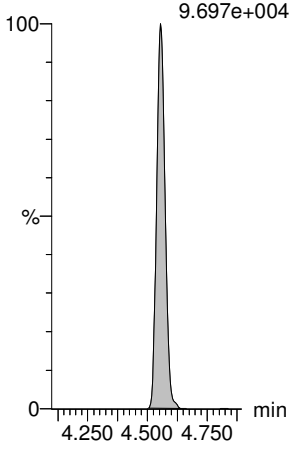
13C2-6:2 FTS-RSD



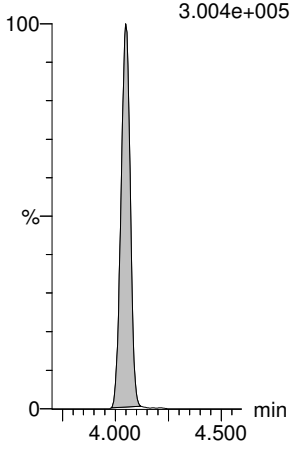
13C5-PFNA-RSD



13C8-PFOSA-RSD



13C2-PFOA-RSD



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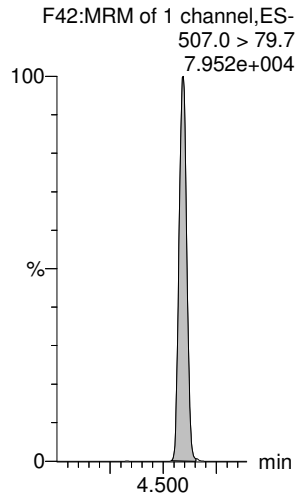
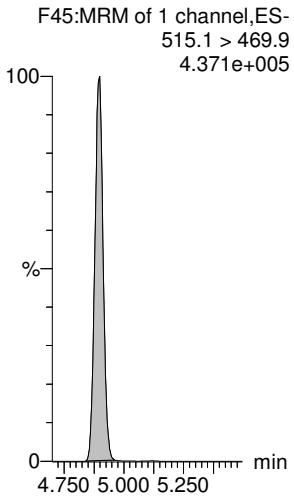
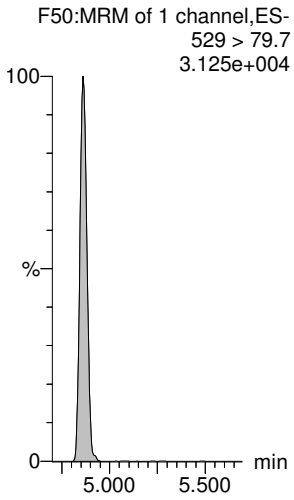
13C8-PFOS-RSD



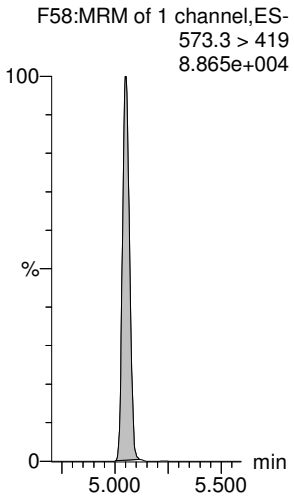
13C2-PFDA-RSD



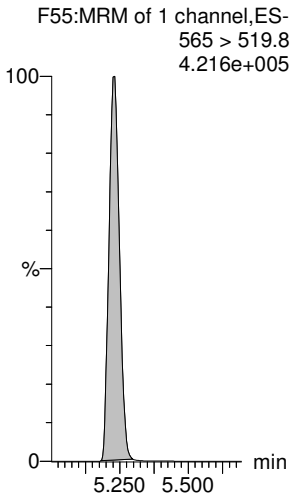
13C2-8:2 FTS-RSD



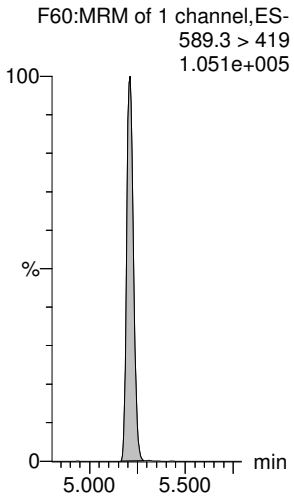
d3-N-MeFOSAA-RSD



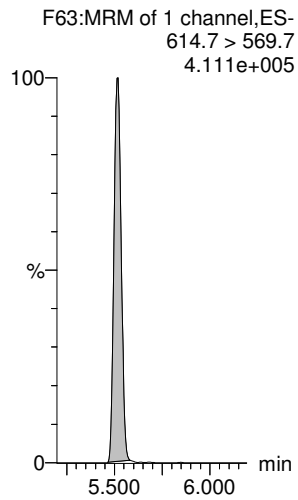
13C2-PFUdA-RSD



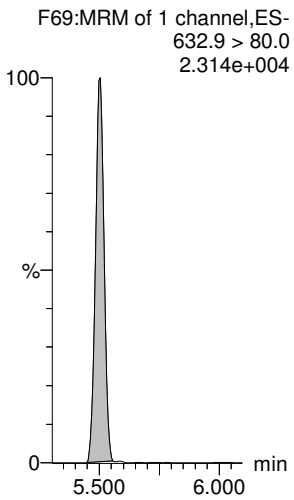
d5-N-EtFOSAA-RSD



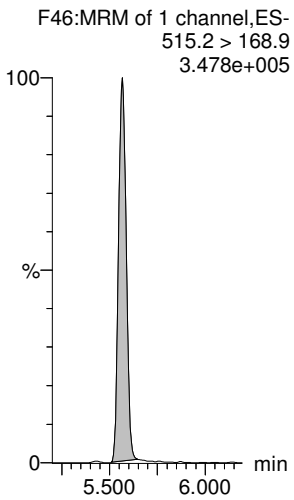
13C2-PFDoA-RSD



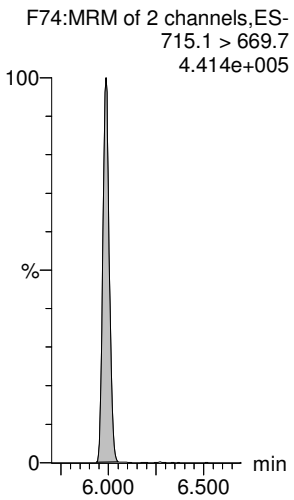
13C2-10:2 FTS-RSD



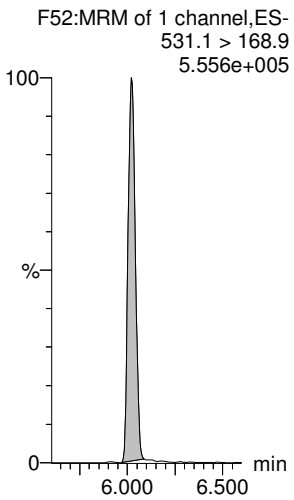
d3-N-MeFOSA-RSD



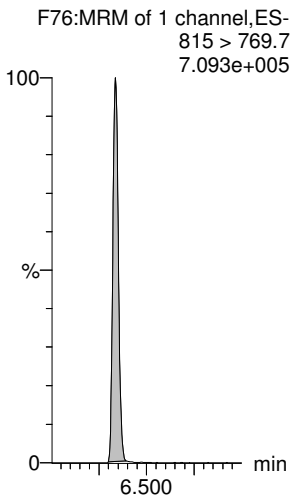
13C2-PFTeDA-RSD



d5-N-ETFOSA-RSD



13C2-PFHxDA-RSD



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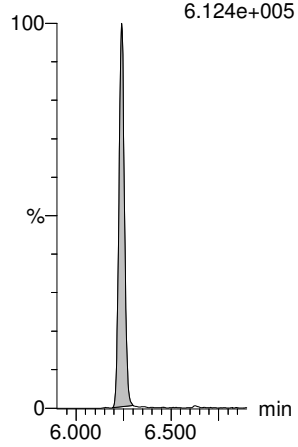
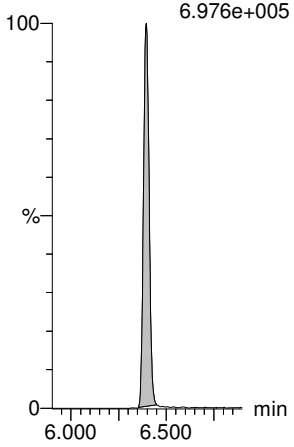
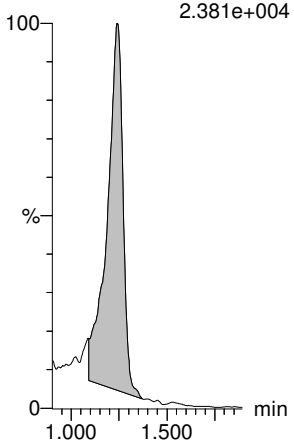
d7-N-MeFOSE-RSD



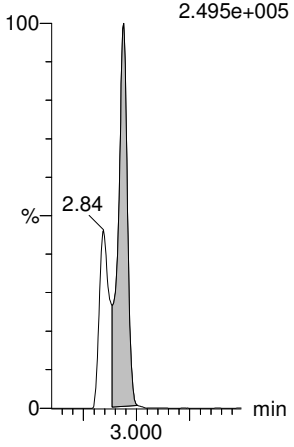
d9-N-EtFOSE-RSD



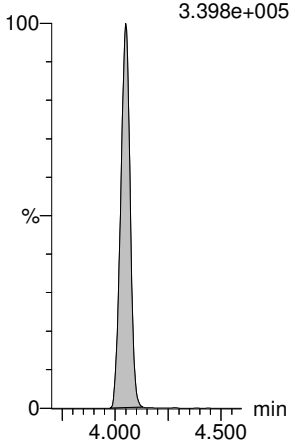
13C4-PFBA



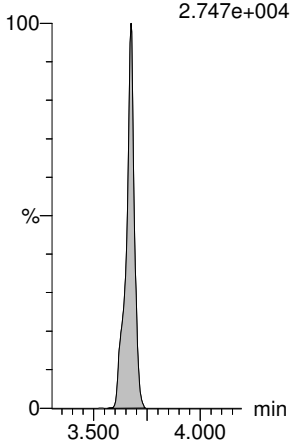
13C5-PFHxA



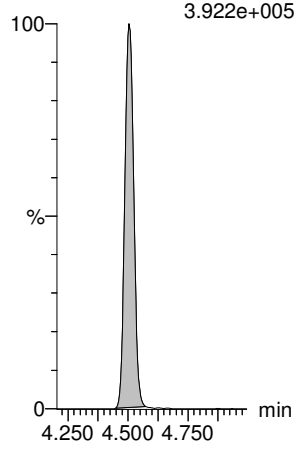
13C8-PFOA



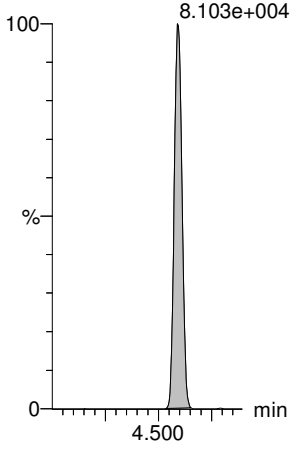
18O2-PFHxS



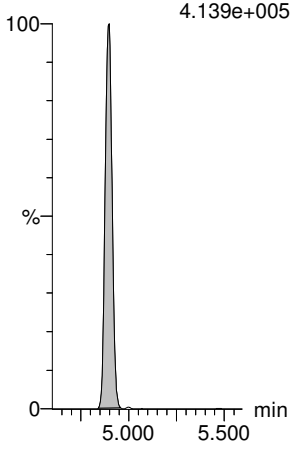
13C9-PFNA



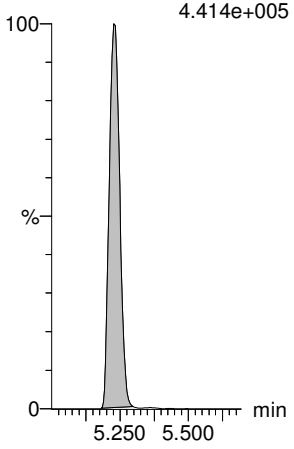
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	29.111	1831.377	1.00	1.31	0.199		0.176		NO		
2	2	PFPrS	248.9 > 79.7		607.640	1.00						NO		YES
3	3	3:3 FTCA	240.9 > 176.9		5217.674	1.00						NO		YES
4	4	PFPeA	263.1 > 218.9	6.990	5217.674	1.00	2.27	0.017		0.0356		NO		
5	5	PFBS	299.0 > 79.7		607.640	1.00						NO		YES
6	6	4:2 FTS	327.0 > 307		1029.634	1.00						NO		YES
7	47	13C3-PFBA-EIS	216.1 > 171.8	1831.377		1.00	1.24	1831.377	12.500	4.35	34.8	YES		
8	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
9	49	13C3-PFPeA-EIS	266.0 > 221.8	5217.674		1.00	2.14	5217.674	12.500	6.21	49.7	YES		
10	49	13C3-PFPeA-EIS	266.0 > 221.8	5217.674		1.00	2.14	5217.674	12.500	6.21	49.7	YES		
11	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
12	55	13C2-4:2 FTS-EIS	329.0 >79.7	1029.634		1.00	2.85	1029.634	12.500	7.20	57.6	NO		
13	-1													
14	7	PFHxA	313.0 > 269.0	54.757	12045.316	1.00	3.08	0.057				NO		YES
15	8	PFPeS	349.>79.7		607.640	1.00						NO		YES
16	9	HFPO-DA	285.1 > 168.9		2633.404	1.00						NO		YES
17	10	5:3 FTCA	340.9 > 236.9		11906.830	1.00						NO		YES
18	11	PFHpA	363.0 > 318.9	6.708	11906.830	1.00	3.73	0.007				NO		YES
19	12	ADONA	376.8 > 250.9	14.516	11906.830	1.00	3.55	0.015				NO	2.882	NO
20	57	13C2-PFHxA-EIS	315.0 > 270.0	12045.316		1.00	2.94	12045.316	12.500	8.37	66.9	NO		
21	51	13C3-PFBS-EIS	302.0 > 98.8	607.640		1.00	2.41	607.640	12.500	6.38	51.0	NO		
22	53	13C3-HFPO-DA-EIS	287.0 > 168.9	2633.404		1.00	3.14	2633.404	12.500	9.21	73.7	NO		
23	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
24	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
25	59	13C4-PFHpA-EIS	367.2 > 321.8	11906.830		1.00	3.53	11906.830	12.500	13.0	103.8	NO		
26	-1													
27	13	L-PFHxS	398.9 > 79.7		2869.090	1.00						NO		YES
28	15	6:2 FTS	427.0 > 407		1633.990	1.00						NO		YES
29	16	L-PFOA	412.8 > 368.9		14846.175	1.00						NO		YES
30	18	PFecHS	460.8 > 381.0		14846.175	1.00						NO		YES
31	19	PFHpS	449.0 > 79.7		3263.038	1.00						NO		YES
32	20	7:3 FTCA	440.9 > 336.9		14884.397	1.00						NO		YES
33	61	13C3-PFHxS-EIS	401.8 > 79.7	2869.090		1.00	3.67	2869.090	12.500	12.5	100.2	NO		
34	63	13C2-6:2 FTS-EIS	429.0 >79.7	1633.990		1.00	3.99	1633.990	12.500	13.5	108.1	NO		
35	69	13C2-PFOA-EIS	414.9 > 369.7	14846.175		1.00	4.05	14846.175	12.500	11.1	88.9	NO		
36	69	13C2-PFOA-EIS	414.9 > 369.7	14846.175		1.00	4.05	14846.175	12.500	11.1	88.9	NO		

Dataset: Untitled

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	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
38	65	13C5-PFNA-EIS	468.2 > 422.9	14884.397		1.00	4.51	14884.397	12.500	12.2	97.7	NO		
39	-1													
40	21	PFNA	463.0 > 418.8	21.571	14884.397	1.00	4.49	0.018				NO		YES
41	22	PFOSA	497.9 > 77.9		3904.180	1.00						NO		YES
42	23	L-PFOS	498.9 > 79.7		3263.038	1.00						NO		YES
43	25	9Cl-PF30NS	530.7 > 350.8		3263.038	1.00						NO		YES
44	26	PFDA	513 > 468.8	75.694	17202.359	1.00	4.91	0.055				NO		YES
45	27	8:2 FTS	526.9 > 507		1292.168	1.00						NO		YES
46	65	13C5-PFNA-EIS	468.2 > 422.9	14884.397		1.00	4.51	14884.397	12.500	12.2	97.7	NO		
47	67	13C8-PFOSA-EIS	506 > 78	3904.180		1.00	4.55	3904.180	12.500	13.1	104.7	NO		
48	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
49	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
50	73	13C2-PFDA-EIS	515.1 > 469.9	17202.359		1.00	4.90	17202.359	12.500	12.7	101.5	NO		
51	75	13C2-8:2 FTS-EIS	529 > 79.7	1292.168		1.00	4.86	1292.168	12.500	13.9	111.0	NO		
52	-1													
53	28	PFNS	549.1 > 79.7		3263.038	1.00						NO		YES
54	29	L-MeFOSAA	570 > 419		3328.883	1.00						NO		YES
55	31	L-EtFOSAA	584.1 > 419	13.260	4289.195	1.00	5.24	0.039		0.107		NO	2.293	YES
56	33	PFUdA	563.0 > 518.9	113.073	18411.305	1.00	5.22	0.077				NO	14.480	NO
57	34	PFDS	598.8 > 79.7		3263.038	1.00						NO		YES
58	35	11Cl-PF30UdS	630.9 > 450.9		17492.939	1.00						NO		YES
59	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
60	77	d3-N-MeFOSAA-EIS	573.3 > 419	3328.883		1.00	5.05	3328.883	12.500	12.1	96.9	NO		
61	81	d5-N-EtFOSAA-EIS	589.3 > 419	4289.195		1.00	5.21	4289.195	12.500	11.9	95.1	NO		
62	79	13C2-PFUdA-EIS	565 > 519.8	18411.305		1.00	5.23	18411.305	12.500	11.8	94.3	NO		
63	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
64	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
65	-1													
66	36	10:2 FTS	626.9 > 607		932.763	1.00						NO		YES
67	37	PFDoA	612.9 > 569.0	343.334	17492.939	1.00	5.56	0.245		0.134		NO		YES
68	38	N-MeFOSA	512.1 > 168.9	14.066	15696.229	1.00	5.51	0.134		0.197		NO		YES
69	39	PFTrDA	662.9 > 618.9	64.990	17492.939	1.00	5.75	0.046		0.0189		NO		YES
70	40	PFDoS	698.8 > 79.7		17201.430	1.00						NO		YES
71	41	PFTeDA	713.0 > 669.0	17.200	17201.430	1.00	5.85	0.012				NO		YES
72	85	13C2-10:2 FTS-EIS	632.9 > 80.0	932.763		1.00	5.50	932.763	12.500	12.9	103.5	NO		

Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
Printed: Friday, March 06, 2020 10:11:16 Pacific Standard Time

Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
74	87	d3-N-MeFOSA-EIS	515.2 > 168.9	15696.229		1.00	5.57	15696.229	149.200	150	100.8	NO		
75	83	13C2-PFDoA-EIS	614.7 > 569.7	17492.939		1.00	5.52	17492.939	12.500	12.5	100.2	NO		
76	89	13C2-PFTeDA-EIS	715.1 > 669.7	17201.430		1.00	5.99	17201.430	12.500	12.1	97.1	NO		
77	89	13C2-PFTeDA-EIS	715.1 > 669.7	17201.430		1.00	5.99	17201.430	12.500	12.1	97.1	NO		
78	-1													
79	42	N-EtFOSA	526.1 > 168.9	28.134	23800.125	1.00	5.95	0.176		0.300		NO	4.965	YES
80	43	PFHxDA	813.1 > 768.6	202.866	23536.213	1.00	6.34	0.108		0.0280		NO		YES
81	44	PFODA	913.1 > 868.8	23.438	23536.213	1.00	6.33	0.012		0.0503		NO		
82	45	N-MeFOSE	616.1 > 58.9	8.540	20512.158	1.00	6.24	0.062				NO		
83	46	N-EtFOSE	630.1 > 58.9	55.820	23232.611	1.00	6.39	0.358		0.367		NO		
84	91	d5-N-ETFOSA-EIS	531.1 > 168.9	23800.125		1.00	6.02	23800.125	149.200	144	96.4	NO		
85	93	13C2-PFHxDA-EIS	815 > 769.7	23536.213		1.00	6.34	23536.213	12.500	11.7	94.0	NO		
86	93	13C2-PFHxDA-EIS	815 > 769.7	23536.213		1.00	6.34	23536.213	12.500	11.7	94.0	NO		
87	95	d7-N-MeFOSE-EIS	623.1 > 58.9	20512.158		1.00	6.24	20512.158	149.200	145	97.4	NO		
88	97	d9-N-EtFOSE-EIS	639.2 > 58.8	23232.611		1.00	6.40	23232.611	149.200	150	100.6	NO		
89	71	13C8-PFOS-EIS	507.0 > 79.7	3263.038		1.00	4.59	3263.038	12.500	13.0	103.7	NO		
90	-1													
91	48	13C3-PFBA-RSD	216.1 > 171.8	1831.377	2173.353	1.00	1.24	10.533	12.500	12.7	101.8	NO		
92	50	13C3-PFPeA-RSD	266.0 > 221.8	5204.739	12222.181	1.00	2.14	5.323	12.500	8.79	70.3	NO		
93	52	13C3-PFBS-RSD	302.0 > 98.8	607.640	1204.682	1.00	2.41	6.305	12.500	6.22	49.7	YES		
94	54	13C3-HFPO-DA-RSD	287.0 > 168.9	2633.404	12222.181	1.00	3.14	2.693	12.500	12.5	100.1	NO		
95	56	13C2-4:2 FTS-RSD	329.0 >79.7	1029.634	1204.682	1.00	2.85	10.684	12.500	7.55	60.4	NO		
96	58	13C2-PFHxA-RSD	315.0 > 270.0	12045.316	12222.181	1.00	2.94	12.319	12.500	12.0	95.7	NO		
97	60	13C4-PFHpA-RSD	367.2 > 321.8	11906.830	12222.181	1.00	3.53	12.177	12.500	18.8	150.5	YES		
98	62	13C3-PFHxS-RSD	401.8 > 79.7	2869.090	1204.682	1.00	3.67	29.770	12.500	12.3	98.4	NO		
99	64	13C2-6:2 FTS-RSD	429.0 >79.7	1633.990	3431.200	1.00	3.99	5.953	12.500	12.6	100.8	NO		
100	66	13C5-PFNA-RSD	468.2 > 422.9	14884.397	16425.949	1.00	4.51	11.327	12.500	11.9	95.6	NO		
101	68	13C8-PFOSA-RSD	506 > 78	3904.180	19339.689	1.00	4.55	2.523	12.500	12.5	99.7	NO		
102	70	13C2-PFOA-RSD	414.9 > 369.7	14846.175	17439.412	1.00	4.05	10.641	12.500	12.0	96.0	NO		
103	-1													
104	72	13C8-PFOS-RSD	507.0 > 79.7	3263.038	3431.200	1.00	4.59	11.887	12.500	12.4	99.2	NO		
105	74	13C2-PFDA-RSD	515.1 > 469.9	17202.359	16780.320	1.00	4.90	12.814	12.500	11.6	93.1	NO		
106	76	13C2-8:2 FTS-RSD	529 > 79.7	1292.168	3431.200	1.00	4.86	4.707	12.500	12.3	98.6	NO		
107	78	d3-N-MeFOSAA-RSD	573.3 > 419	3328.883	19339.689	1.00	5.05	2.152	12.500	12.0	95.8	NO		
108	80	13C2-PFUdA-RSD	565 > 519.8	18411.305	19339.689	1.00	5.23	11.900	12.500	11.6	93.2	NO		

Dataset: Untitled

Last Altered: Friday, March 06, 2020 10:10:57 Pacific Standard Time
Printed: Friday, March 06, 2020 10:11:16 Pacific Standard Time

Name: 200305P1-13, Date: 05-Mar-2020, Time: 19:20:42, ID: IB, Description: IB

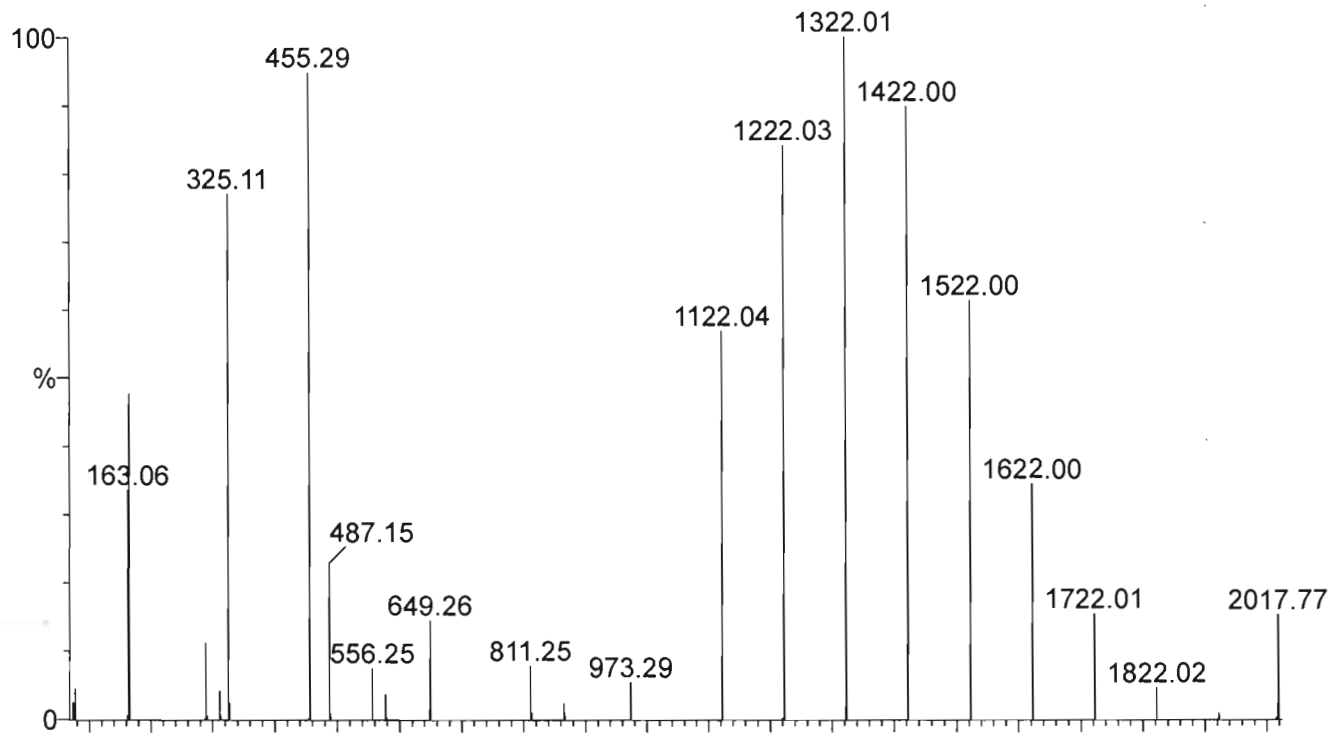
	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Std. Conc	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
109	82	d5-N-EtFOSAA-RSD	589.3 > 419	4289.195	19339.689	1.00	5.21	2.772	12.500	12.3	98.4	NO		
110	84	13C2-PFDoA-RSD	614.7 > 569.7	17492.939	16780.320	1.00	5.52	13.031	12.500	11.2	89.6	NO		
111	86	13C2-10:2 FTS-RSD	632.9 > 80.0	932.763	3431.200	1.00	5.50	3.398	12.500	11.8	94.6	NO		
112	88	d3-N-MeFOSA-RSD	515.2 > 168.9	15696.229	19339.689	1.00	5.57	10.145	149.200	140	93.7	NO		
113	90	13C2-PFTeDA-RSD	715.1 > 669.7	17201.430	19339.689	1.00	5.99	11.118	12.500	11.5	91.7	NO		
114	92	d5-N-ETFOSA-RSD	531.1 > 168.9	23800.125	19339.689	1.00	6.02	15.383	149.200	136	91.2	NO		
115	94	13C2-PFHxDA-RSD	815 > 769.7	23536.213	19339.689	1.00	6.34	15.212	12.500	10.9	87.6	NO		
116	-1													
117	96	d7-N-MeFOSE-RSD	623.1 > 58.9	20512.158	19339.689	1.00	6.24	13.258	149.200	140	93.9	NO		
118	98	d9-N-EtFOSE-RSD	639.2 > 58.8	23232.611	19339.689	1.00	6.40	15.016	149.200	136	90.9	NO		
119	99	13C4-PFBA	217.0 > 172.0	2173.353	2173.353	1.00	1.24	12.500	12.500	12.5	100.0	NO		
120	1...	13C5-PFHxA	318.0 > 272.9	12222.181	12222.181	1.00	2.94	12.500	12.500	12.5	100.0	NO		
121	1...	13C8-PFOA	420.9 > 376.0	17439.412	17439.412	1.00	4.05	12.500	12.500	12.5	100.0	NO		
122	1...	18O2-PFHxS	403.0 > 102.6	1204.682	1204.682	1.00	3.67	12.500	12.500	12.5	100.0	NO		
123	1...	13C9-PFNA	472.2 > 426.9	16425.949	16425.949	1.00	4.50	12.500	12.500	12.5	100.0	NO		
124	1...	13C4-PFOS	503 > 79.7	3431.200	3431.200	1.00	4.59	12.500	12.500	12.5	100.0	NO		
125	1...	13C6-PFDA	519.1 > 473.7	16780.320	16780.320	1.00	4.90	12.500	12.500	12.5	100.0	NO		
126	1...	13C7-PFUdA	570.1 > 524.8	19339.689	19339.689	1.00	5.23	12.500	12.500	12.5	100.0	NO		

TUNE CHECKS

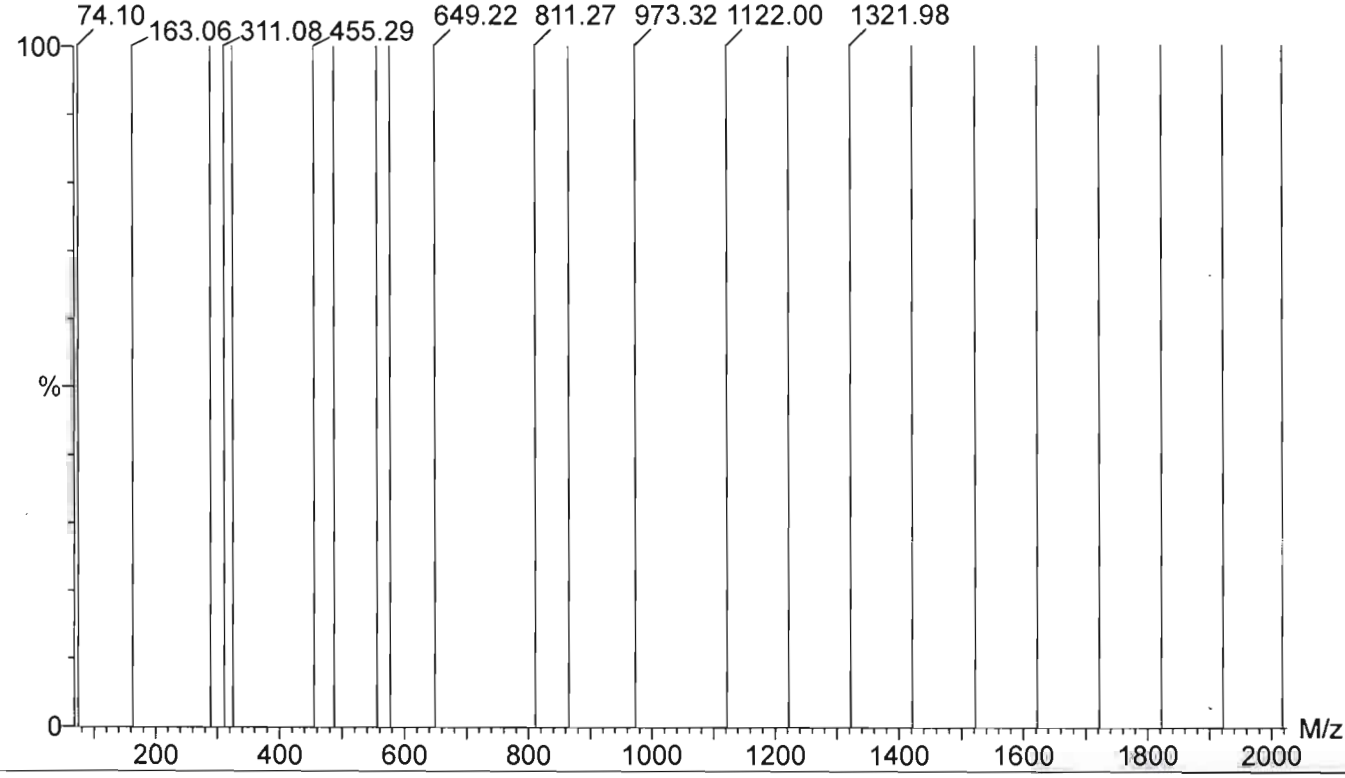
Calibration Verification Report - MS1 Static 20200303 **Page 1 of 6**

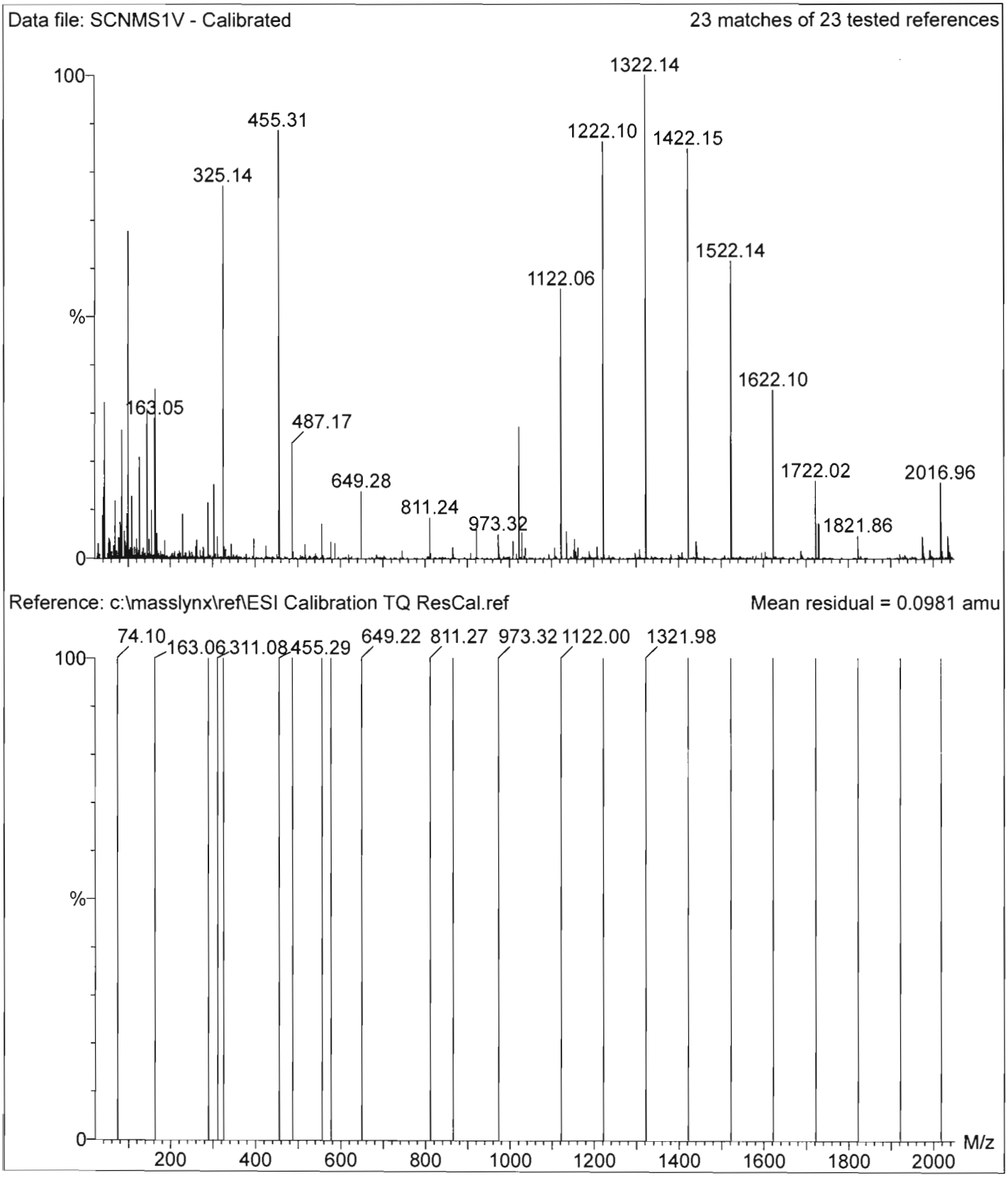
Printed: **Wed Mar 04 14:00:38 2020**

Data file: STATMS1V - Calibrated 23 matches of 23 tested references

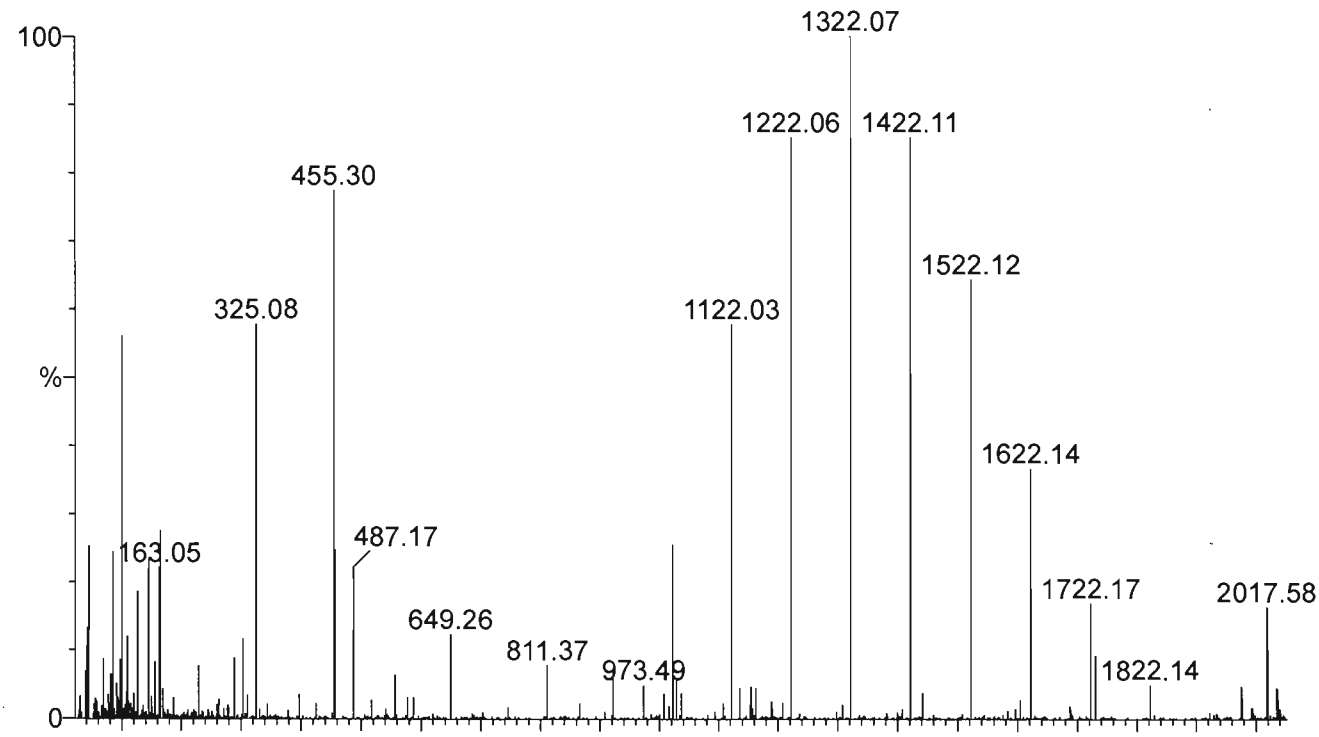


Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0375 amu




Data file: SCNMS1V - Calibrated
23 matches of 23 tested references
100
%
0
1322.14
455.31
1222.10
1422.15
325.14
1522.14
1122.06
1622.10
163.05
487.17
1722.02
2016.96
649.28
811.24
973.32
1821.86
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref
Mean residual = 0.0981 amu
74.10
163.06
311.08
455.29
649.22
811.27
973.32
1122.00
1321.98
100
%
0
200
400
600
800
1000
1200
1400
1600
1800
2000
M/z

Data file: FASTMS1V - Calibrated 23 matches of 23 tested references



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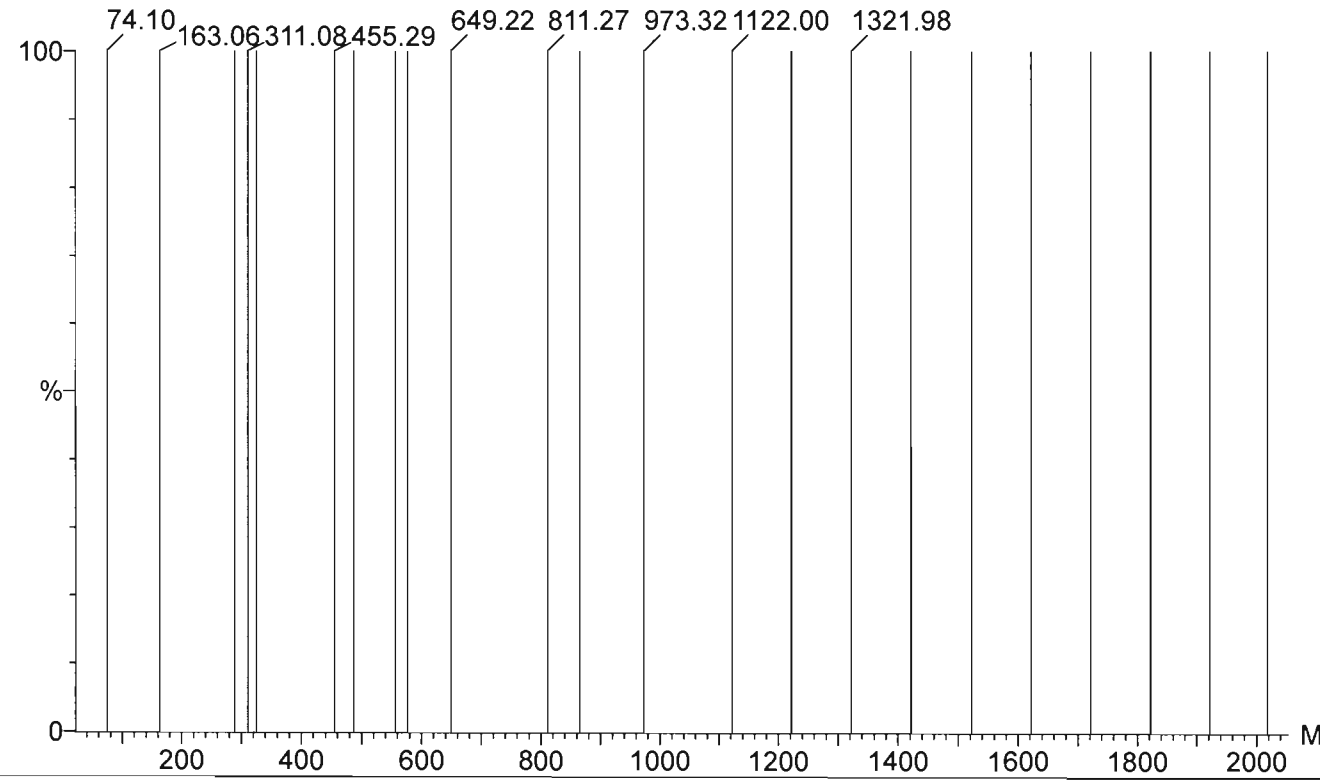
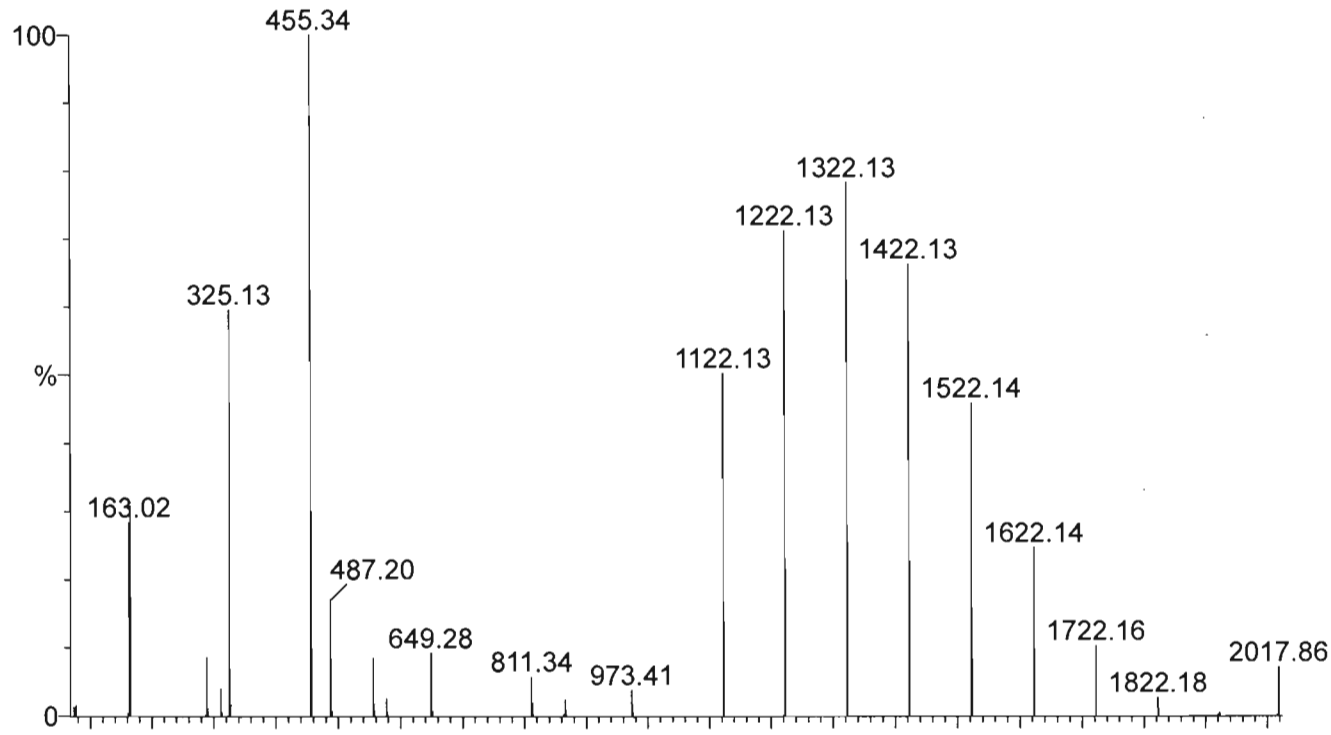


Data file: STATMS2V - Calibrated 22 matches of 23 tested references



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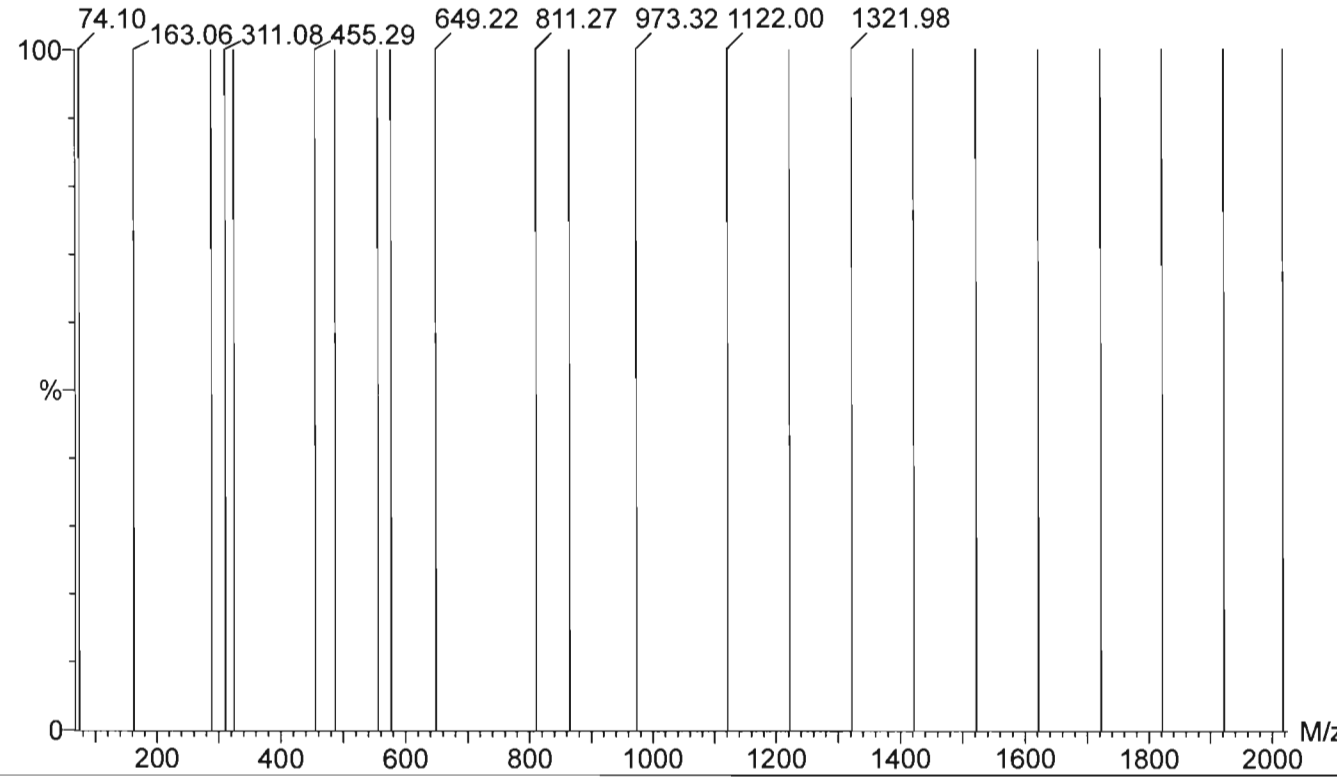
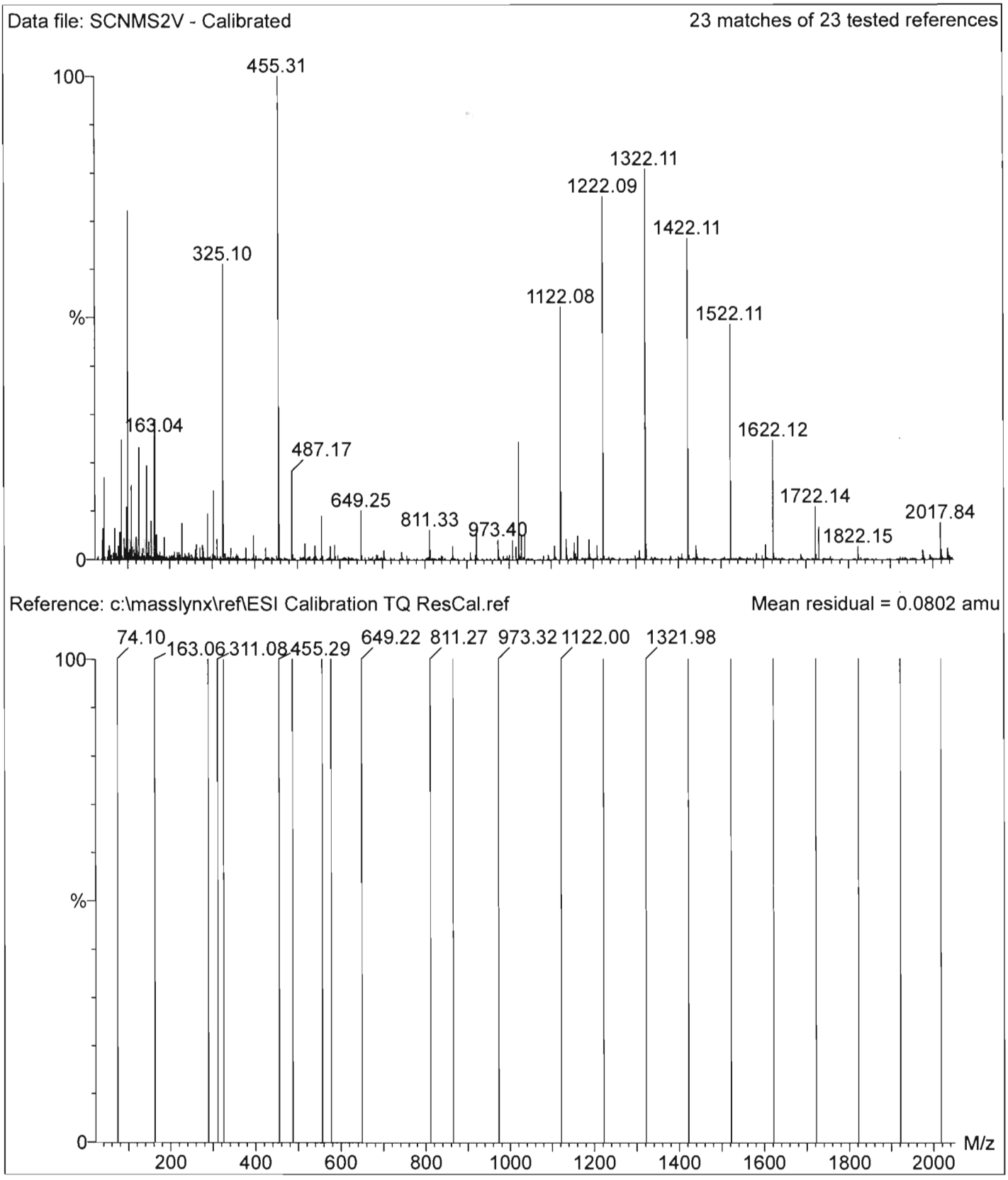
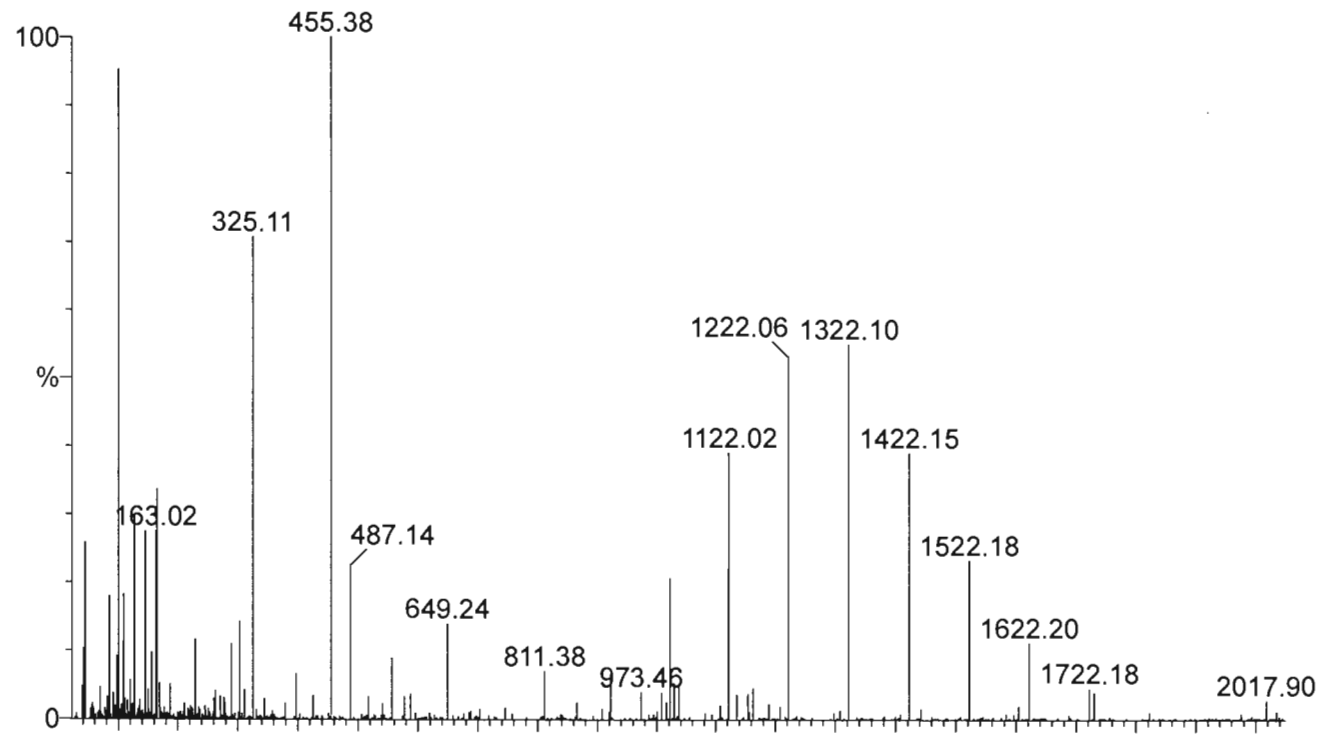



Data file: SCNMS2V - Calibrated
23 matches of 23 tested references
100
%
0
455.31
1322.11
1222.09
1422.11
325.10
1122.08
1522.11
163.04
1622.12
487.17
649.25
1722.14
811.33
973.40
2017.84
1822.15
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref
Mean residual = 0.0802 amu
74.10
163.06
311.08
455.29
649.22
811.27
973.32
1122.00
1321.98
100
%
0
200
400
600
800
1000
1200
1400
1600
1800
2000
M/z

Data file: FASTMS2V - Calibrated 23 matches of 23 tested references



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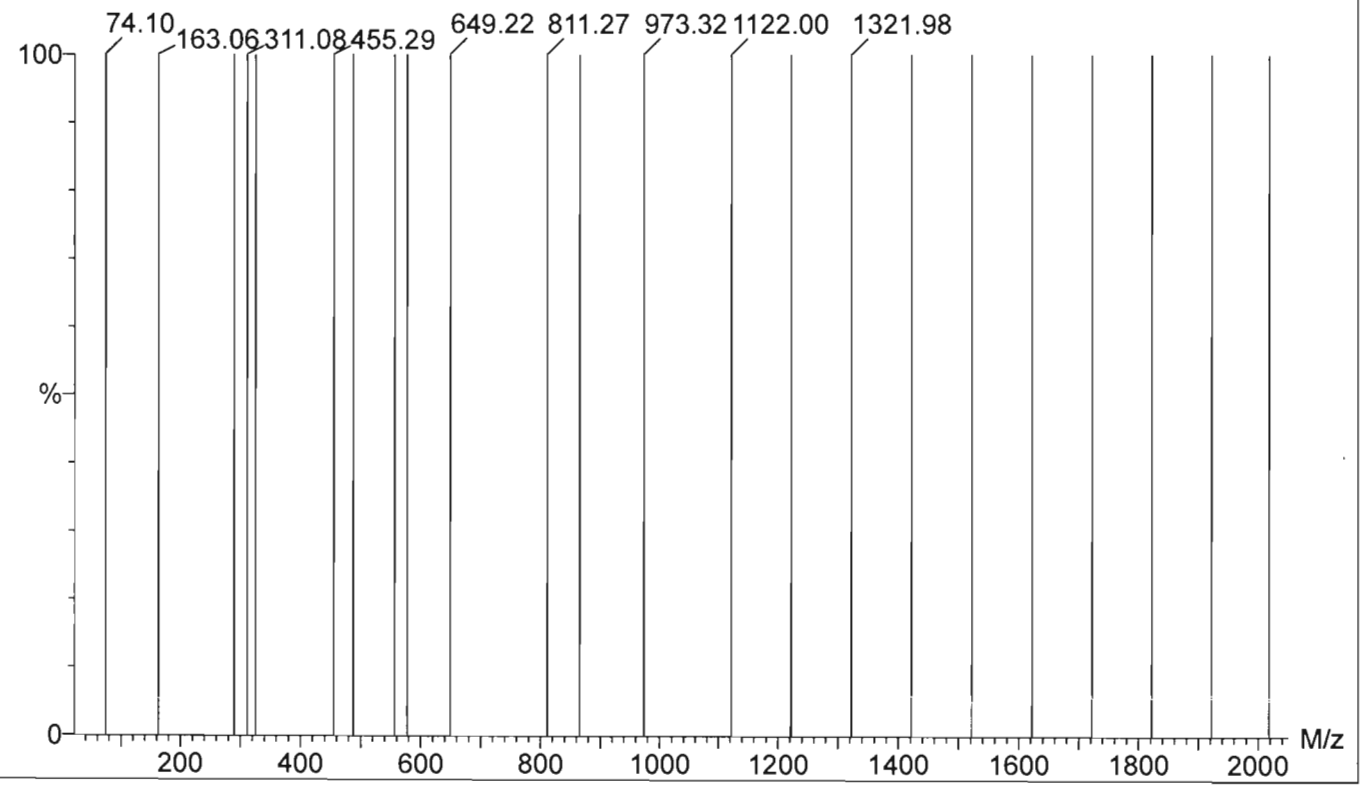


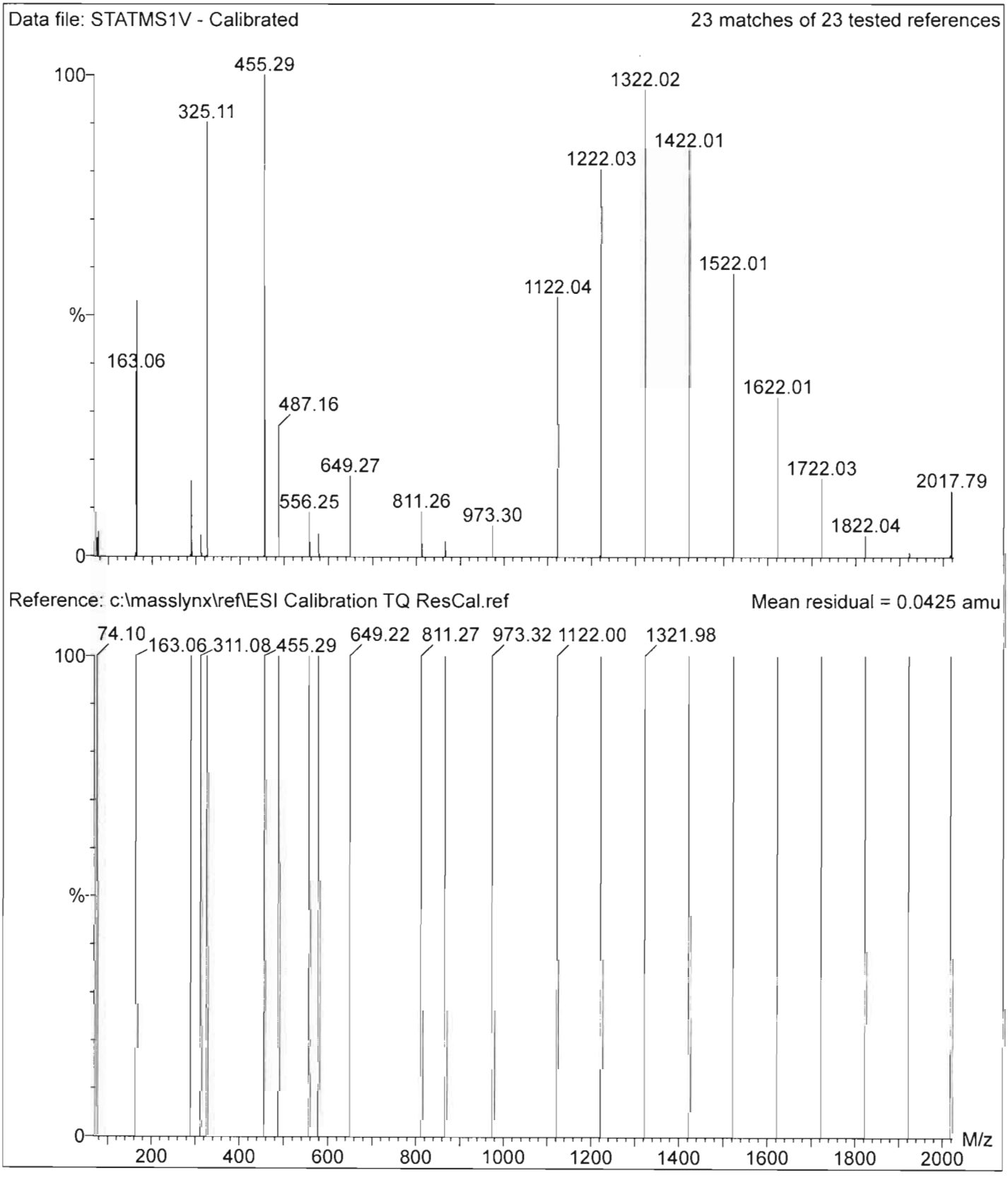
Q5(P)

Tune check.

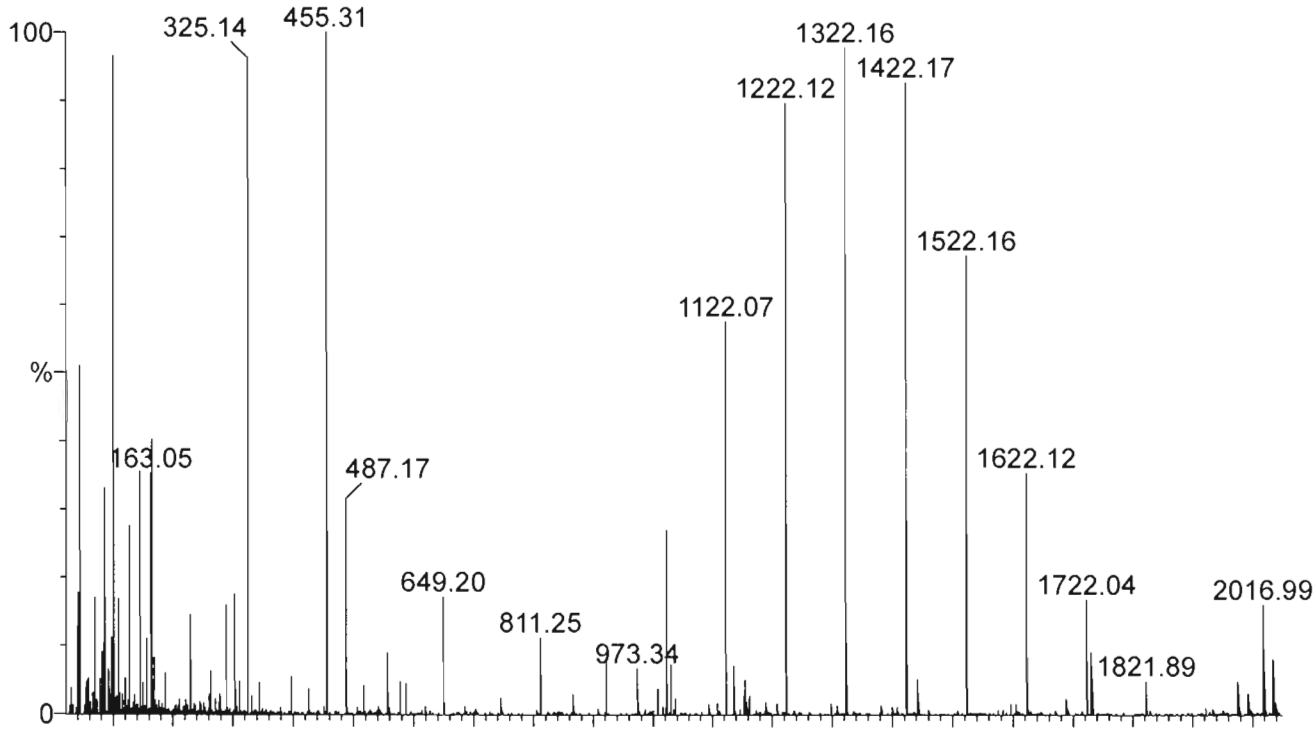
Calibration Verification Report - MS1 Static

20200303

Printed: **Thu Mar 05 14:29:05 2020**



Data file: SCNMS1V - Calibrated 23 matches of 23 tested references



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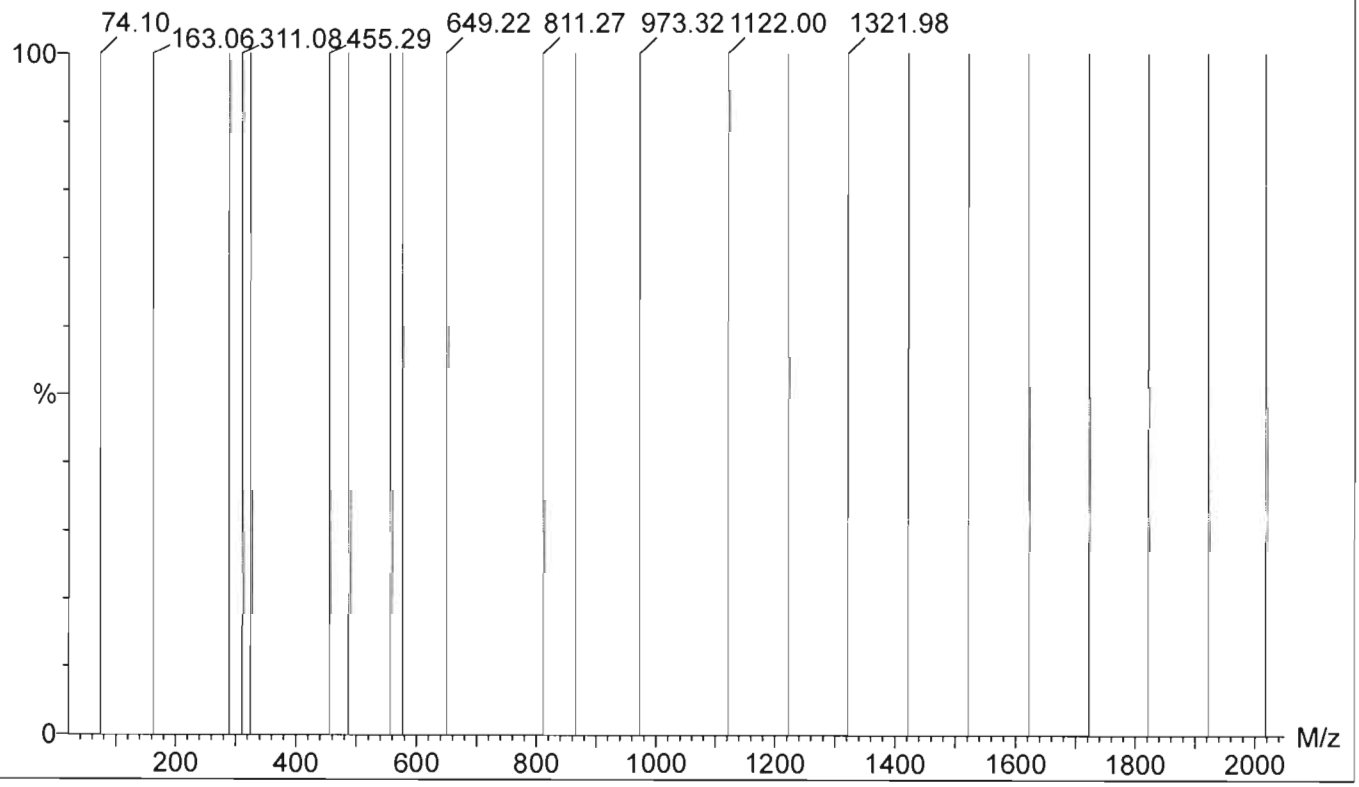
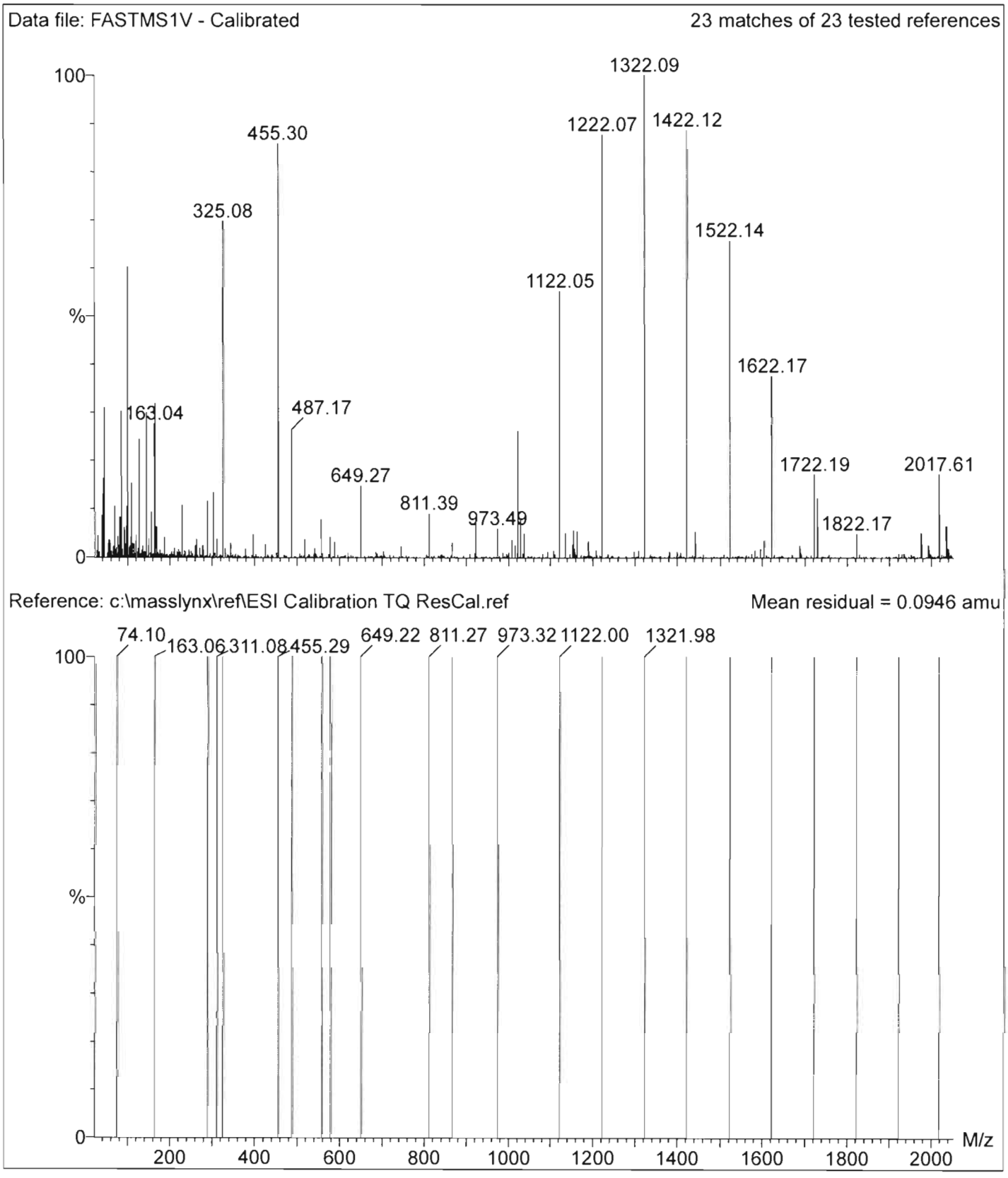
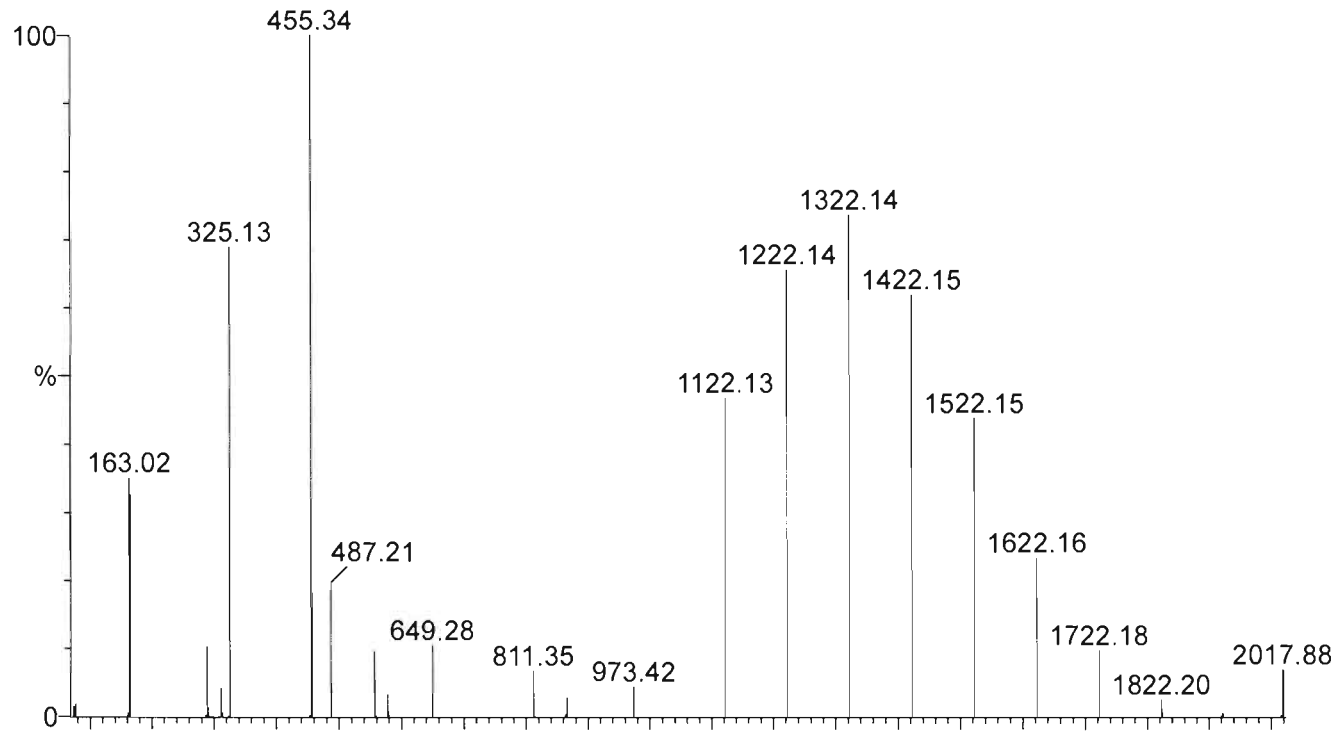



Data file: FASTMS1V - Calibrated
23 matches of 23 tested references
100
%
0
1322.09
1222.07
1422.12
455.30
325.08
1522.14
1122.05
1622.17
163.04
487.17
649.27
1722.19
2017.61
811.39
973.49
1822.17
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref
Mean residual = 0.0946 amu
74.10
163.06
311.08
455.29
649.22
811.27
973.32
1122.00
1321.98
100
%
0
200
400
600
800
1000
1200
1400
1600
1800
2000
M/z

Data file: STATMS2V - Calibrated 22 matches of 23 tested references



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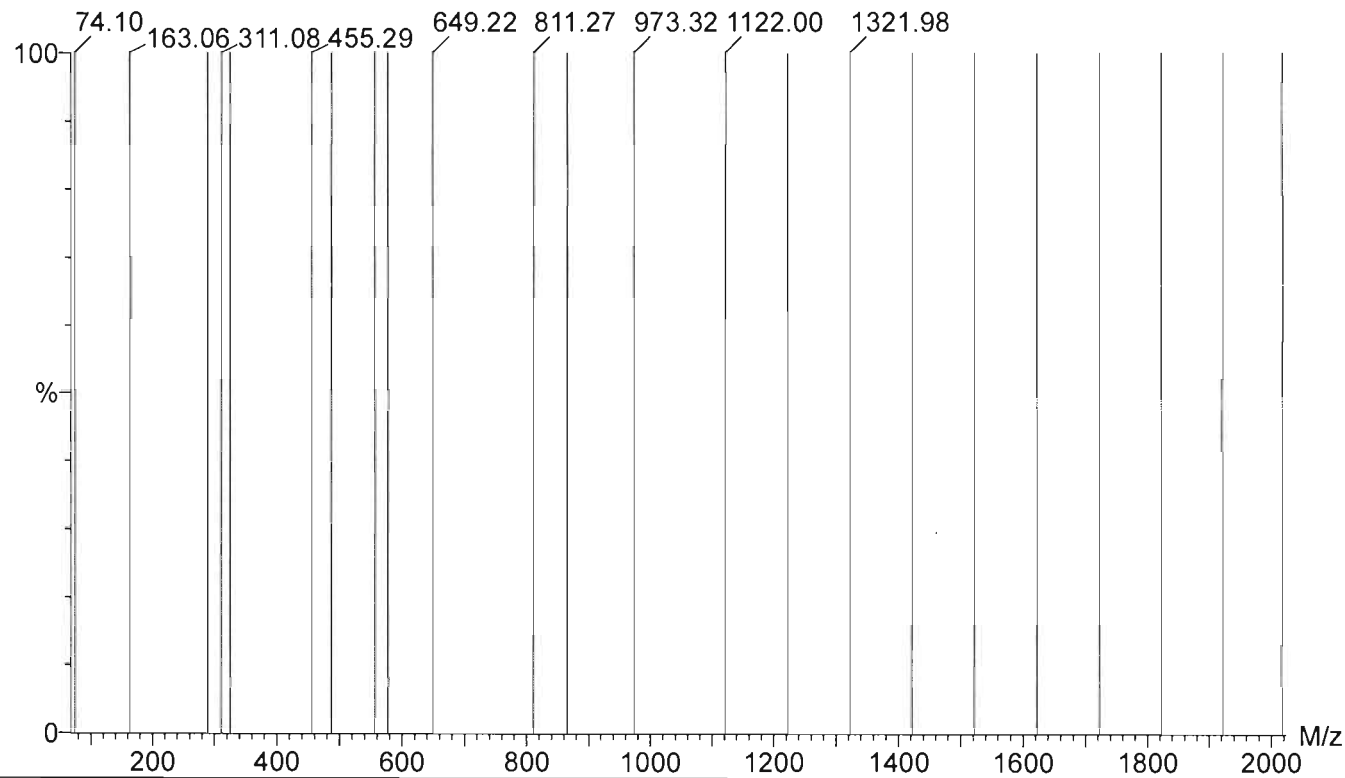
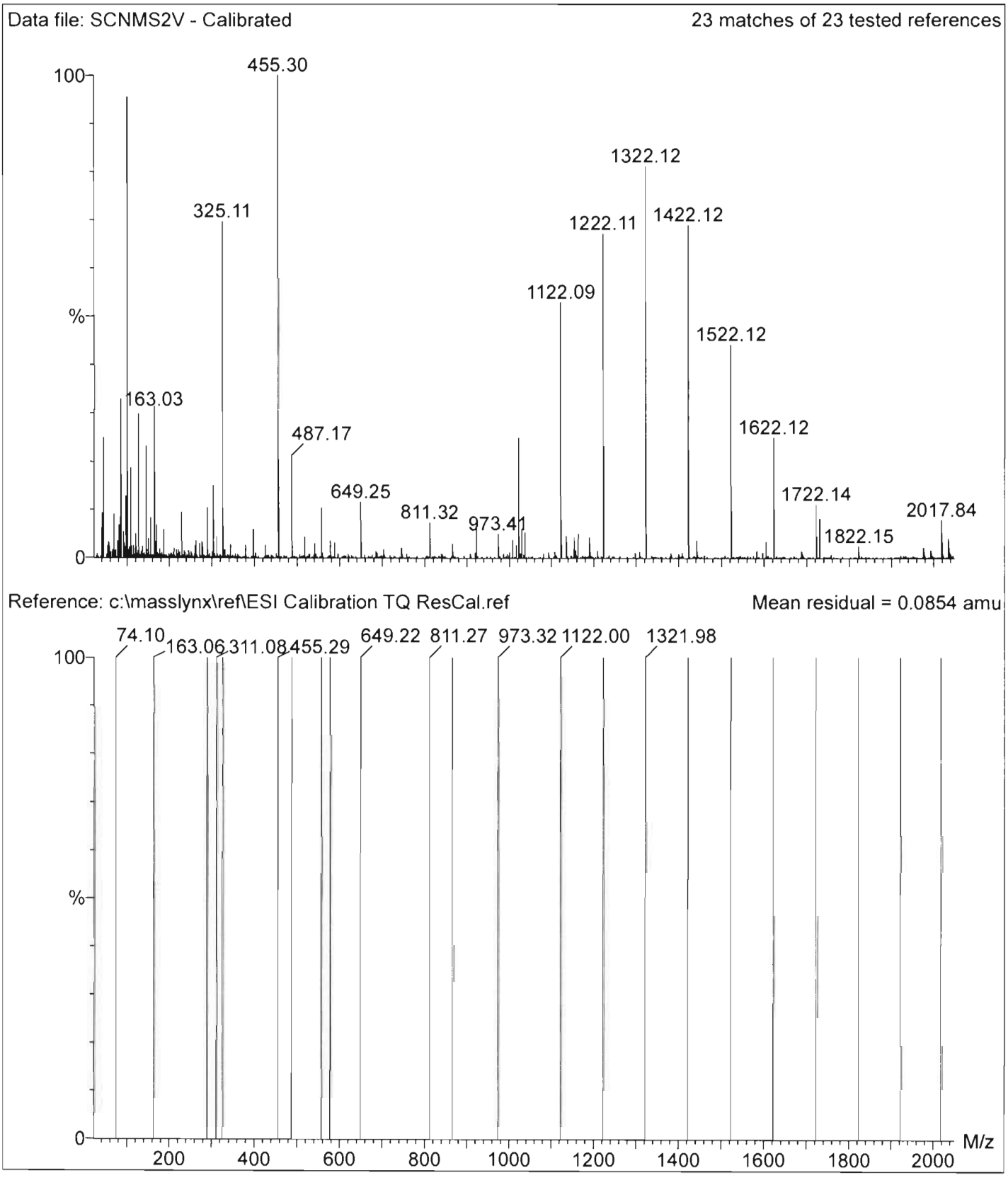
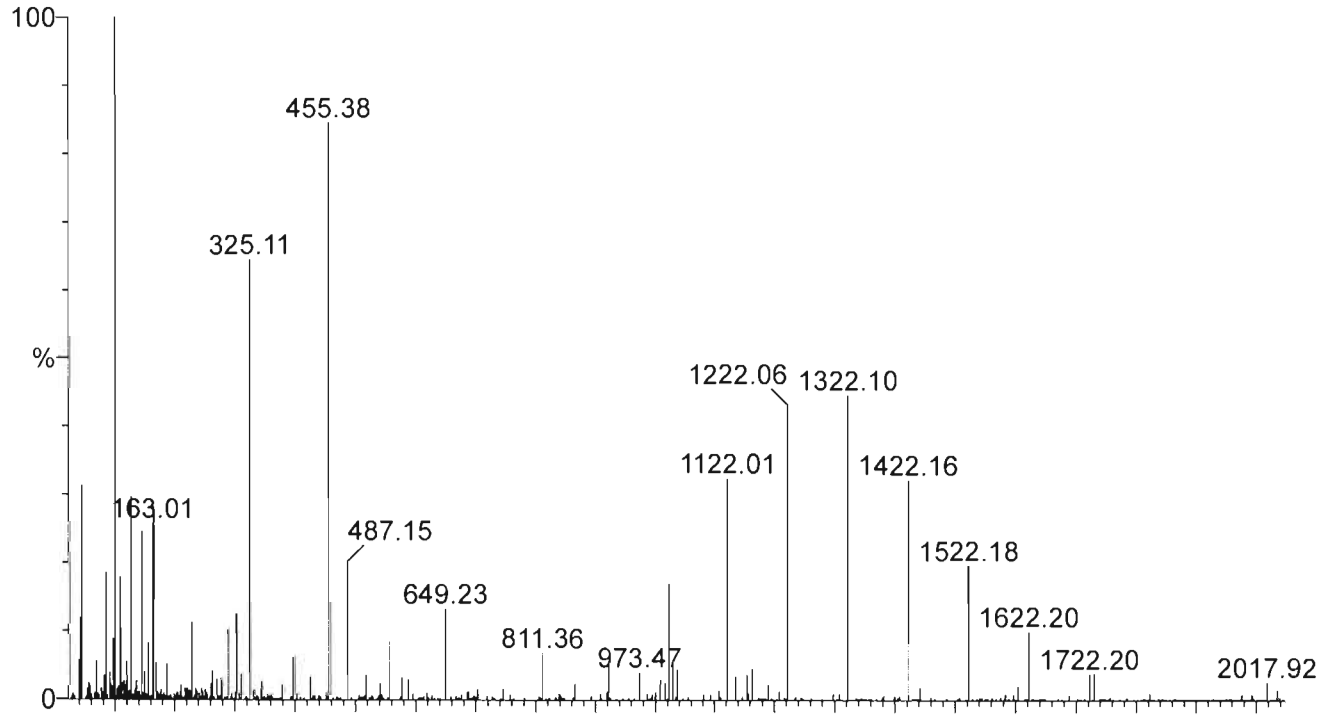
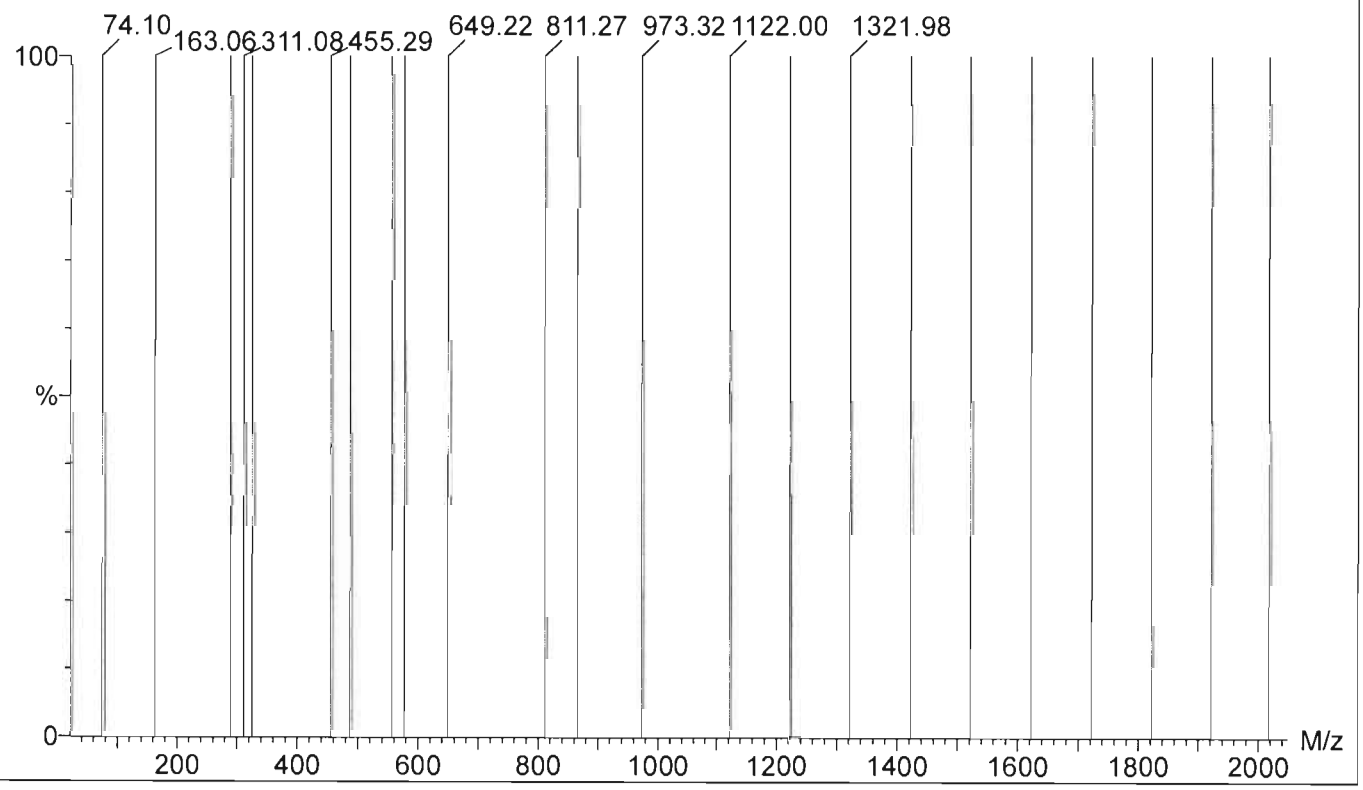



Data file: SCNMS2V - Calibrated
23 matches of 23 tested references
100
%
0
455.30
1322.12
325.11
1222.11
1422.12
1122.09
1522.12
163.03
1622.12
487.17
649.25
1722.14
811.32
973.41
2017.84
1822.15
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref
Mean residual = 0.0854 amu
74.10
163.06
311.08
455.29
649.22
811.27
973.32
1122.00
1321.98
100
%
0
200
400
600
800
1000
1200
1400
1600
1800
2000
M/z

Data file: FASTMS2V - Calibrated 22 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.105 amu



STANDARDS

Analytical Standard Record

Vista Analytical Laboratory

20A0801

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
19H2706	13C2-10:2 FTS	21-Aug-19	** Vendor **	21-Aug-24	1
19L0601	13C2-4:2 FTS	06-Dec-19	** Vendor **	29-Oct-24	1.07
19L0602	13C2-6:2 FTS	06-Dec-19	** Vendor **	21-Nov-24	1.05
19L0603	13C2-8:2 FTS	06-Dec-19	** Vendor **	11-Oct-24	1.04
19L0604	13C3-PFBA	06-Dec-19	** Vendor **	14-Dec-22	1
19L0605	13C2-PFDA	06-Dec-19	** Vendor **	05-Sep-24	1
19L0606	13C2-PFUdA	06-Dec-19	** Vendor **	04-Jul-24	1
19L0607	13C2-PFTeDA	06-Dec-19	** Vendor **	11-Dec-23	1
19L0608	13C5-PFNA	06-Dec-19	** Vendor **	05-Dec-23	1
19L0609	13C2-PFDoA	06-Dec-19	** Vendor **	11-Dec-23	1
19L0610	13C4-PFHpA	06-Dec-19	** Vendor **	06-May-24	1
19L0611	13C2-PFOA	06-Dec-19	** Vendor **	21-Jun-24	1
19L0612	13C3-PFPeA	06-Dec-19	** Vendor **	08-Mar-24	1
19L0613	13C8-FOSA-I	06-Dec-19	** Vendor **	19-Jun-24	1
19L0614	d3-N-Me-FOSAA	06-Dec-19	** Vendor **	24-Jul-24	1
19L0615	d5-N-EtFOSAA	06-Dec-19	** Vendor **	25-Jul-24	1
19L0616	13C3-PFBS	06-Dec-19	** Vendor **	29-Oct-24	1.075
19L0617	13C8-PFOS	06-Dec-19	** Vendor **	06-May-24	1.045
19L0618	13C3-PFHxS	06-Dec-19	** Vendor **	15-Oct-24	1.06
19L0619	13C2-PFHxA	06-Dec-19	** Vendor **	11-Oct-24	1
19L0620	13C2-PFHxDA	06-Dec-19	** Vendor **	11-Oct-24	1
19L0621	13C3-HFPO-DA	06-Dec-19	** Vendor **	20-Sep-22	1

Description:	PFC - IS	Expires:	07-Jan-21
Standard Type:	Reagent	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	23-Jan-20 14:53 by BML

10:2 added
10 uL spike

Analyte	CAS Number	Concentration	Units
13C3-HFPO-DA		1.25	ug/mL
13C2-4:2 FTS		1.25	ug/mL
13C2-6:2 FTS		1.25	ug/mL
13C2-8:2 FTS		1.25	ug/mL
13C2-PFDA		1.25	ug/mL
13C2-PFDoA		1.25	ug/mL
13C2-PFHxA		1.25	ug/mL
13C2-PFHxDA		1.25	ug/mL
13C2-PFOA		1.25	ug/mL
13C2-10:2 FTS		1.25	ug/mL
13C2-PFUnA		1.25	ug/mL
d5-EtFOSAA		1.25	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

20A0801

Description:	PFC - IS	Expires:	07-Jan-21
Standard Type:	Reagent	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	23-Jan-20 14:53 by BML

10:2 added
10 uL spike

Analyte	CAS Number	Concentration	Units
13C3-PFBA		1.25	ug/mL
13C3-PFBS		1.25	ug/mL
13C3-PFHxS		1.25	ug/mL
13C3-PFPeA		1.25	ug/mL
13C4-PFHpA		1.25	ug/mL
13C5-PFNA		1.25	ug/mL
13C8-PFOS		1.25	ug/mL
13C8-PFOSA		1.25	ug/mL
d3-MeFOSAA		1.25	ug/mL
13C2-PFTeDA		1.25	ug/mL

19H27016

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Product Name:
(Isotopic Label & Enrichment Specification)
1H,1H,2H,2H-PERFLUORODODECANE SULFONATE(10:2 FTS), SODIUM SALT (13C2, 99%; D4, 98%) 50 UG/ML IN MEOH

Lot Number: SDIJ-019A

Catalog Number: CDLM-10750-S

Product Information

Chemical Purity Specification:	≥ 98%
MW*: * *For isotopically labeled compounds, MW listed is for the fully enriched product.*	656.19
Labeled CAS Number:	NA
Unlabeled CAS Number:	108026-35-3
Chemical Formula:	C10*C2D4F21NaO3S
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

Approved by: Sashi Sivendran-Basak

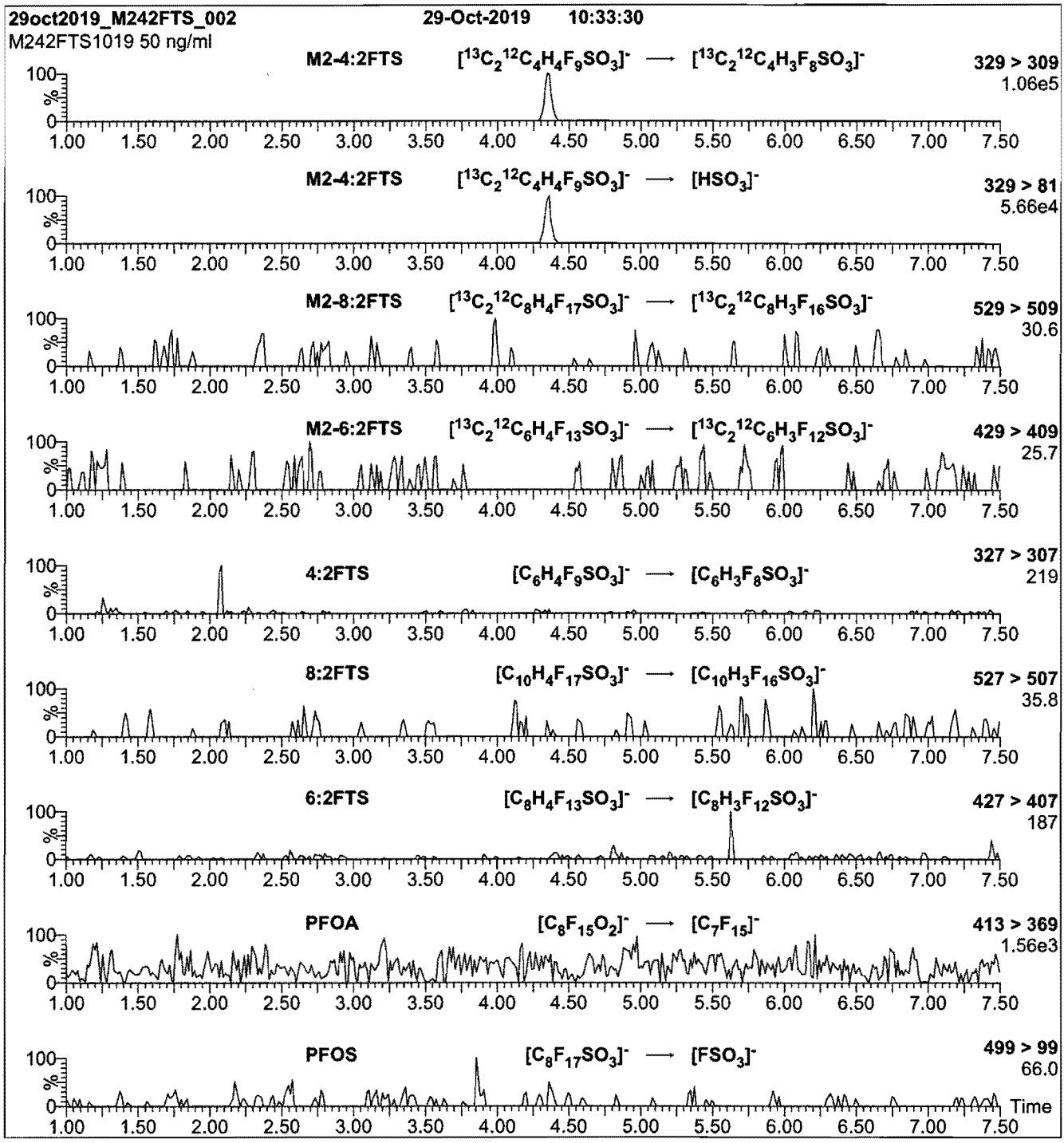
Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	8/21/2019
Expiration Date	8/21/2024
Concentration Based on Gravimetry	50.0 ± 0.5 µg/mL (k=2)
Chemical Purity of Neat Material(s)	100.0%

CIL subscribes to the following standards for different products: ISO Guide 34, ISO/IEC 17025, ISO 13485 and cGMP as appropriate.

Figure 2: **M2-4:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2-4:2FTS)

Mobile phase: Same as Figure 1

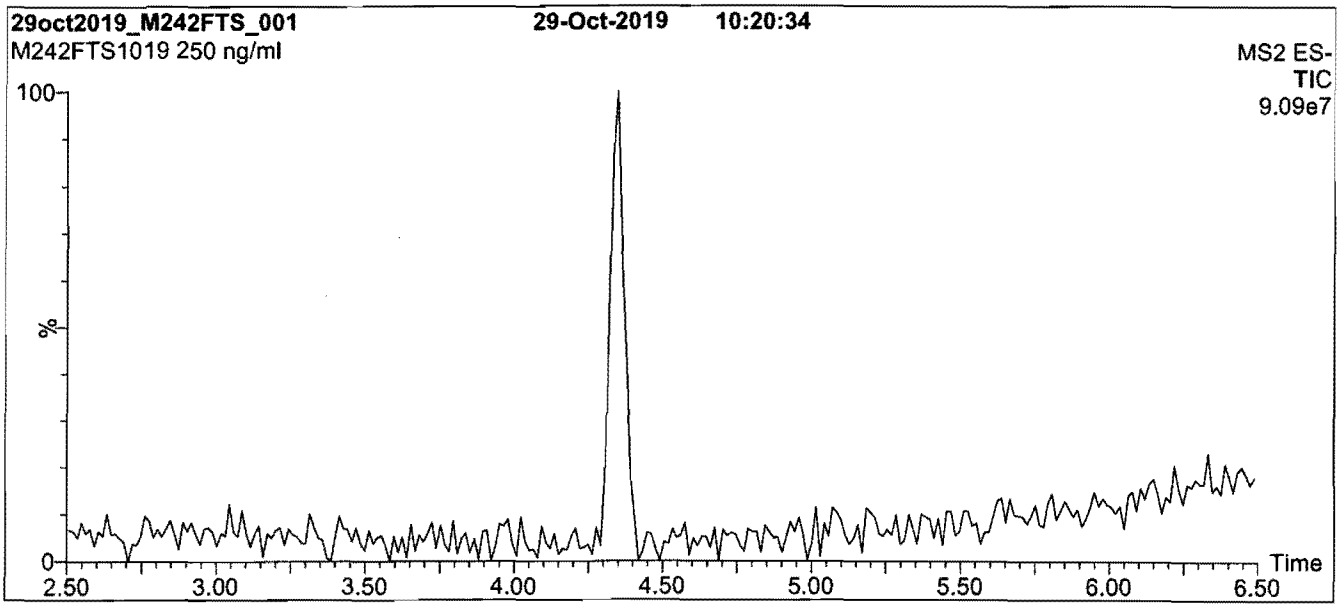
Flow: 300 µl/min

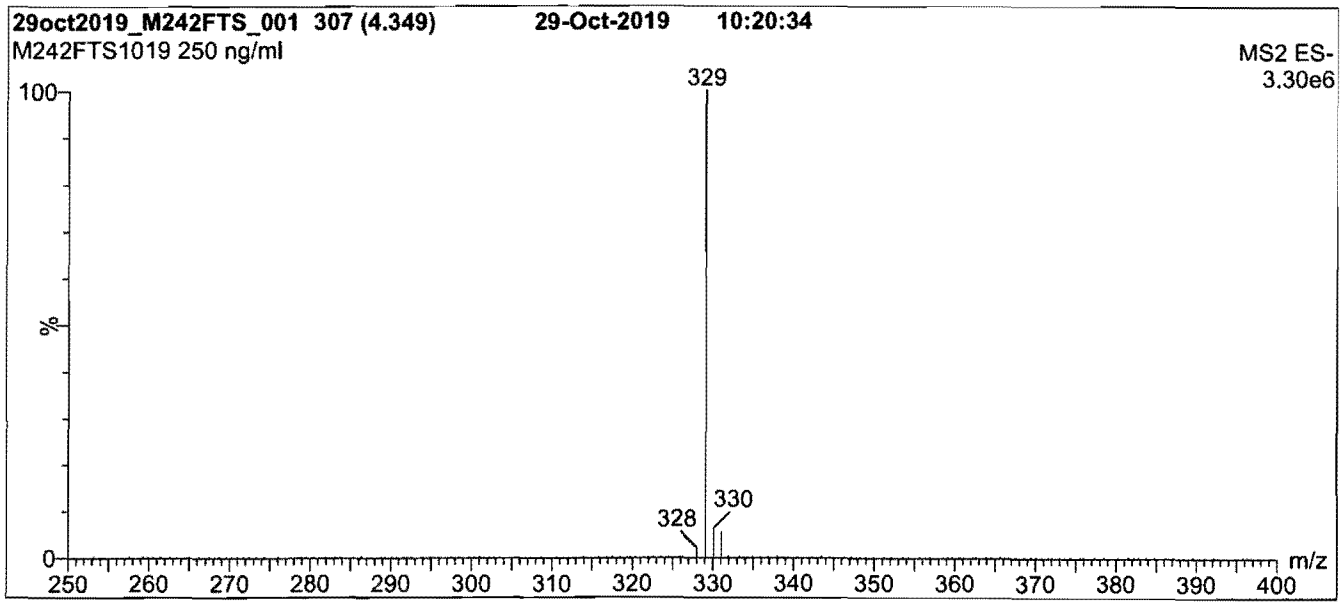
MS Parameters

Collision Gas (mbar) = 3.51e-3
Collision Energy (eV) = 18

19L0601

Figure 1: **M2-4:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2,...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

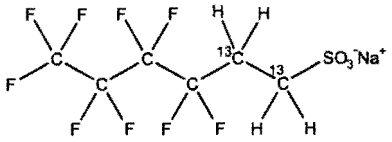
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0601

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-4:2FTS	**LOT NUMBER:**	M242FTS1019
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]hexane sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4H_4F_9SO_3Na$	**MOLECULAR WEIGHT:**	352.12
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	46.7 ± 2.3 µg/ml (M2-4:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/29/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/29/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 4:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 4:2FTS and M2-4:2FTS will produce signals in the m/z 329 to m/z 309 channel during SRM analysis. We recommend using the m/z 329 to m/z 81 transition to monitor for M2-4:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

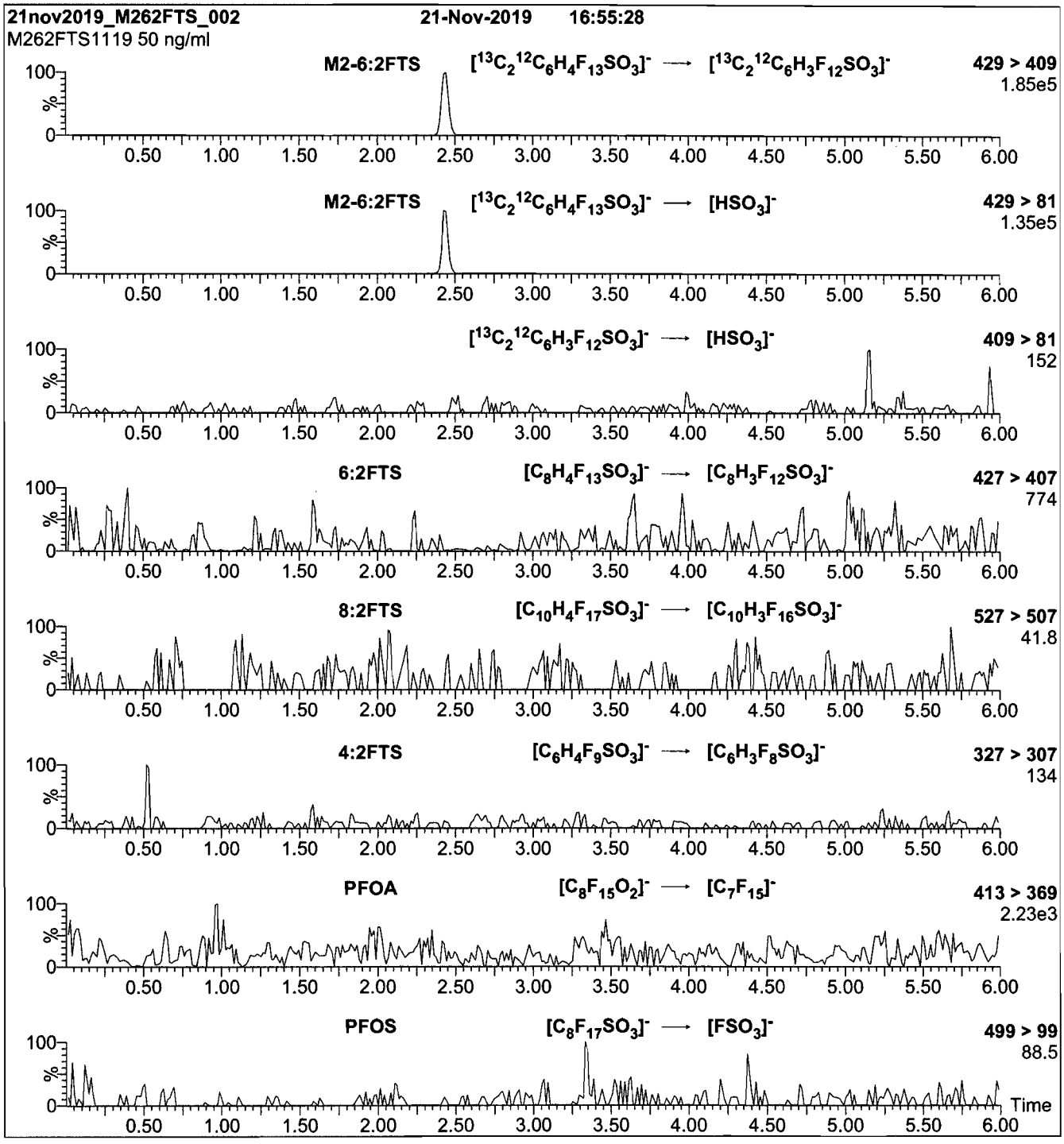
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0602

Figure 2: **M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2-6:2FTS)

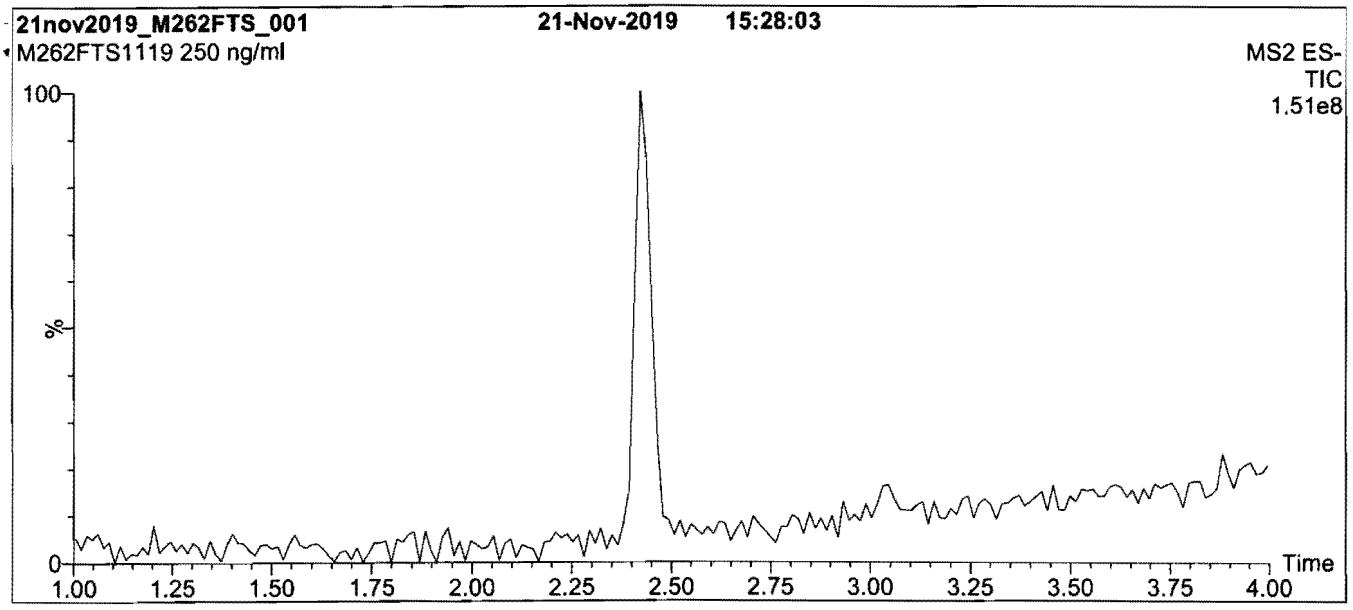
Mobile phase: Same as Figure 1

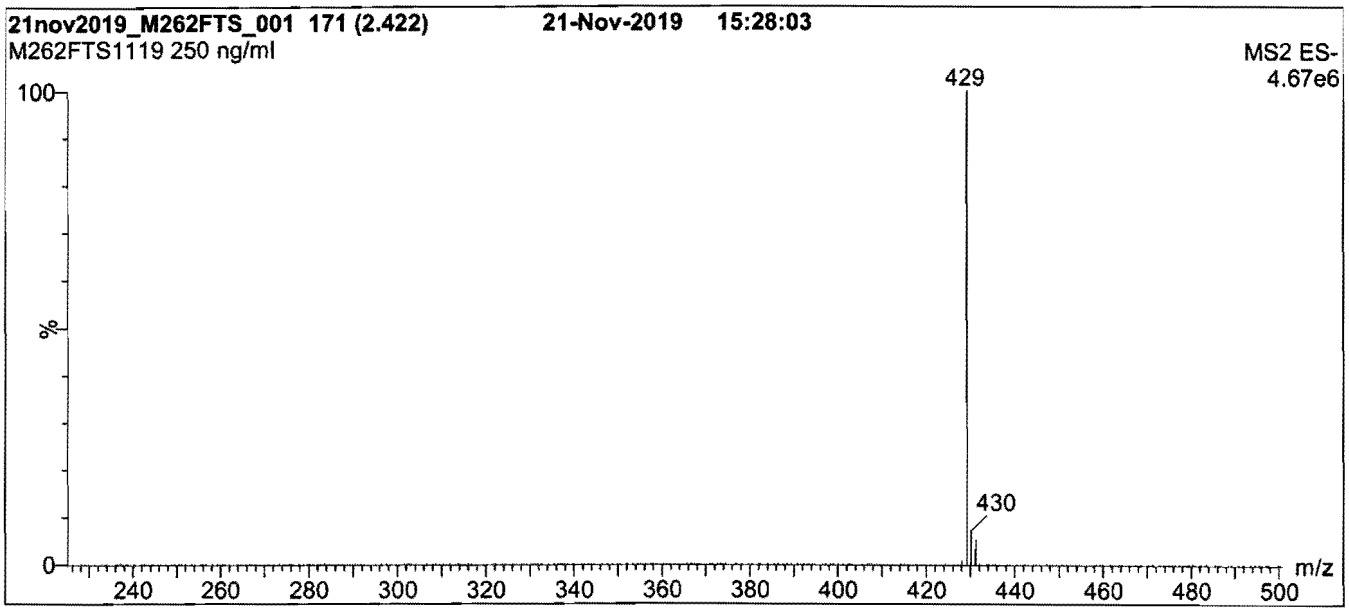
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 20

Figure 1: **M2-6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

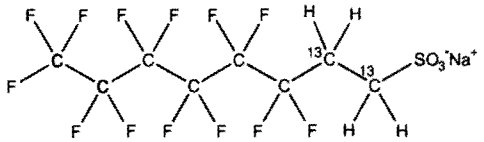
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0602

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1119
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.5 ± 2.4 µg/ml (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/21/2019		
EXPIRY DATE: (mm/dd/yyyy)	11/21/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

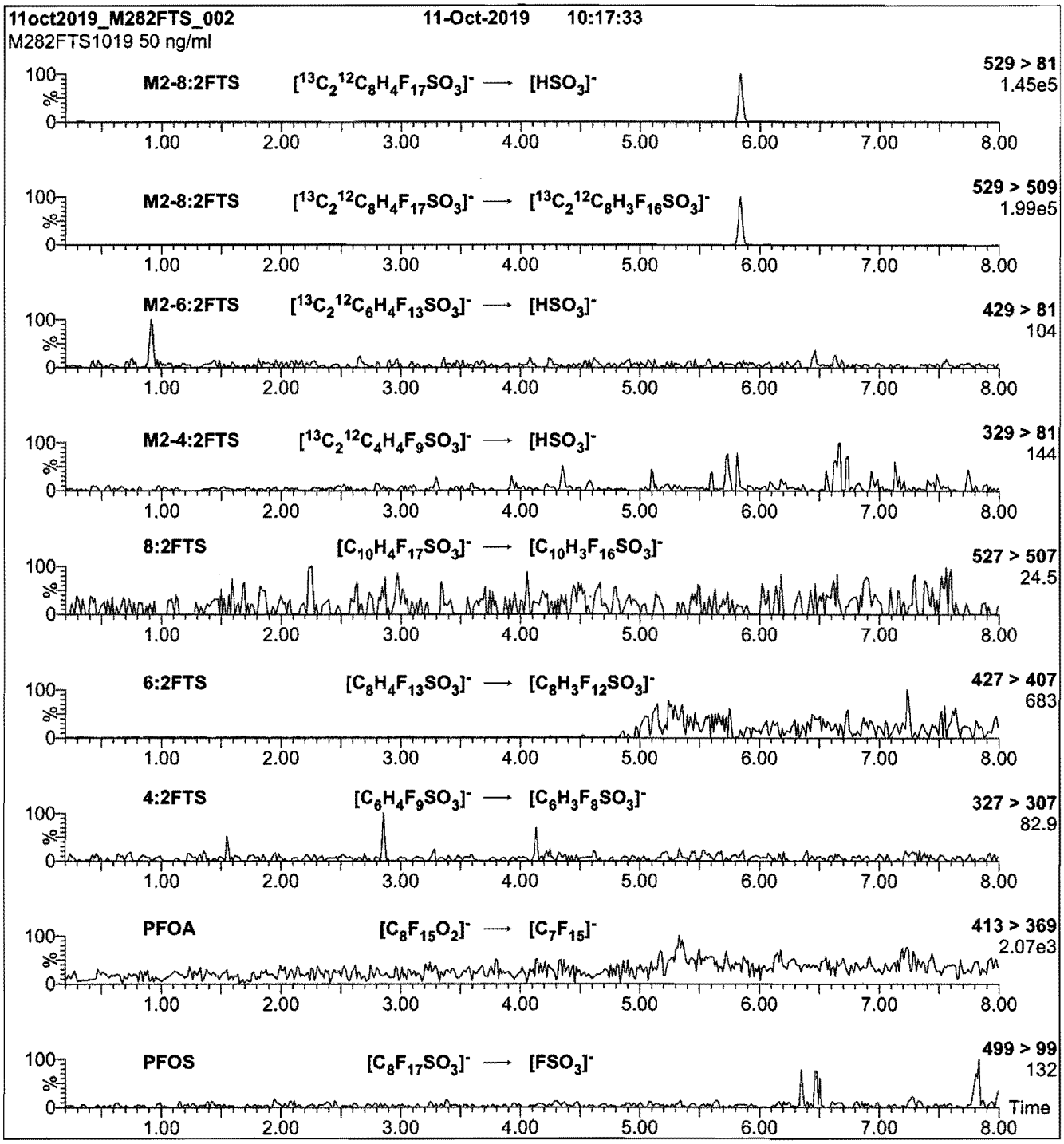
- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/25/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2-8:2FTS)

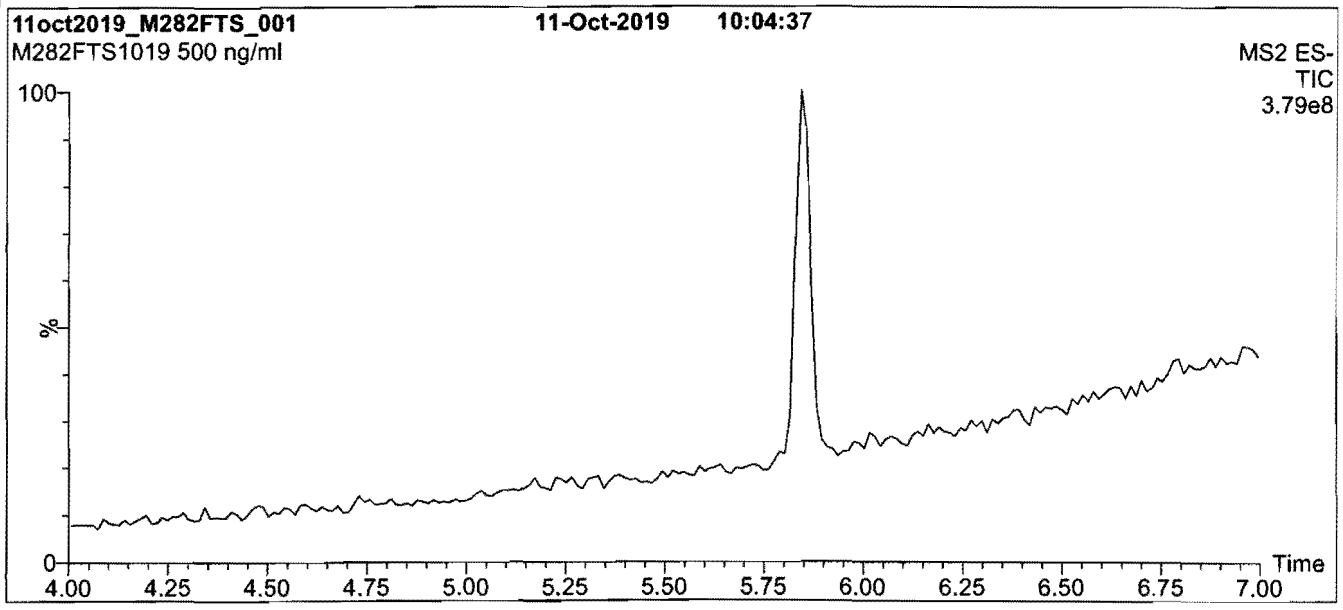
Mobile phase: Same as Figure 1

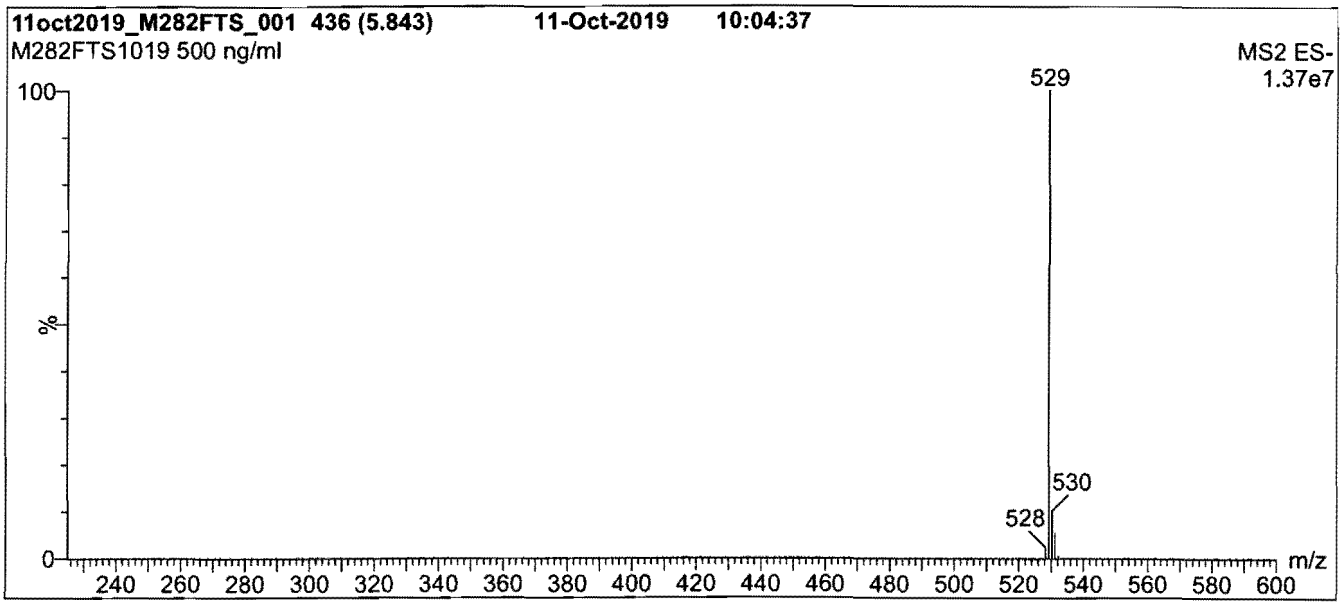
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.87e-3
Collision Energy (eV) = 26

Figure 1: **M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0603

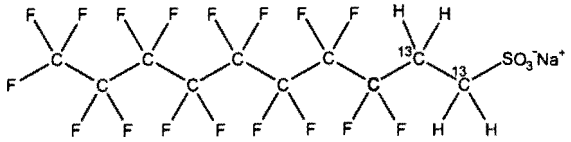
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS1019

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	552.15
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.9 ± 2.4 µg/ml (M2-8:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/11/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 8:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/15/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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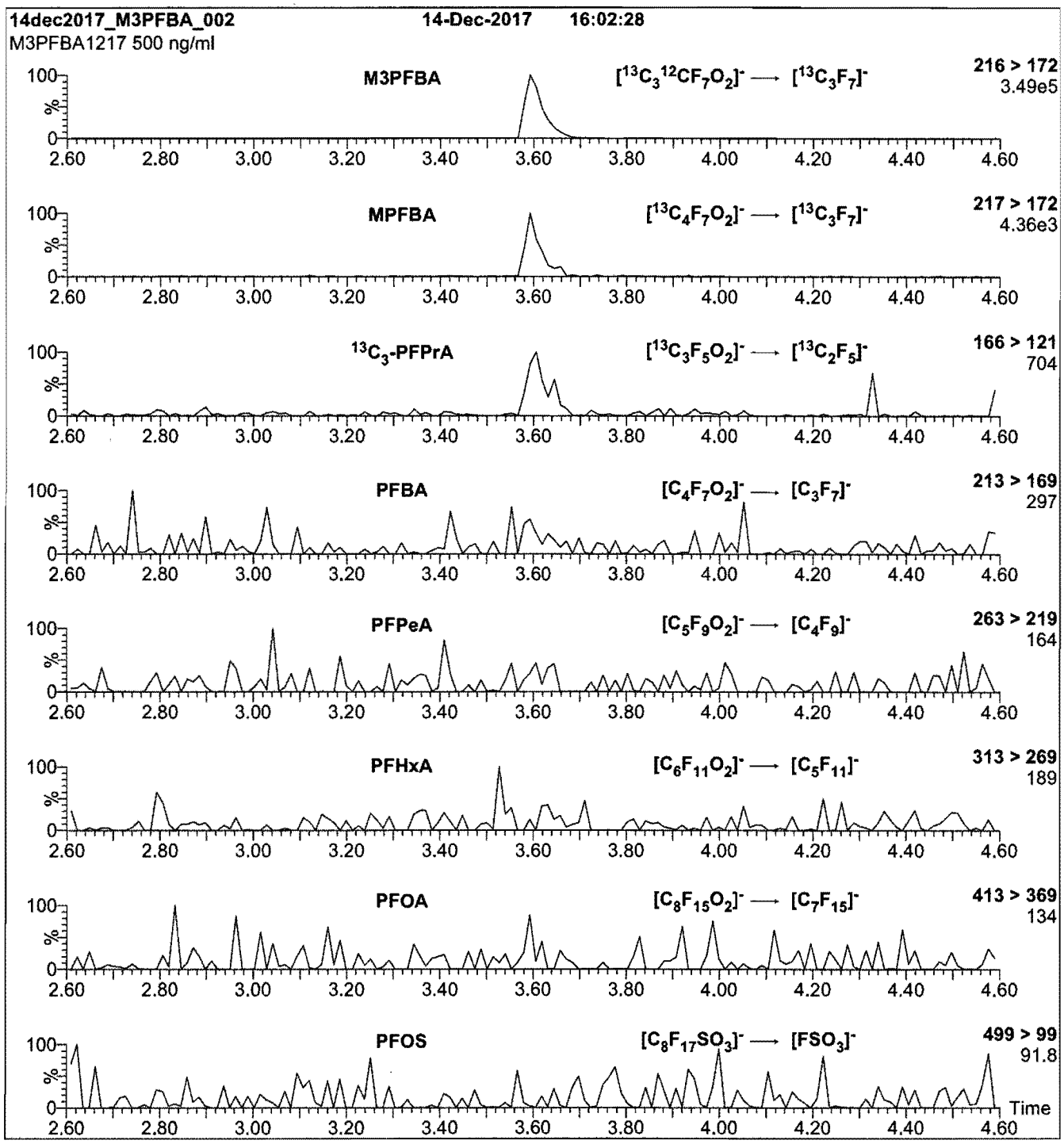
Figure 2: **M3PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

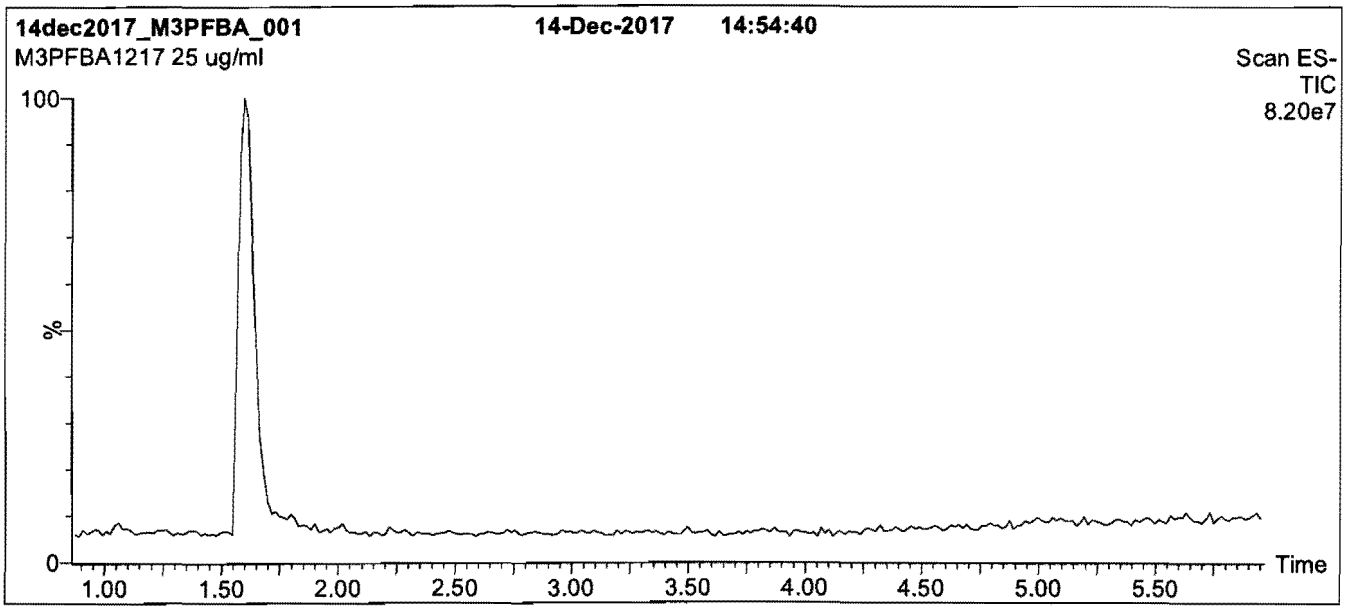
Flow: 300 µl/min

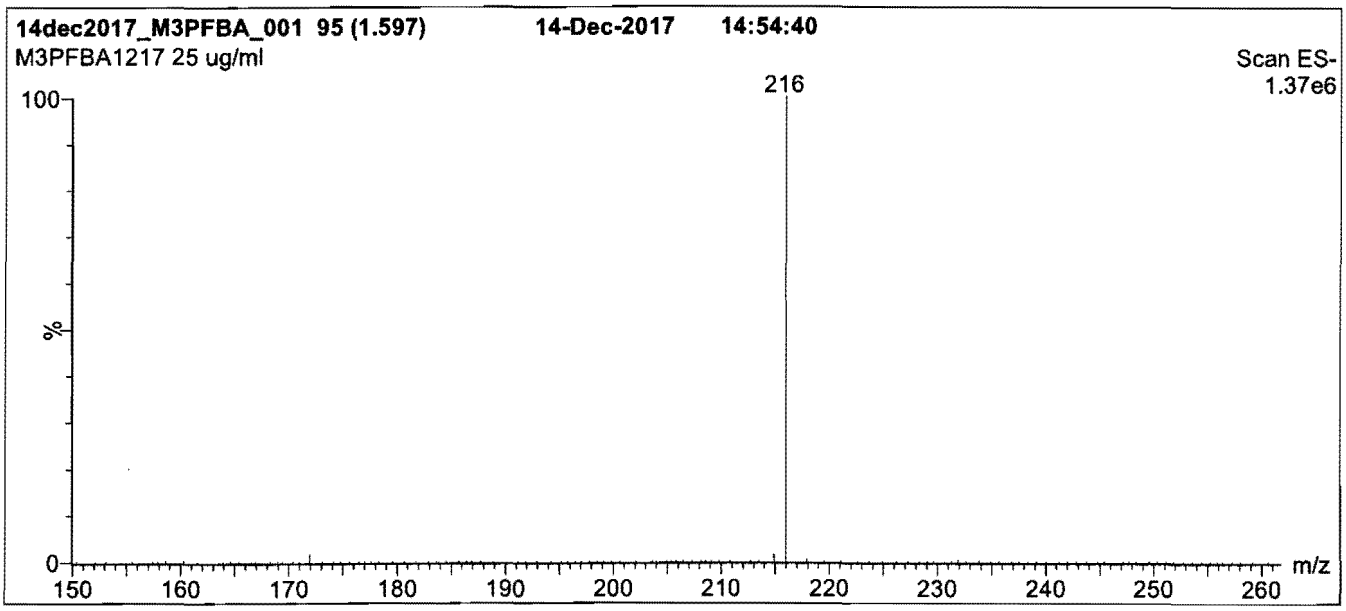
MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

19L0604

Figure 1: **M3PFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

19L0604

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

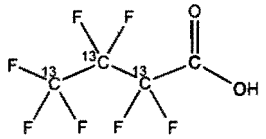
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0604

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA1217
COMPOUND:	Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (2,3,4-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

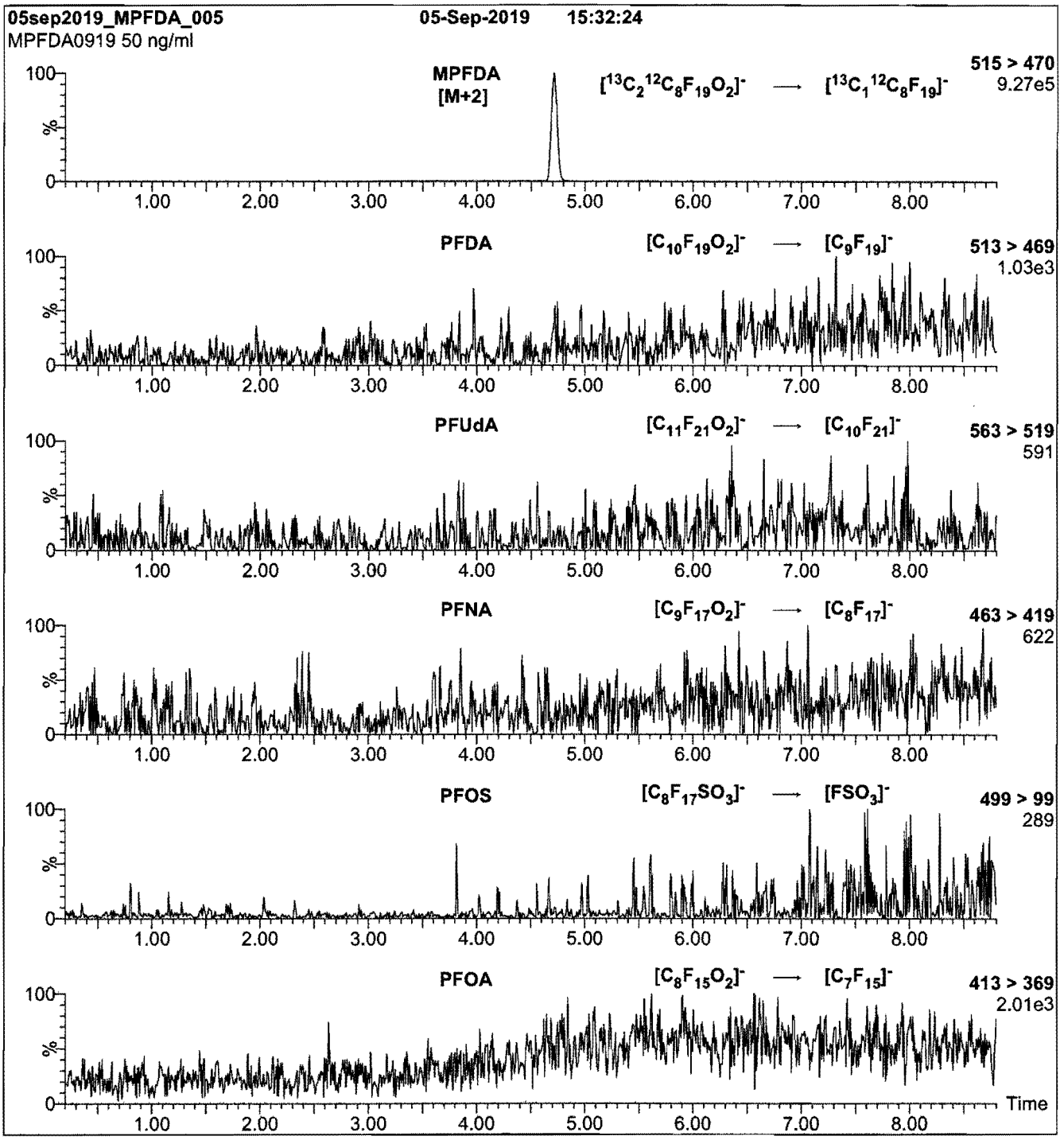
- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-[$^{13}C_3$]propanoic acid and also contains ~ 1.0% of perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/22/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFDA)

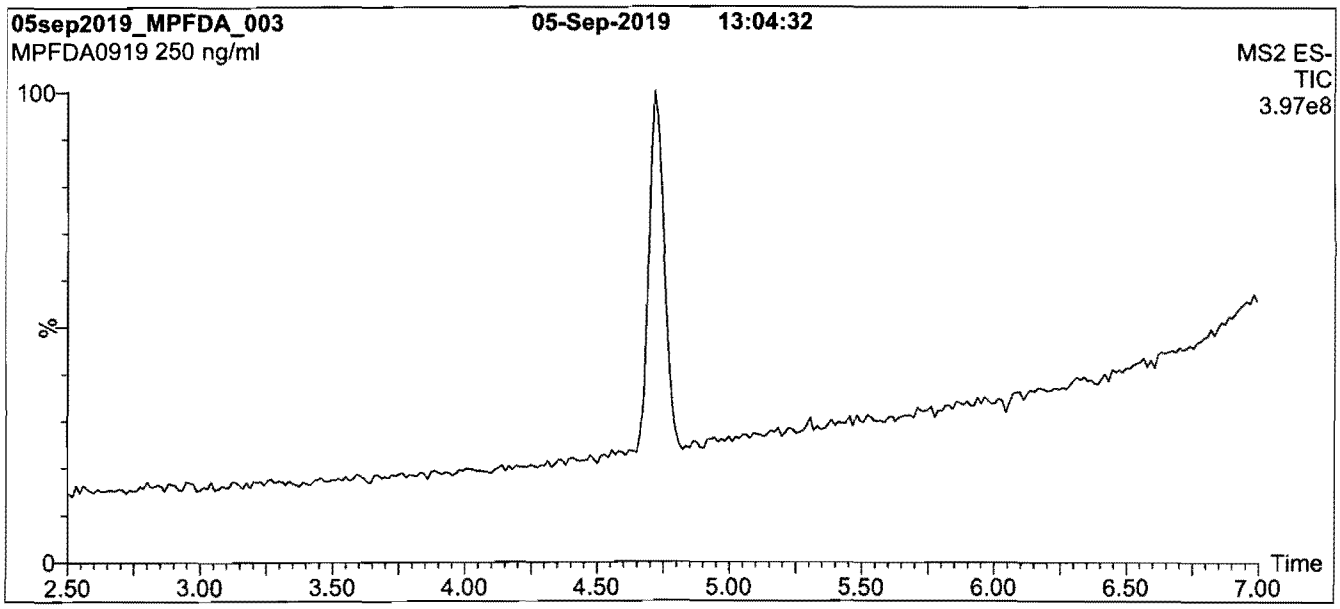
Mobile phase: Same as Figure 1

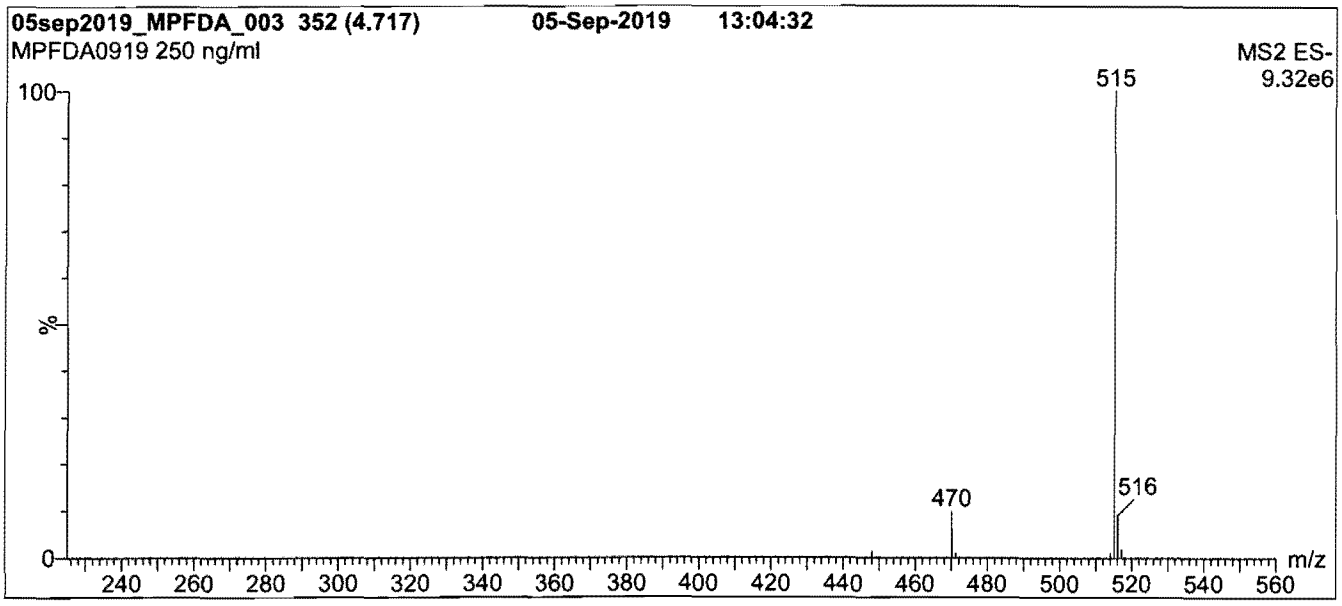
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 10

Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0605

INTENDED USE:

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HANDLING:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

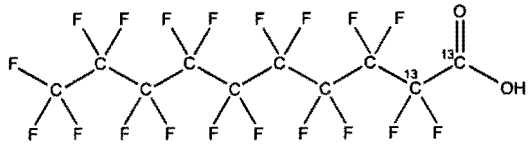
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0605

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0919
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	09/05/2019		
EXPIRY DATE: (mm/dd/yyyy)	09/05/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

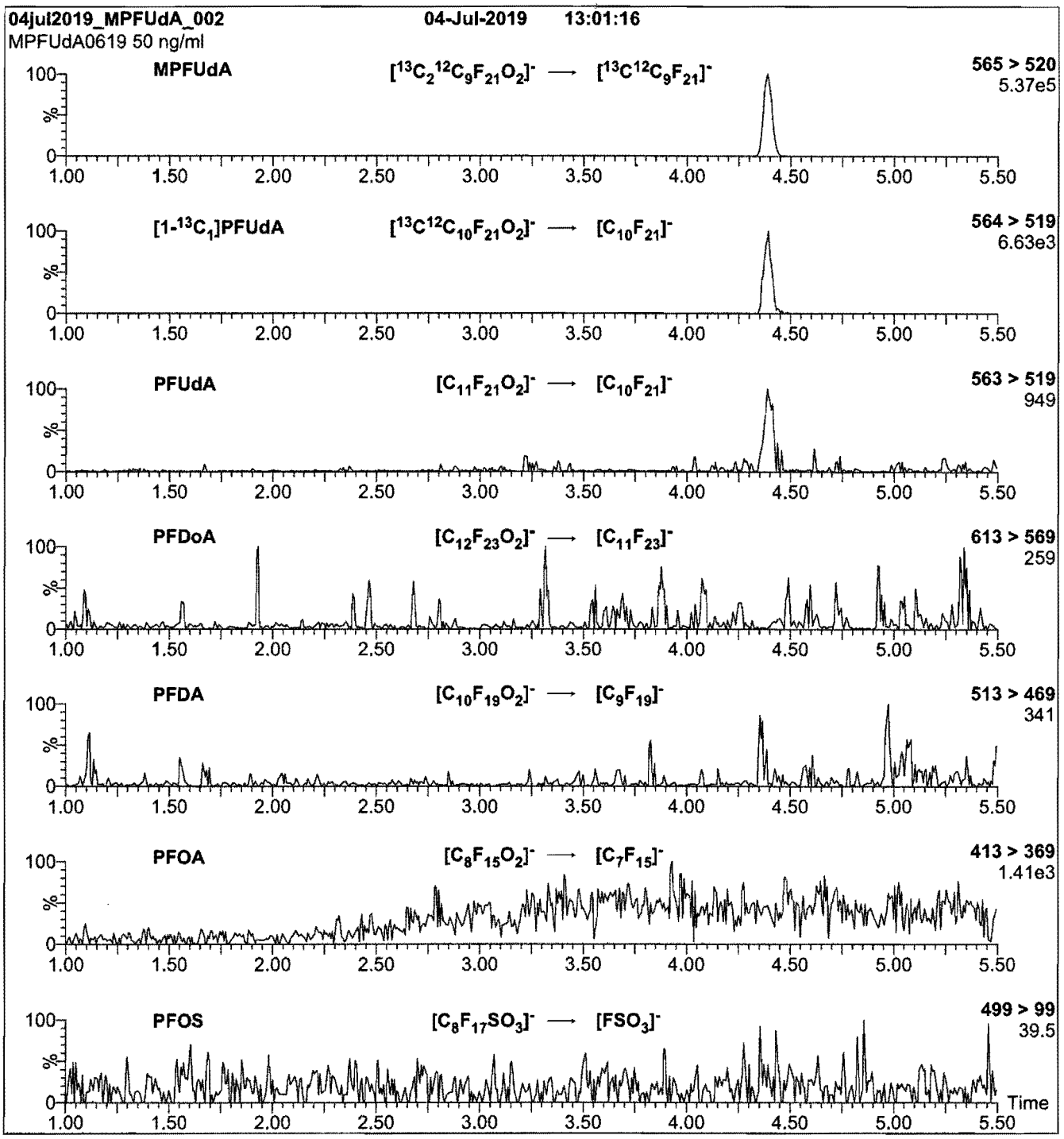
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L06006

Figure 2: **MPFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFUdA)

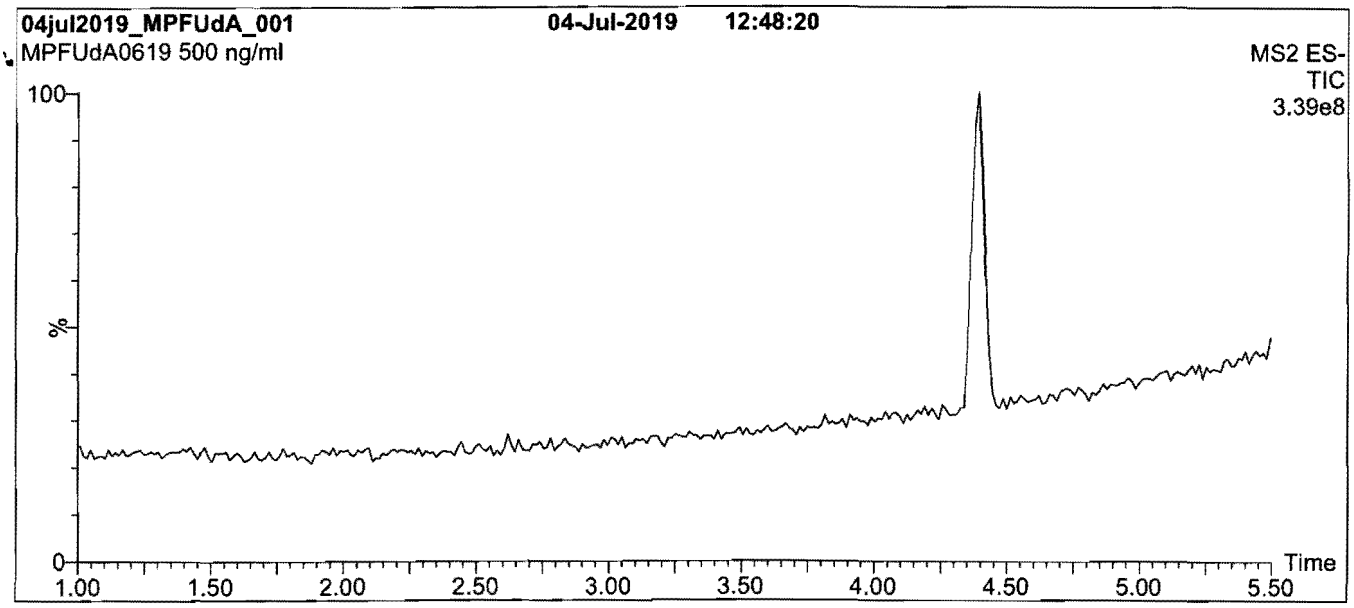
Mobile phase: Same as Figure 1

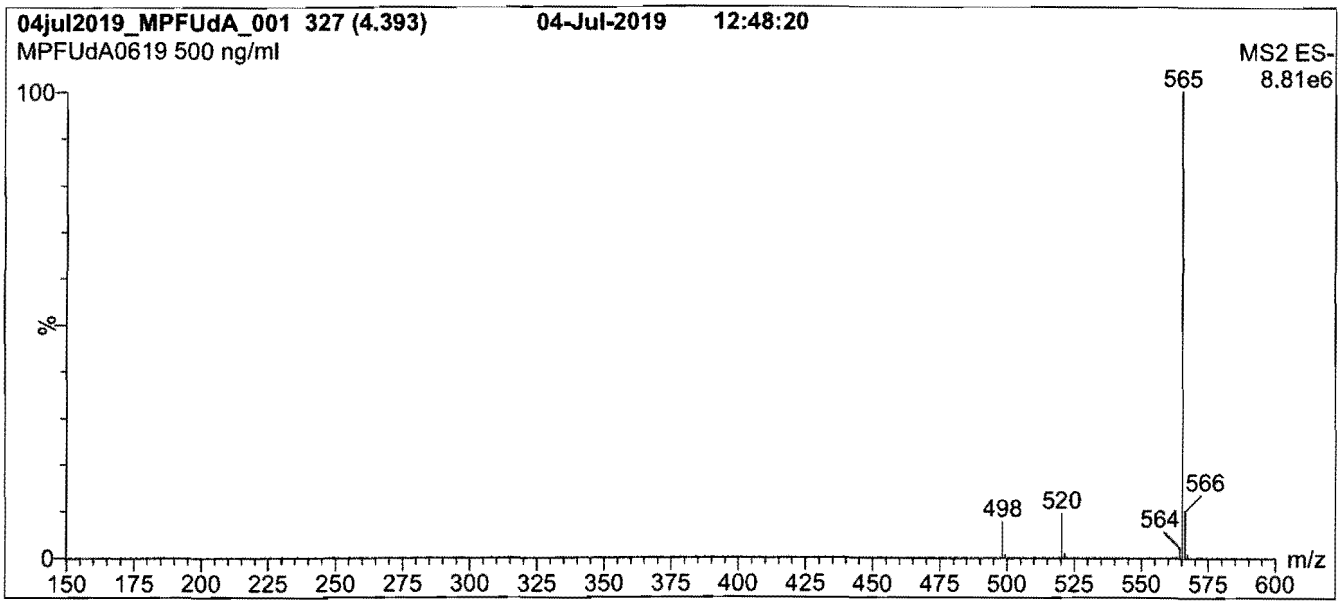
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 12

Figure 1: **MPFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0606

INTENDED USE:

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HANDLING:

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HOMOGENEITY:

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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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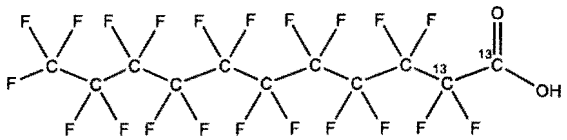
19L0606

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFUdA	**LOT NUMBER:**	MPFUdA0619
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	07/04/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/04/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Presence of 1-$^{13}C_1$-PFUdA (~1%; see Figure 2), 2-$^{13}C_1$-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ^{13}C-precursor.

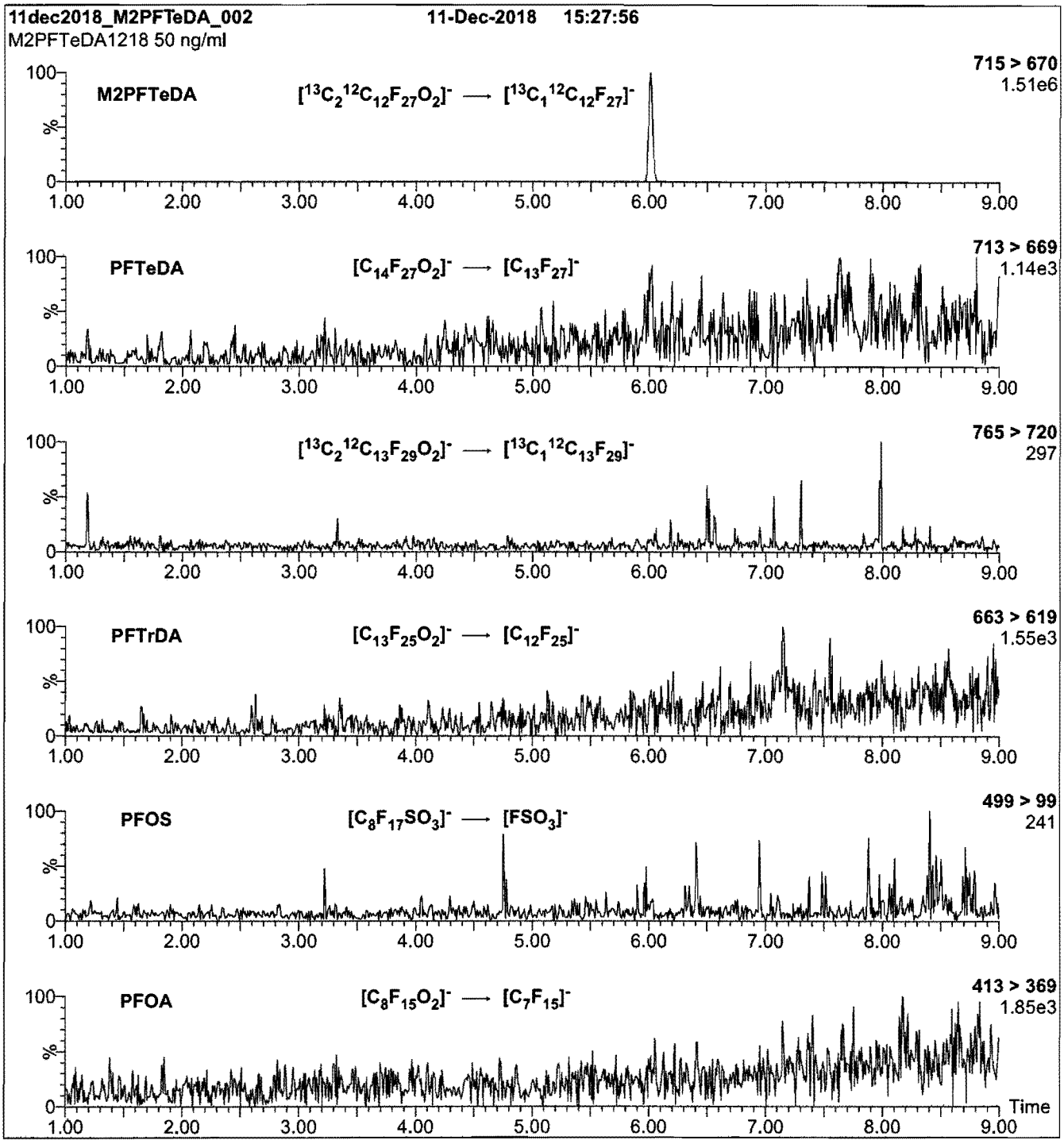
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/05/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0607

Figure 2: **M2PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2PFTeDA)

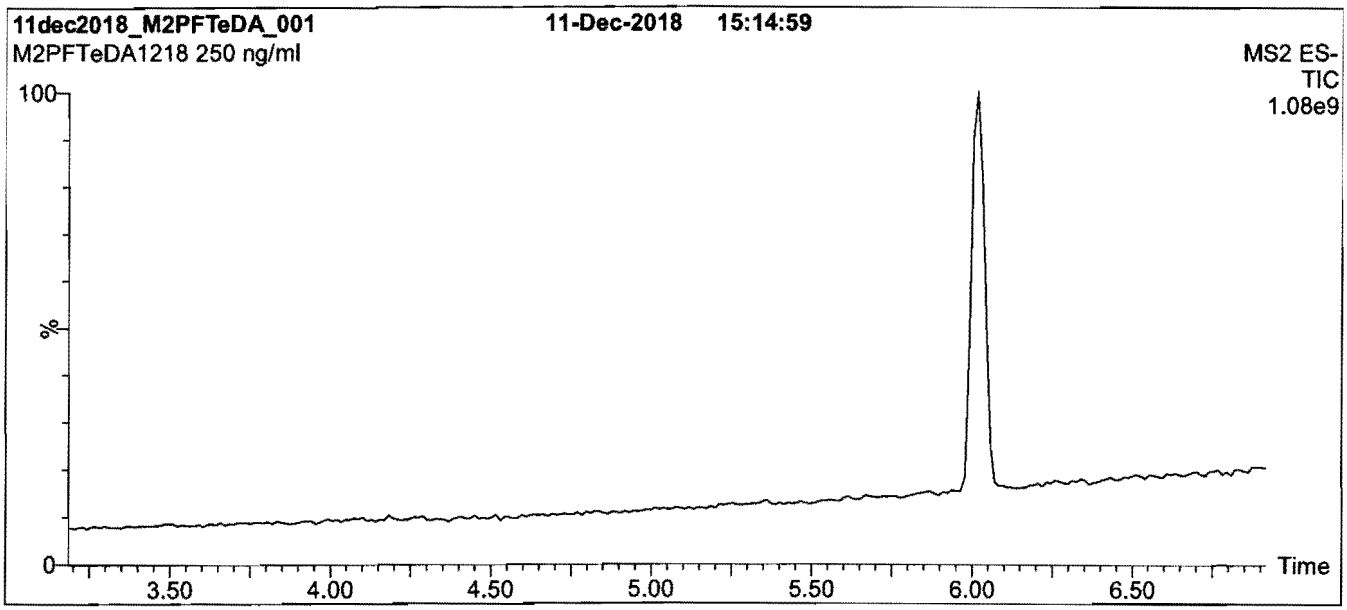
Mobile phase: Same as Figure 1

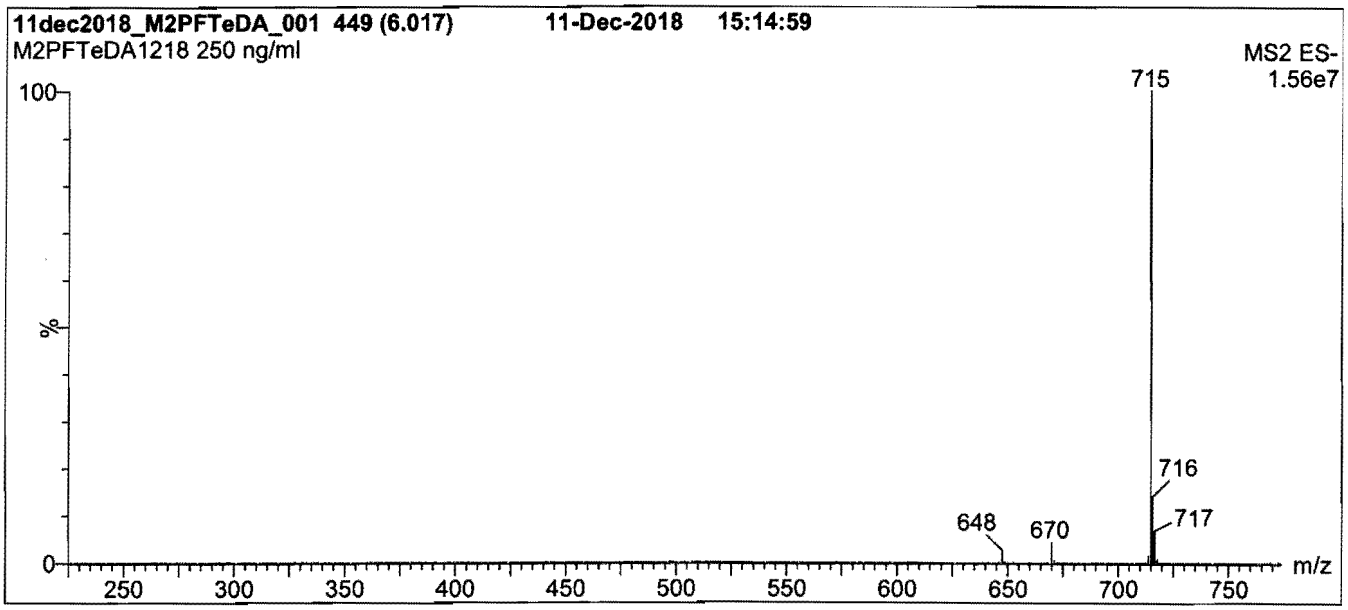
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 14

Figure 1: **M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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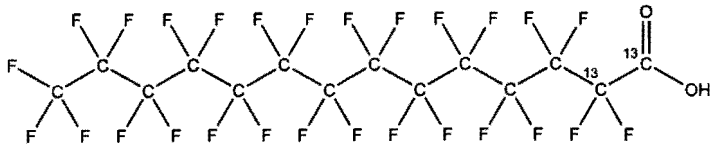
19L0607

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFTeDA	**LOT NUMBER:**	M2PFTeDA1218
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	12/11/2018		
EXPIRY DATE: (mm/dd/yyyy)	12/11/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

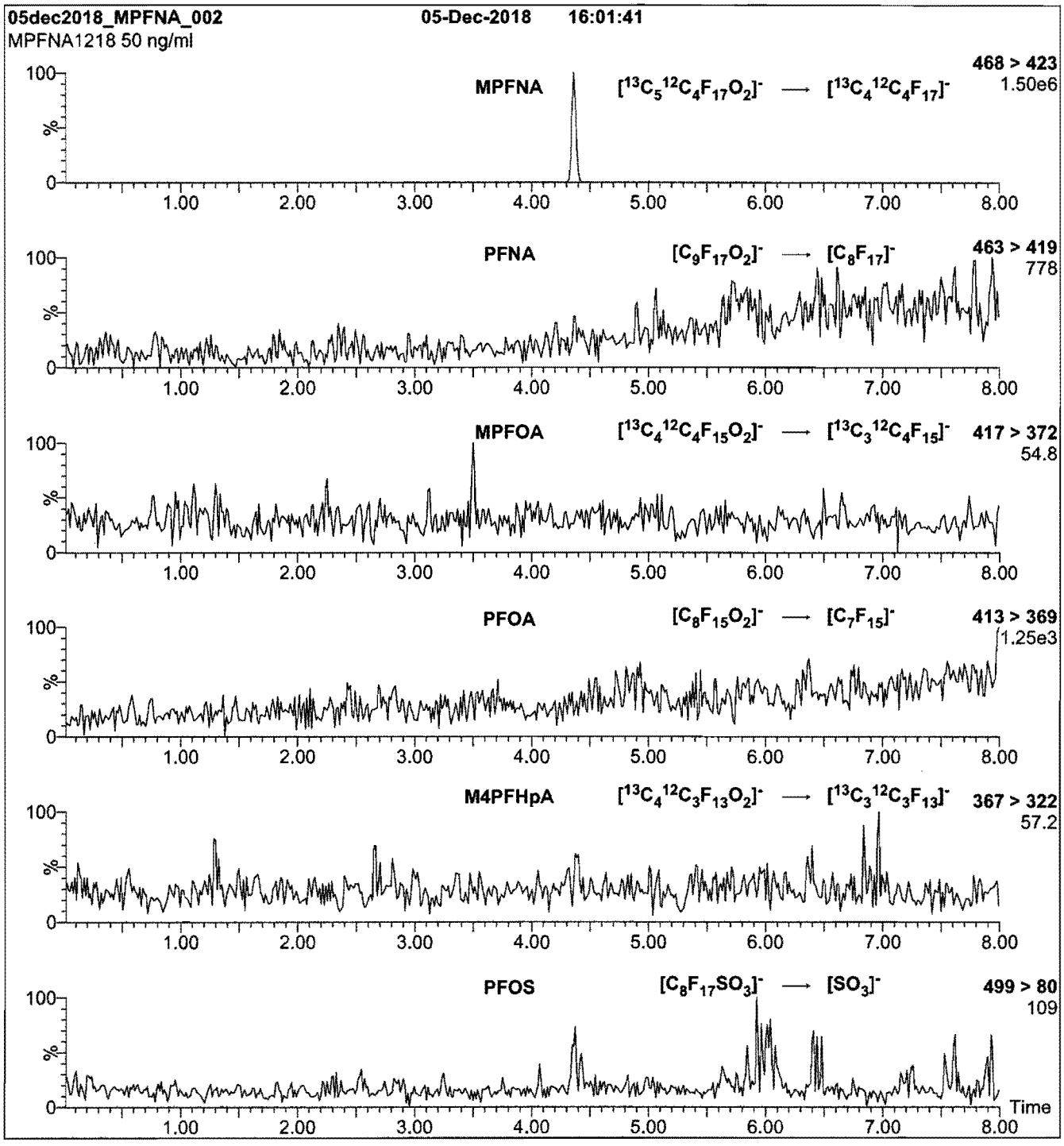
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/20/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0608

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFNA)

Mobile phase: Same as Figure 1

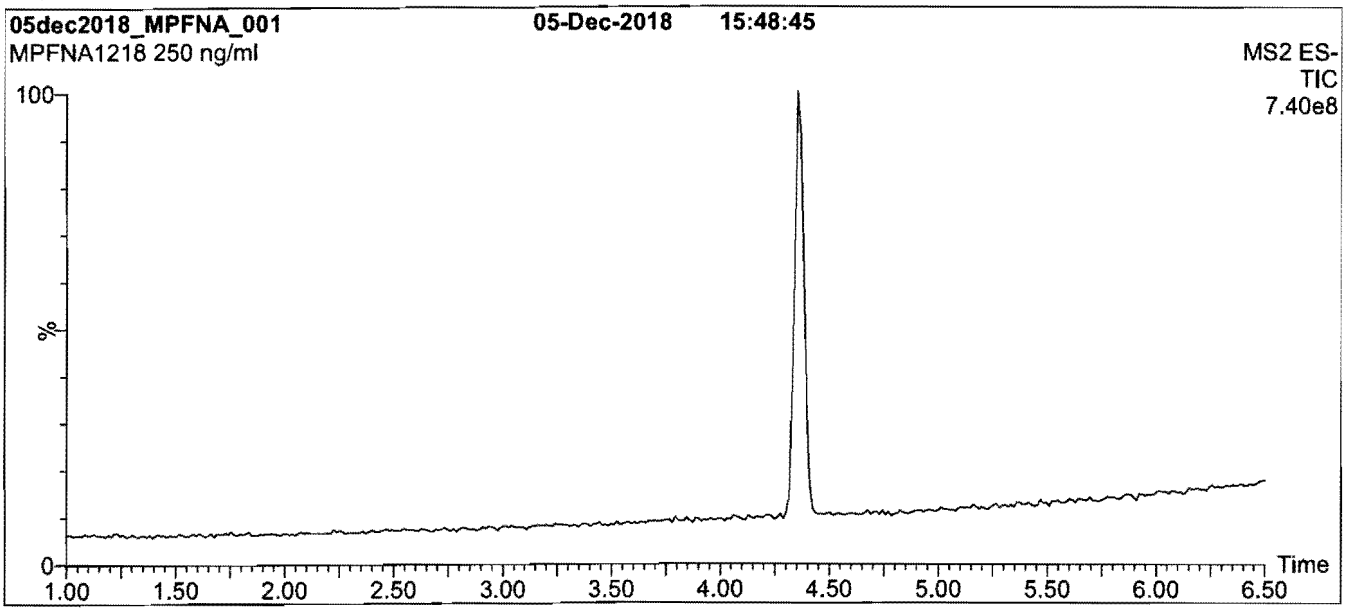
Flow: 300 µl/min

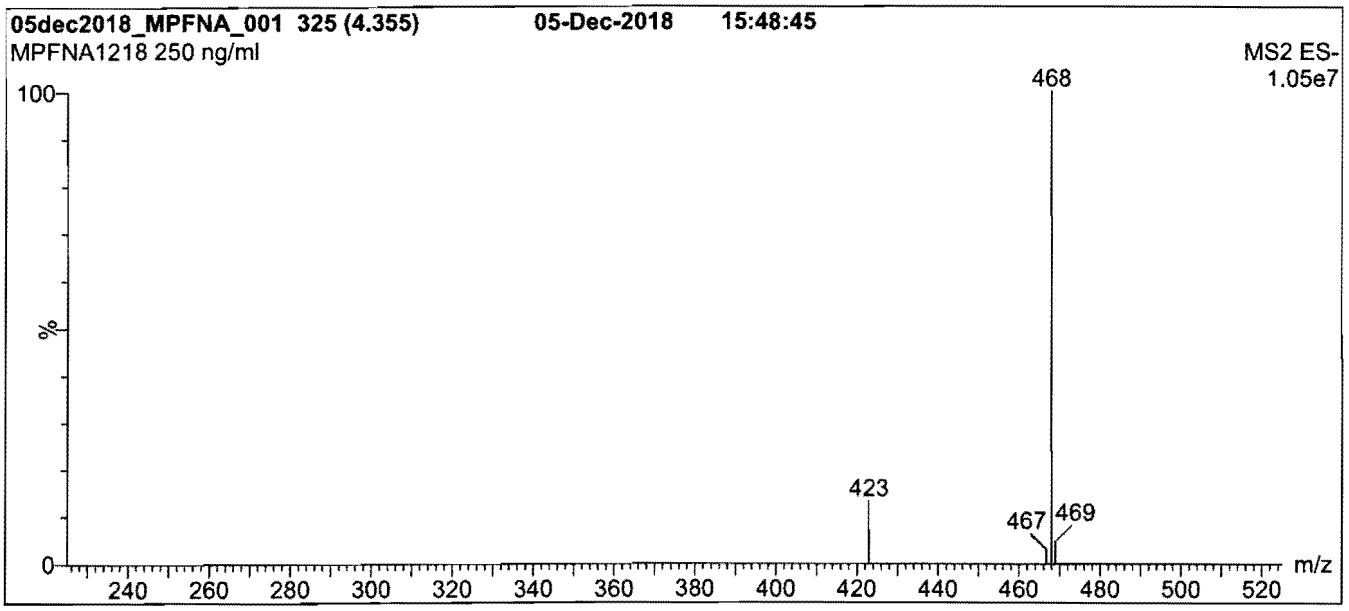
MS Parameters

Collision Gas (mbar) = 2.88e-3
Collision Energy (eV) = 10

19L0608

Figure 1: **MPFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
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1.7 µm, 2.1 x 100 mm

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Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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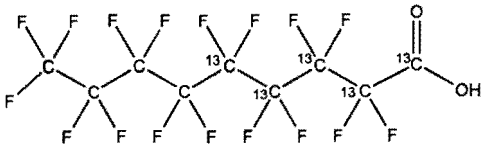
19L0608

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFNA	**LOT NUMBER:**	MPFNA1218
COMPOUND:	Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	12/05/2018		
EXPIRY DATE: (mm/dd/yyyy)	12/05/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/10/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0609

WELLINGTON LABORATORIES

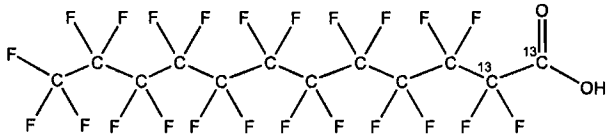
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA1218

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{10}HF_{23}O_2$	**MOLECULAR WEIGHT:**	616.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	12/11/2018		
EXPIRY DATE: (mm/dd/yyyy)	12/11/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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ADDITIONAL INFORMATION:

- See page 2 for further details.
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Certified By: _____ **Date:** 12/18/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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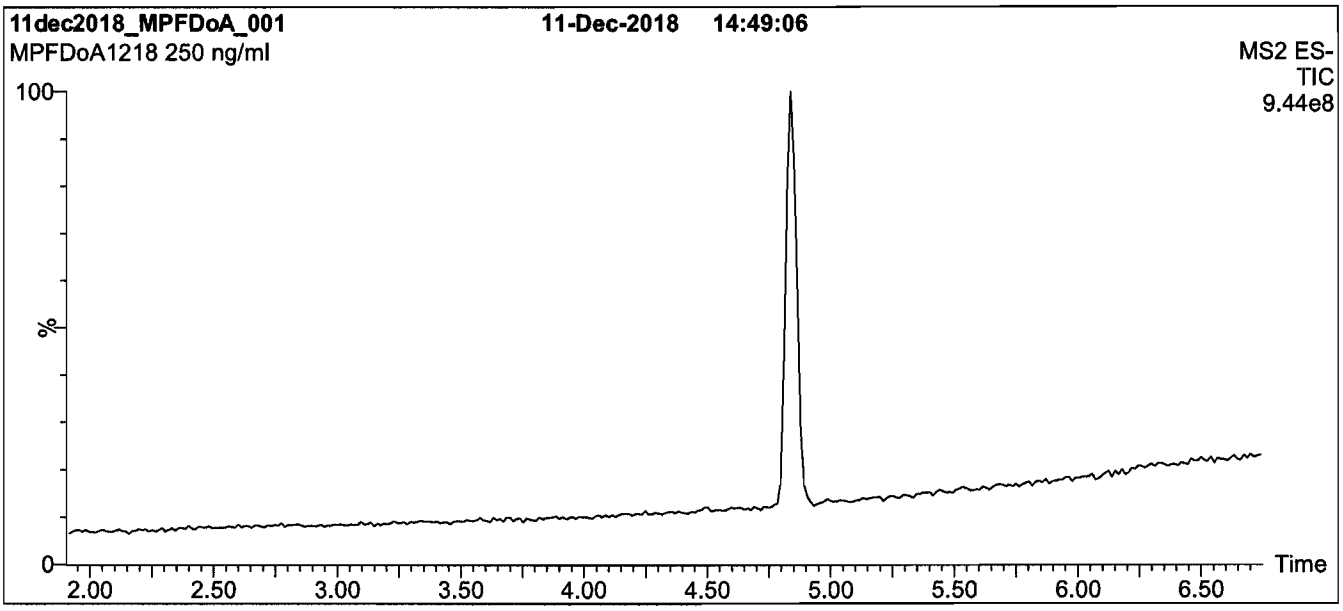
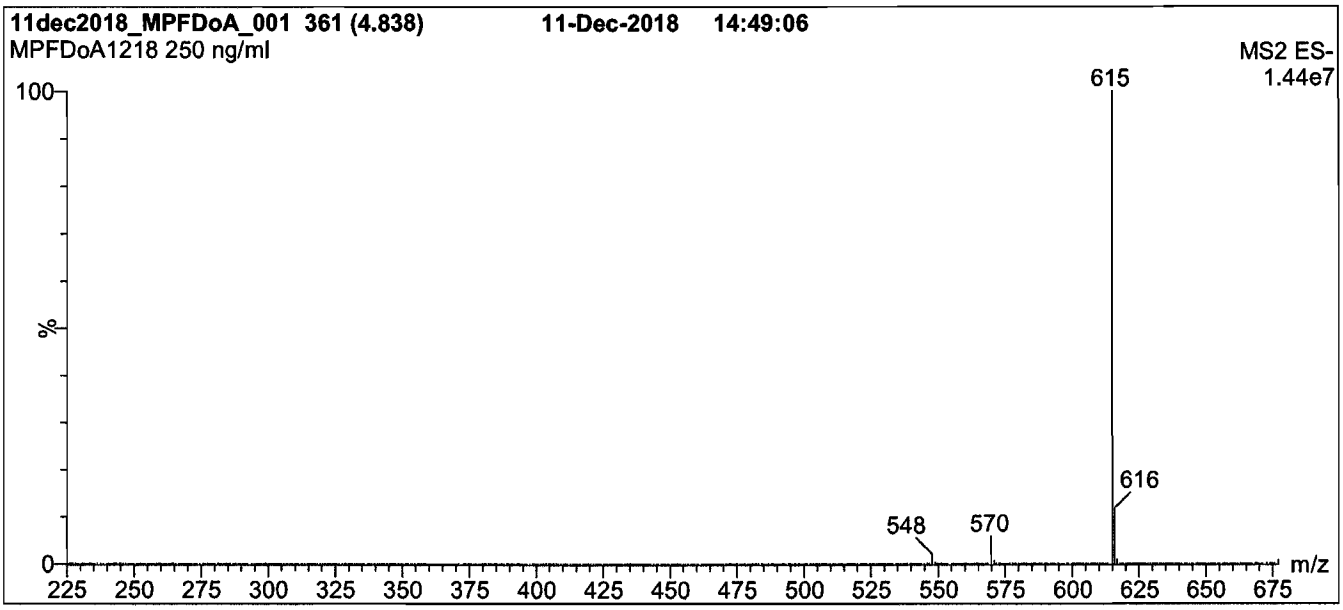
Figure 1: **MPFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min before returning to initial conditions in 0.75 min.
Time: 12 min

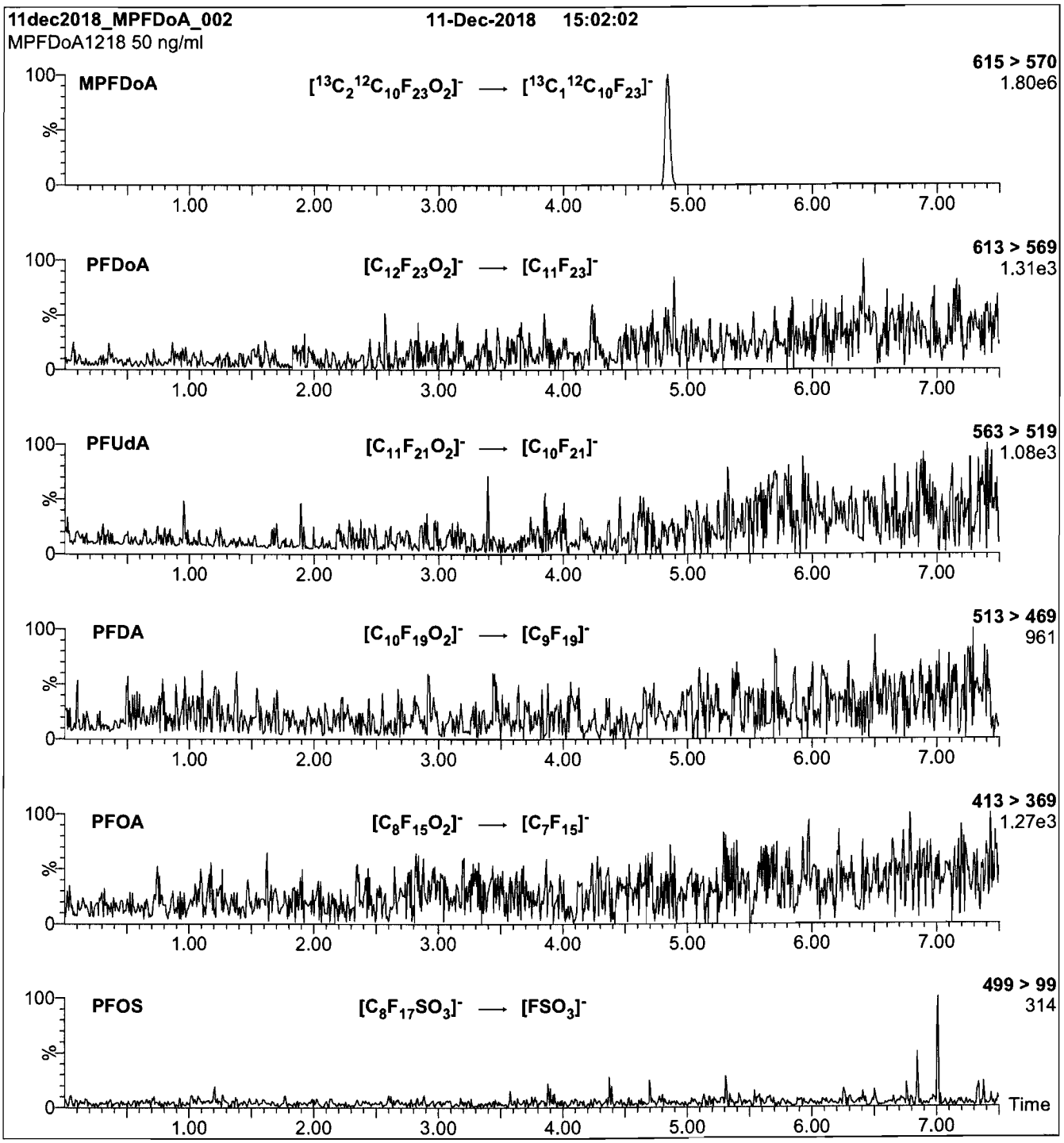
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **MPFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFDoA)

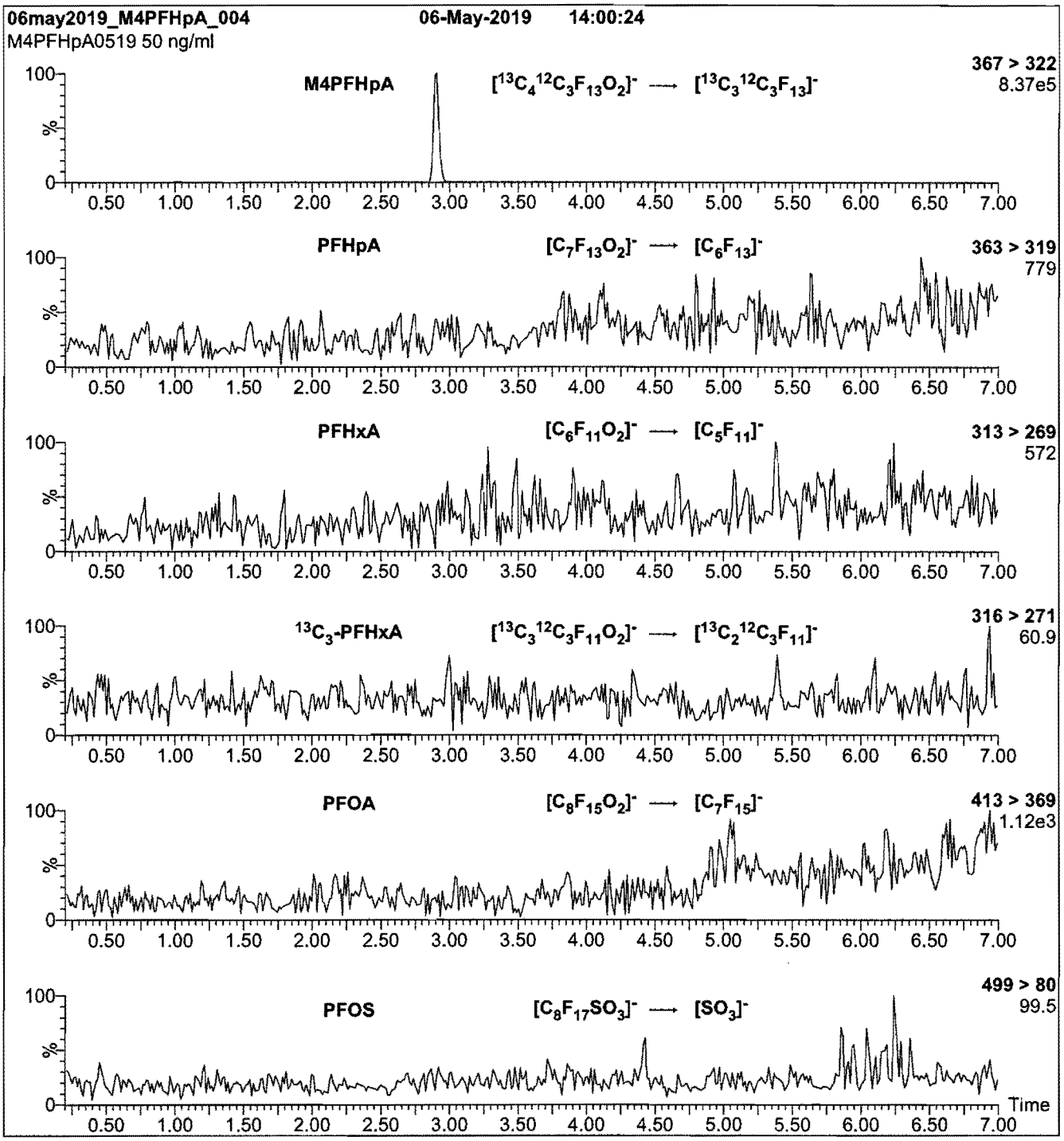
Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 12

Figure 2: **M4PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M4PFHpA)

Mobile phase: Same as Figure 1

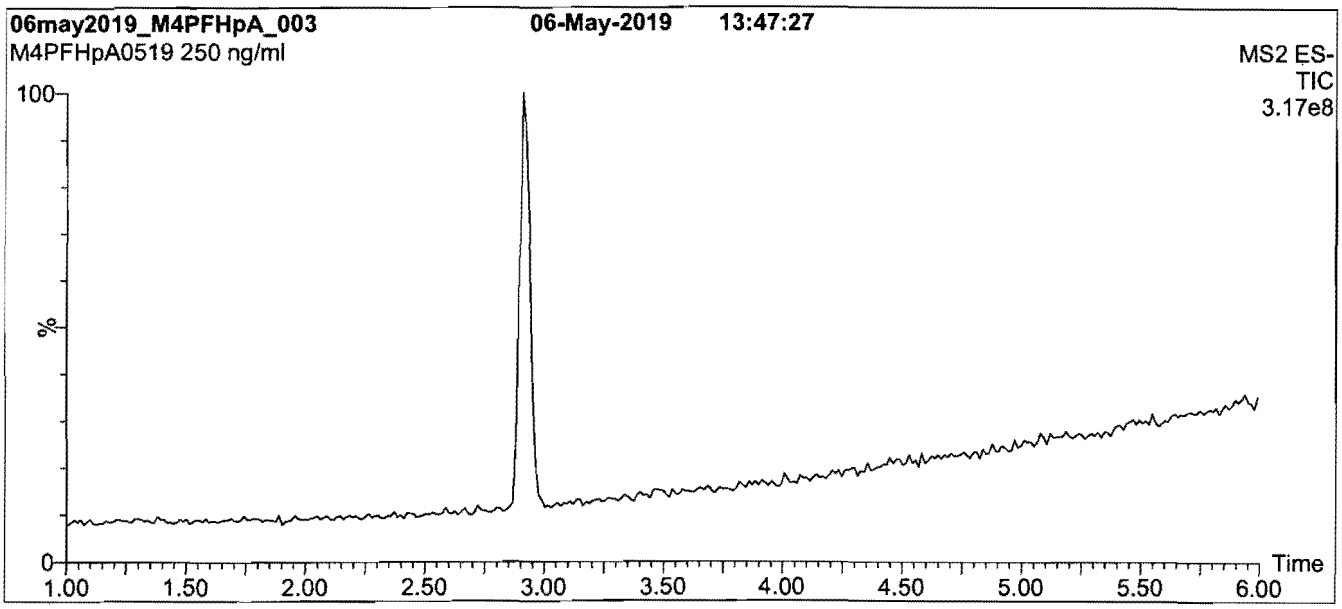
Flow: 300 µl/min

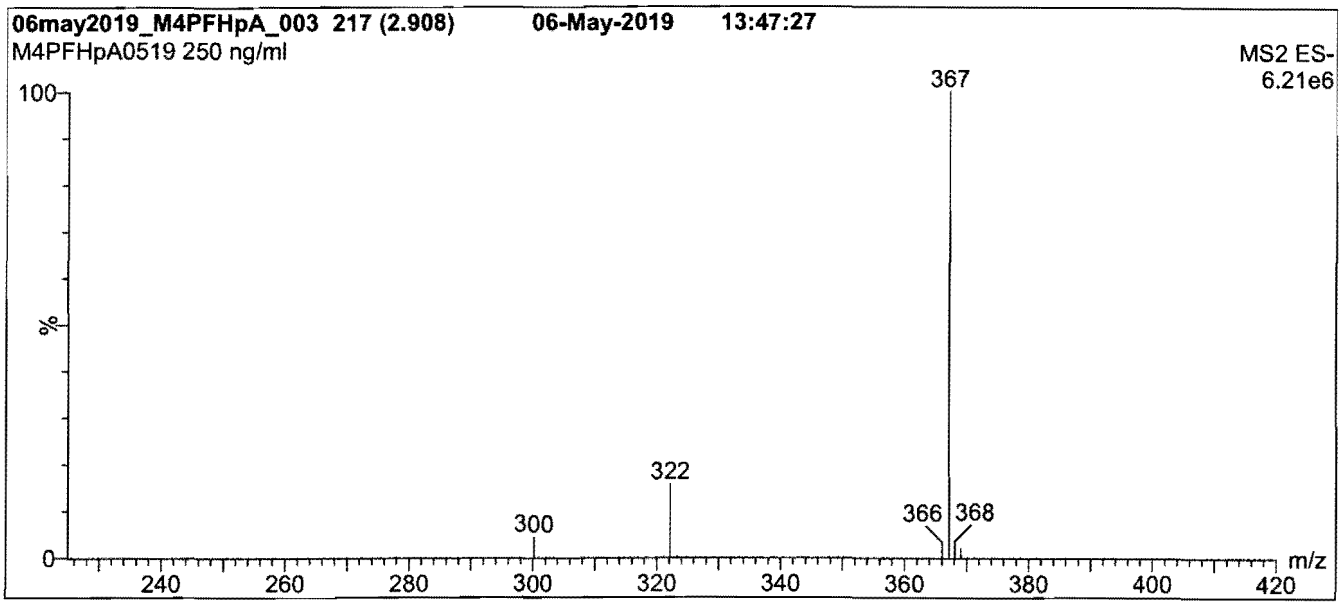
MS Parameters

Collision Gas (mbar) = 2.87e-3
Collision Energy (eV) = 8

19L0610

Figure 1: **M4PFHpA; LC/MS Data (TIC and Mass Spectrum)**





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Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
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Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0610

INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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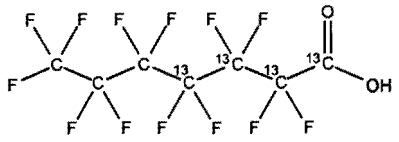
19L0610

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0519
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	05/06/2019		
EXPIRY DATE: (mm/dd/yyyy)	05/06/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

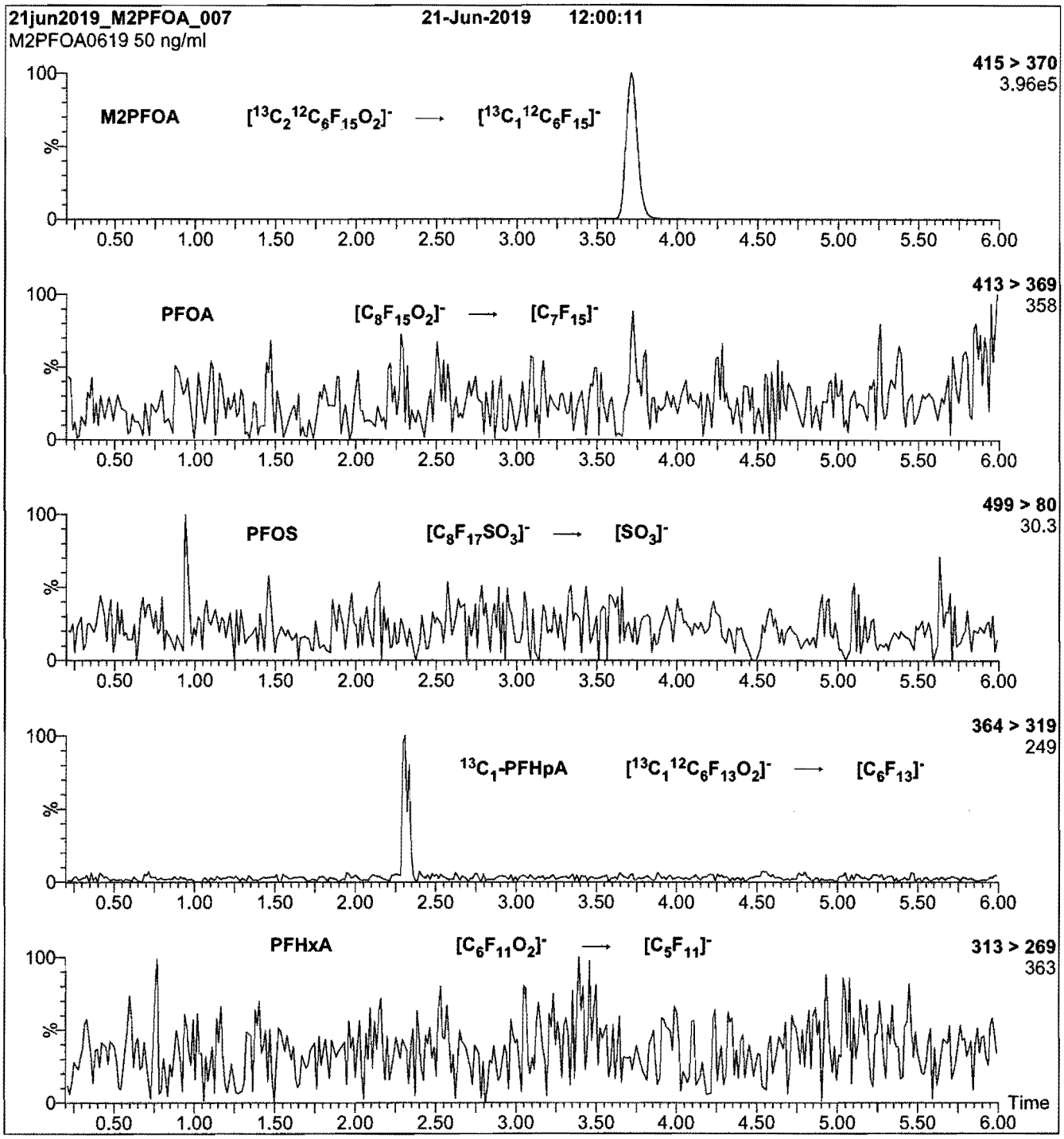
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/17/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0611

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2PFOA)

Mobile phase: Same as Figure 1

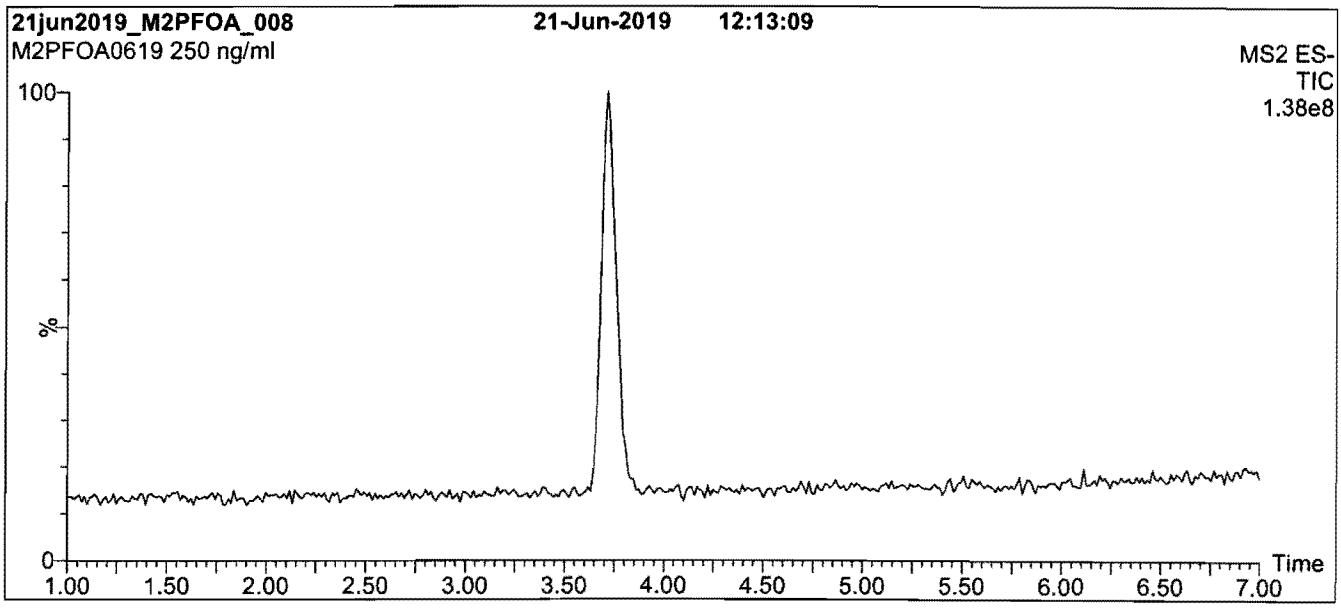
Flow: 300 µl/min

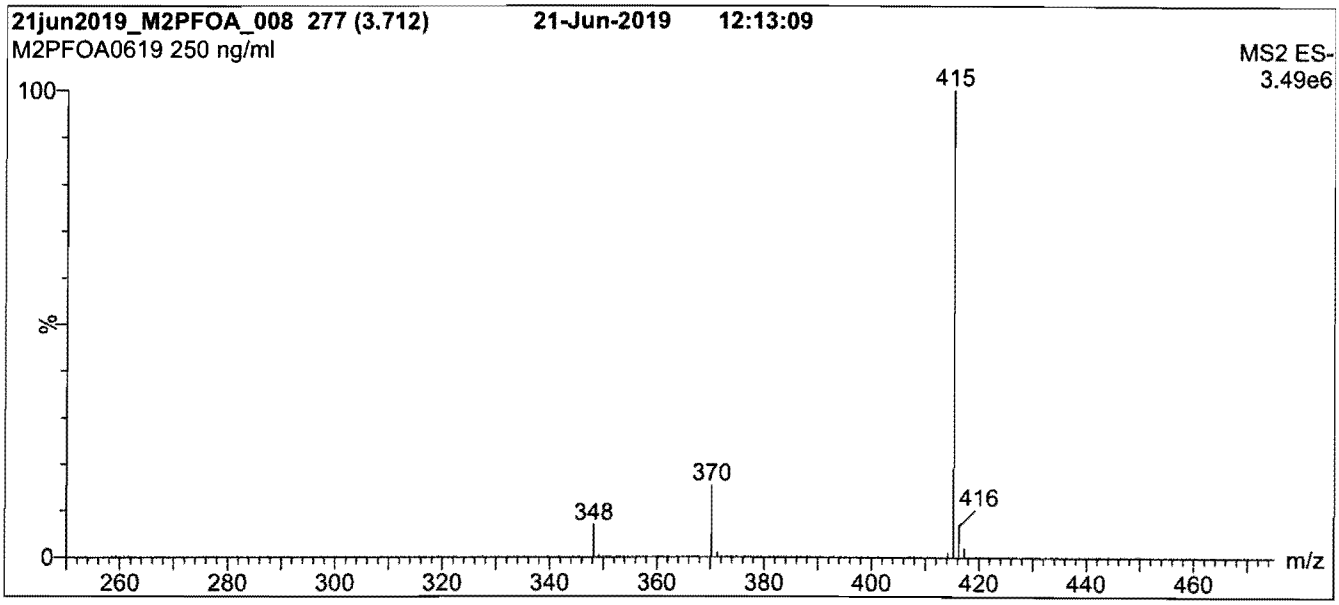
MS Parameters

Collision Gas (mbar) = 2.88e-3
Collision Energy (eV) = 8

19L0611

Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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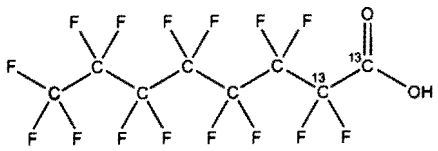
19L 0611

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0619
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	06/21/2019		
EXPIRY DATE: (mm/dd/yyyy)	06/21/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of perfluoro-n-[$^{13}C_1$]heptanoic acid ($^{13}C_1$-PFHpA).

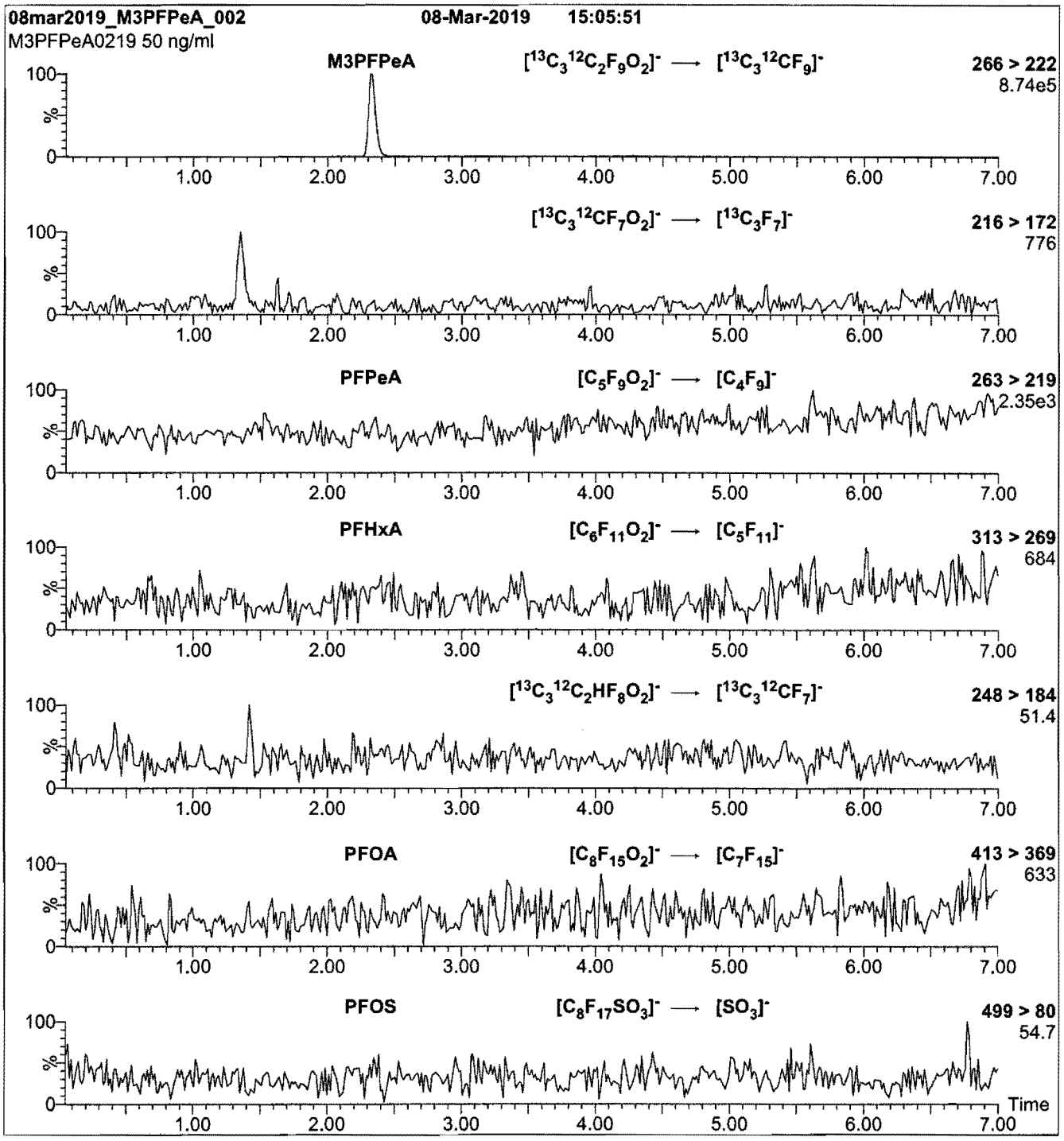
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/21/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0612

Figure 2: **M3PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3PFPeA)

Mobile phase: Same as Figure 1

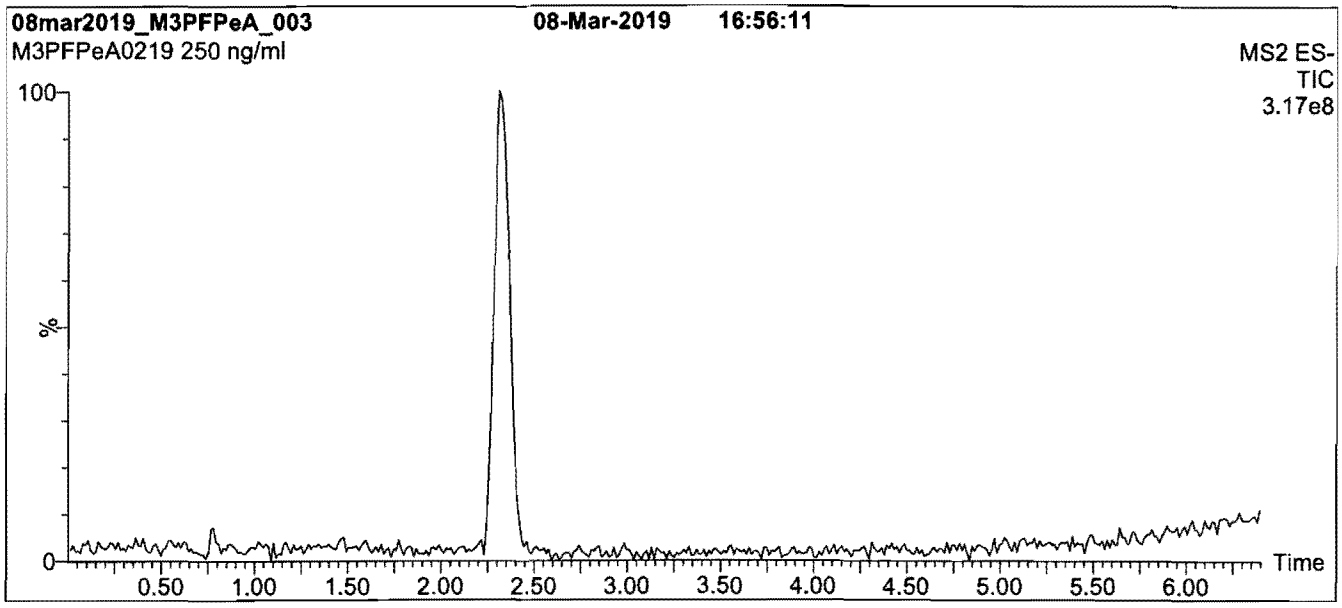
Flow: 300 µl/min

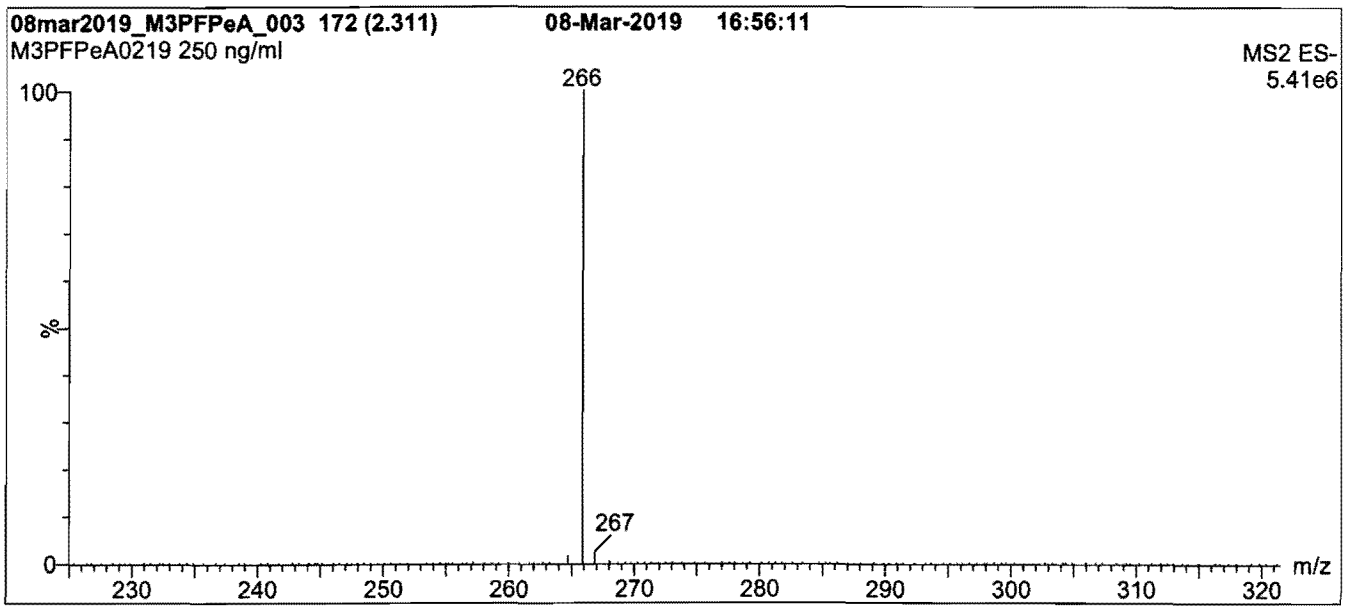
MS Parameters

Collision Gas (mbar) = 2.84e-3
Collision Energy (eV) = 8

19L0612

Figure 1: **M3PFPeA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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Start: 40% (80:20 MeOH:ACN) / 60% H_2O
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Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
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Desolvation Gas Flow (l/hr) = 1000

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where x is expressed as a relative standard uncertainty of the individual parameter.

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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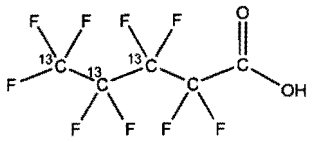
19L0612

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFPeA	**LOT NUMBER:**	M3PFPeA0219
COMPOUND:	Perfluoro-n-[3,4,5-$^{13}C_3$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_2HF_9O_2$	**MOLECULAR WEIGHT:**	267.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($3,4,5$-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	03/08/2019		
EXPIRY DATE: (mm/dd/yyyy)	03/08/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.95% of perfluoro-n-[$^{13}C_3$]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

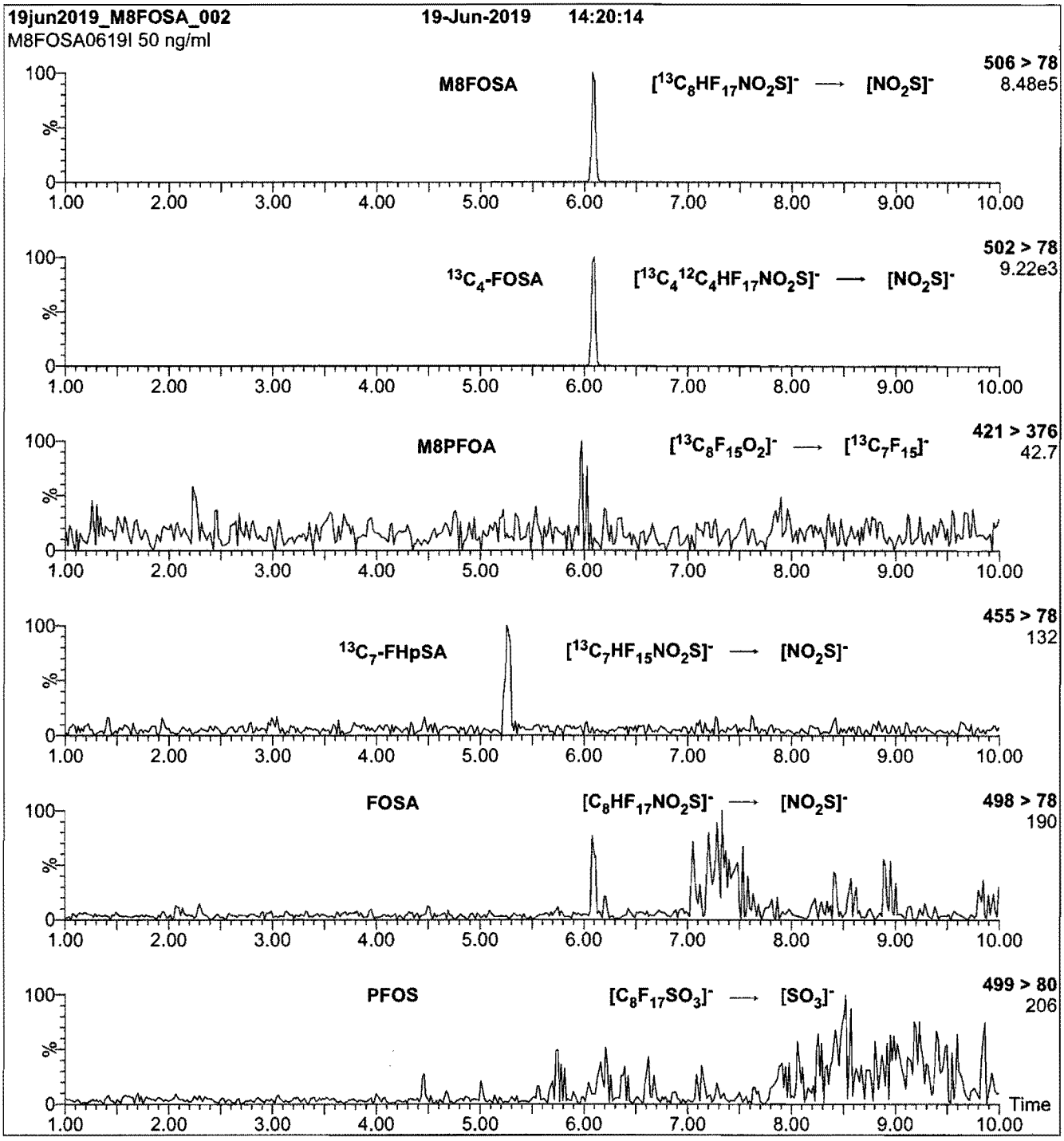
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/19/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0613

Figure 2: **M8FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M8FOSA-I)

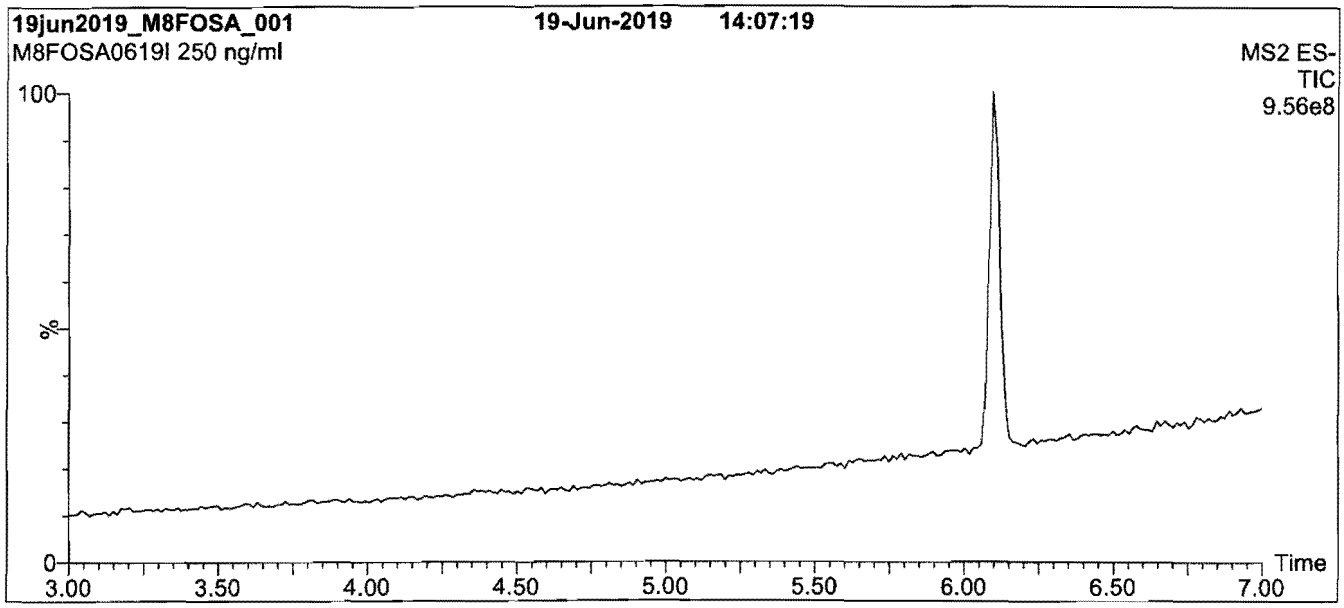
Mobile phase: Same as Figure 1

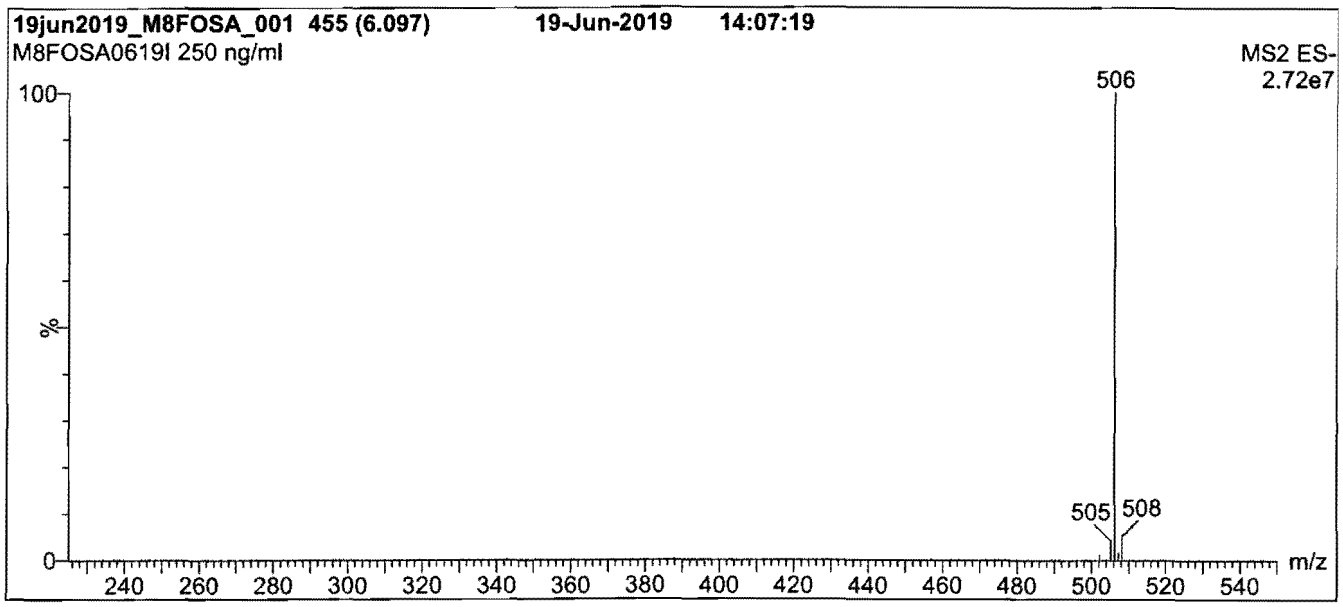
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.94e-3
Collision Energy (eV) = 30

Figure 1: **M8FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0613

INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

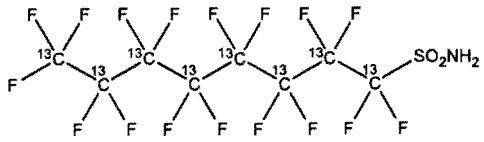
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0613

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8FOSA-I	**LOT NUMBER:**	M8FOSA0619I
COMPOUND:	Perfluoro-1-[$^{13}C_8$]octanesulfonamide		
STRUCTURE:		**CAS #:**	1365803-60-6



MOLECULAR FORMULA:	$^{13}C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	507.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	06/19/2019		
EXPIRY DATE: (mm/dd/yyyy)	06/19/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.2% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.02% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/21/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1910614

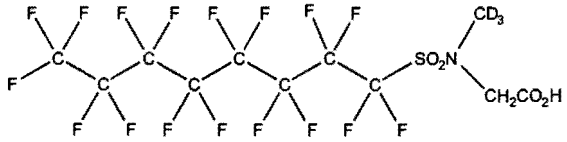
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0719

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 1400690-70-1



MOLECULAR FORMULA:	$C_{11}D_3H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	574.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	07/24/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/24/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/26/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19LC064

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

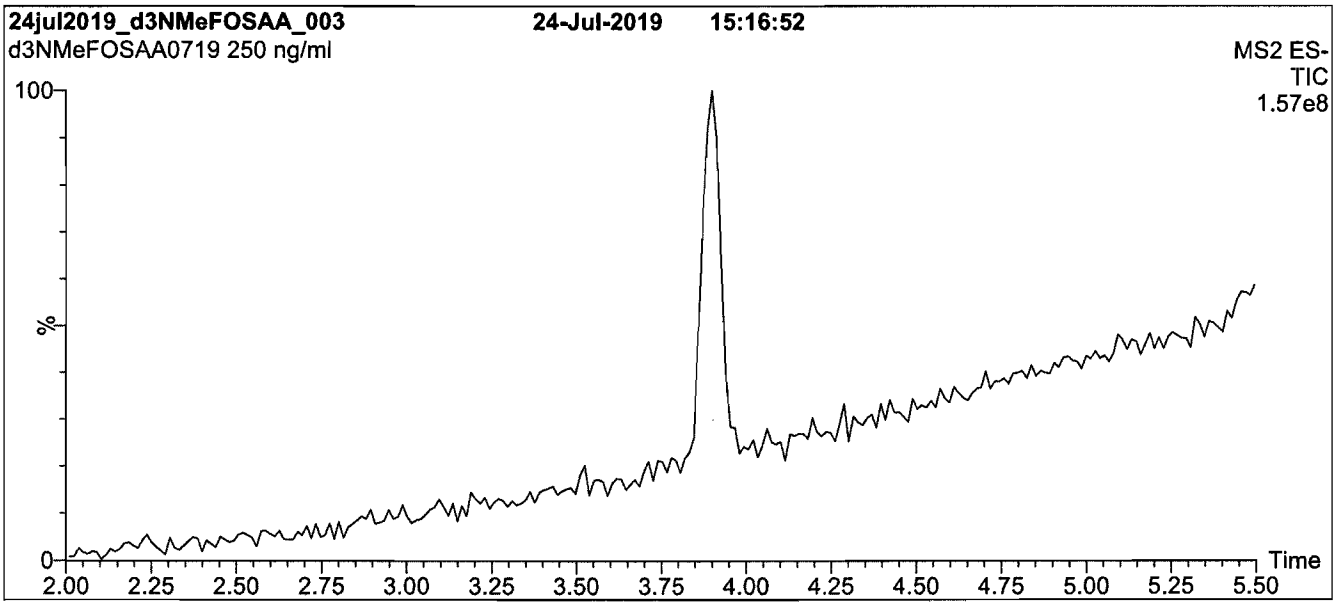
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

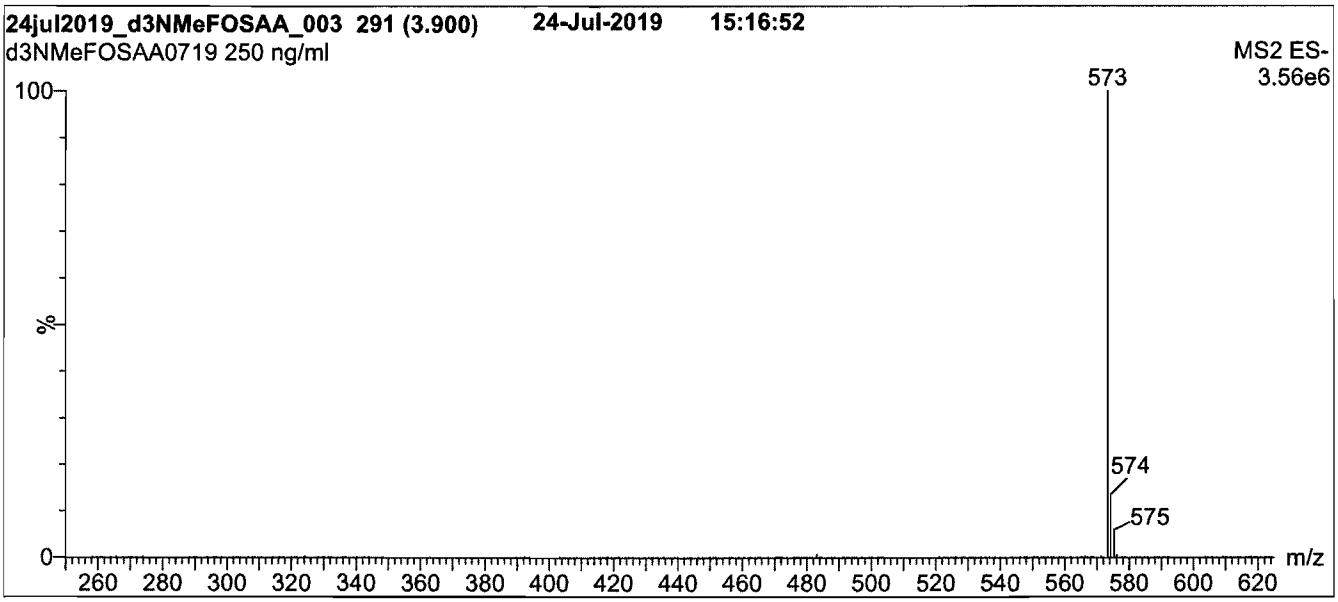
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

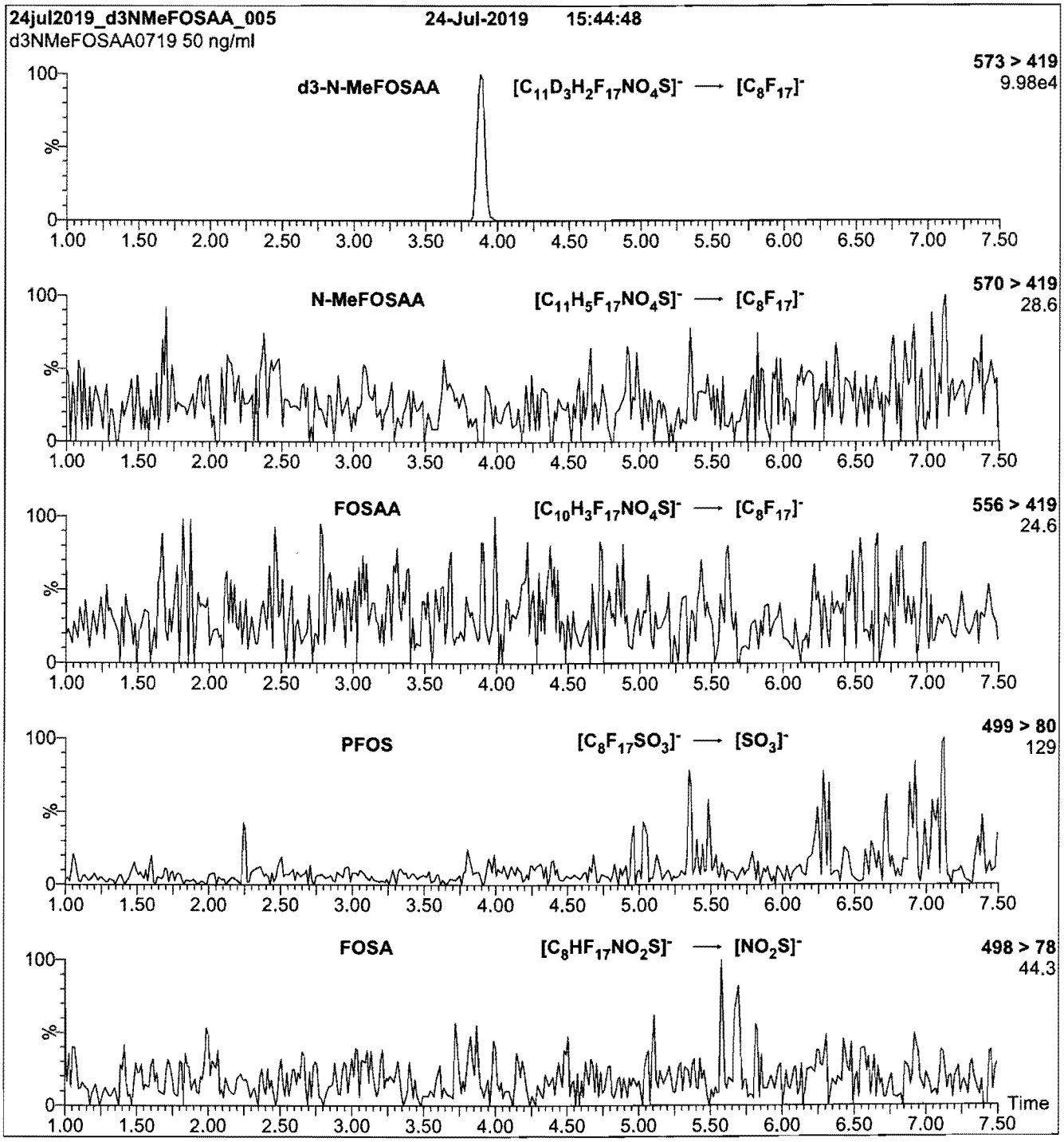
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (d3-N-MeFOSAA)

Mobile phase: Same as Figure 1

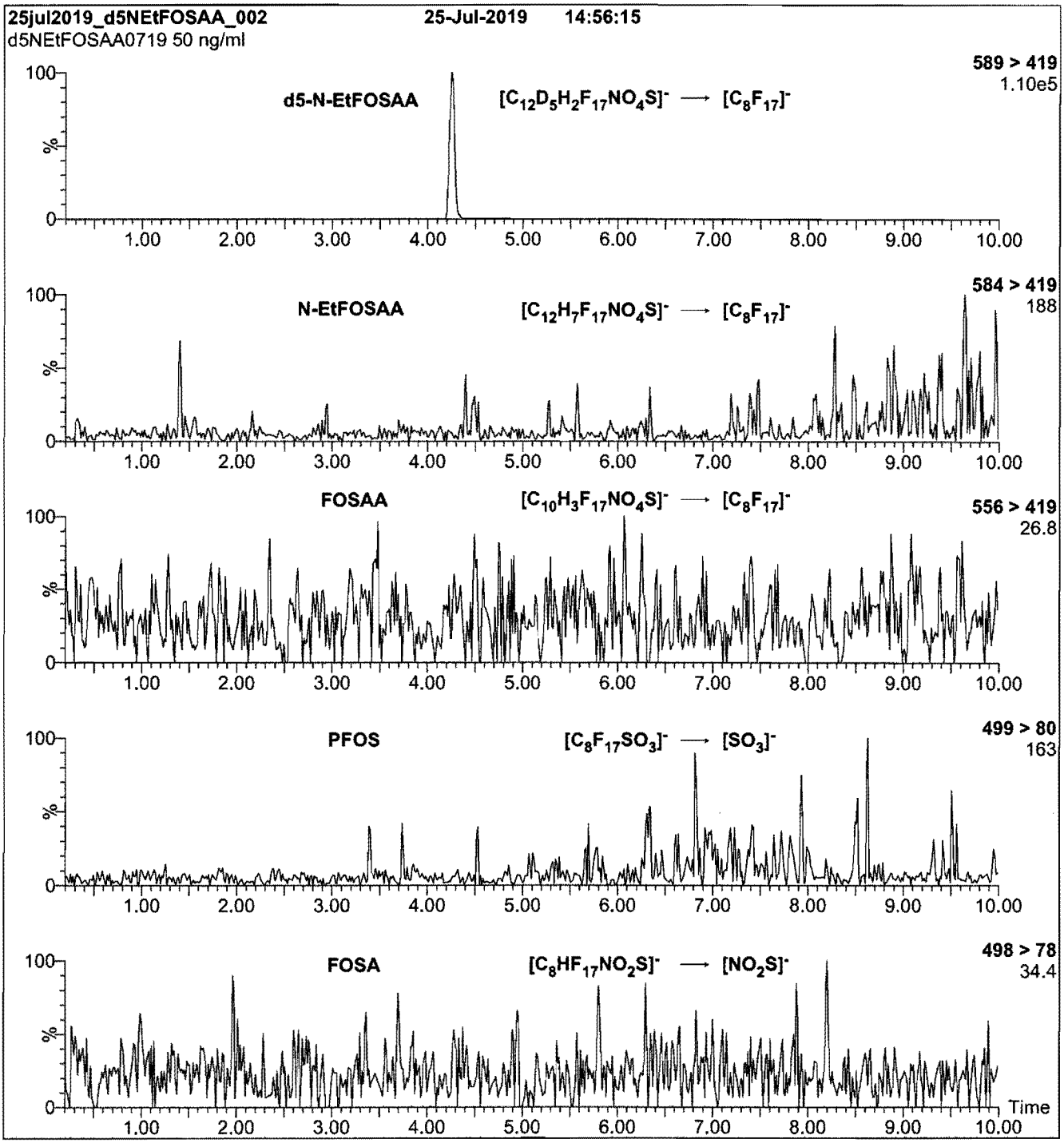
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 18

19L0615

Figure 2: **d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (d5-N-EtFOSAA)

Mobile phase: Same as Figure 1

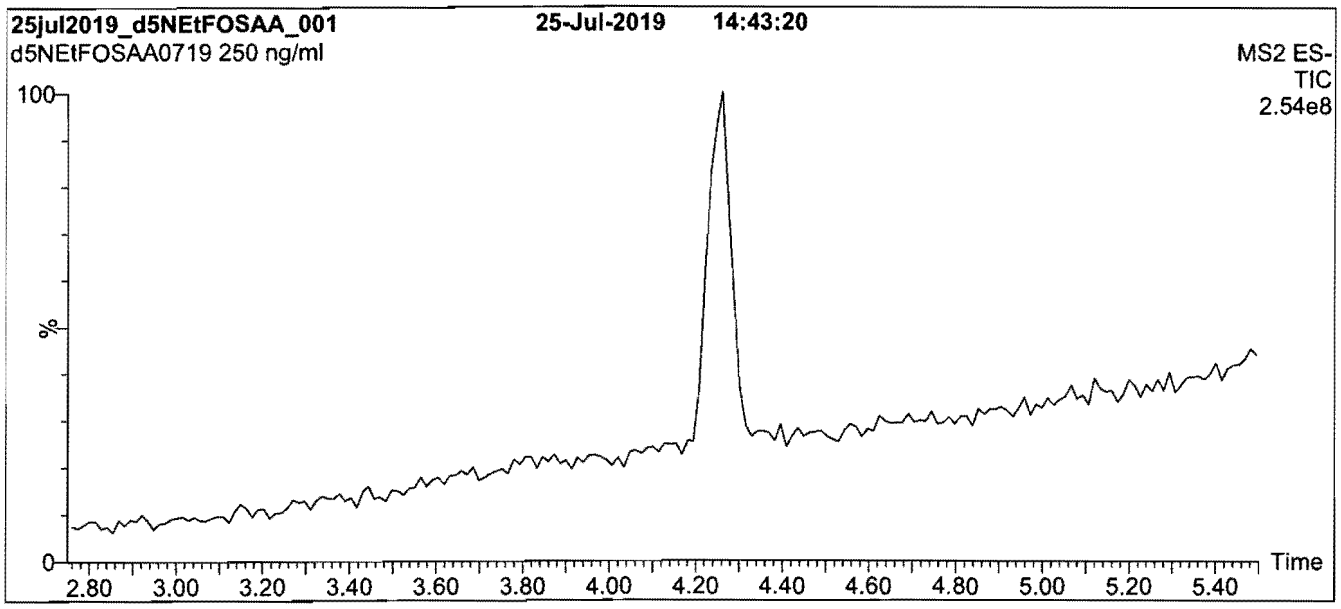
Flow: 300 µl/min

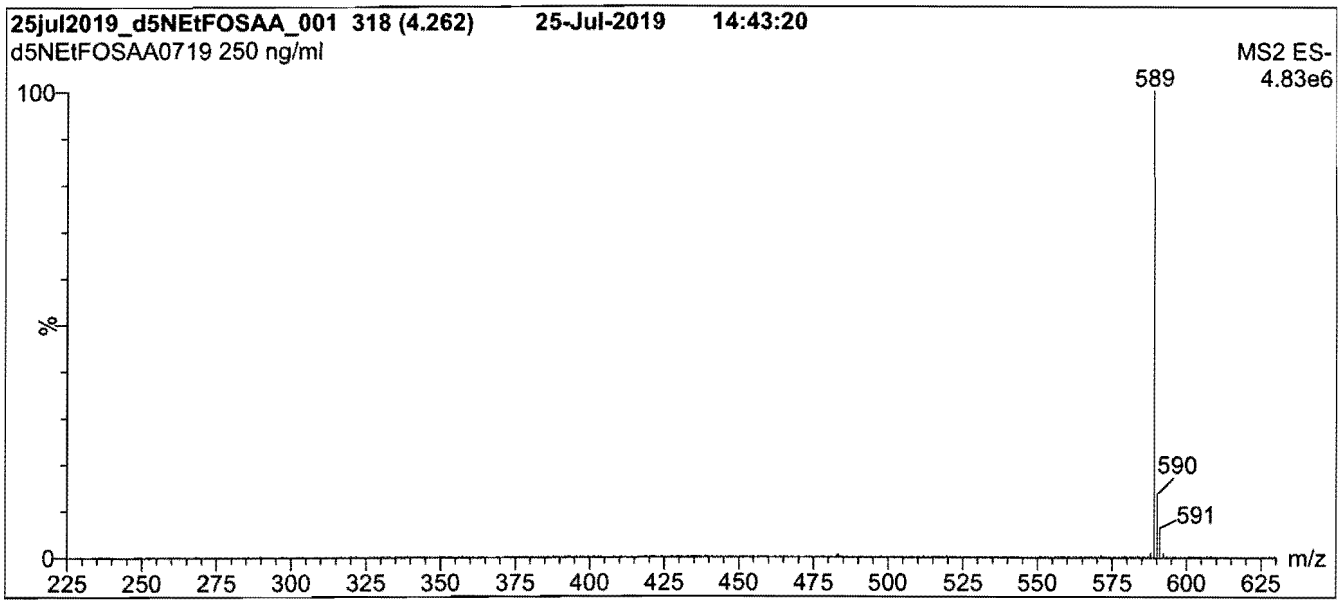
MS Parameters

Collision Gas (mbar) = 3.29e-3
Collision Energy (eV) = 18

19L0615

Figure 1: **d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0615

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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1910615

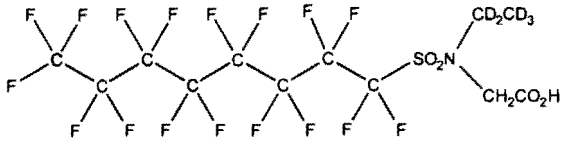
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0719

COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{12}D_5H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	590.26
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	07/25/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/25/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

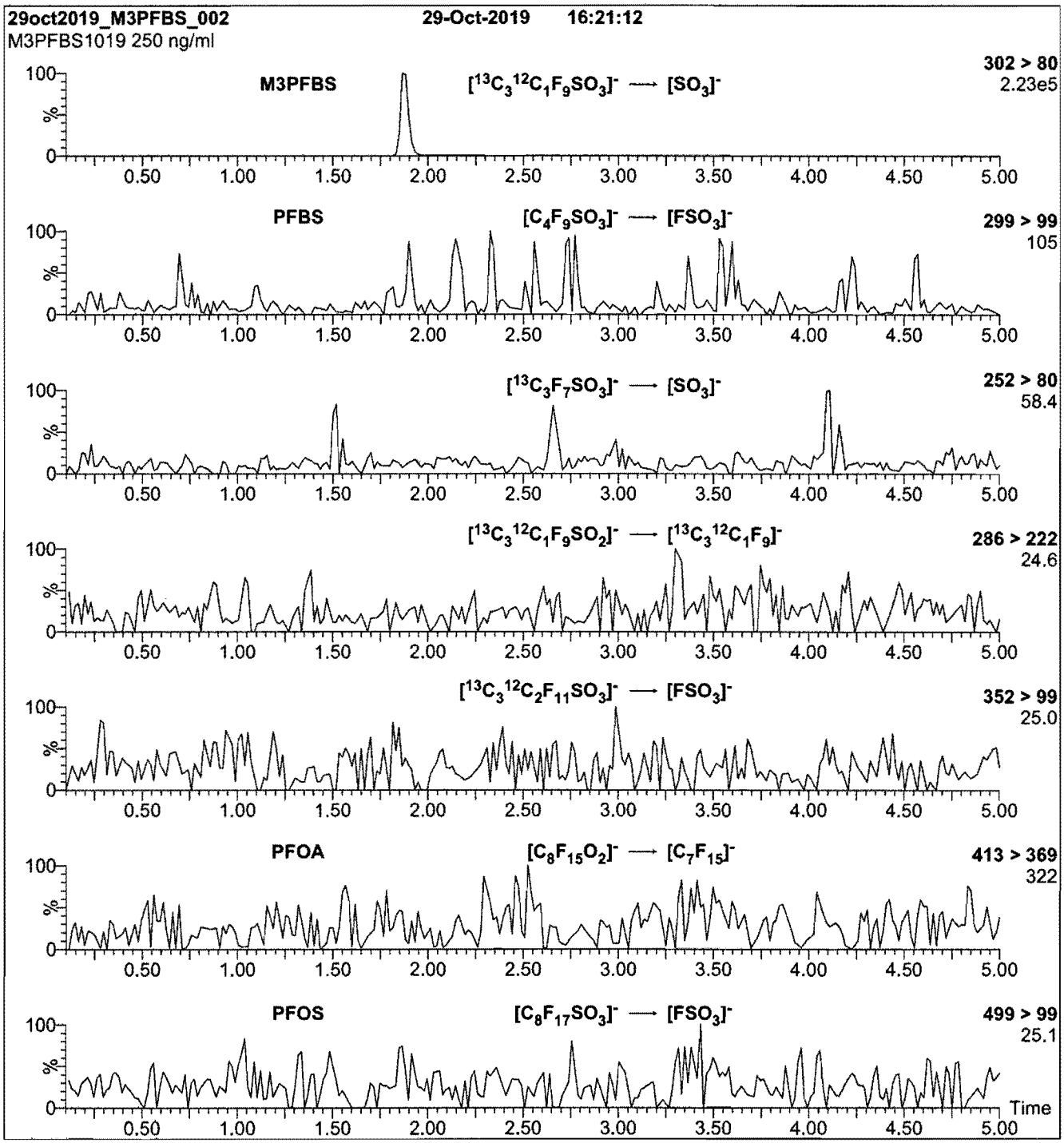
- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/26/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **M3PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3PFBS)

Mobile phase: Same as Figure 1

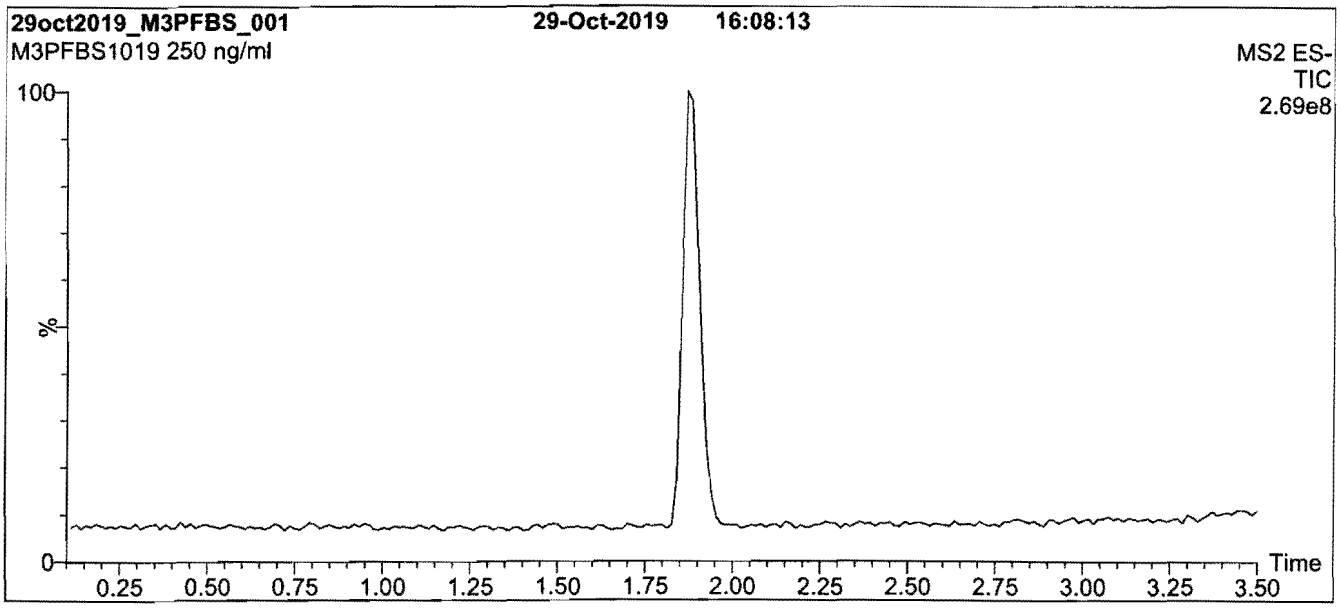
Flow: 300 µl/min

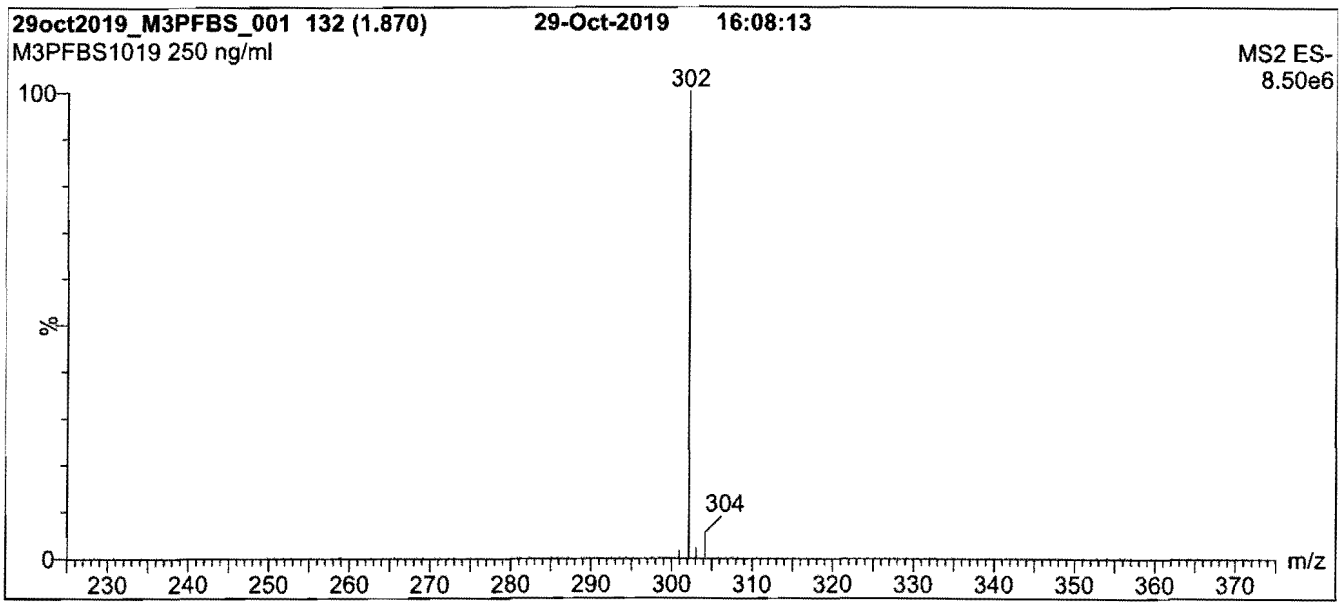
MS Parameters

Collision Gas (mbar) = 3.57e-3
Collision Energy (eV) = 30

19L0616

Figure 1: **M3PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0616

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

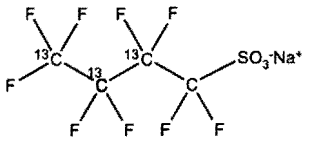
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0616

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBS	**LOT NUMBER:**	M3PFBS1019
COMPOUND:	Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CF_9SO_3Na$	**MOLECULAR WEIGHT:**	325.06
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.5 ± 2.3 µg/ml (M3PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	10/29/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/29/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains < 0.1% of perfluoro-1-butanesulfonate.

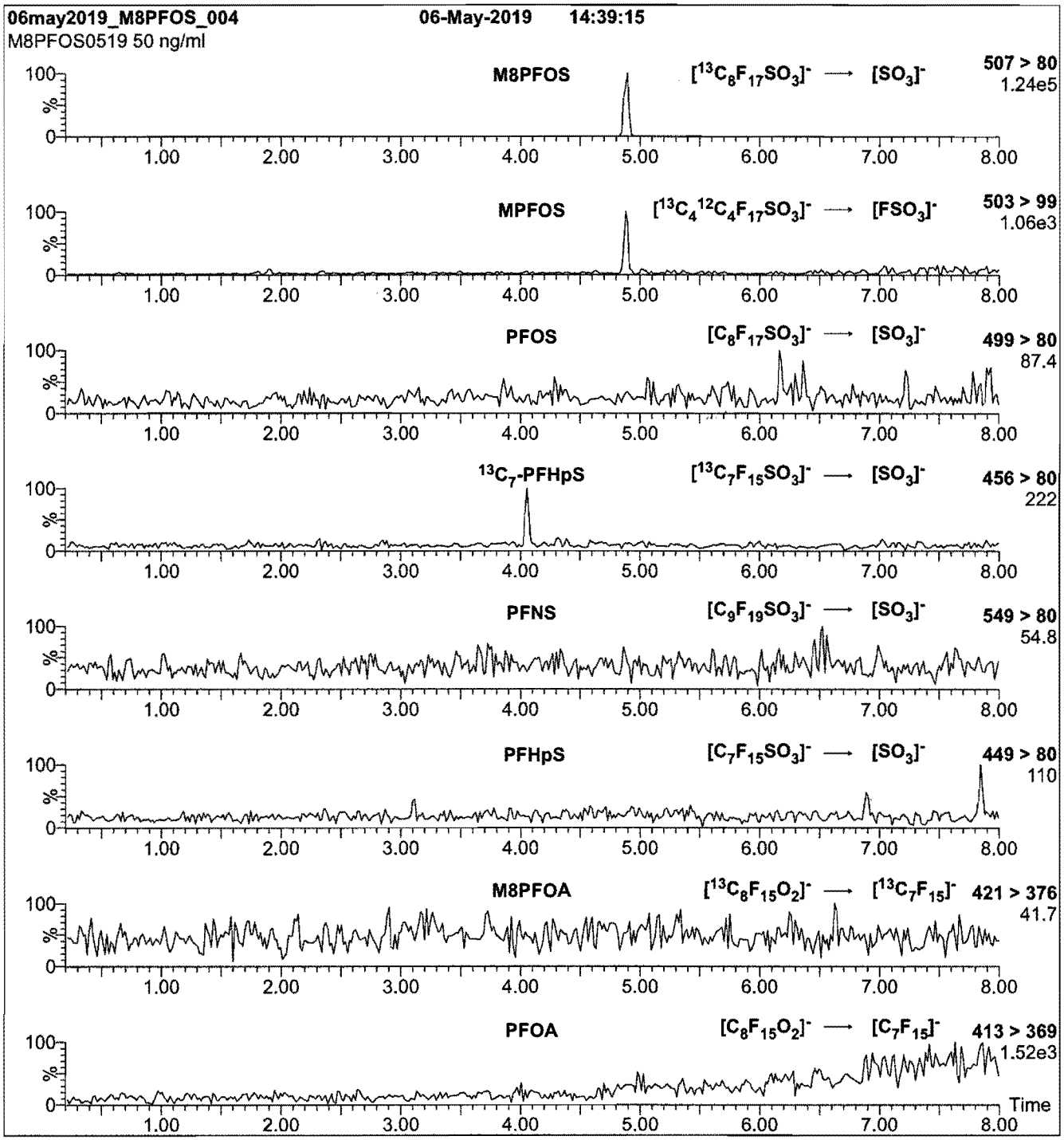
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/08/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0617

Figure 2: **M8PFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M8PFOS)

Mobile phase: Same as Figure 1

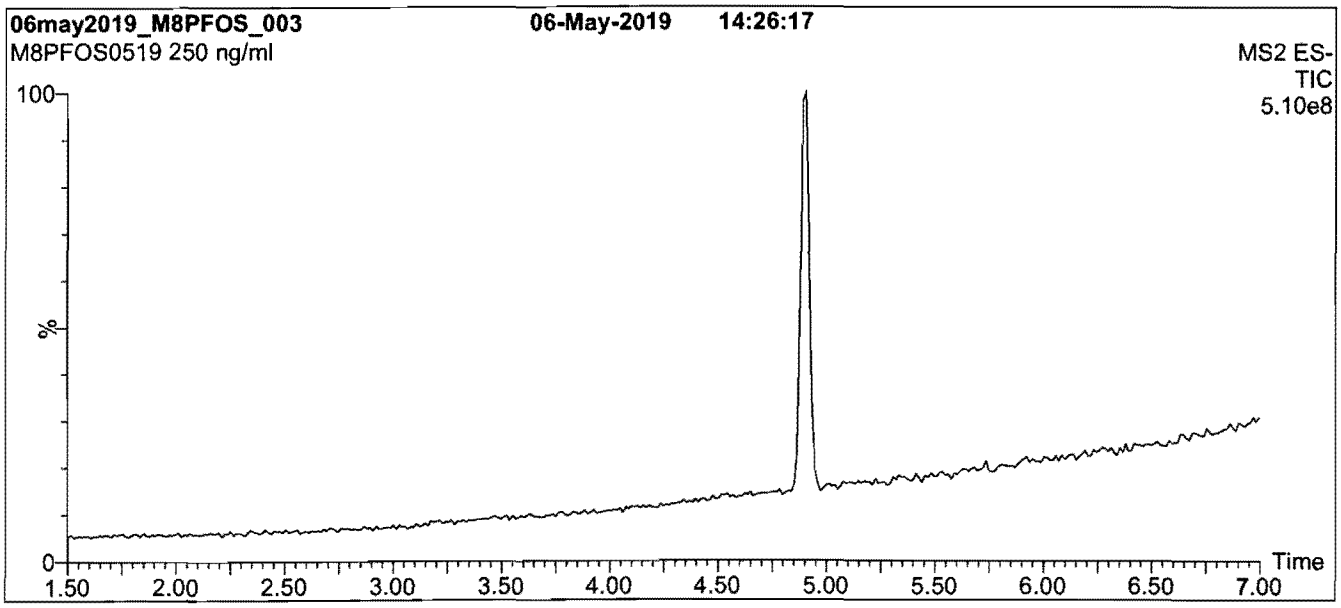
Flow: 300 µl/min

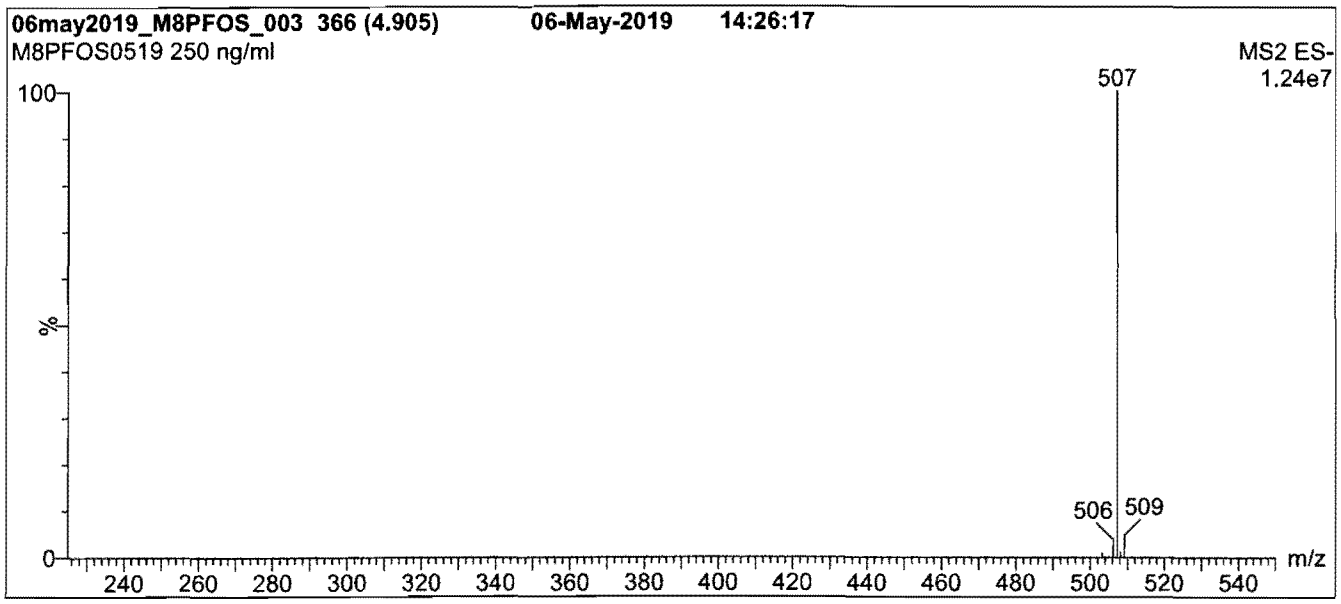
MS Parameters

Collision Gas (mbar) = 2.85e-3
Collision Energy (eV) = 42

19L0617

Figure 1: **M8PFOS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

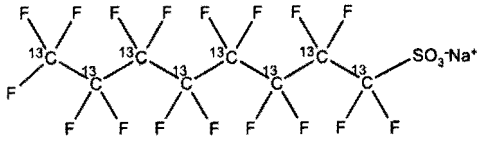
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8PFOS	**LOT NUMBER:**	M8PFOS0519
COMPOUND:	Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	530.05
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (M8PFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	05/06/2019		
EXPIRY DATE: (mm/dd/yyyy)	05/06/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of sodium perfluoro-1-[$^{13}C_7$]heptanesulfonate ($^{13}C_7$-PFHpS) and ~ 1.0% of sodium perfluoro-1-[$^{13}C_4$]octanesulfonate (MPFOS).

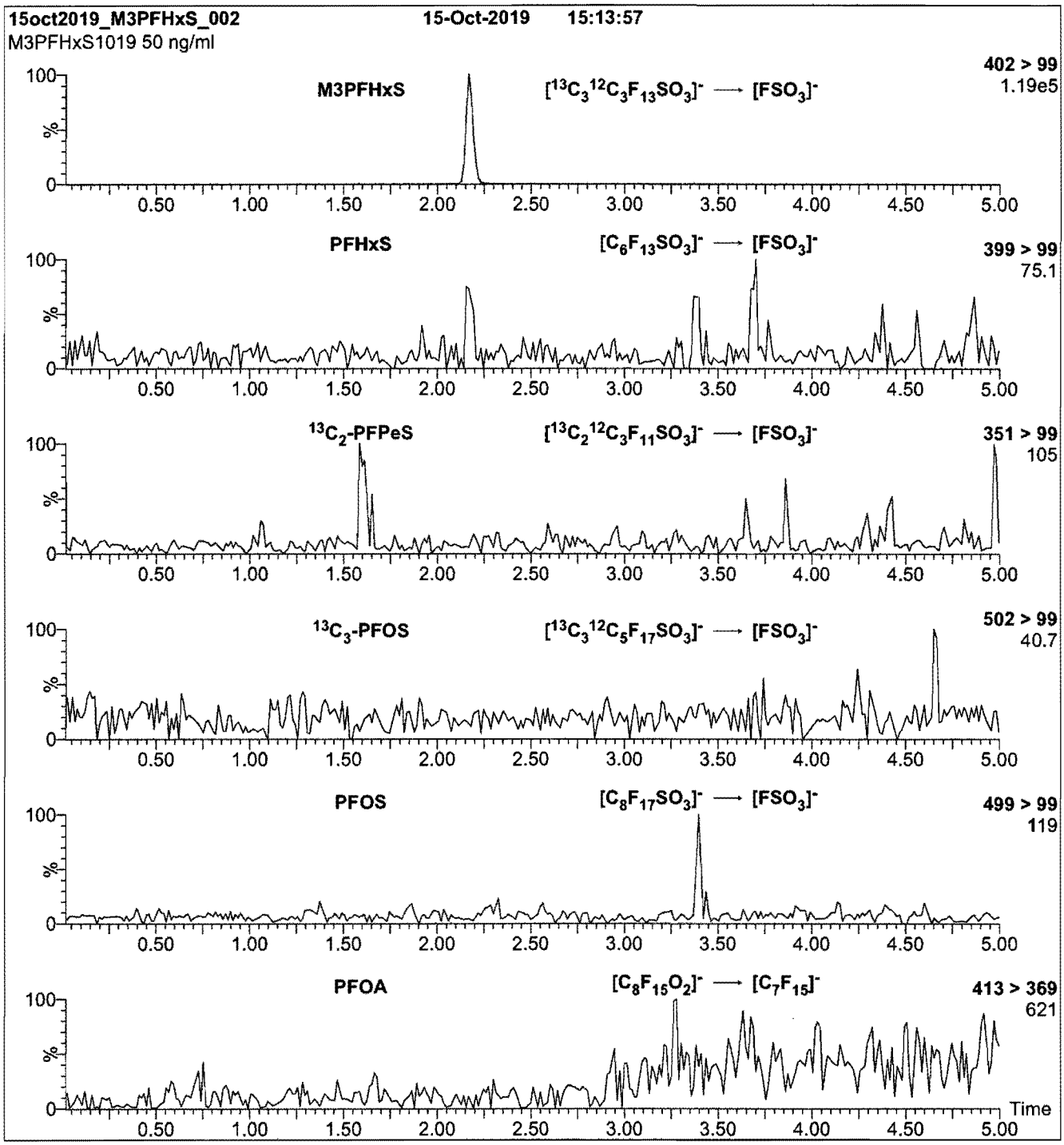
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/23/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0618

Figure 2: **M3PFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3PFHxS)

Mobile phase: Same as Figure 1

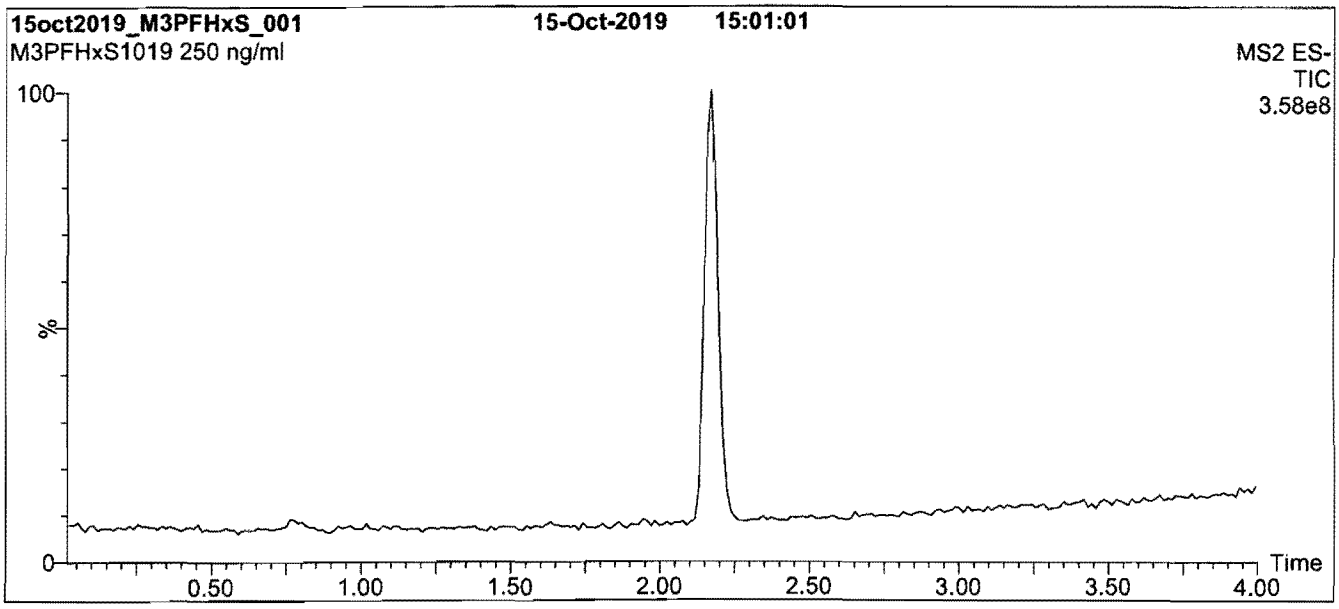
Flow: 300 µl/min

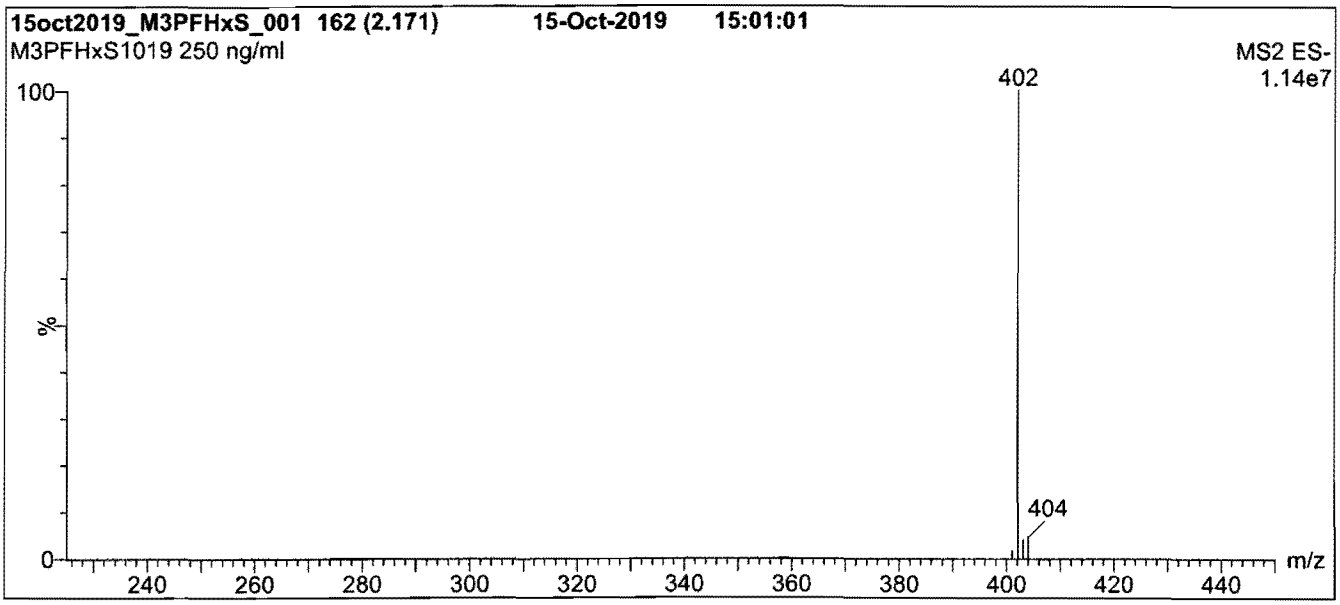
MS Parameters

Collision Gas (mbar) = 3.91e-3
Collision Energy (eV) = 32

19L0618

Figure 1: **M3PFHxS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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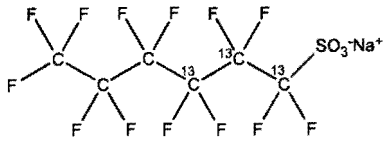
19L0618

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M3PFHxS	**LOT NUMBER:**	M3PFHxS1019
COMPOUND:	Sodium perfluoro-1-[1,2,3-$^{13}C_3$]hexanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	425.07
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (M3PFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	10/15/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/15/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.1% perfluoro-1-[1,2-$^{13}C_2$]pentanesulfonate, ~ 0.1% perfluoro-1-octanesulfonate, and ~ 0.05% of perfluoro-1-hexanesulfonate.

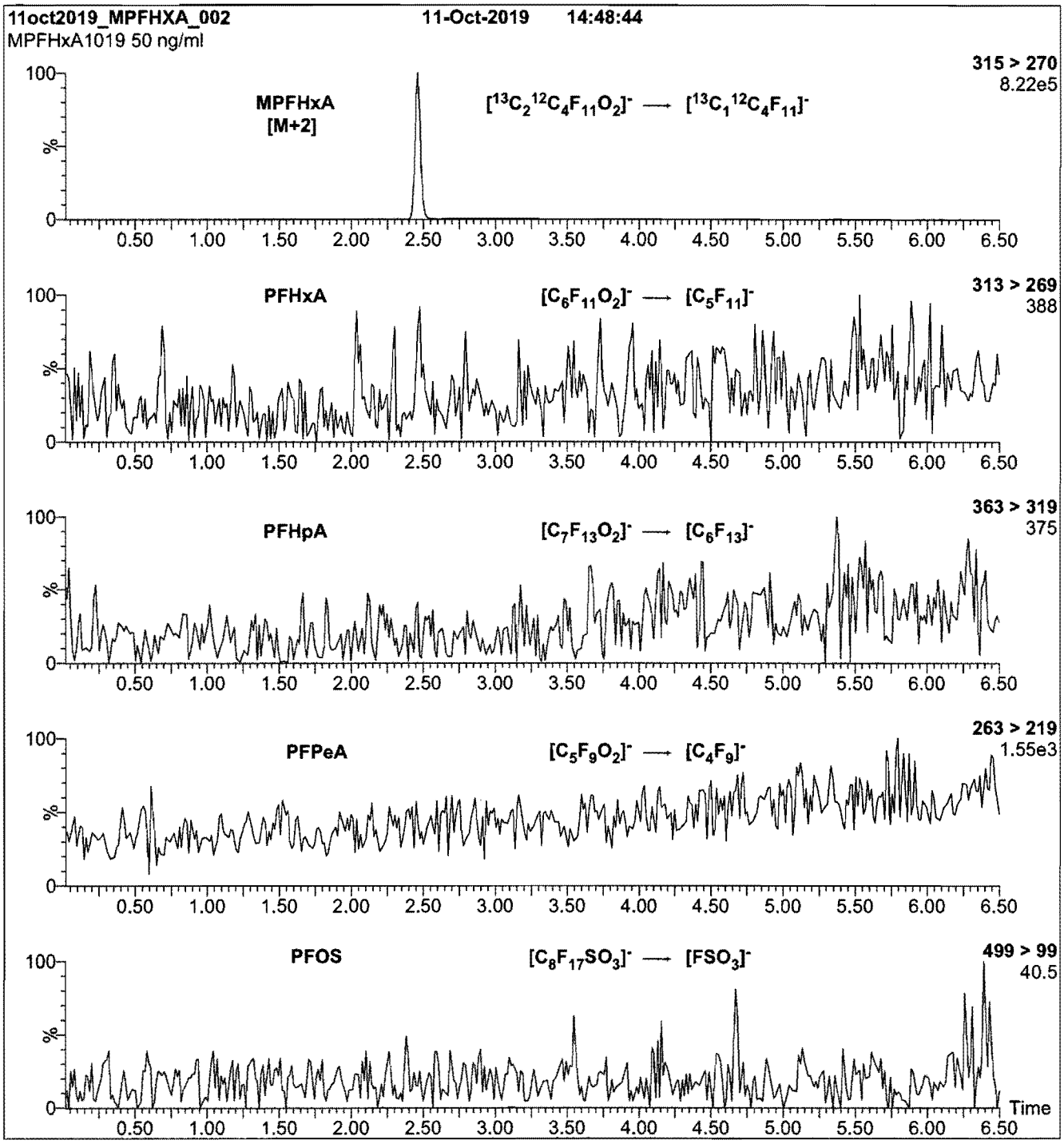
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/16/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0619

Figure 2: **MPFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxA)

Mobile phase: Same as Figure 1

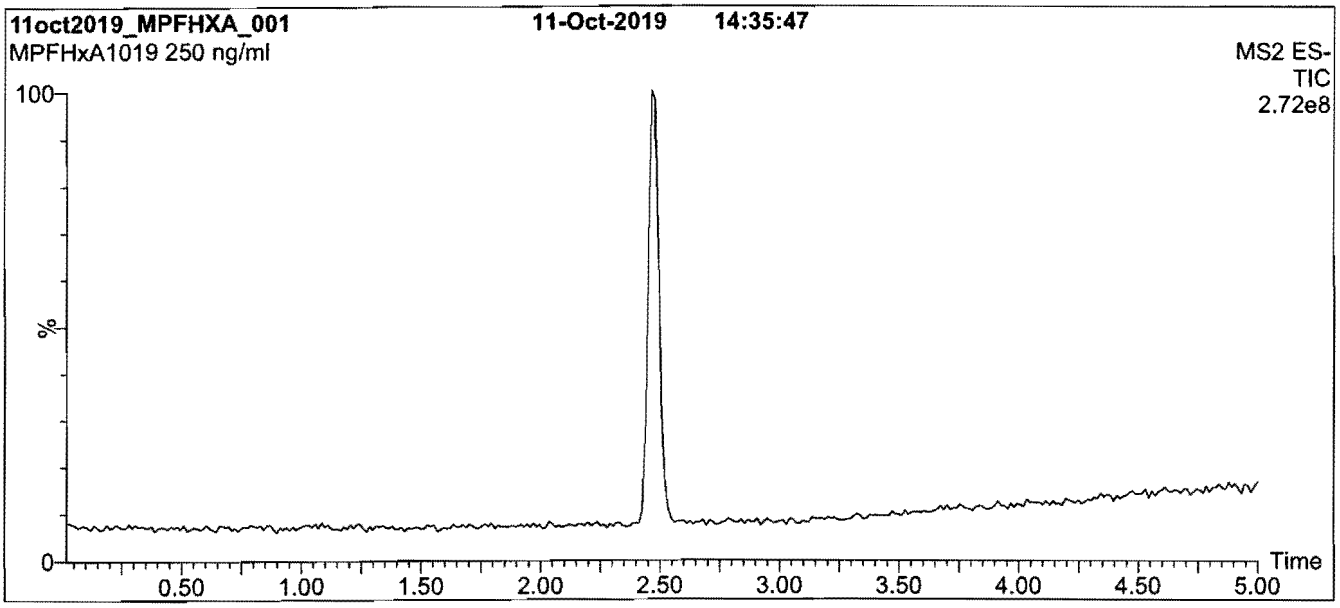
Flow: 300 µl/min

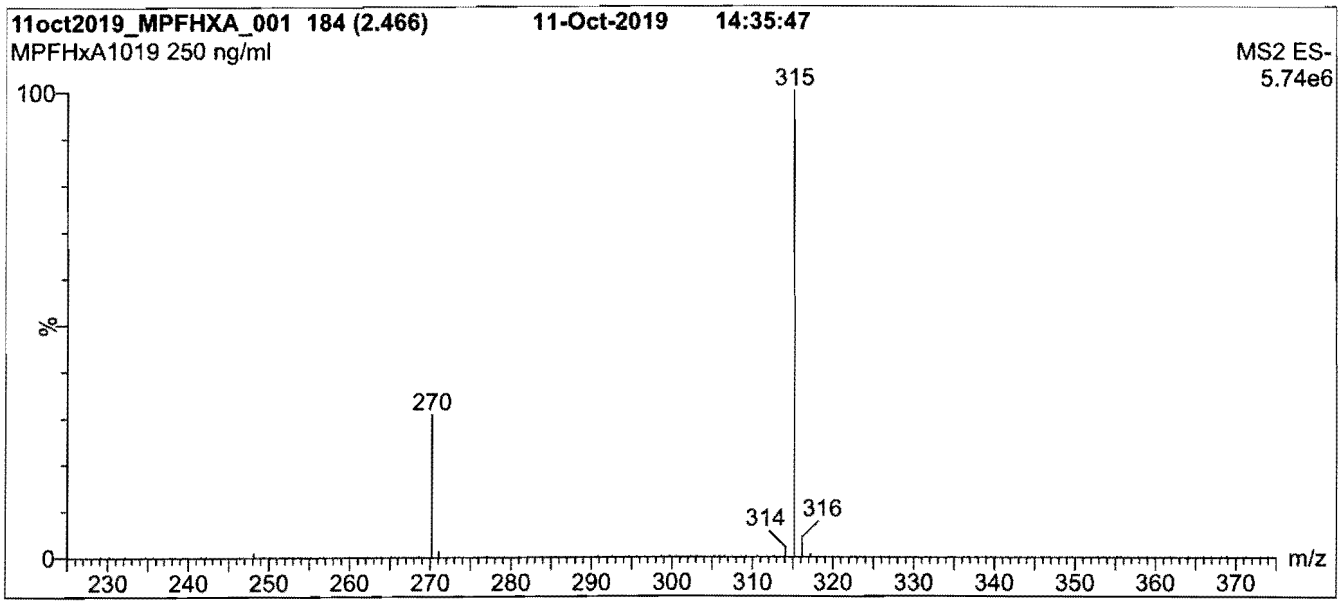
MS Parameters

Collision Gas (mbar) = 3.80e-3
Collision Energy (eV) = 8

19L0619

Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

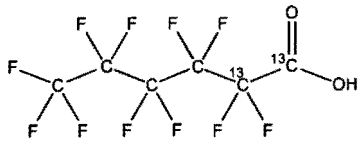
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0619

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxA	**LOT NUMBER:**	MPFHxA1019
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/11/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

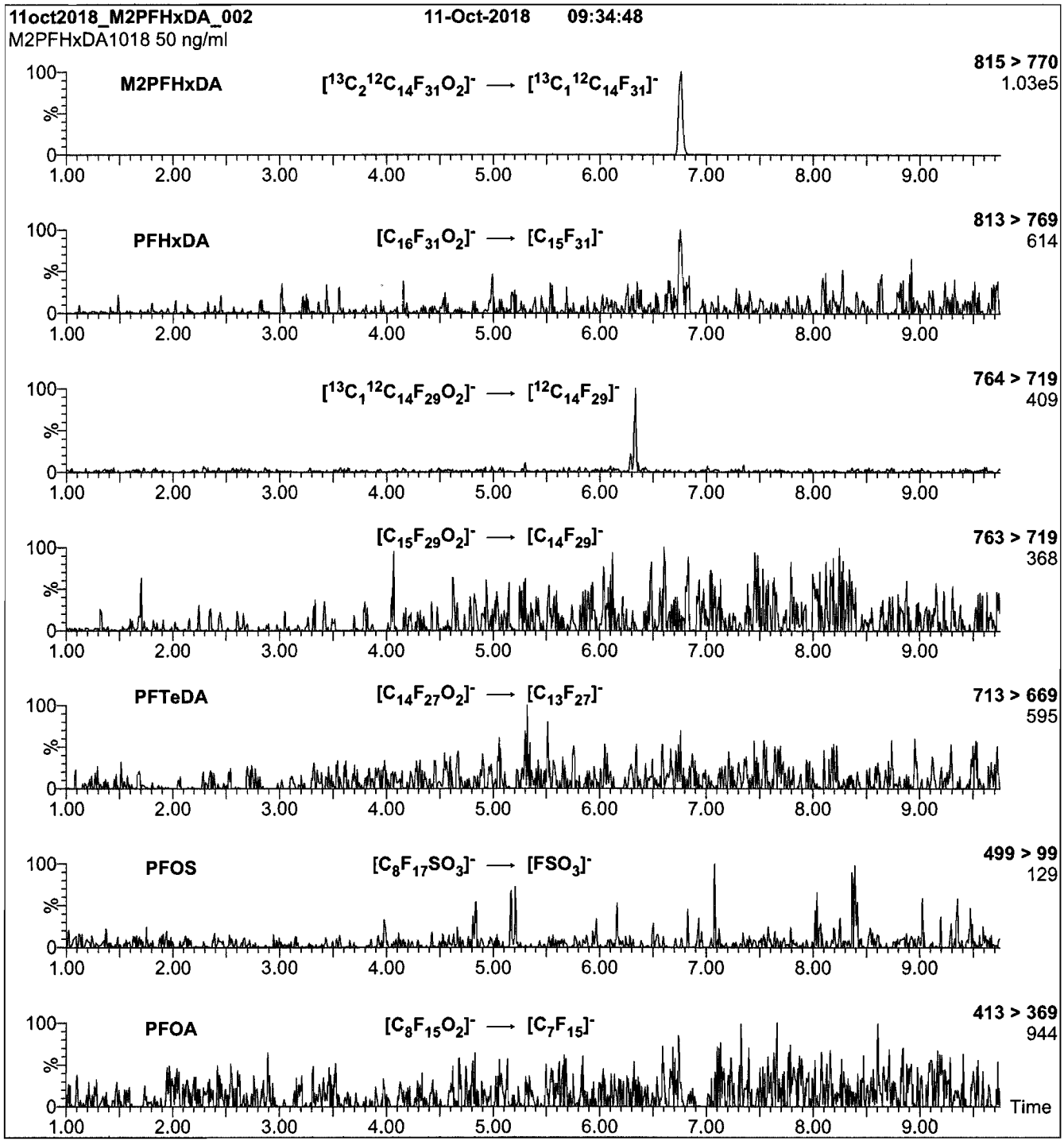
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/22/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0620

Figure 2: **M2PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2PFHxDA)

Mobile phase: Same as Figure 1

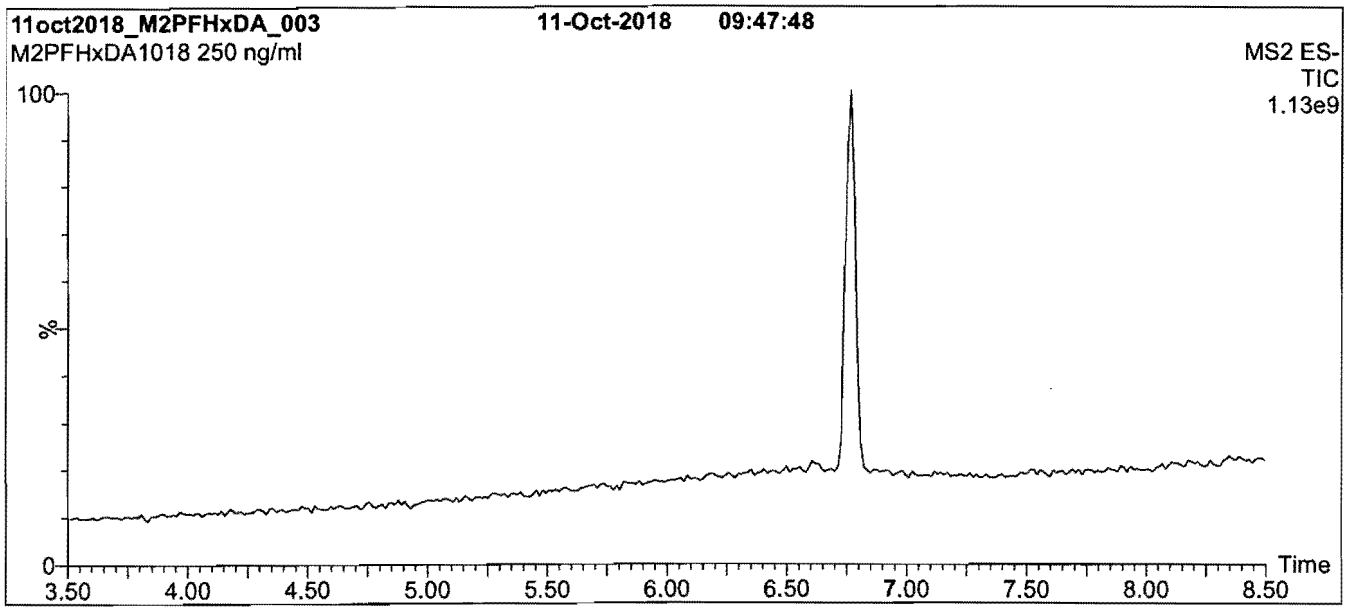
Flow: 300 µl/min

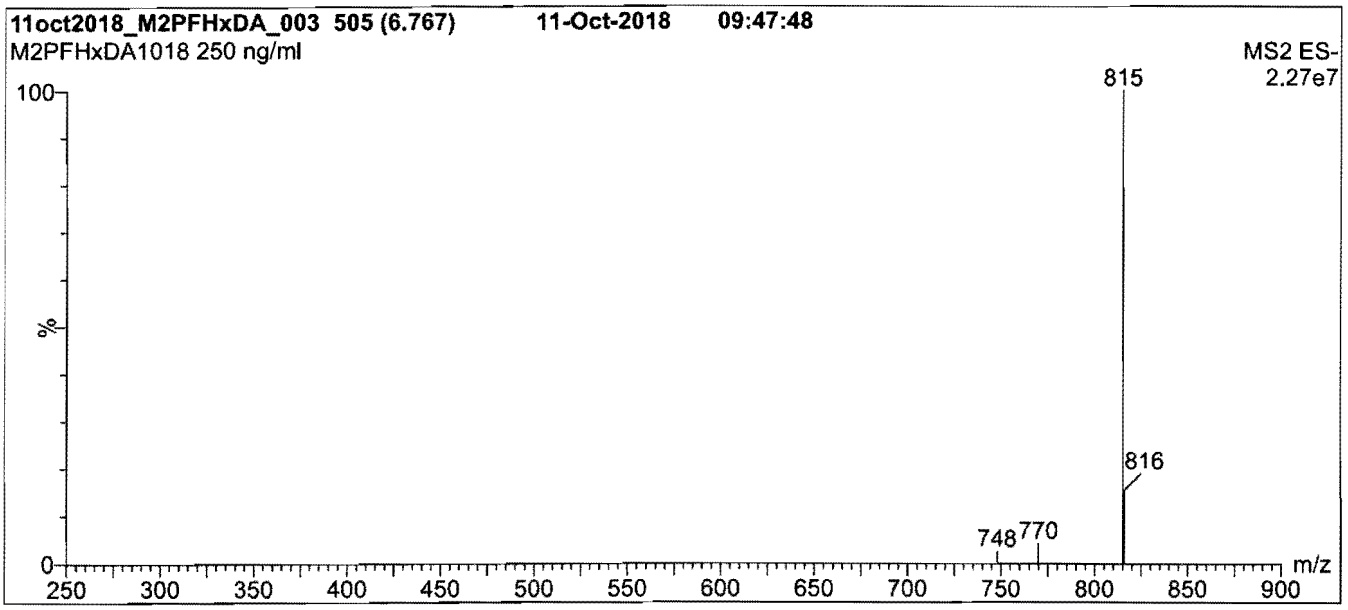
MS Parameters

Collision Gas (mbar) = 2.97e-3
Collision Energy (eV) = 15

19L0620

Figure 1: **M2PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED 9001 REFERENCE MATERIAL PRODUCER

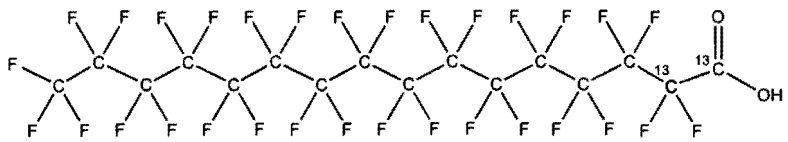
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0620

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFHxDA	**LOT NUMBER:**	M2PFHxDA1018
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]hexadecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{14}HF_{31}O_2$	**MOLECULAR WEIGHT:**	816.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/11/2018		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of native perfluoro-n-hexadecanoic acid and ~ 0.2% of perfluoro-n-[$^{13}C_1$]pentadecanoic acid.

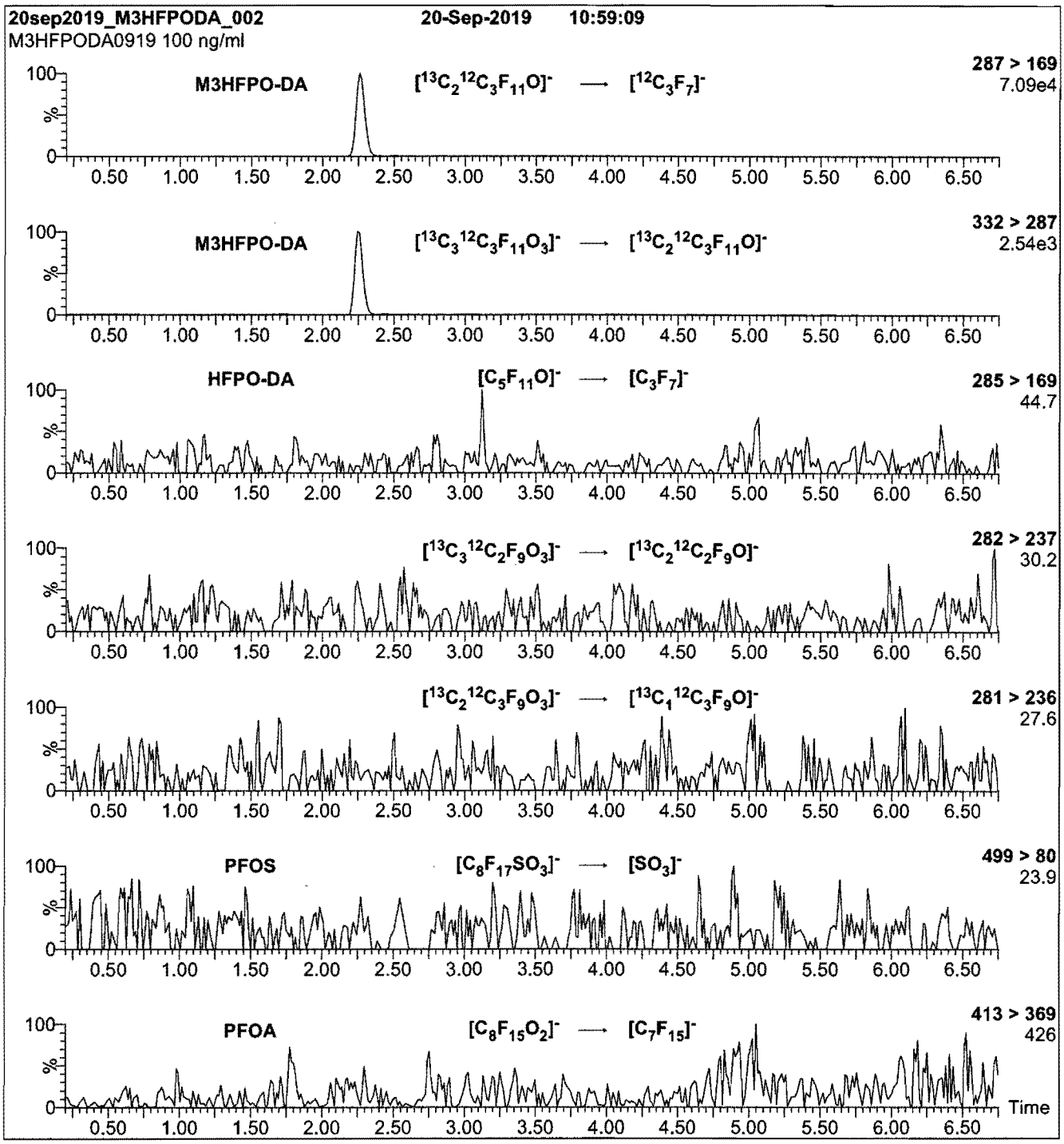
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/19/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0621

Figure 2: **M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3HFPO-DA)

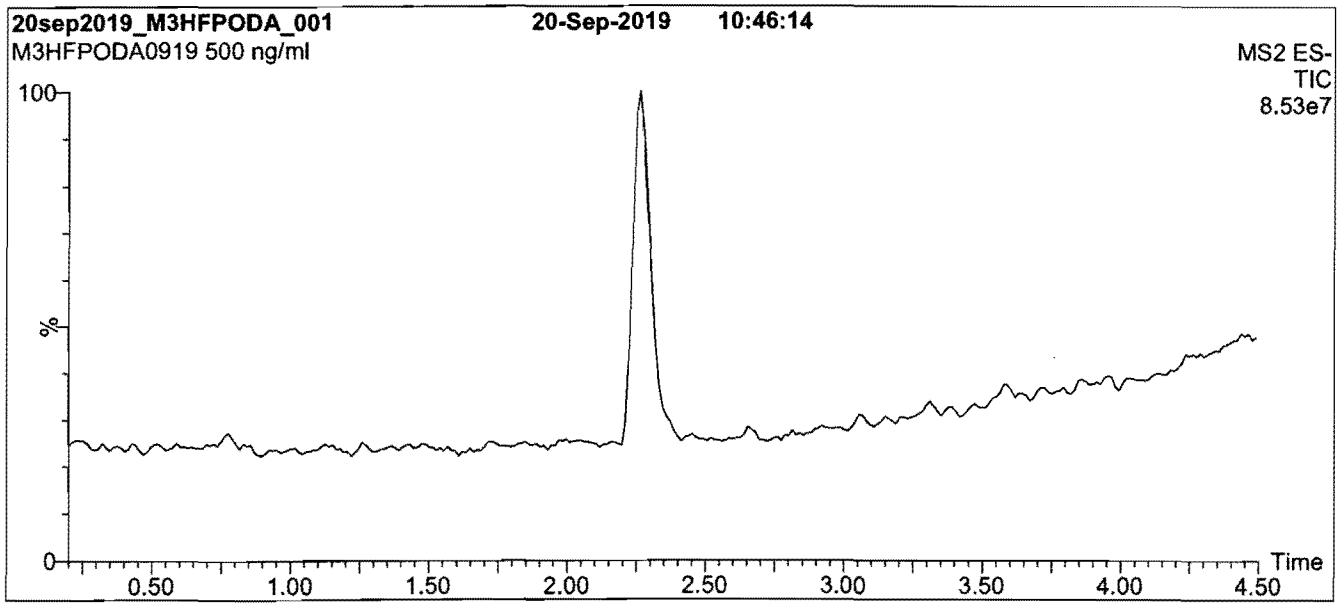
Mobile phase: Same as Figure 1

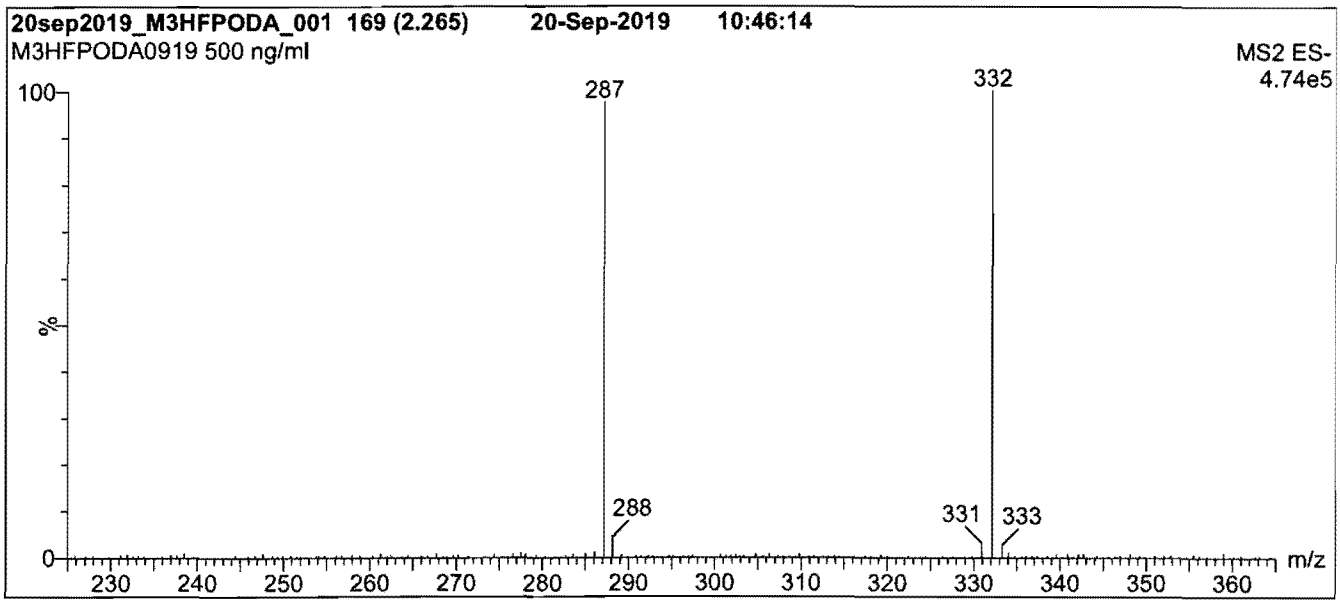
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.60e-3
Collision Energy (eV) = 8

Figure 1: **M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Desolvation Temperature (°C) = 325
Desolvation Gas Flow (l/hr) = 1000

19L0621

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where x is expressed as a relative standard uncertainty of the individual parameter.

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L0621

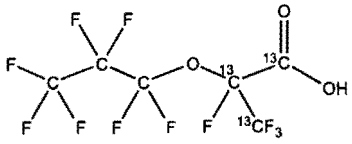
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA0919

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	09/20/2019		
EXPIRY DATE: (mm/dd/yyyy)	09/20/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.9% of the linear M3HFPO-DA isomer.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/30/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Analytical Standard Record

Vista Analytical Laboratory

20A0803

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
19L0635	PFDoA	06-Dec-19	** Vendor **	23-Jan-24	0.4
19L0636	PFBA	06-Dec-19	** Vendor **	10-Jul-24	0.4
19L0637	PFPeA	06-Dec-19	** Vendor **	04-Sep-24	0.4
19L0638	PFHxA	06-Dec-19	** Vendor **	08-Aug-24	0.4
19L0639	PFDA	06-Dec-19	** Vendor **	01-May-24	0.4
19L0640	PFUdA	06-Dec-19	** Vendor **	19-Mar-24	0.4
19L0641	PFTrDA	06-Dec-19	** Vendor **	26-Sep-24	0.4
19L0642	PFHpA	06-Dec-19	** Vendor **	05-Mar-24	0.4
19L0643	PFOA	06-Dec-19	** Vendor **	06-Sep-24	0.4
19L0644	PFNA	06-Dec-19	** Vendor **	08-Jul-24	0.4
19L0645	PFTeDA	06-Dec-19	** Vendor **	11-Mar-24	0.4
19L0646	PFHxDA	06-Dec-19	** Vendor **	03-Nov-24	0.4
19L0647	PFODA	06-Dec-19	** Vendor **	02-May-24	0.4
19L0648	L-PFBS	06-Dec-19	** Vendor **	10-Jul-24	0.454
19L0649	L-PFPeS	06-Dec-19	** Vendor **	08-Jul-24	0.428
19L0650	L-PFHpS	06-Dec-19	** Vendor **	16-Aug-24	0.42
19L0651	L-PFNS	06-Dec-19	** Vendor **	06-Aug-24	0.418
19L0652	L-PFDS	06-Dec-19	** Vendor **	04-Apr-24	0.415
19L0653	br-PFHxSK	06-Dec-19	** Vendor **	02-Oct-23	0.44
19L0654	br-PFOSK anion	06-Dec-19	** Vendor **	07-Jun-24	0.431
19L0655	4:2 FTS	06-Dec-19	** Vendor **	08-May-24	0.43
19L0656	6:2FTS	06-Dec-19	** Vendor **	09-Sep-24	0.422
19L0657	8:2FTS	06-Dec-19	** Vendor **	11-Sep-24	0.418
19L0658	FOSA-I	06-Dec-19	** Vendor **	12-Sep-24	0.4
19L0659	br-NMeFOSAA	06-Dec-19	** Vendor **	08-Jan-24	0.4
19L0660	br-NEtFOSAA	06-Dec-19	** Vendor **	20-Aug-24	0.4
19L0661	N-MeFOSA-M	06-Dec-19	** Vendor **	07-May-24	2
19L0662	N-EtFOSA-M	06-Dec-19	** Vendor **	07-May-24	2
19L0663	N-MeFOSE-M	06-Dec-19	** Vendor **	08-Apr-24	2
19L0664	N-EtFOSE-M	06-Dec-19	** Vendor **	08-Apr-24	2
19L0665	10:2FTS	06-Dec-19	** Vendor **	11-Jun-22	0.415
19L0666	HFPO-DA	06-Dec-19	** Vendor **	20-Sep-22	0.4
19L0667	11Cl-PF3OUdS	06-Dec-19	** Vendor **	23-Nov-24	0.425
19L0668	9Cl-PF3ONS	06-Dec-19	** Vendor **	30-Oct-24	0.43
19L0669	NaDONA	06-Dec-19	** Vendor **	15-Jul-24	0.425
19L0670	PFECHS	06-Dec-19	** Vendor **	04-Apr-24	0.435
19L0671	L-PFPrS	06-Dec-19	** Vendor **	14-Dec-24	0.438
19L1707	L-PFDoS	17-Dec-19	** Vendor **	06-Dec-23	0.415

Analytical Standard Record

Vista Analytical Laboratory

20A0803

Description:	PFC NS Stock	Expires:	07-Jan-21
Standard Type:	Analyte Spike	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	08-Jan-20 14:18 by BML

Analyte	CAS Number	Concentration	Units
L-PFHpA		1	ug/mL
L-PFOS		0.789	ug/mL
L-MeFOSA	31506-32-8	5	ug/mL
L-MeFOSAA	2355-31-9	0.76	ug/mL
L-MeFOSE	24448-09-7	5	ug/mL
L-PFBA		1	ug/mL
L-PFBS		1	ug/mL
L-PFDA		1	ug/mL
L-PFDoA		1	ug/mL
L-EtFOSAA	2991-50-6	0.776	ug/mL
L-PFDS		1	ug/mL
L-EtFOSA	4151-50-2	5	ug/mL
L-PFHpS		1	ug/mL
L-PFHxA		1	ug/mL
L-PFHxDA		1	ug/mL
L-PFHxS		0.812	ug/mL
L-PFNA		1	ug/mL
L-PFNS	68259-12-1	1	ug/mL
L-PFOA		1	ug/mL
10:2 FTS	120226-60-0	1	ug/mL
L-PFDoS		1	ug/mL
cis-PFECHS		0.668	ug/mL
11Cl-PF3OUdS	763051-92-9	1	ug/mL
4:2 FTS	757124-72-4	1	ug/mL
6:2 FTS	27619-97-2	1	ug/mL
8:2 FTS	39108-34-4	1	ug/mL
9Cl-PF3ONS	756426-58-1	1	ug/mL
ADONA	919005-14-4	1	ug/mL
Br-EtFOSAA		0.224	ug/mL
Br-MeFOSAA		0.24	ug/mL
L-EtFOSE	1691-99-2	5	ug/mL
Br-PFOS	2795-39-3	0.211	ug/mL
L-PFOSA		1	ug/mL
EtFOSA	4151-50-2	5	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

20A0803

Description:	PFC NS Stock	Expires:	07-Jan-21
Standard Type:	Analyte Spike	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	08-Jan-20 14:18 by BML

Analyte	CAS Number	Concentration	Units
EtFOSAA	2991-50-6	1	ug/mL
EtFOSE	1691-99-2	5	ug/mL
F-53B Total		2	ug/mL
HFPO-DA	13252-13-6	1	ug/mL
L-4:2 FTS	75124-72-4	1	ug/mL
L-6:2 FTS		1	ug/mL
L-8:2FTS		1	ug/mL
Br-PFHxS	3871-99-6	0.189	ug/mL
Total 6:2 FTS		1	ug/mL
L-PFODA		1	ug/mL
PFODA	16517-11-6	1	ug/mL
PFOS	1763-23-1	1	ug/mL
PFOSA	754-91-6	1	ug/mL
PFPeA	2706-90-3	1	ug/mL
PFPeS	2706-91-4	1	ug/mL
PFPrS	423-41-6	1	ug/mL
PFTeDA	376-06-7	1	ug/mL
PFNS	68259-12-1	1	ug/mL
PFUnA	2058-94-8	1	ug/mL
PFNA	375-95-1	1	ug/mL
Total EtFOSAA		1	ug/mL
Total MeFOSAA		1	ug/mL
Total PFDS		1	ug/mL
Total PFHpS		1	ug/mL
Total PFHxS		1	ug/mL
Total PFOA		1	ug/mL
Total PFOS		1	ug/mL
Total PFUnA		1	ug/mL
PFTrDA	72629-94-8	1	ug/mL
PFDA	335-76-2	1	ug/mL
L-PFPeA		1	ug/mL
L-PFPeS	2706-91-4	1	ug/mL
L-PFTeDA		1	ug/mL
L-PFTrDA		1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

20A0803

Description:	PFC NS Stock	Expires:	07-Jan-21
Standard Type:	Analyte Spike	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	08-Jan-20 14:18 by BML

Analyte	CAS Number	Concentration	Units
L-PFUnA		1	ug/mL
MeFOSA	31506-32-8	5	ug/mL
MeFOSAA	2355-31-9	1	ug/mL
MeFOSE	24448-09-7	5	ug/mL
PFOA	335-67-1	1	ug/mL
PFBS	375-73-5	1	ug/mL
trans-PFECHS		0.335	ug/mL
PFDoA	307-55-1	1	ug/mL
PFDS	335-77-3	1	ug/mL
PFecHS	646-83-3	1	ug/mL
PFHpA	375-85-9	1	ug/mL
PFHpS	375-92-8	1	ug/mL
PFHxA	307-24-4	1	ug/mL
PFHxDA	67905-19-5	1	ug/mL
PFHxS	355-46-4	1	ug/mL
PFBA	375-22-4	1	ug/mL

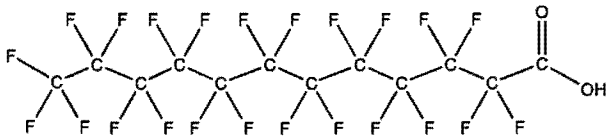
19L0635

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid
LOT NUMBER: PFDoA0119

STRUCTURE:
CAS #: 307-55-1



MOLECULAR FORMULA: $C_{12}HF_{23}O_2$
MOLECULAR WEIGHT: 614.10
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/23/2019
EXPIRY DATE: (mm/dd/yyyy) 01/23/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/30/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0635

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

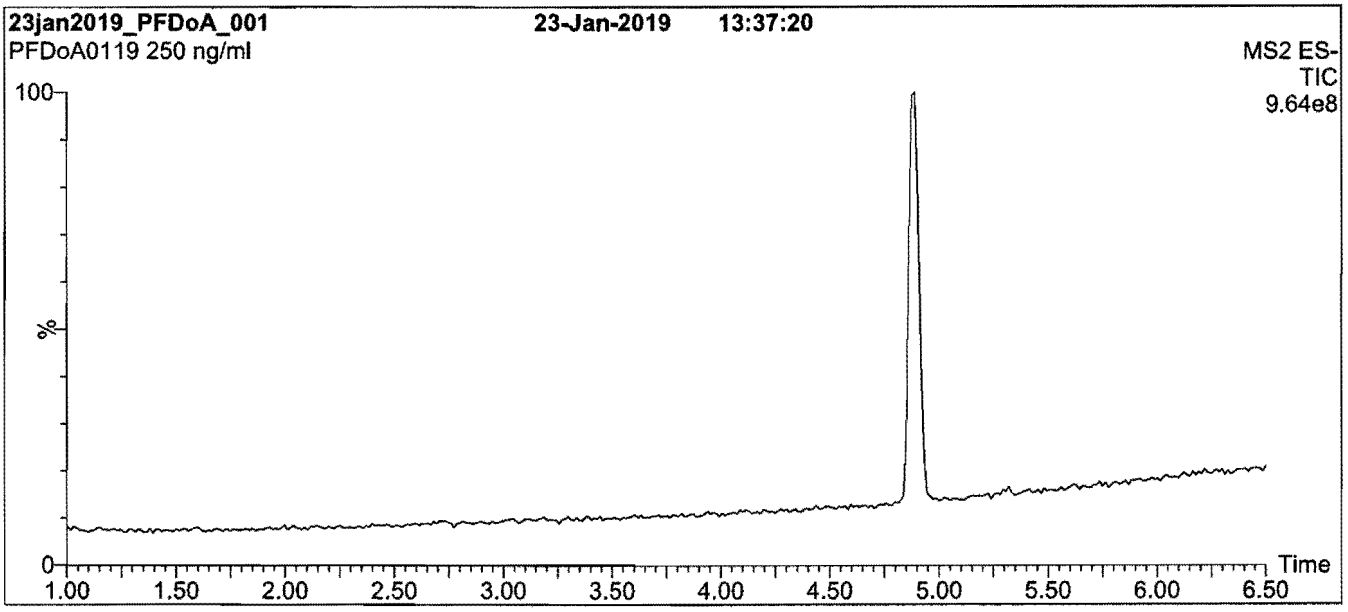
CALA Testing Accreditation No. A 1326

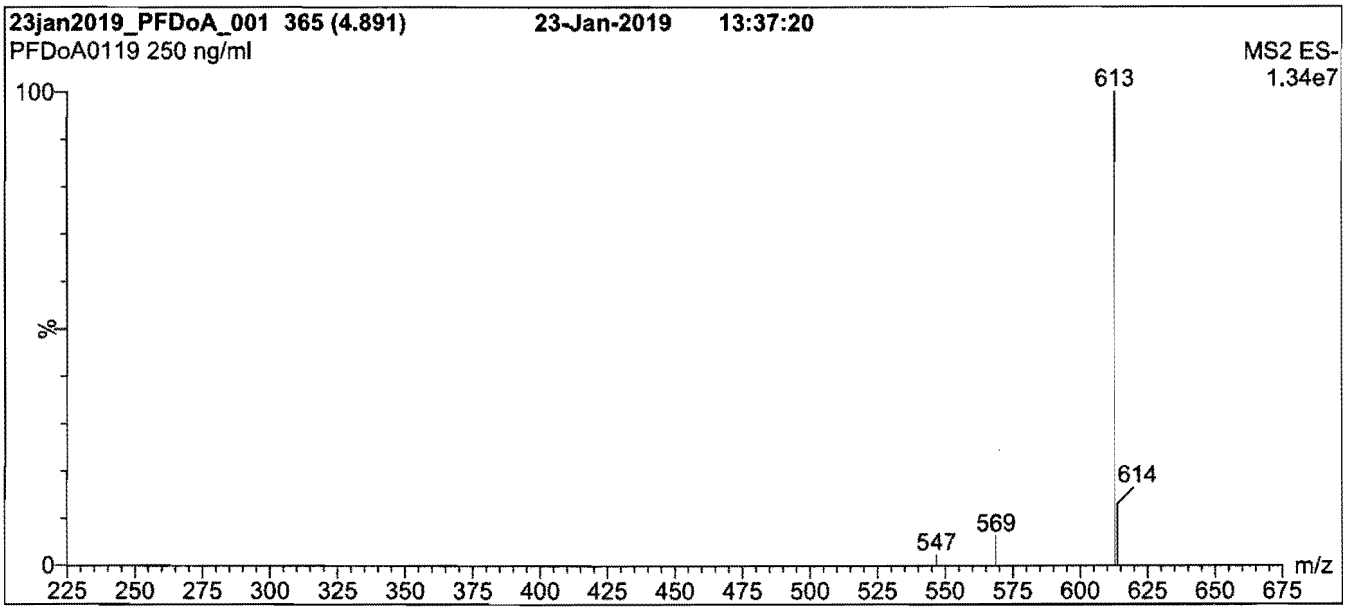
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0635

- **Figure 1:** **PFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 500
Desolvation Gas Flow (l/hr) = 1000

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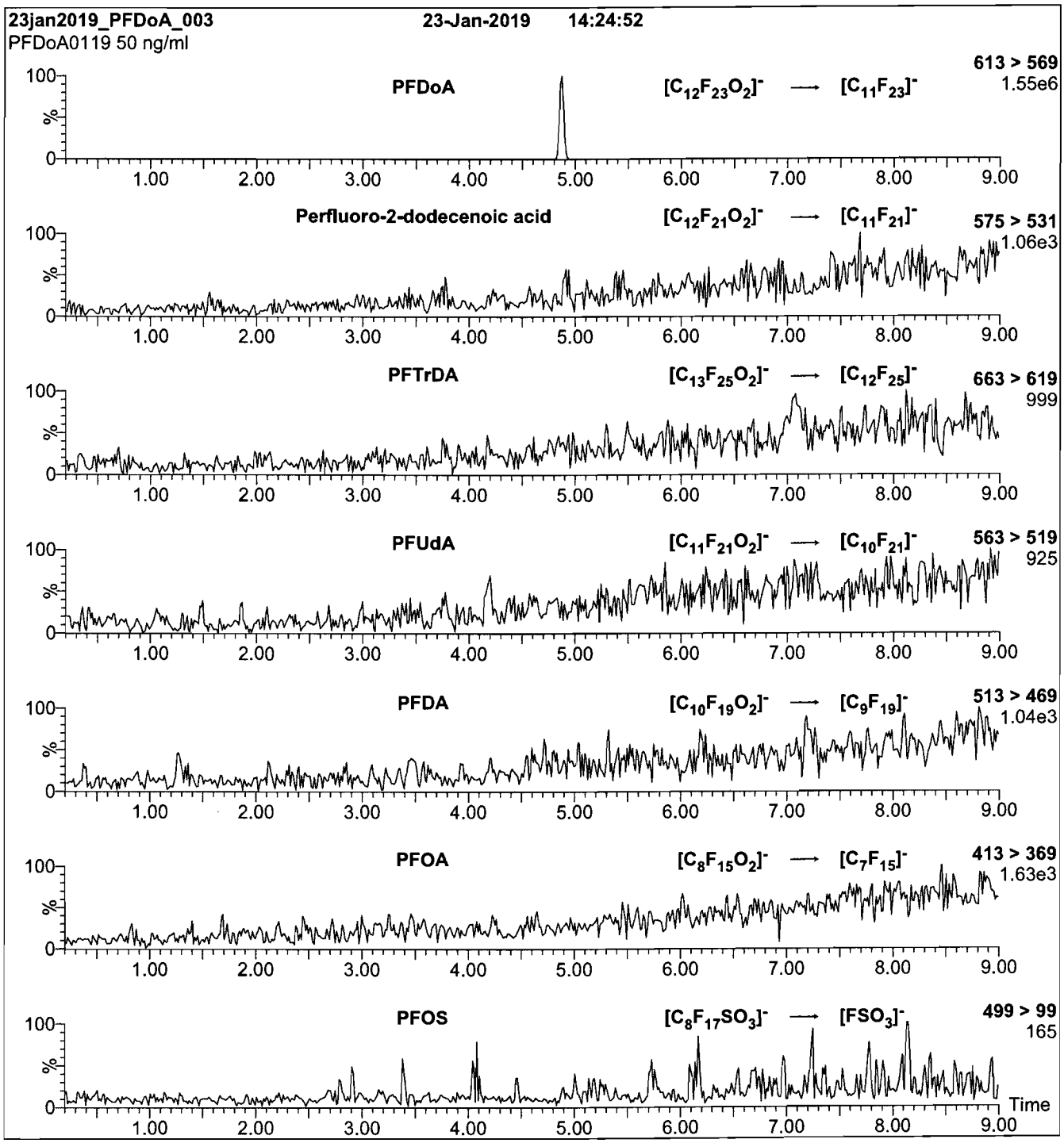
Figure 2: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFDoA)

Mobile phase: Same as Figure 1

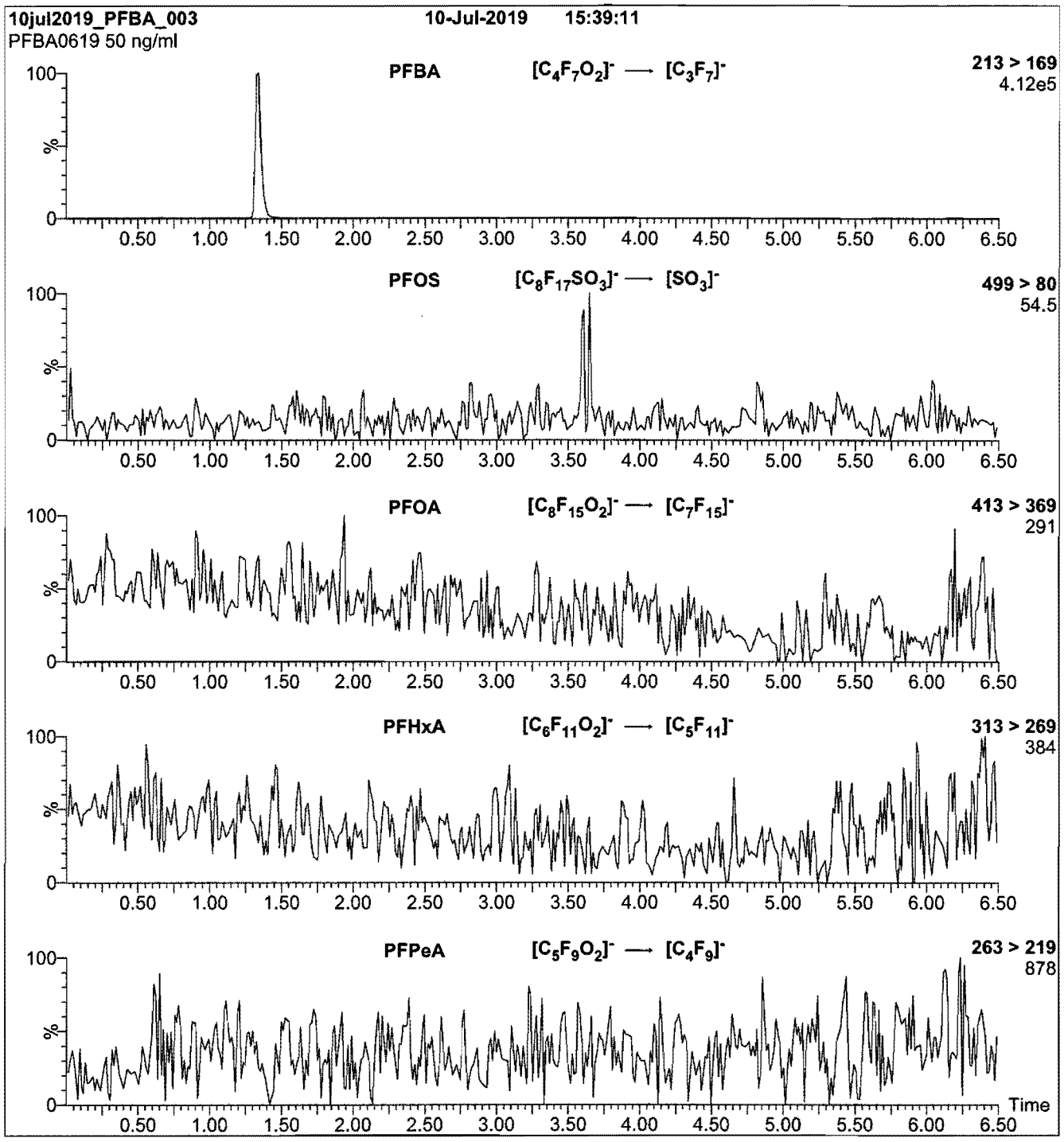
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.72e-3
Collision Energy (eV) = 12

19L0636

Figure 2: **PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFBA)

Mobile phase: Same as Figure 1

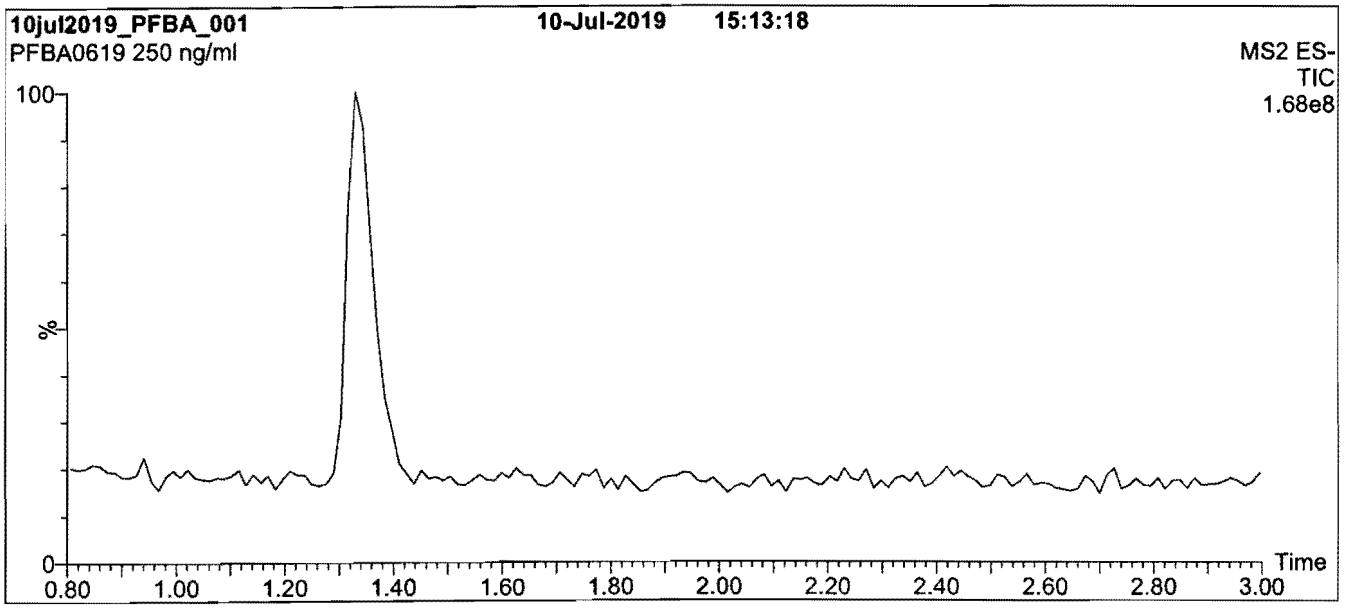
Flow: 300 µl/min

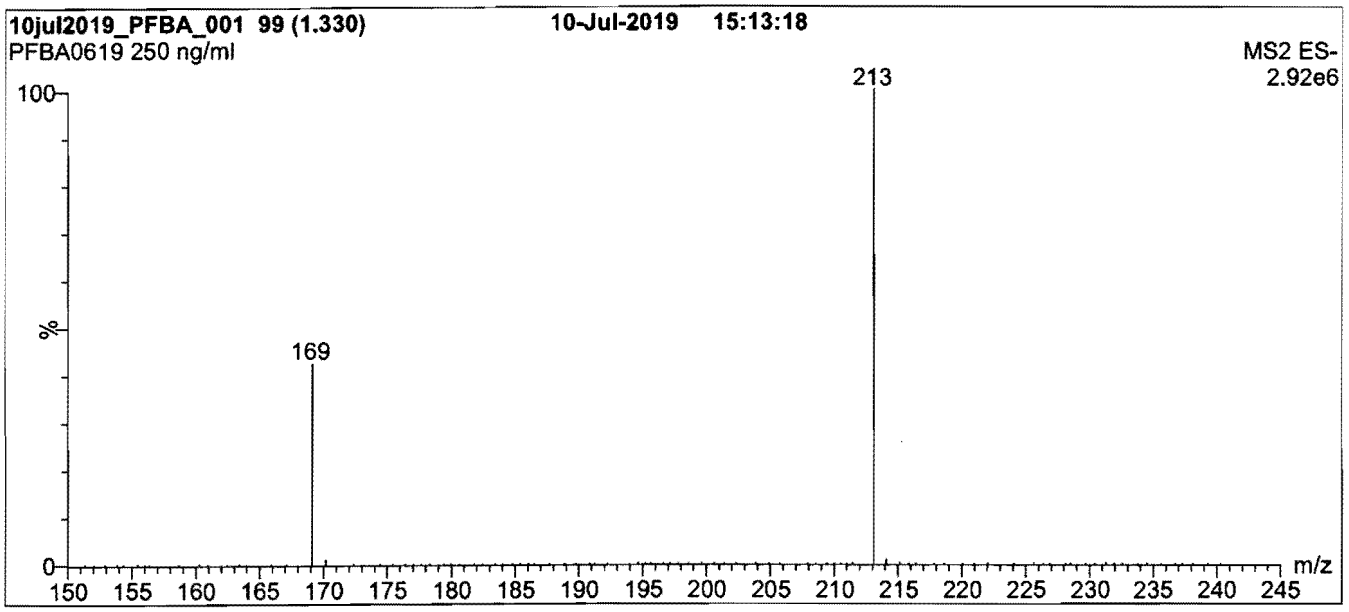
MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 8

1910636

Figure 1: **PFBA; LC/MS Data (TIC and Mass Spectrum)**





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Start: 40% (80:20 MeOH:ACN) / 60% H_2O
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Ramp to 70% organic over 7 min.
Ramp to 90% organic over 2 min and hold for
1.5 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0636

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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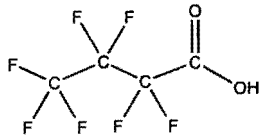
19L0636

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFBA	**LOT NUMBER:**	PFBA0619
COMPOUND:	Perfluoro-n-butanoic acid		
STRUCTURE:		**CAS #:**	375-22-4



MOLECULAR FORMULA:	$C_4HF_7O_2$	**MOLECULAR WEIGHT:**	214.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/10/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/10/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

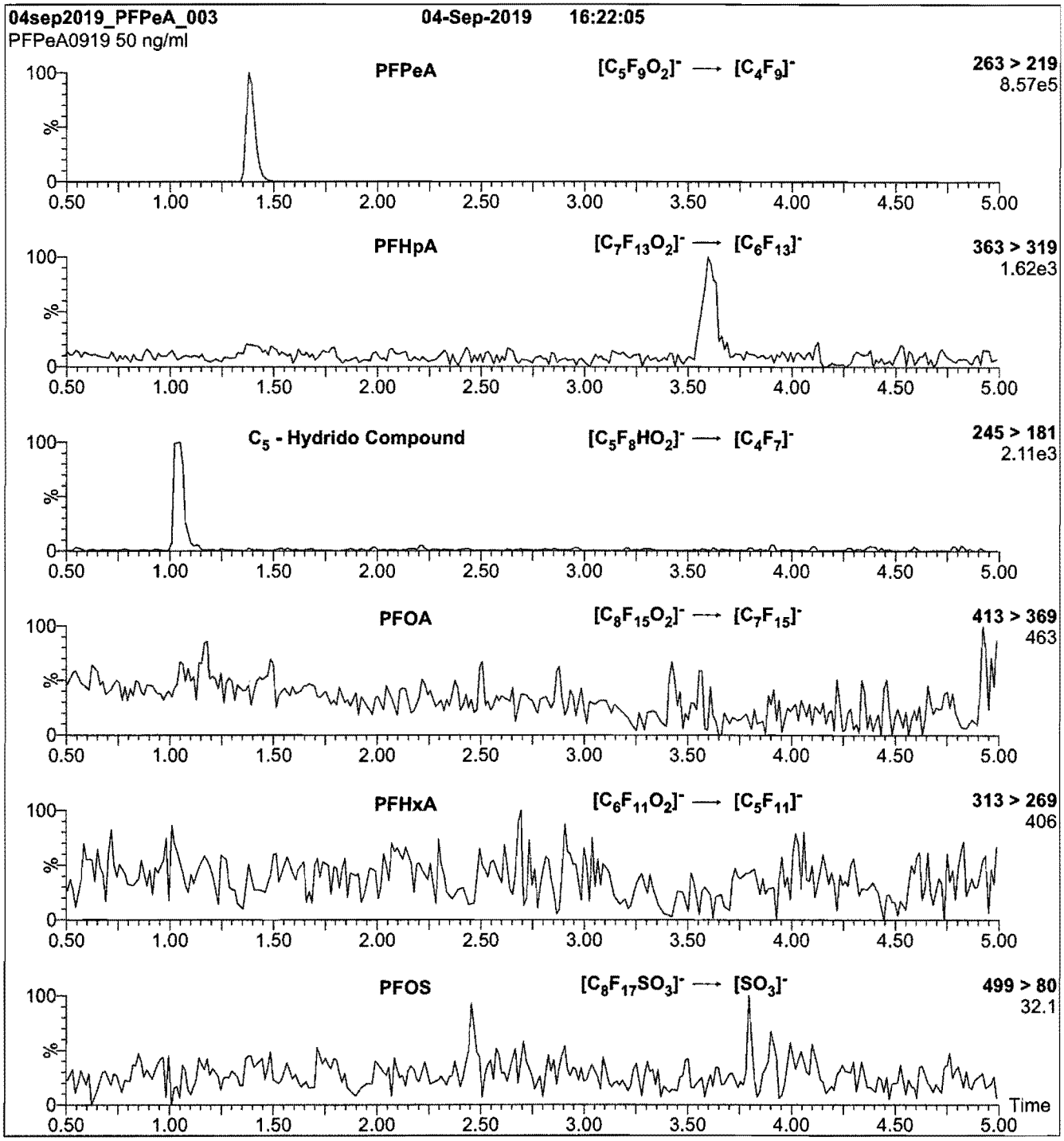
- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/22/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFPeA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.51e-3
Collision Energy (eV) = 8

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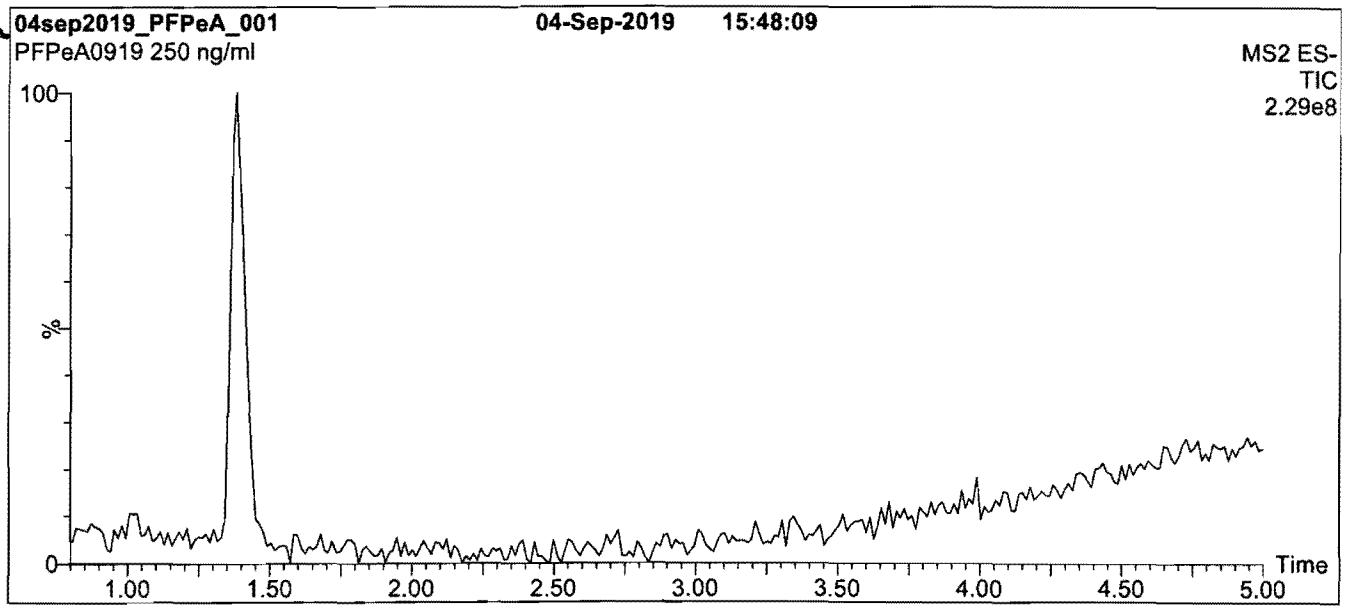
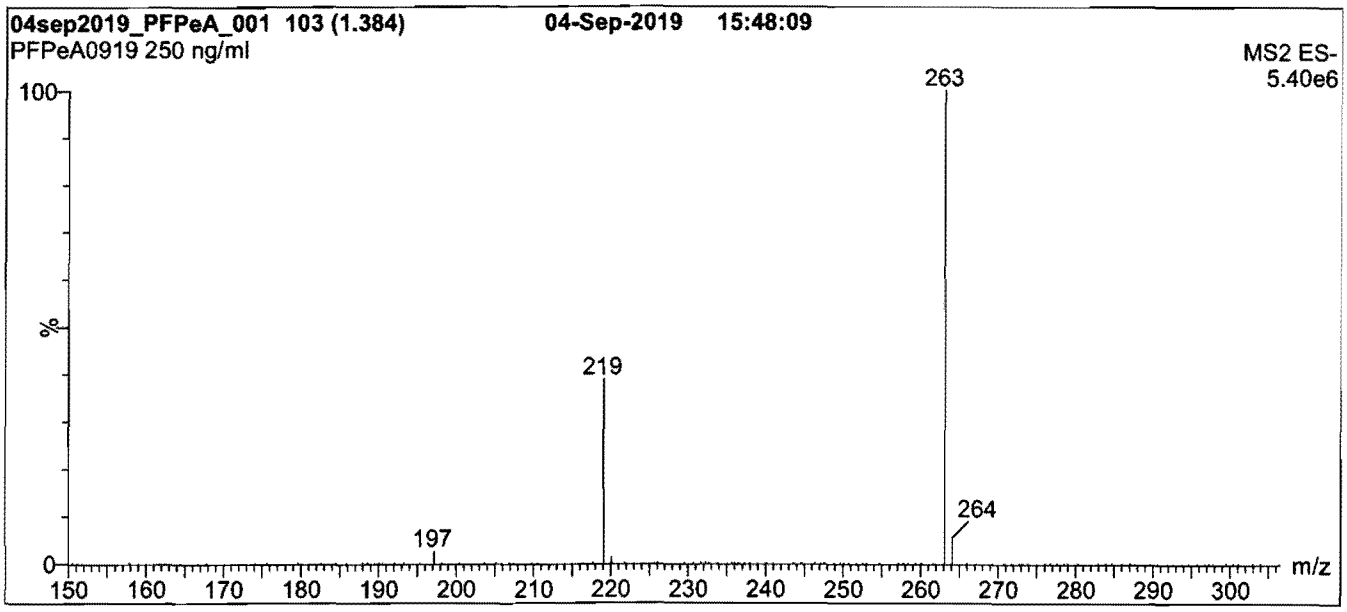
Figure 1: **PFPeA; LC/MS Data (TIC and Mass Spectrum)**





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1.7 µm, 2.1 x 100 mm

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(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

1926637

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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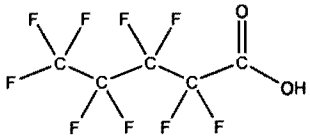
19L0637

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFPeA	**LOT NUMBER:**	PFPeA0919
COMPOUND:	Perfluoro-n-pentanoic acid		
STRUCTURE:		**CAS #:**	2706-90-3



MOLECULAR FORMULA:	$C_5HF_9O_2$	**MOLECULAR WEIGHT:**	264.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/04/2019		
EXPIRY DATE: (mm/dd/yyyy)	09/04/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

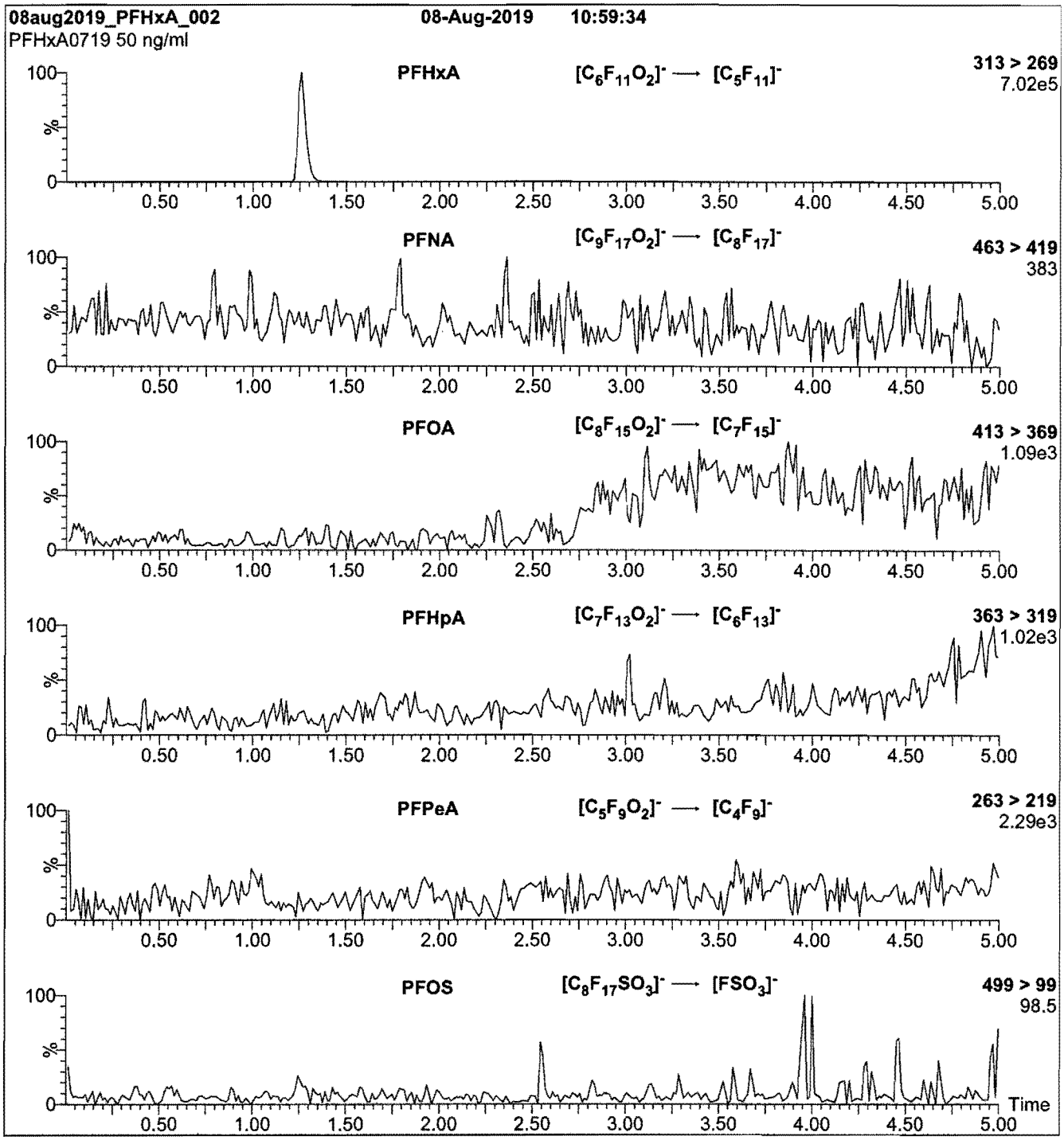
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/05/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0638

Figure 2: **PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFHxA)

Mobile phase: Same as Figure 1

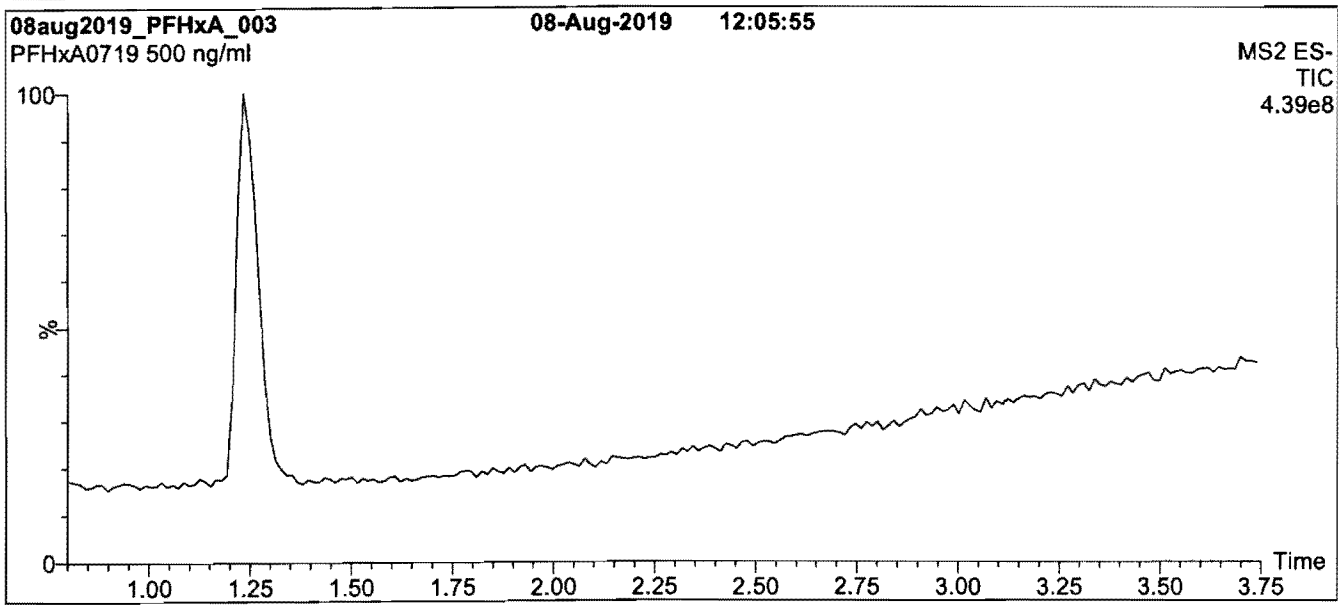
Flow: 300 µl/min

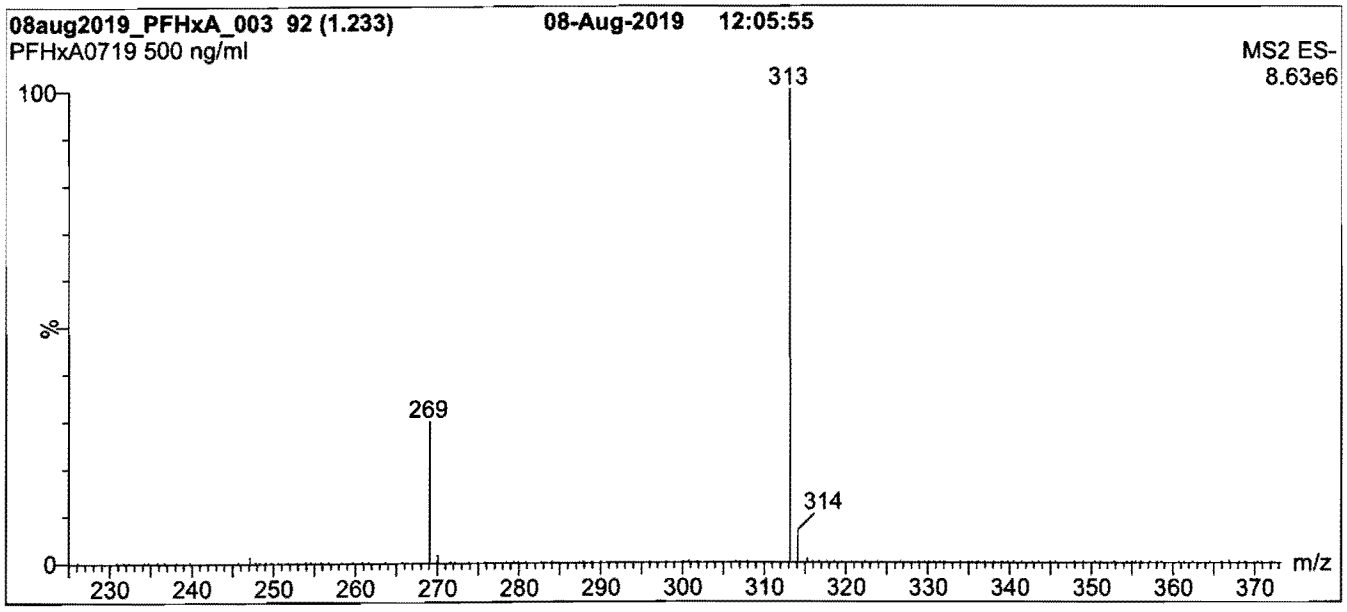
MS Parameters

Collision Gas (mbar) = 3.49e-3
Collision Energy (eV) = 8

19L0638

Figure 1: **PFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

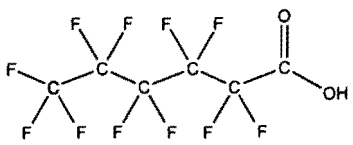
19L0638

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
LOT NUMBER: PFHxA0719
COMPOUND: Perfluoro-n-hexanoic acid

STRUCTURE:
CAS #: 307-24-4



MOLECULAR FORMULA: $C_6HF_{11}O_2$
MOLECULAR WEIGHT: 314.05
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/08/2019
EXPIRY DATE: (mm/dd/yyyy) 08/08/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/15/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

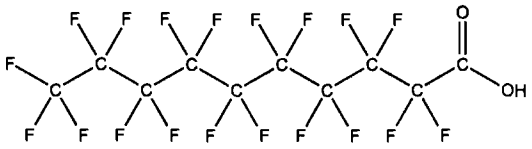
19L0639

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid
LOT NUMBER: PFDA0419

STRUCTURE:
CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
MOLECULAR WEIGHT: 514.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/01/2019
EXPIRY DATE: (mm/dd/yyyy) 05/01/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/02/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0639

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

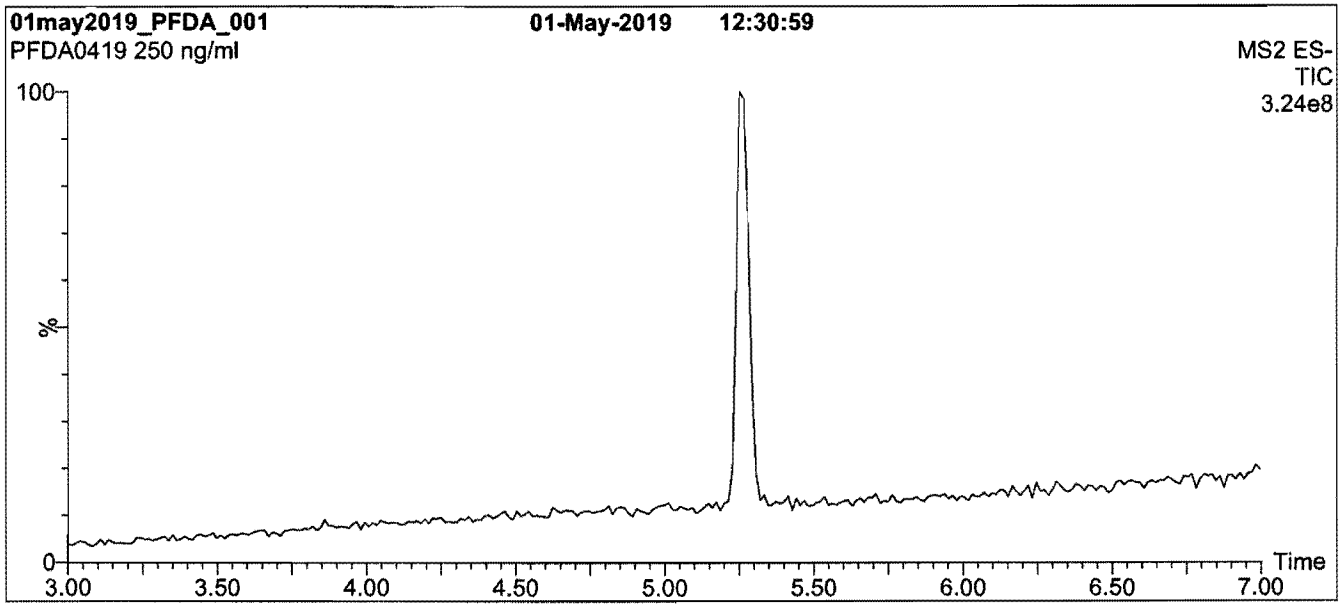
CALA Testing Accreditation No. A 1226

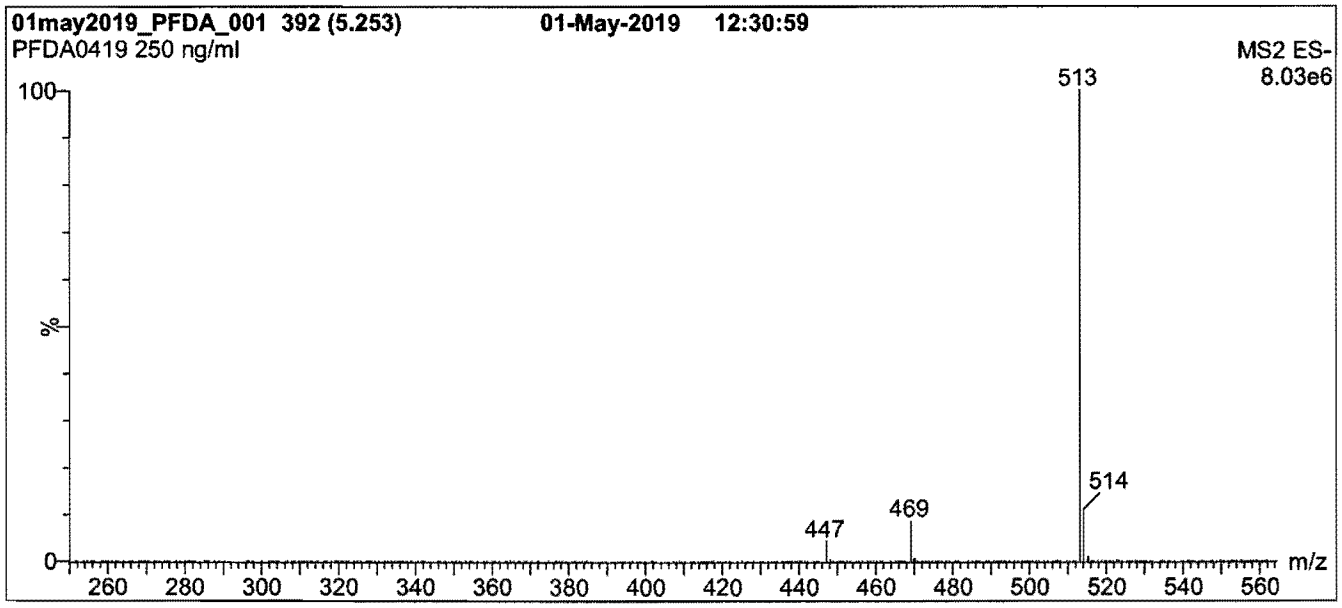
ANAB ACCREDITED 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0639

Figure 1: **PFDA; LC/MS Data (TIC and Mass Spectrum)**





Condltions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

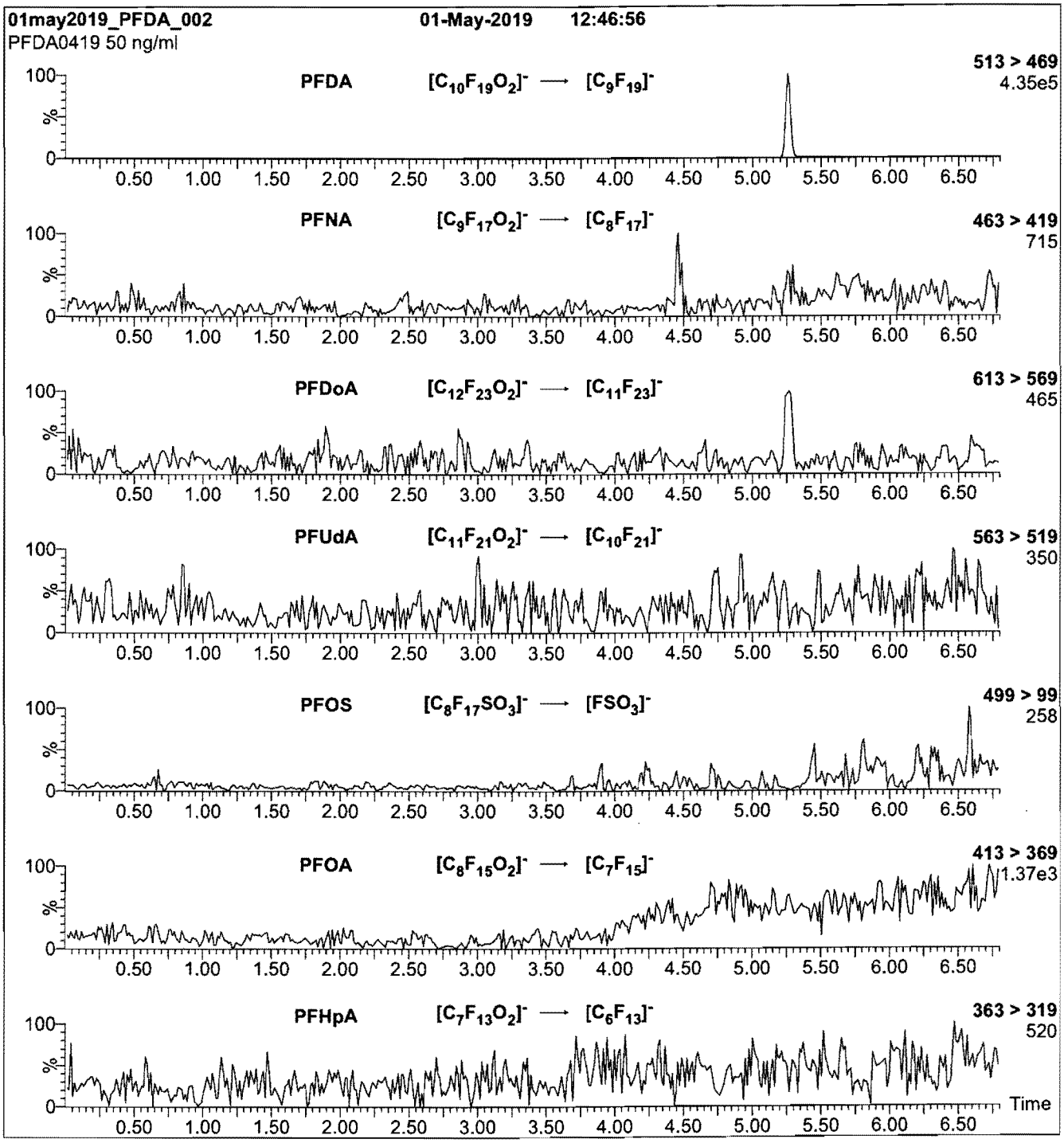
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0639

Figure 2: **PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFDA)

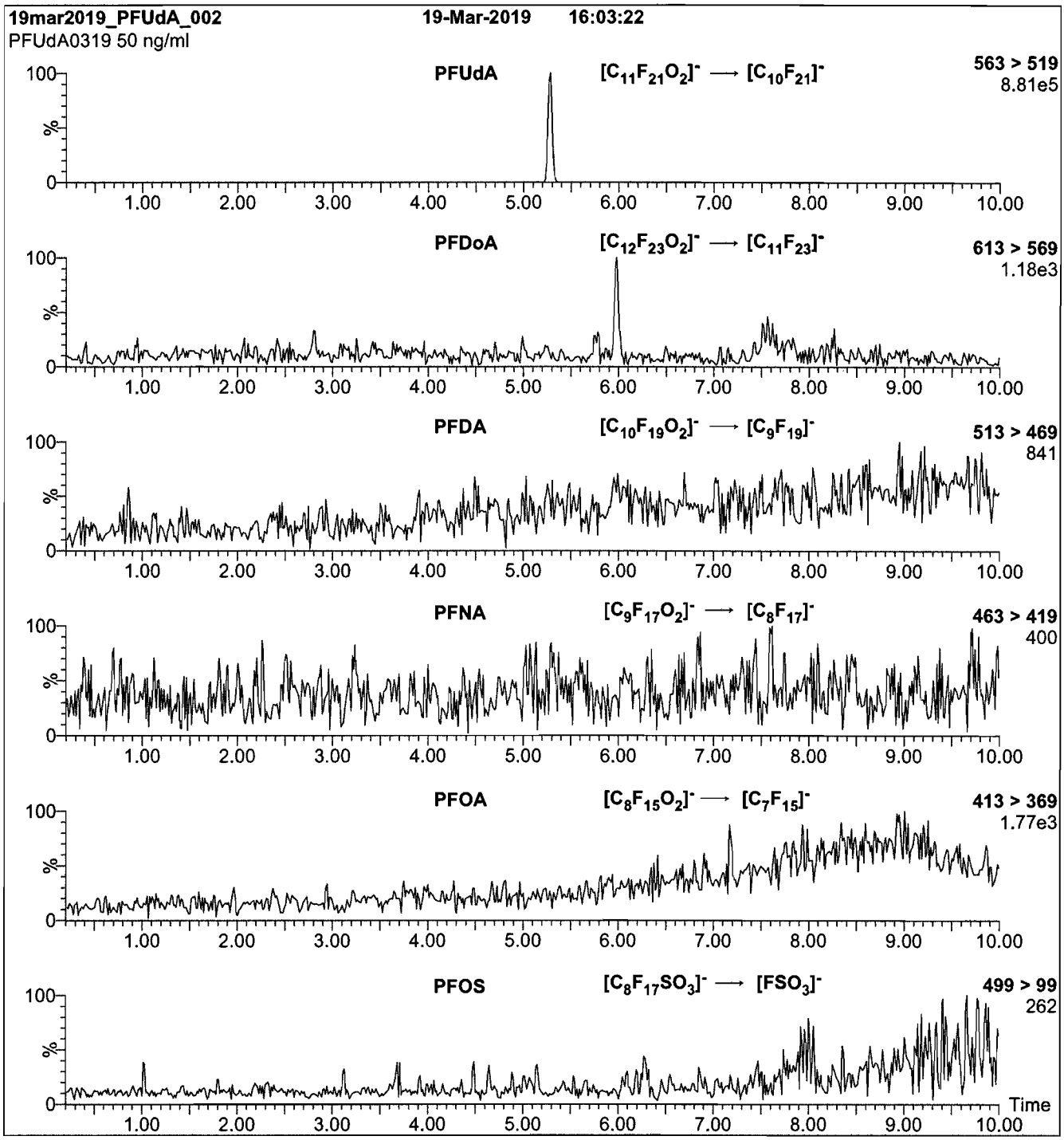
Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.88e-3
Collision Energy (eV) = 10

Figure 2: **PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFUdA)

Mobile phase: Same as Figure 1

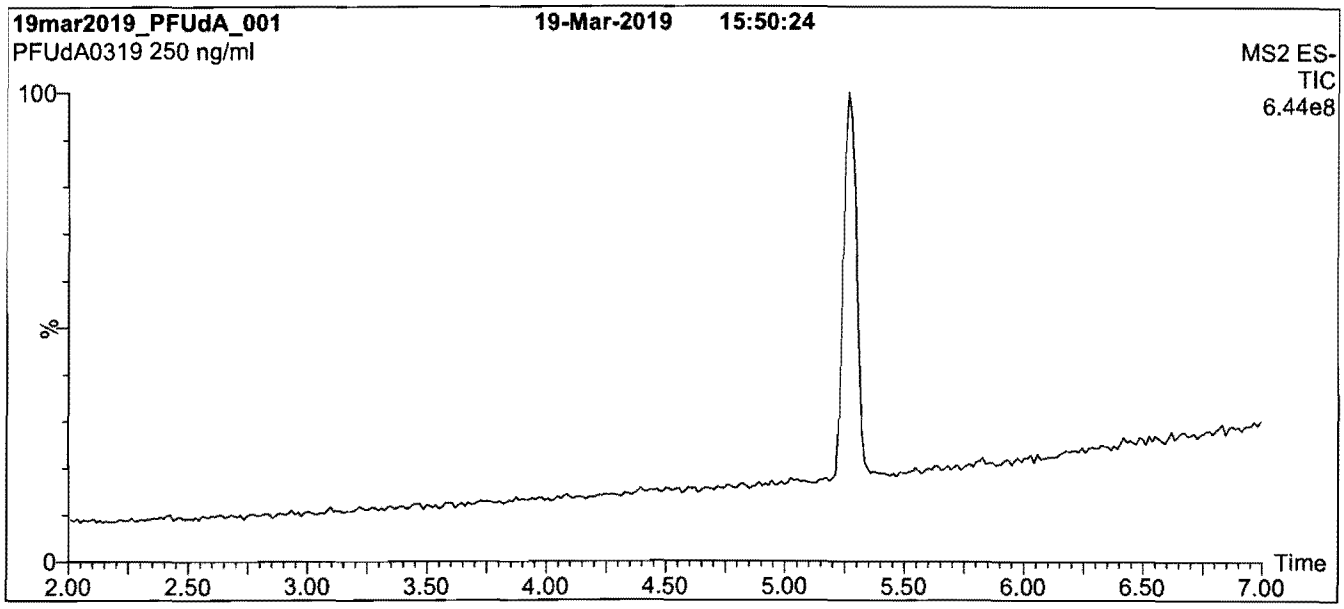
Flow: 300 µl/min

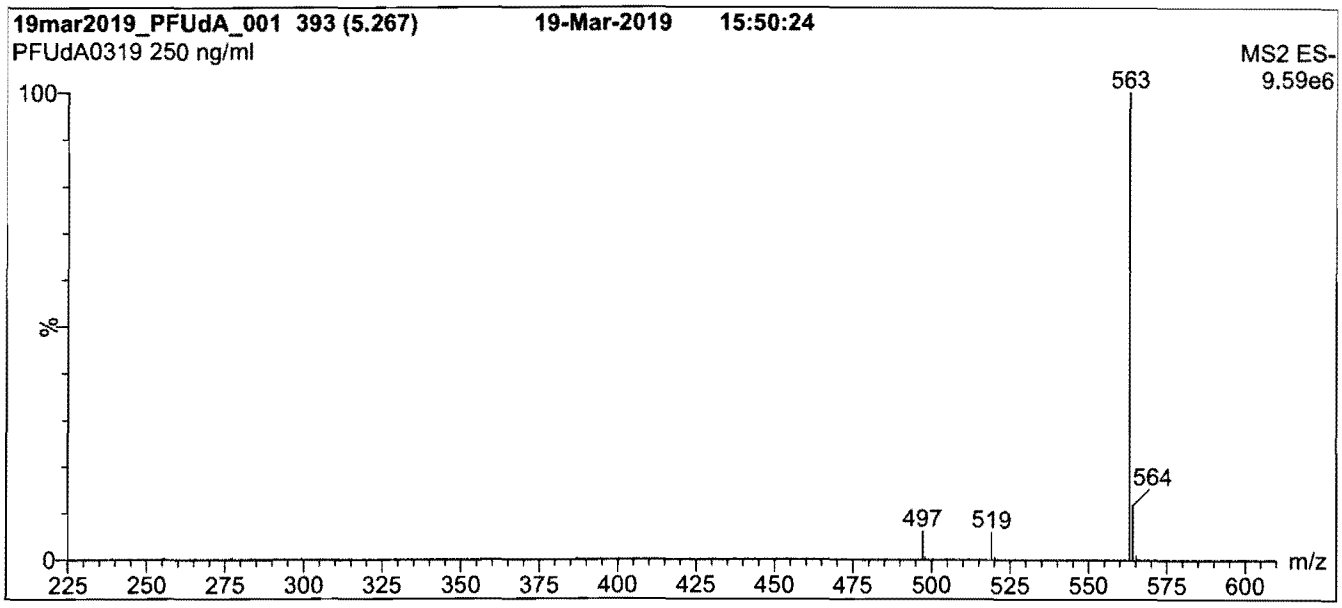
MS Parameters

Collision Gas (mbar) = 3.04e-3
Collision Energy (eV) = 12

19L0690

Figure 1: **PFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0640

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HANDLING:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

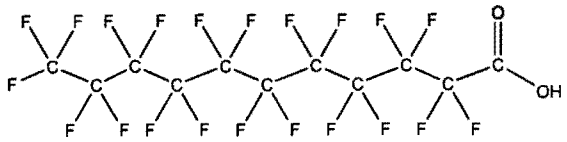
19L0640

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid
LOT NUMBER: PFUdA0319

STRUCTURE:
CAS #: 2058-94-8



MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
MOLECULAR WEIGHT: 564.09
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/19/2019
EXPIRY DATE: (mm/dd/yyyy) 03/19/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of pefluoro-n-dodecanoic acid (PFDoA).

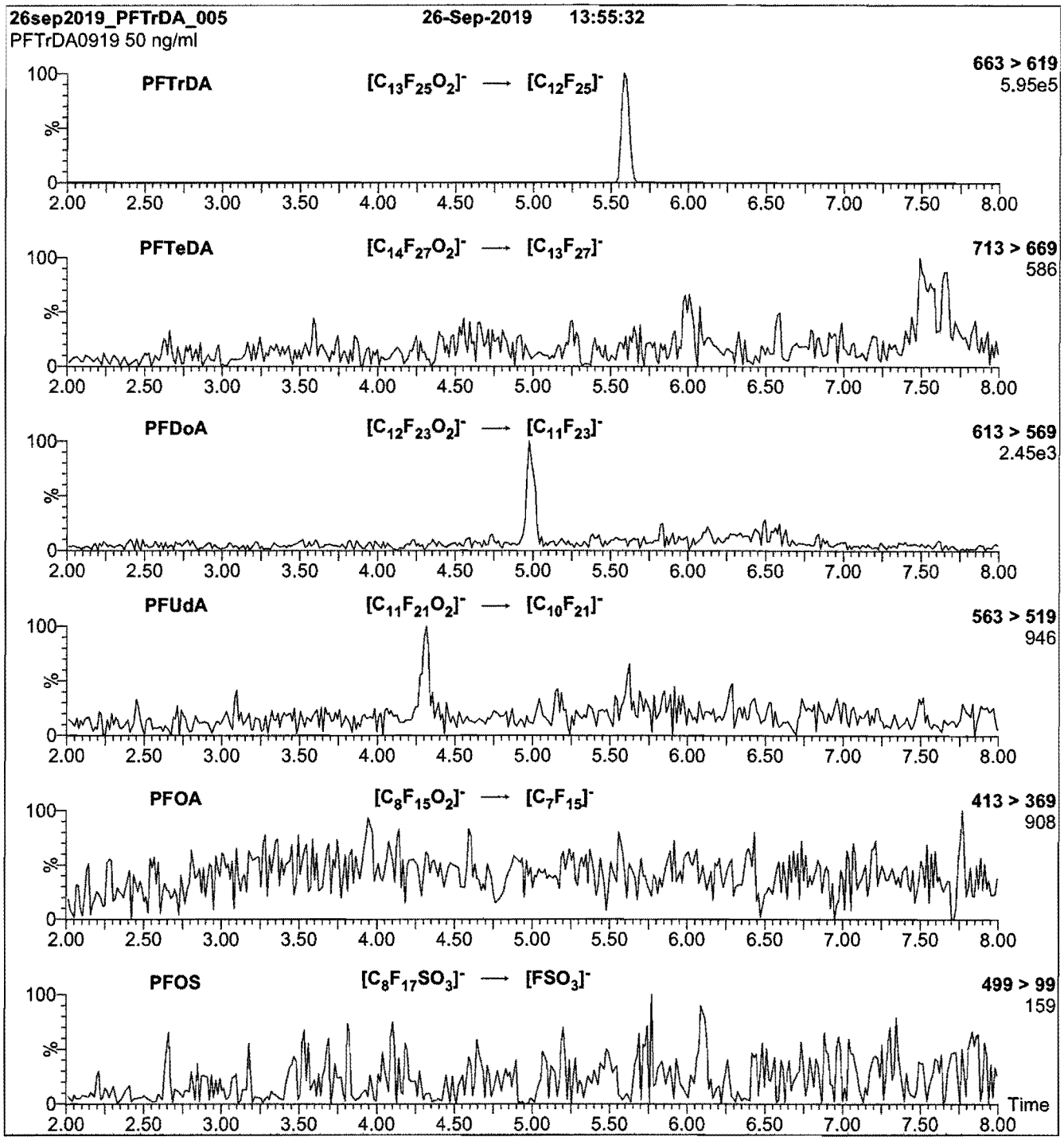
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/21/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0641

Figure 2: **PFTrDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFTrDA)

Mobile phase: Same as Figure 1

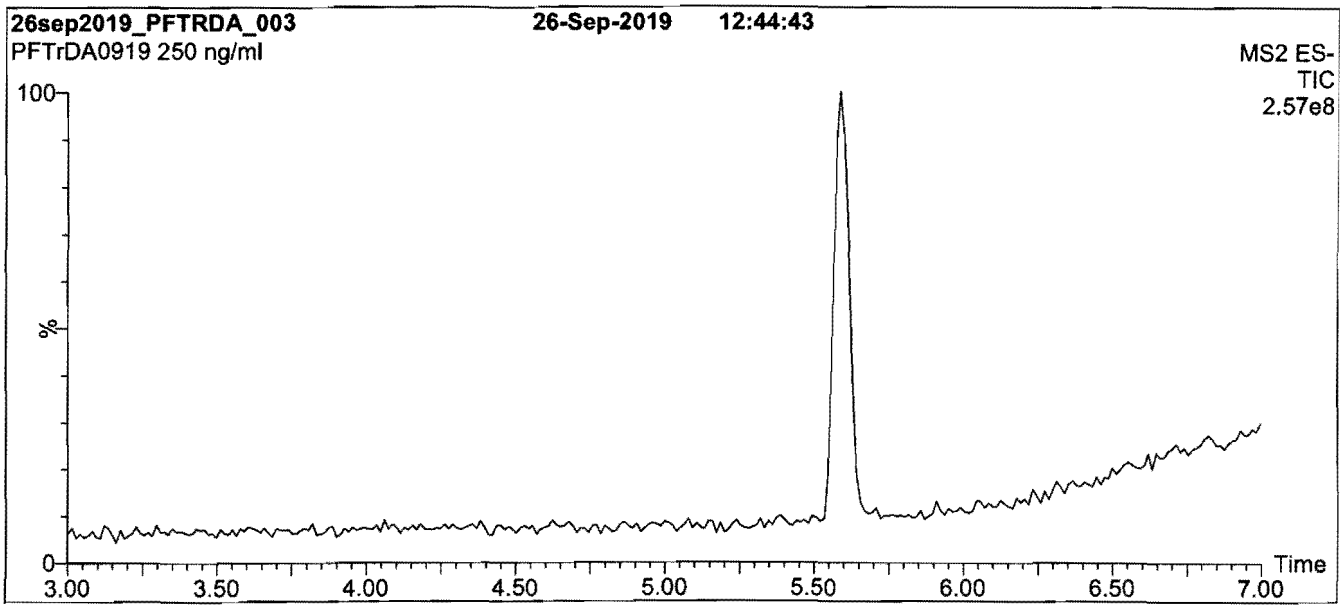
Flow: 300 µl/min

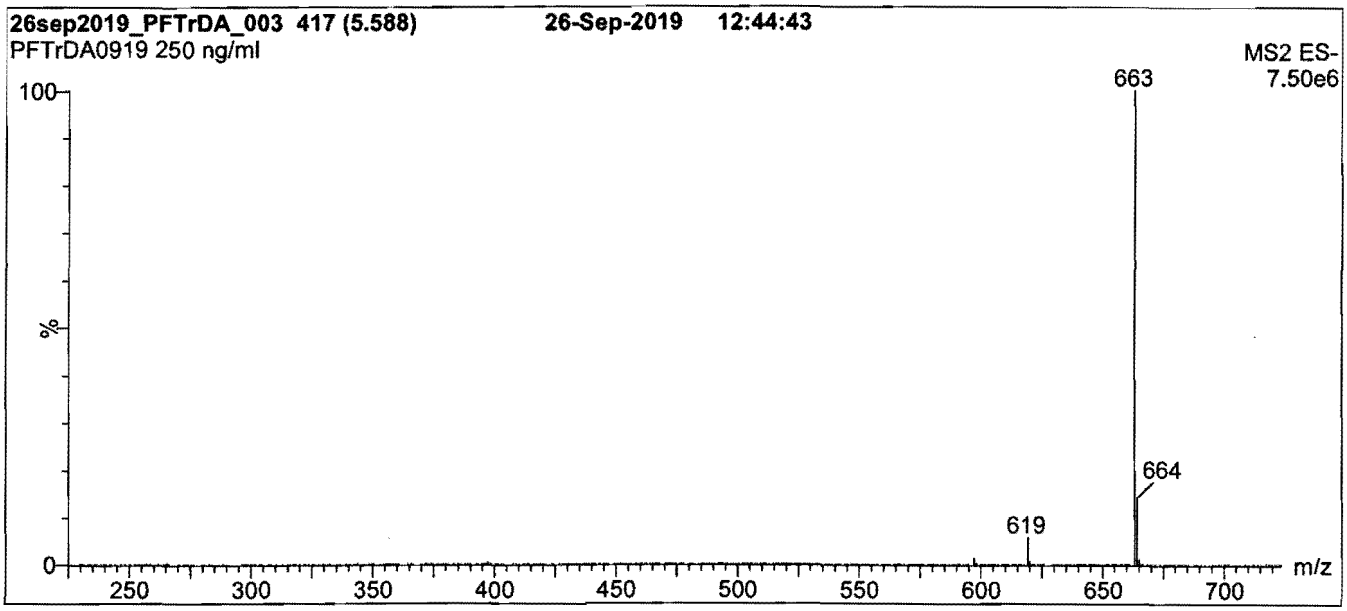
MS Parameters

Collision Gas (mbar) = 3.73e-3
Collision Energy (eV) = 12

1910641

Figure 1: **PFTrDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0641

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

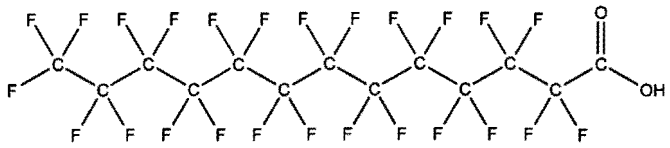
19L0691

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid
LOT NUMBER: PFTrDA0919

STRUCTURE:
CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
MOLECULAR WEIGHT: 664.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/26/2019
EXPIRY DATE: (mm/dd/yyyy) 09/26/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDoA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

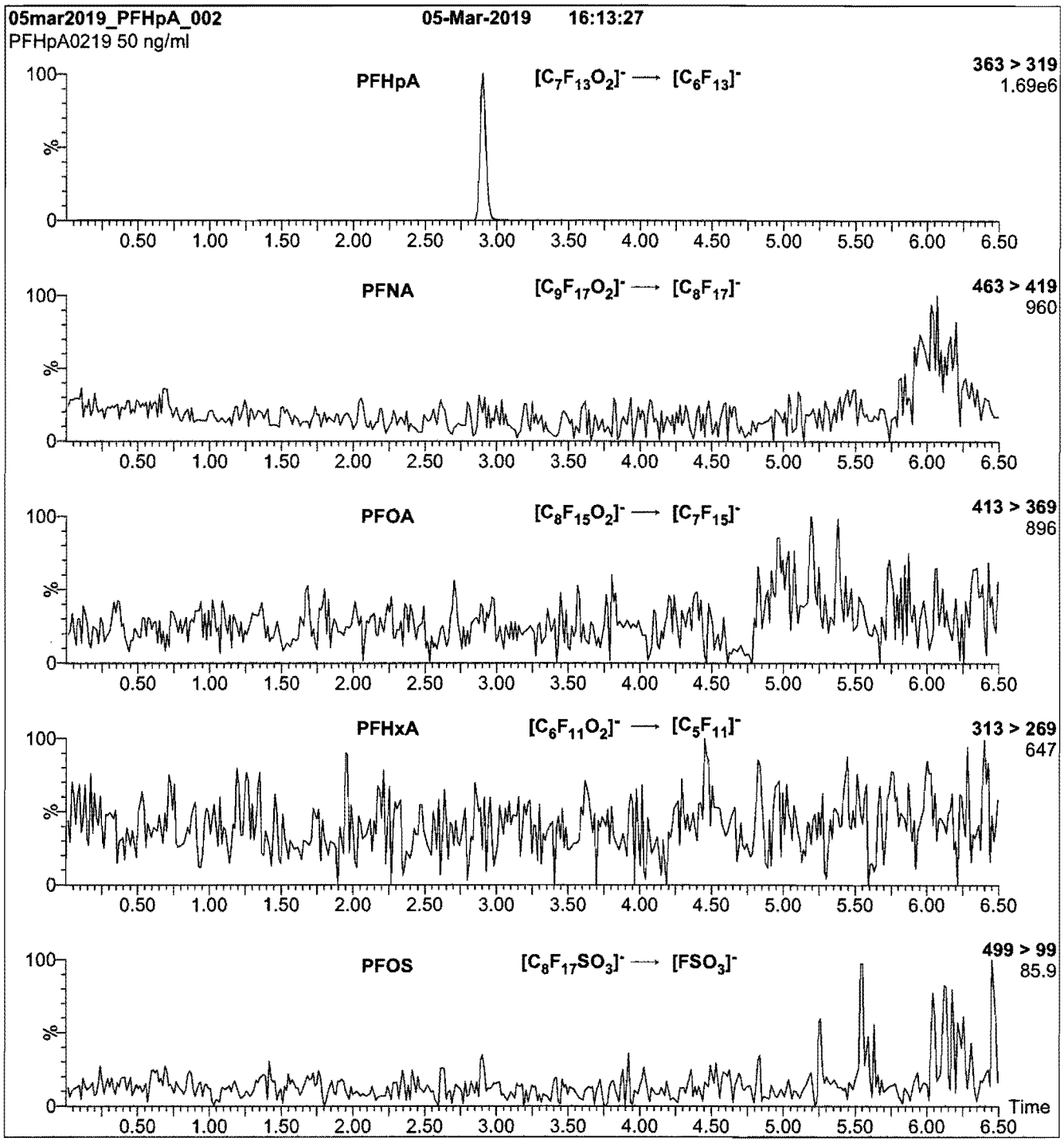
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/03/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0642

Figure 2: **PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFHpA)

Mobile phase: Same as Figure 1

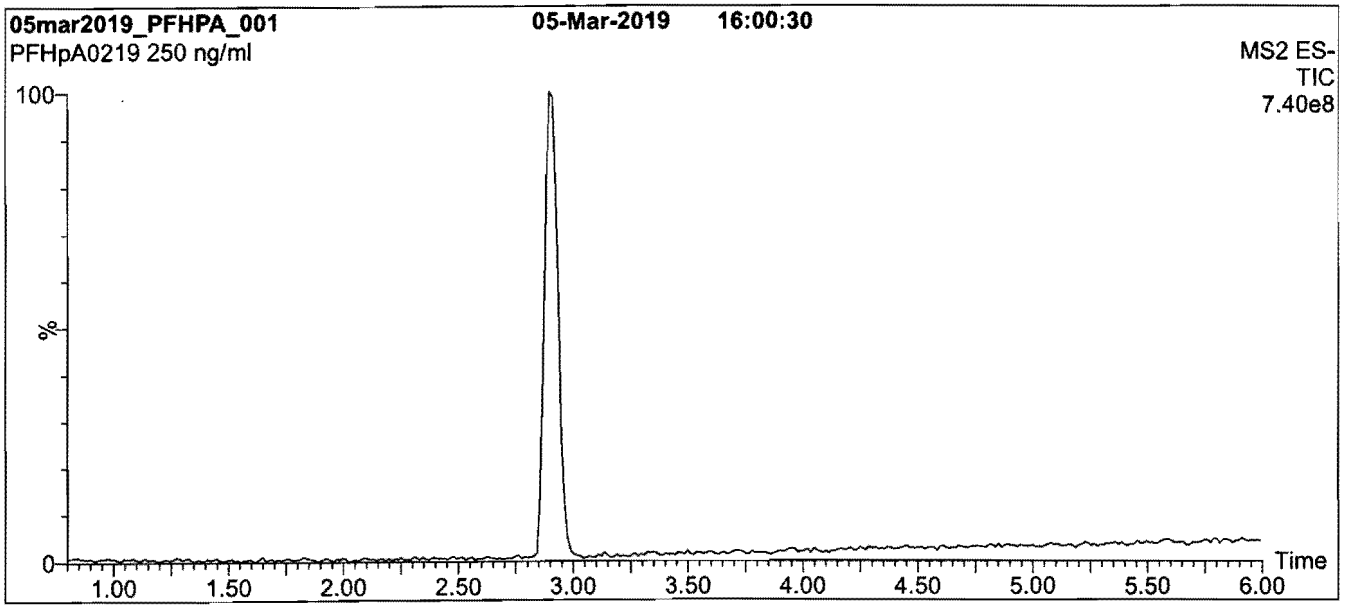
Flow: 300 µl/min

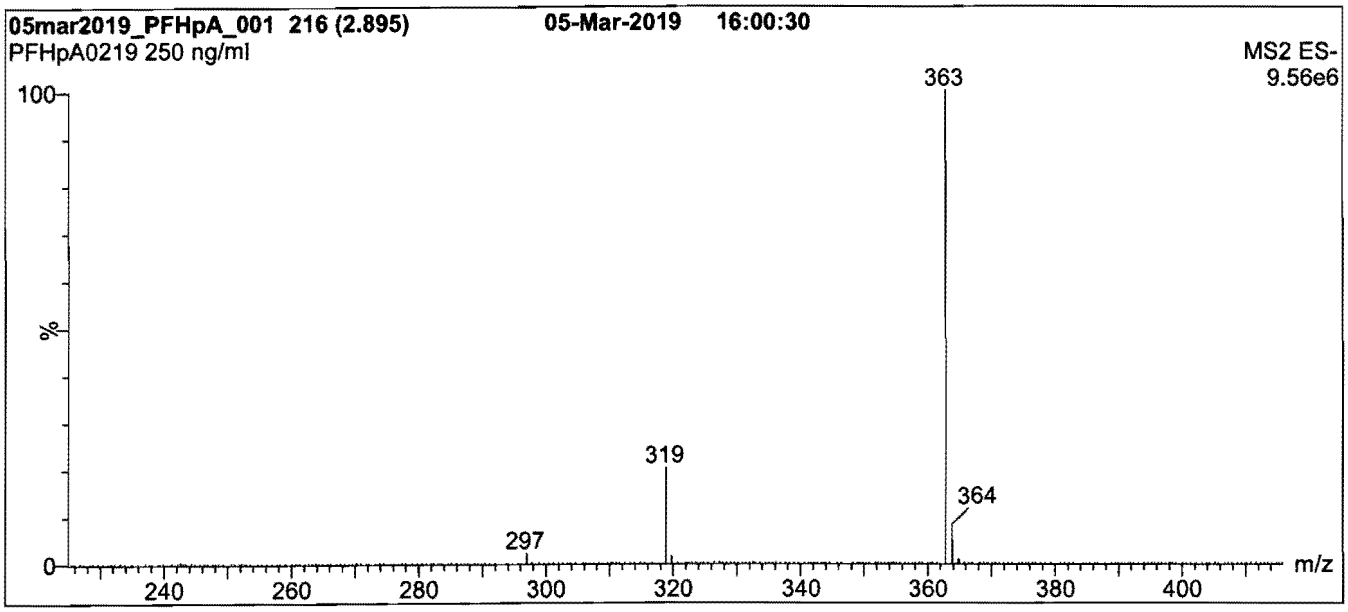
MS Parameters

Collision Gas (mbar) = 2.74e-3
Collision Energy (eV) = 8

19L0642

Figure 1: **PFHpA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0642

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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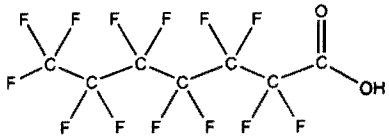
19L0642

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHpA	**LOT NUMBER:**	PFHpA0219
COMPOUND:	Perfluoro-n-heptanoic acid		
STRUCTURE:		**CAS #:**	375-85-9



MOLECULAR FORMULA:	$C_7HF_{13}O_2$	**MOLECULAR WEIGHT:**	364.06
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	03/05/2019		
EXPIRY DATE: (mm/dd/yyyy)	03/05/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

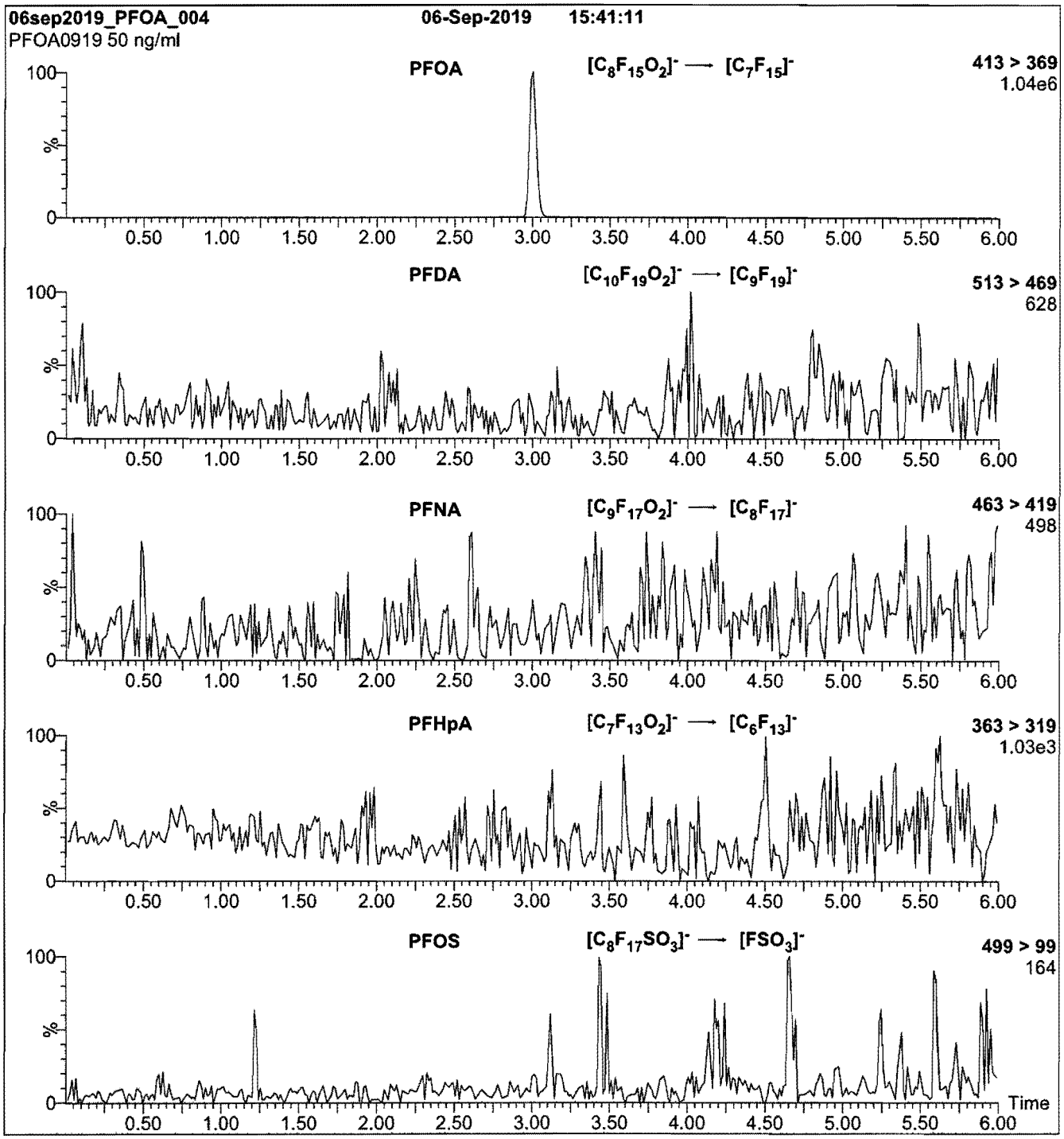
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/18/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0643

Figure 2: **PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFOA)

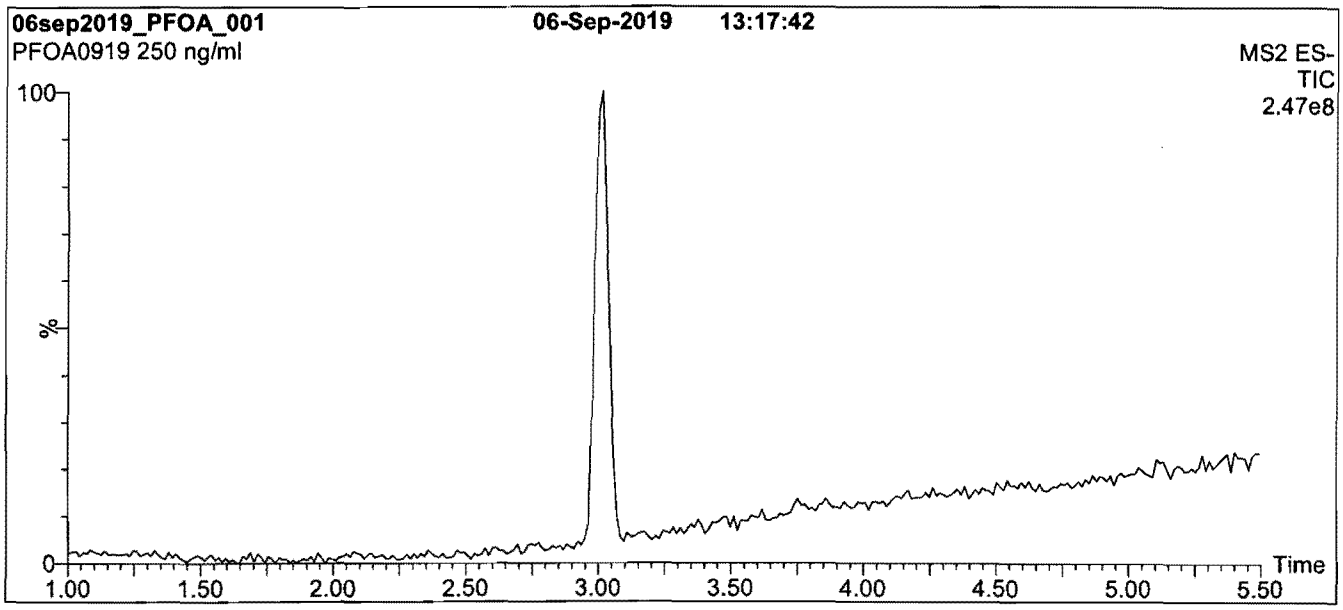
Mobile phase: Same as Figure 1

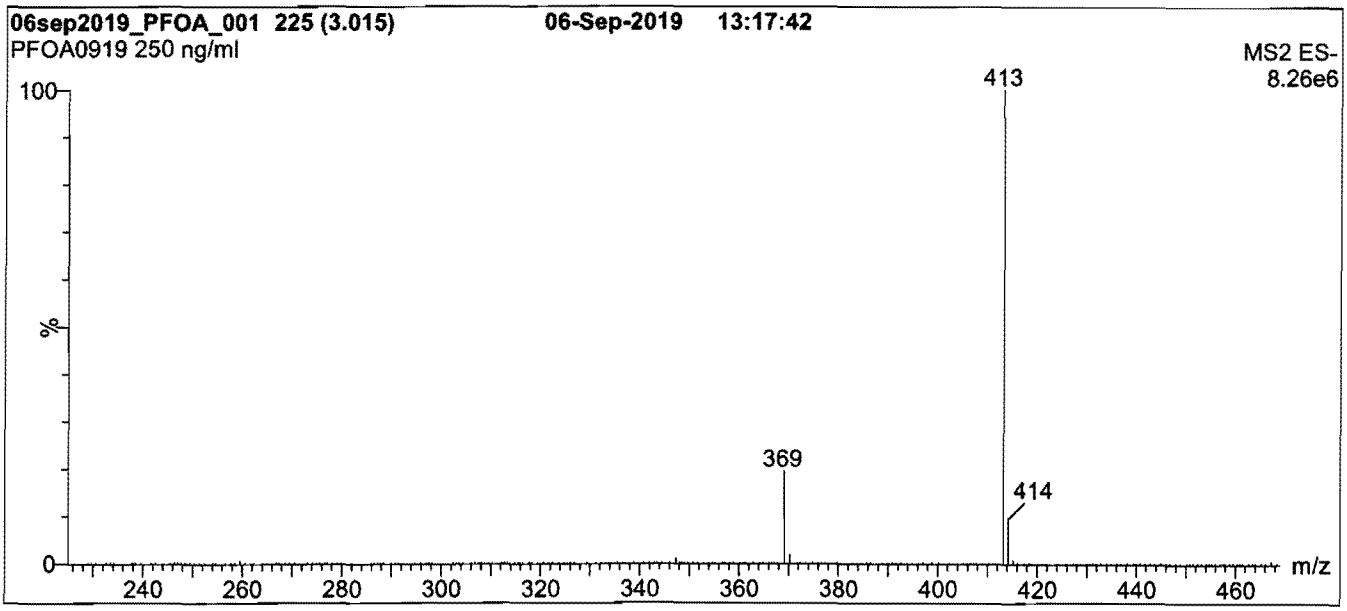
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.49e-3
Collision Energy (eV) = 8

Figure 1: **PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0643

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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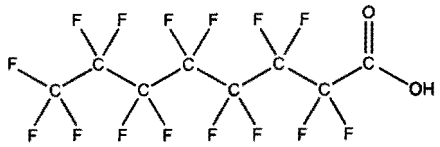
19L0643

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFOA
LOT NUMBER: PFOA0919
COMPOUND: Perfluoro-n-octanoic acid

STRUCTURE:
CAS #: 335-67-1



MOLECULAR FORMULA: $C_8HF_{15}O_2$
MOLECULAR WEIGHT: 414.07
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/06/2019
EXPIRY DATE: (mm/dd/yyyy) 09/06/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

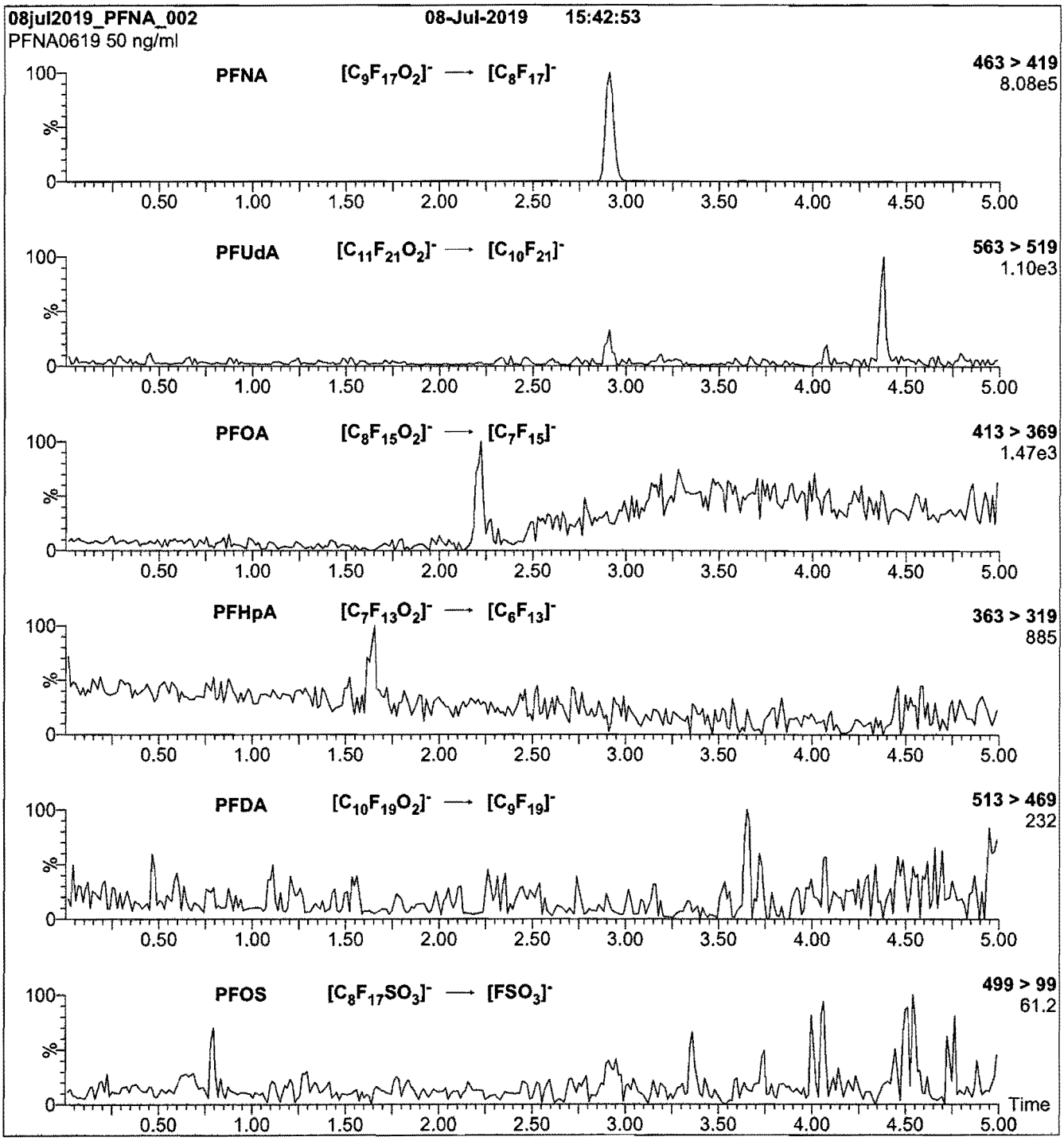
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0644

Figure 2: **PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFNA)

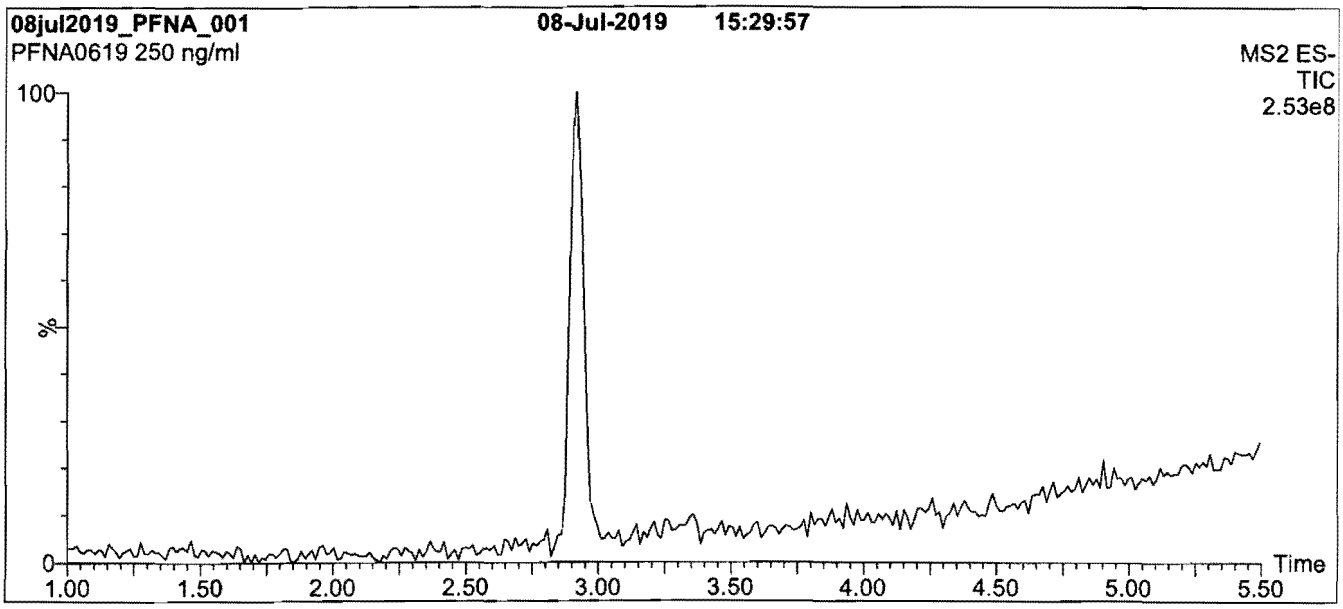
Mobile phase: Same as Figure 1

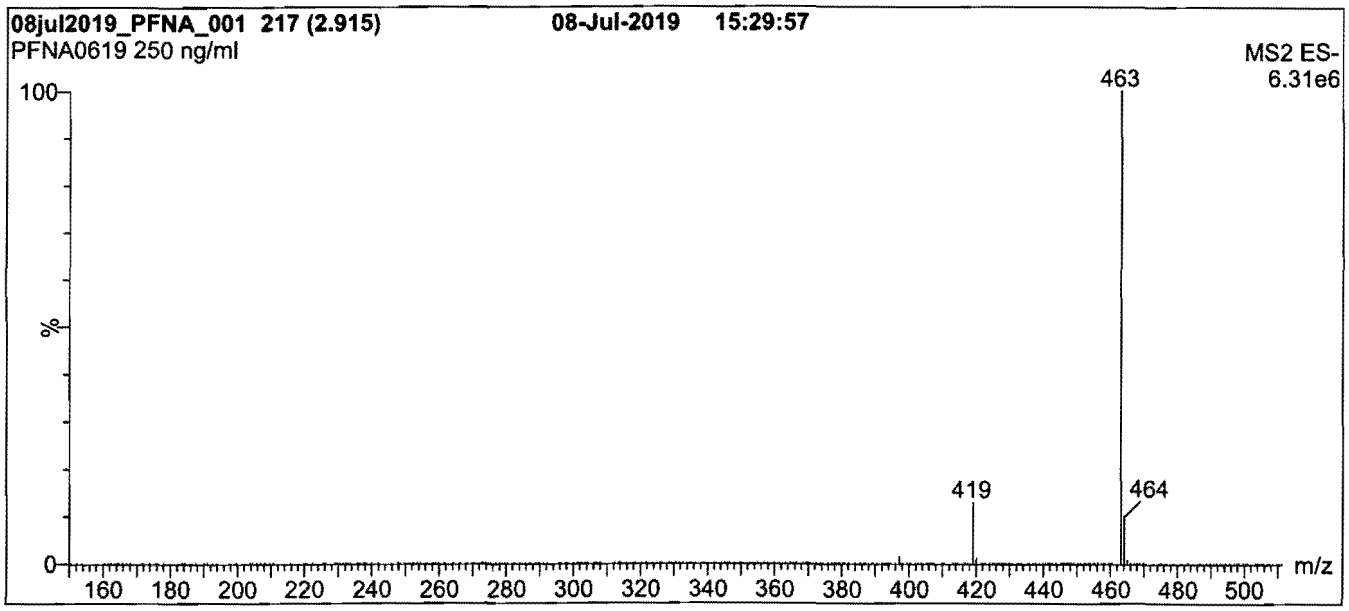
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 10

Figure 1: **PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
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19L0644

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Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

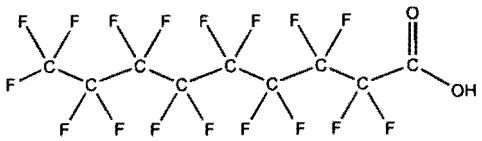
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0644

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFNA
LOT NUMBER: PFNA0619
COMPOUND: Perfluoro-n-nonanoic acid
STRUCTURE:
CAS #: 375-95-1



MOLECULAR FORMULA: $C_9HF_{17}O_2$
MOLECULAR WEIGHT: 464.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/08/2019
EXPIRY DATE: (mm/dd/yyyy) 07/08/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/11/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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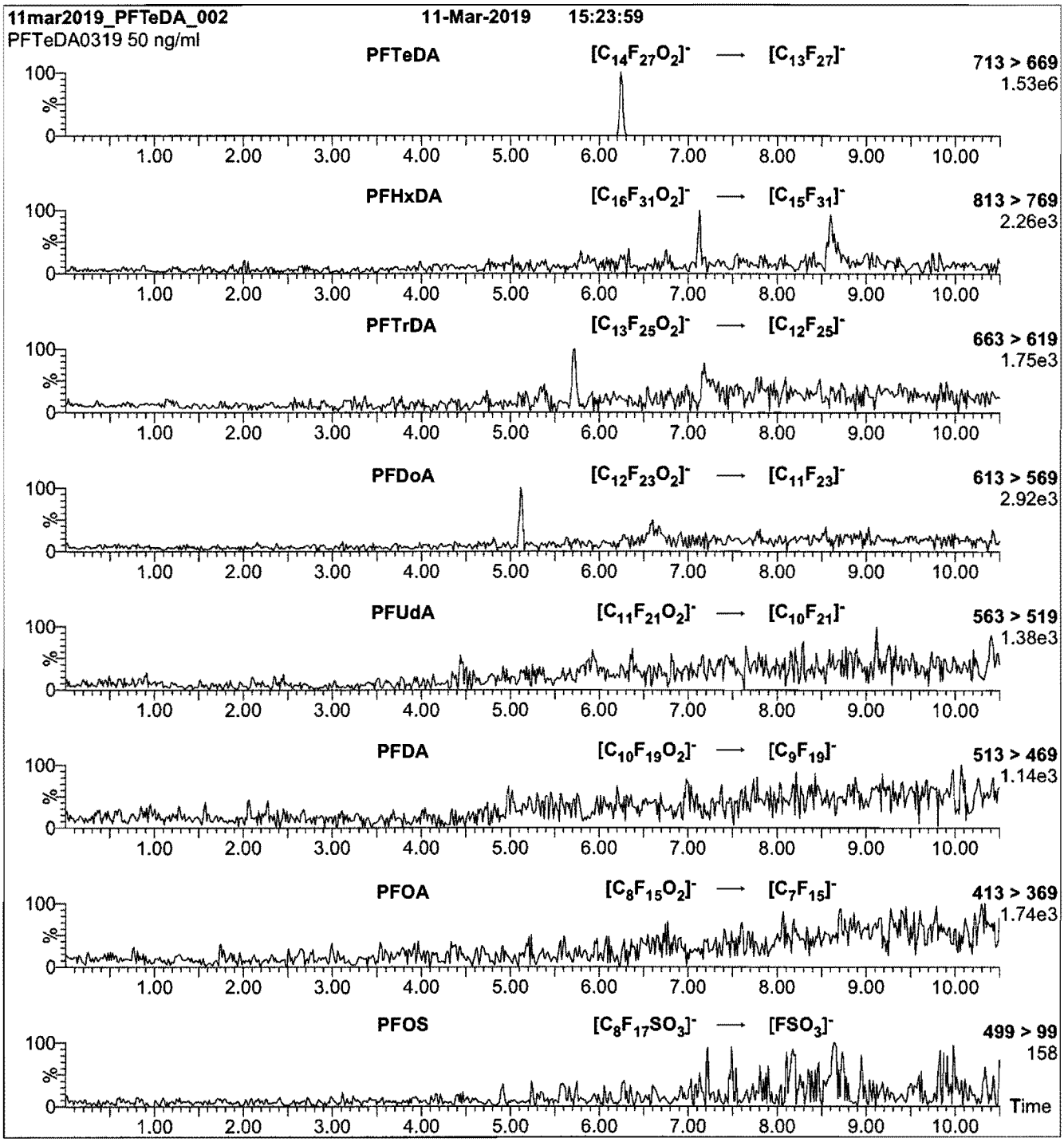
Figure 2: **PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFTeDA)

Mobile phase: Same as Figure 1

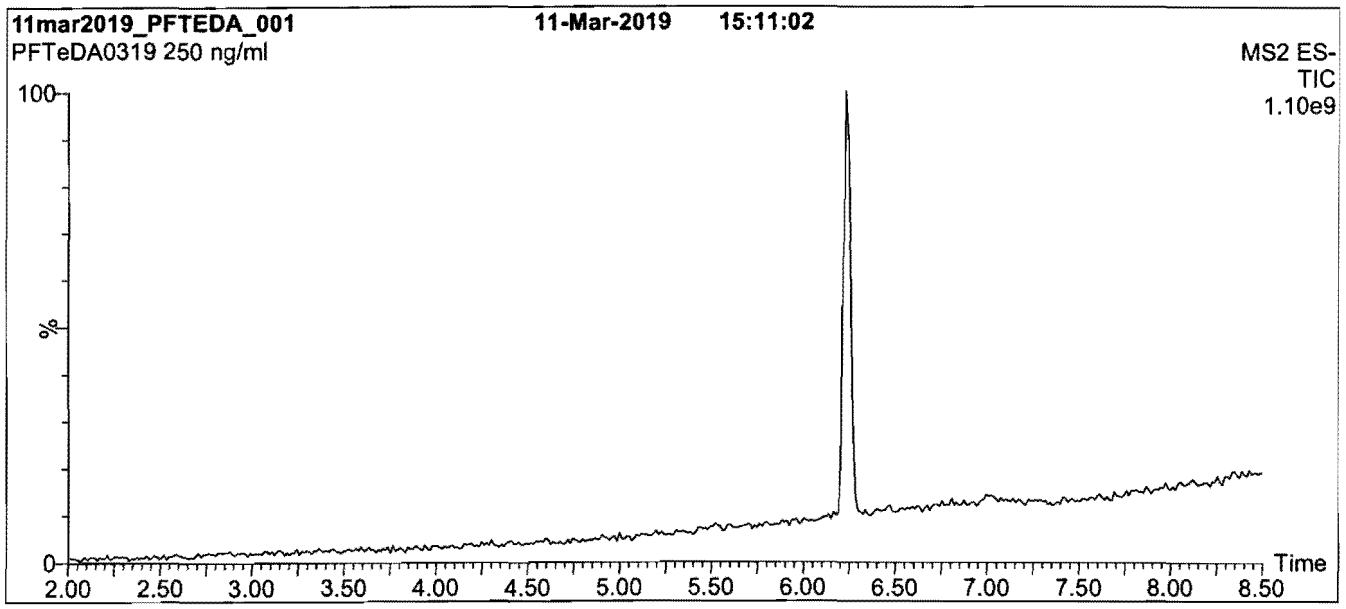
Flow: 300 µl/min

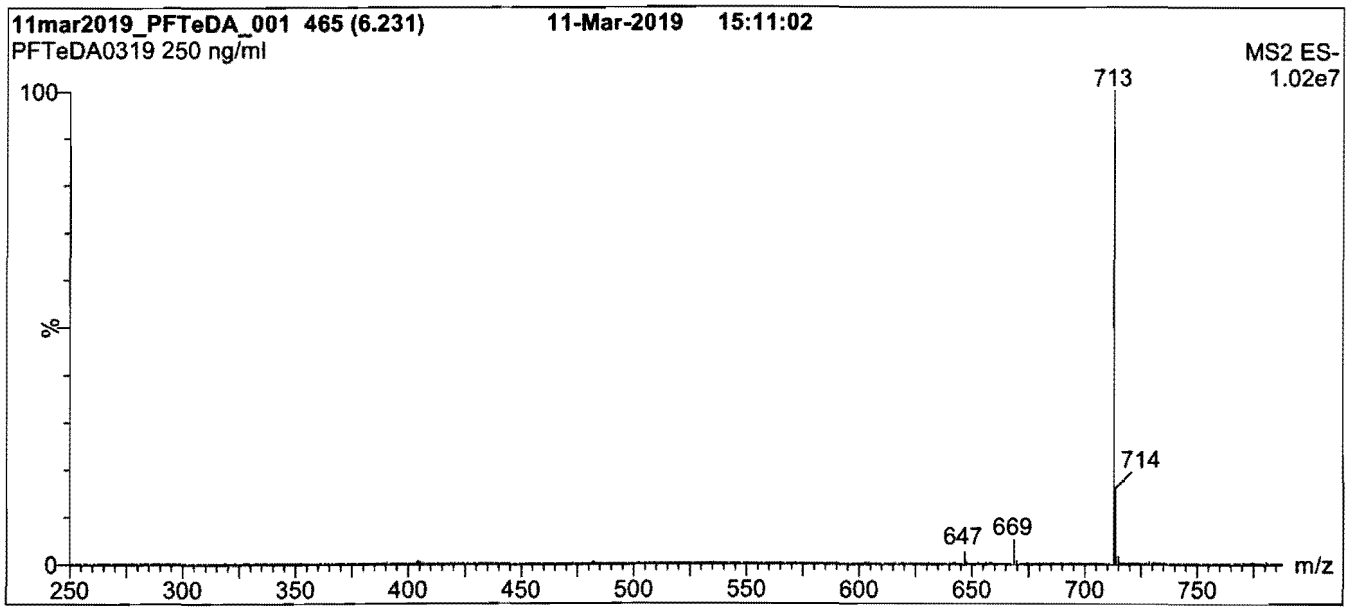
MS Parameters

Collision Gas (mbar) = 3.03e-3
Collision Energy (eV) = 14

1910645

Figure 1: **PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

1910645

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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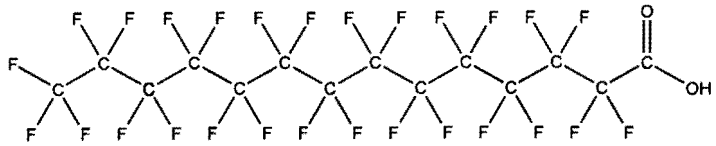
19L0645

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTeDA
LOT NUMBER: PFTeDA0319
COMPOUND: Perfluoro-n-tetradecanoic acid

STRUCTURE:
CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
MOLECULAR WEIGHT: 714.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/11/2019
EXPIRY DATE: (mm/dd/yyyy) 03/11/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of PFDoA ($C_{12}HF_{23}O_2$), ~ 0.1% of PFTrDA ($C_{13}HF_{25}O_2$), and ~ 0.1% of PFHxDA ($C_{16}HF_{31}O_2$).

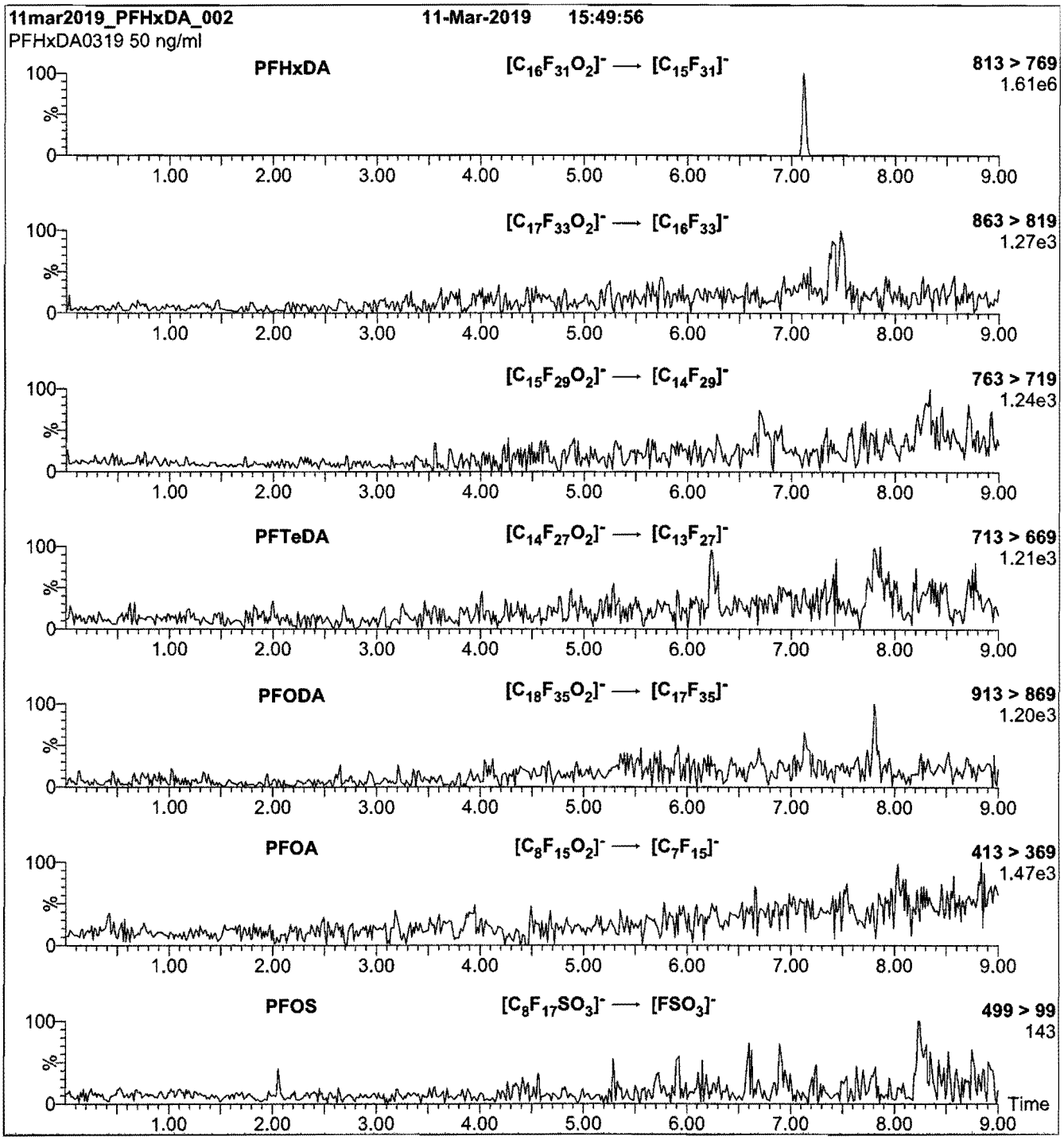
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/28/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0646

Figure 2: **PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFHxDA)

Mobile phase: Same as Figure 1

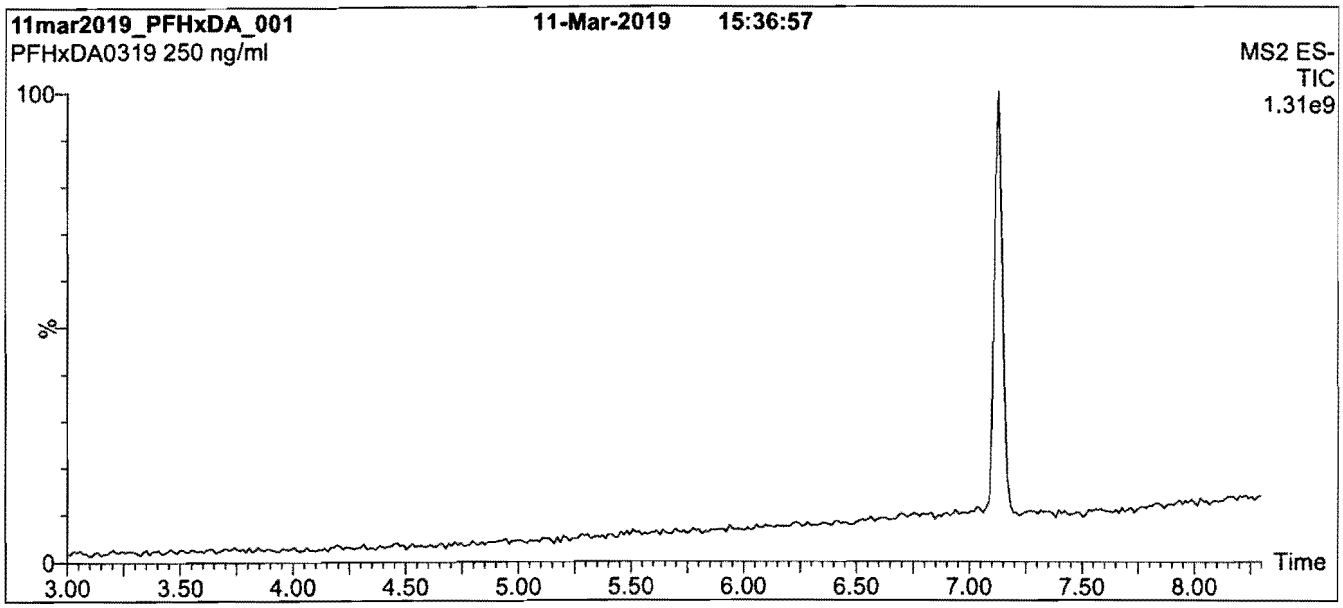
Flow: 300 µl/min

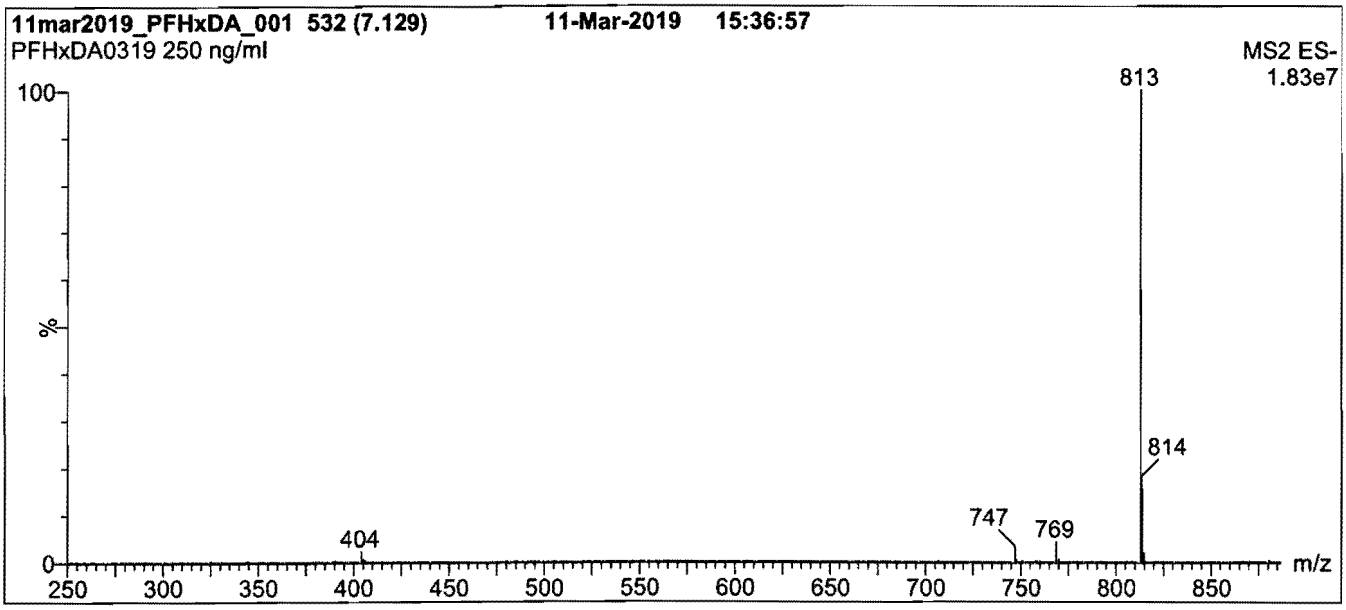
MS Parameters

Collision Gas (mbar) = 3.03e-3
Collision Energy (eV) = 15

19L0646

Figure 1: **PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

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Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0646

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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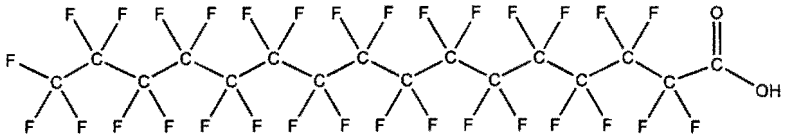
19L0646

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxDA
LOT NUMBER: PFHxDA0319
COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE:
CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
MOLECULAR WEIGHT: 814.13
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/11/2019
EXPIRY DATE: (mm/dd/yyyy) 03/11/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

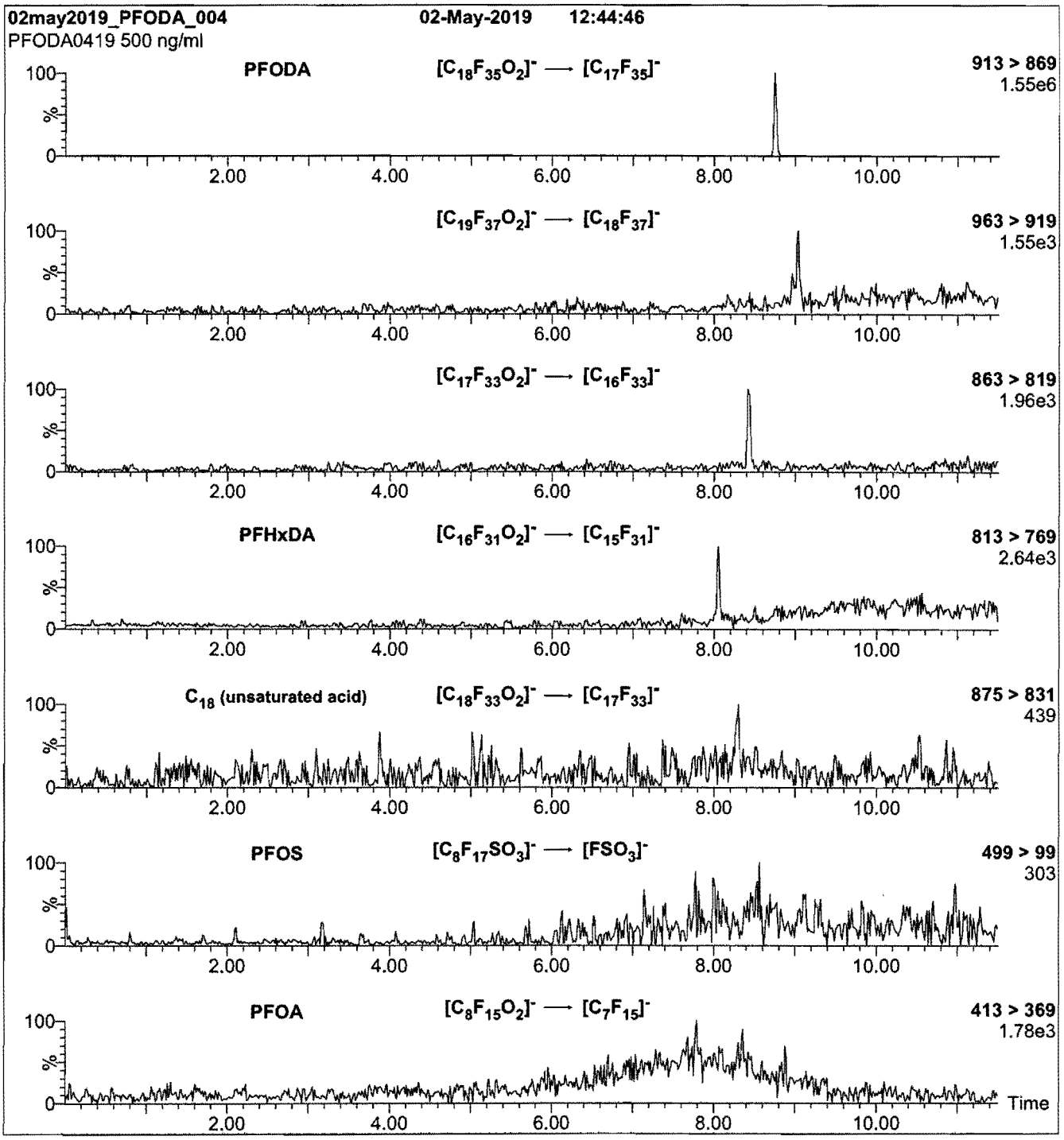
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/28/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0647

Figure 2: **PFODA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFODA)

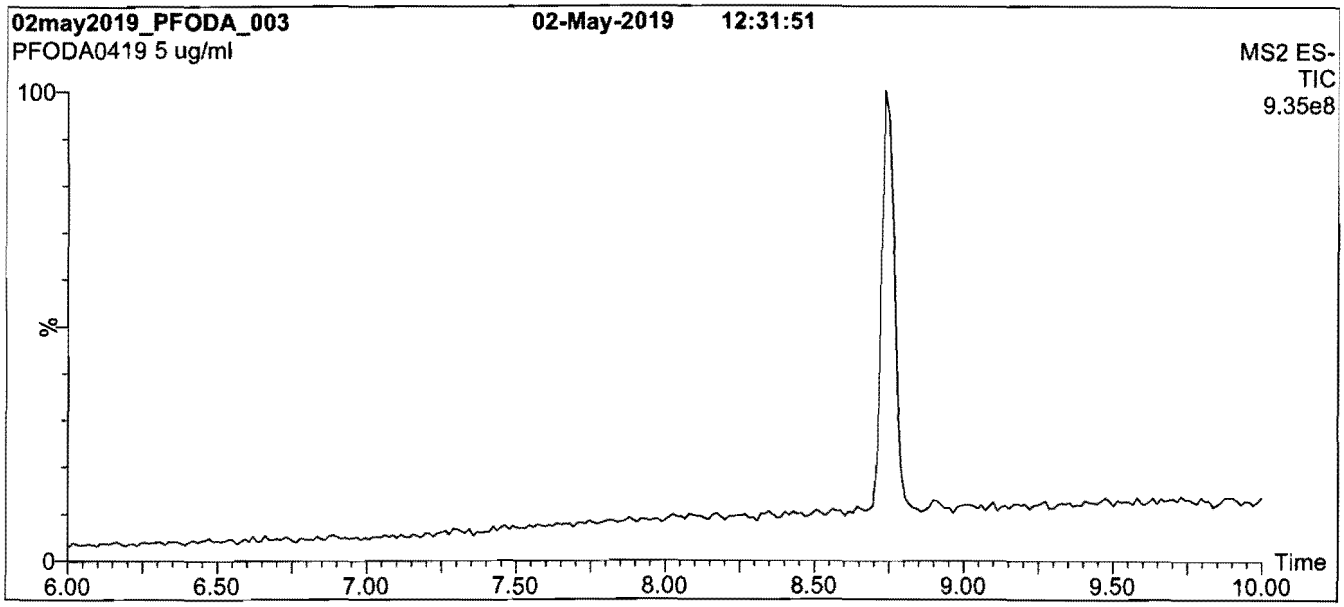
Mobile phase: Same as Figure 1

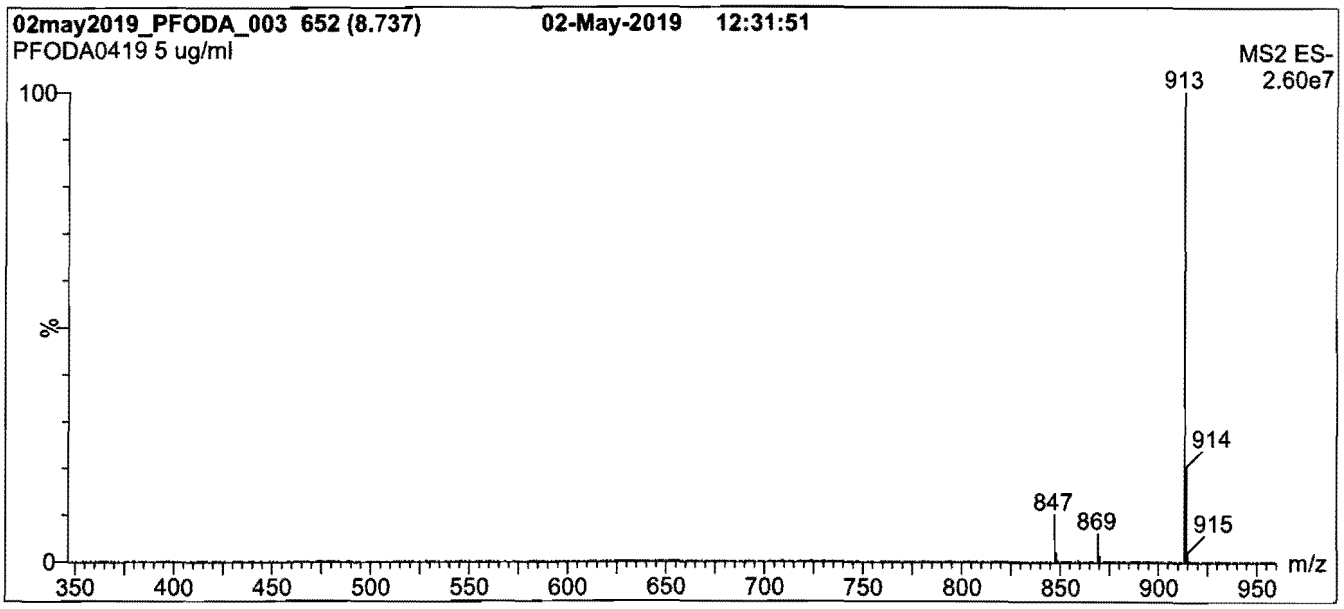
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.92e-3
Collision Energy (eV) = 15

Figure 1: **PFODA; LC/MS Data (TIC and Mass Spectrum)**





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Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0647

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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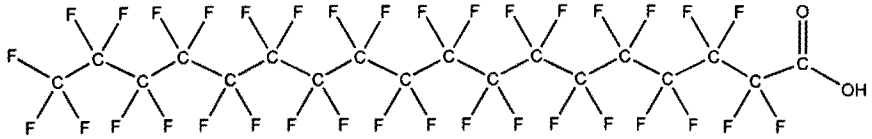
19L0647

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFODA
COMPOUND: Perfluoro-n-octadecanoic acid
LOT NUMBER: PFODA0419

STRUCTURE:
CAS #: 16517-11-6



MOLECULAR FORMULA: $C_{18}HF_{35}O_2$
MOLECULAR WEIGHT: 914.14
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/02/2019
EXPIRY DATE: (mm/dd/yyyy) 05/02/2024
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of PFHxDA ($C_{16}HF_{31}O_2$) and ~ 0.1% of PFHpDA ($C_{17}HF_{33}O_2$)

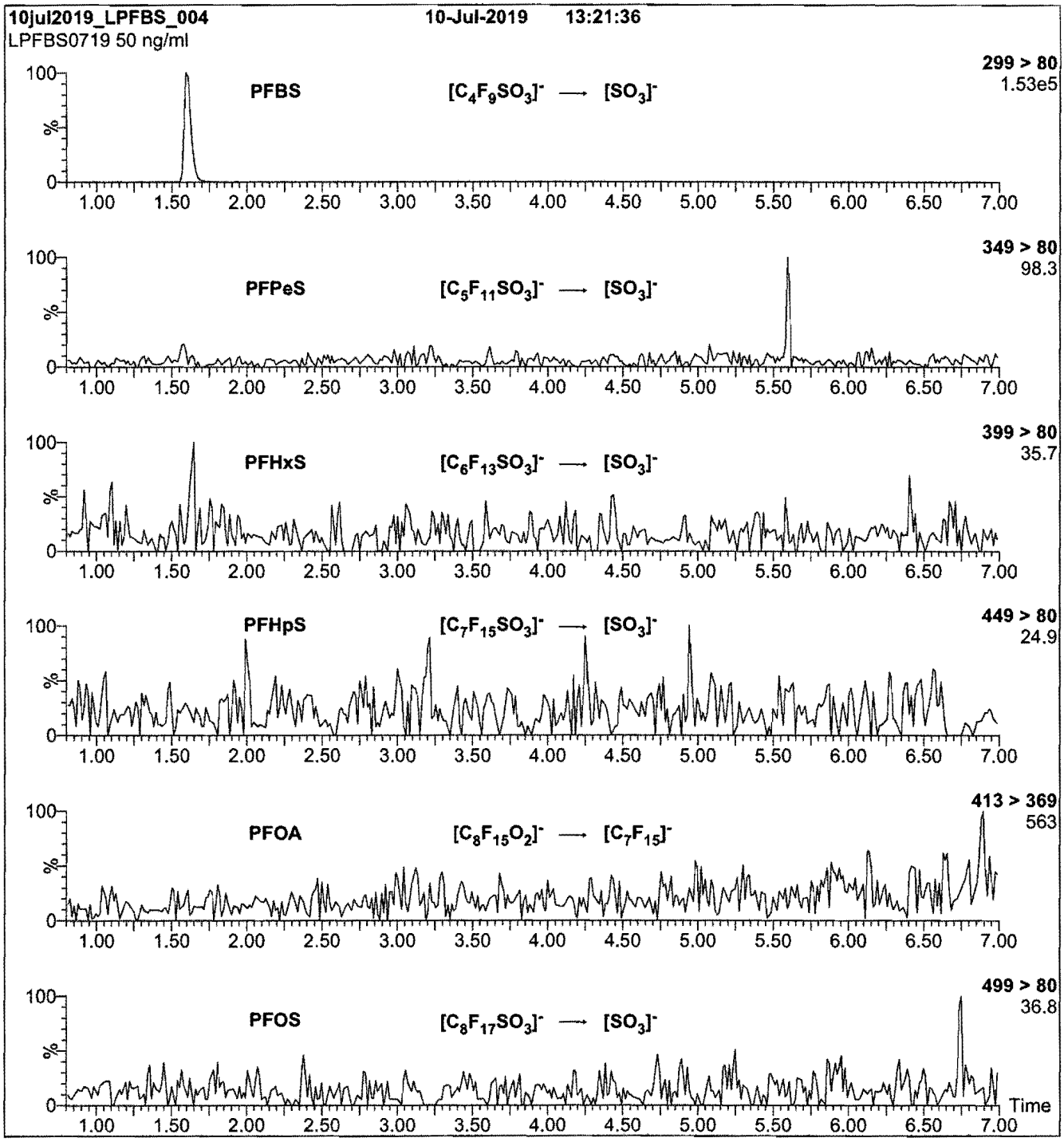
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/16/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0648

Figure 2: **L-PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFBS)

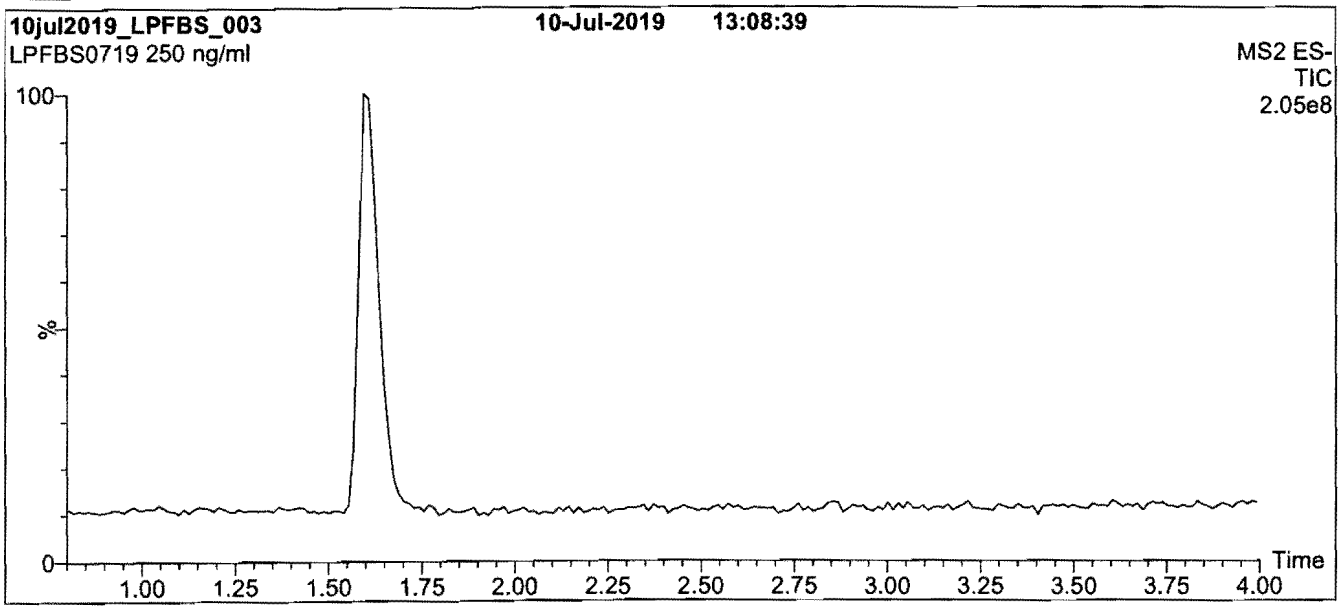
Mobile phase: Same as Figure 1

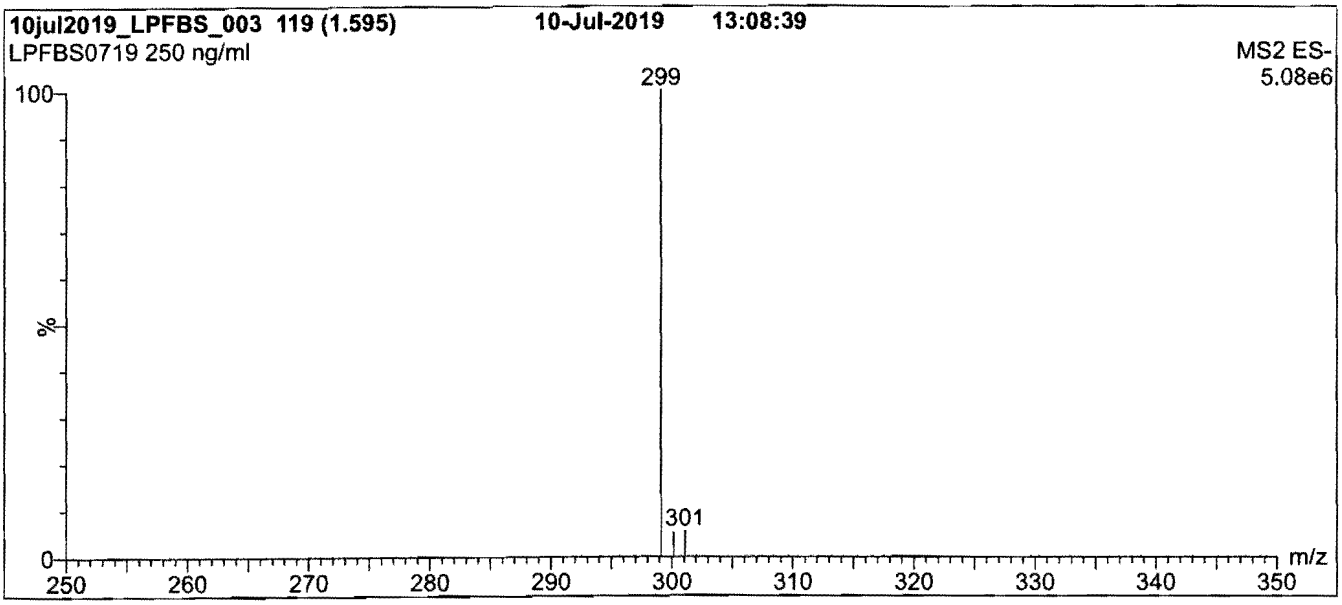
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.25e-3
Collision Energy (eV) = 30

Figure 1: **L-PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 70% organic over 7 min, then ramp to 90% organic over 2 min and hold for 1.5 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0648

INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

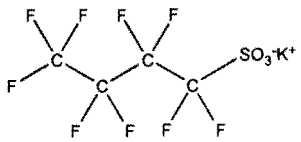
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0648

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFBS	**LOT NUMBER:**	LPFBS0719
COMPOUND:	Potassium perfluoro-1-butanesulfonate		
STRUCTURE:		**CAS #:**	29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	**MOLECULAR WEIGHT:**	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/10/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/10/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of sodium perfluoro-1-nonanesulfonate (L-PFNS).

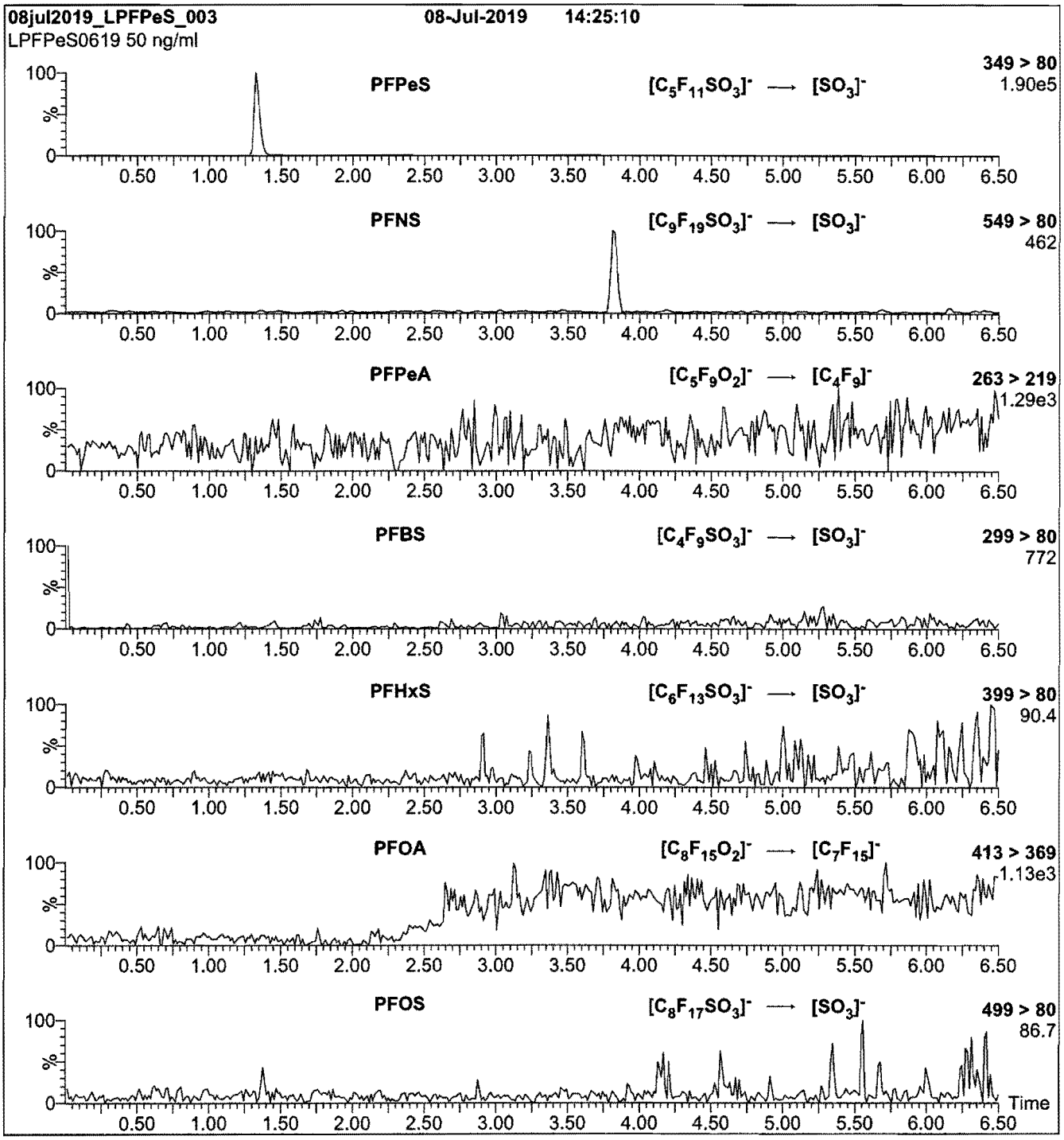
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/06/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0649

Figure 2: **L-PFPeS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFPeS)

Mobile phase: Same as Figure 1

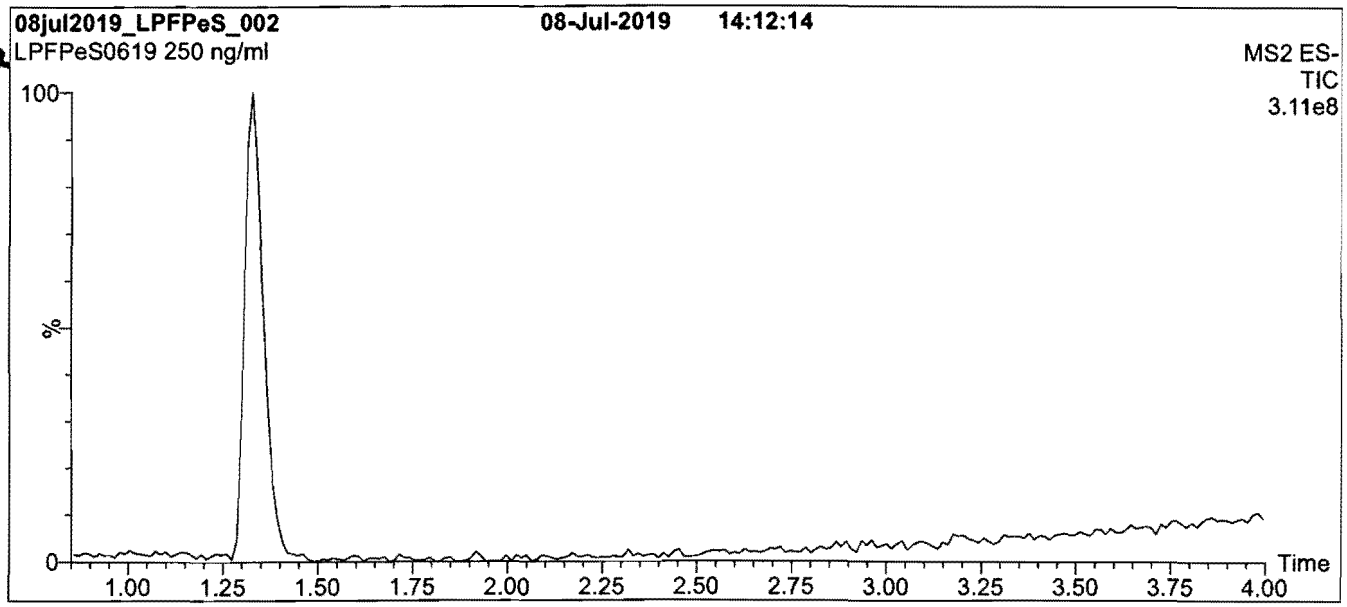
Flow: 300 µl/min

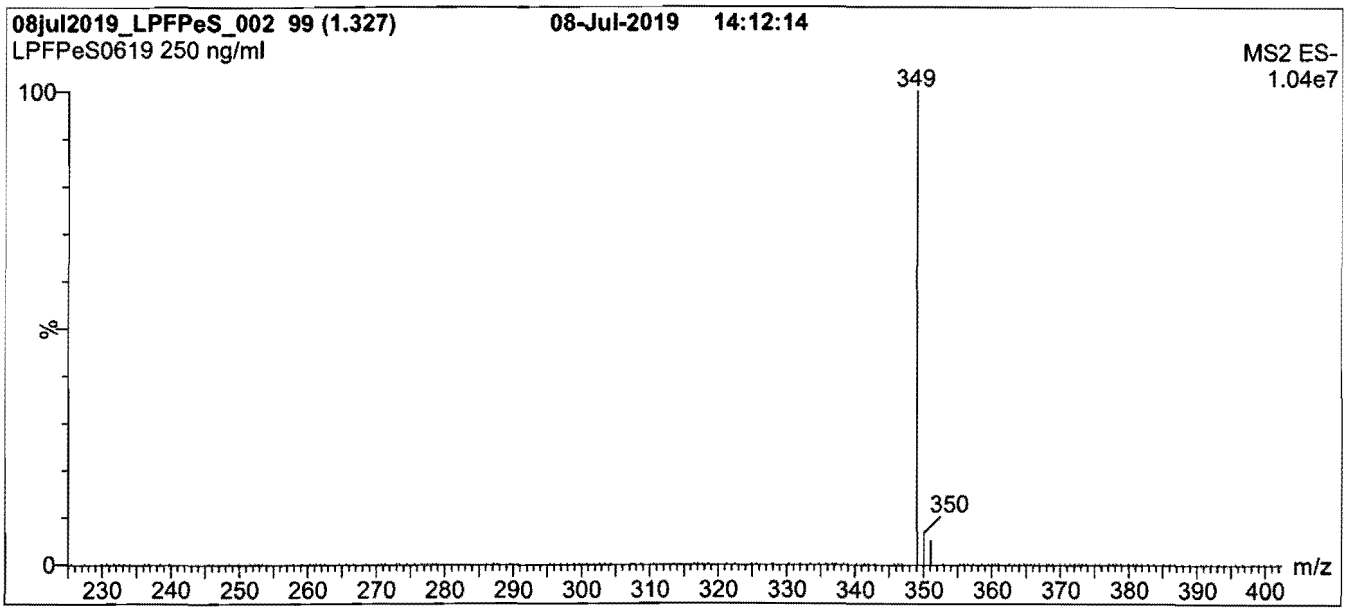
MS Parameters

Collision Gas (mbar) = 3.37e-3
Collision Energy (eV) = 32

19L0649

Figure 1: **L-PFPeS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0649

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

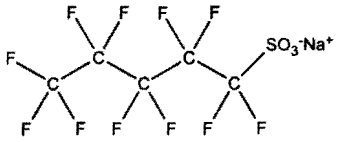
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0619

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFPeS	**LOT NUMBER:**	LPFPeS0619
COMPOUND:	Sodium perfluoro-1-pentanesulfonate		
STRUCTURE:		**CAS #:**	630402-22-1



MOLECULAR FORMULA:	$C_5F_{11}SO_3Na$	**MOLECULAR WEIGHT:**	372.09
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.9 ± 2.3 µg/ml (PFPeS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/08/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/08/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% of sodium perfluoro-1-nonanesulfonate (L-PFNS).

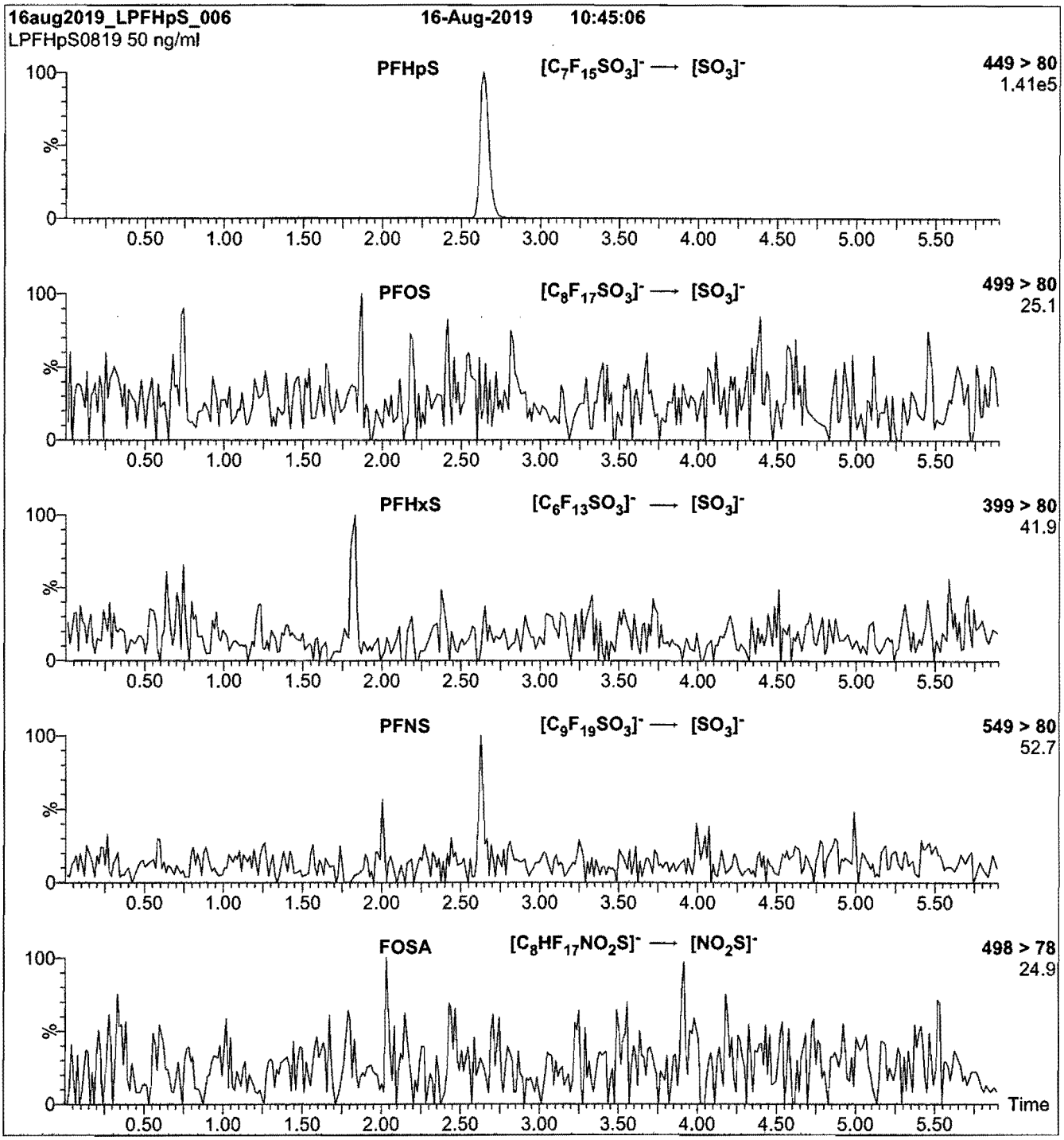
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/11/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0650

Figure 2: **L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFHpS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

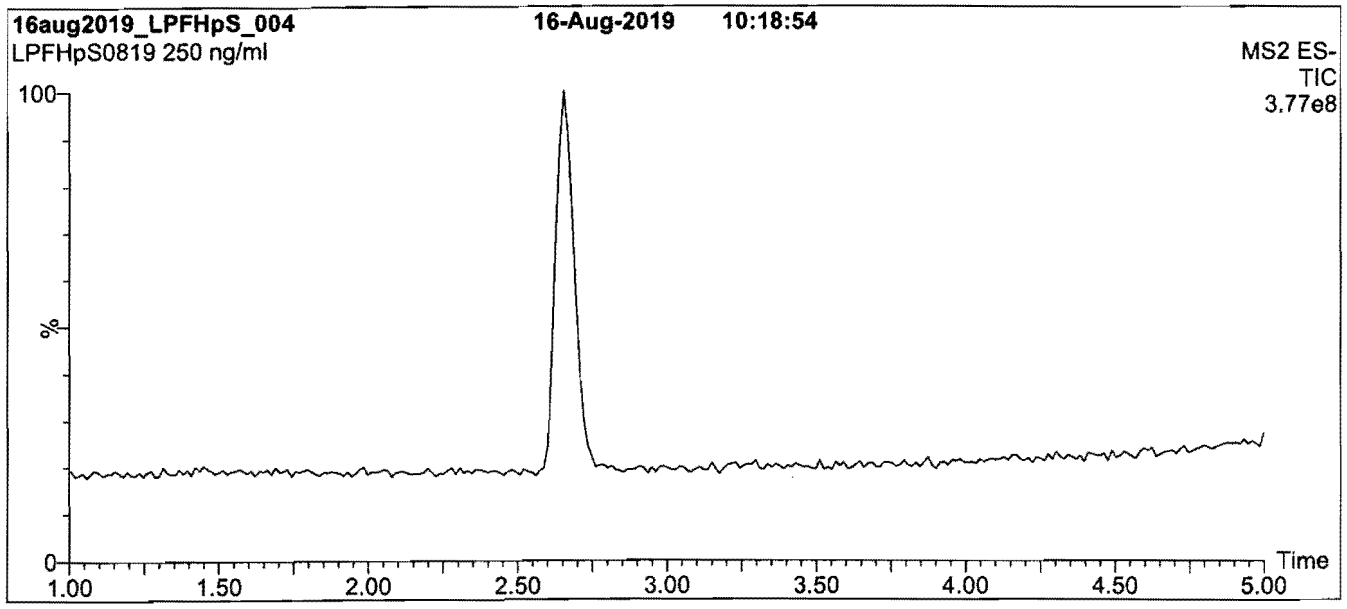
MS Parameters

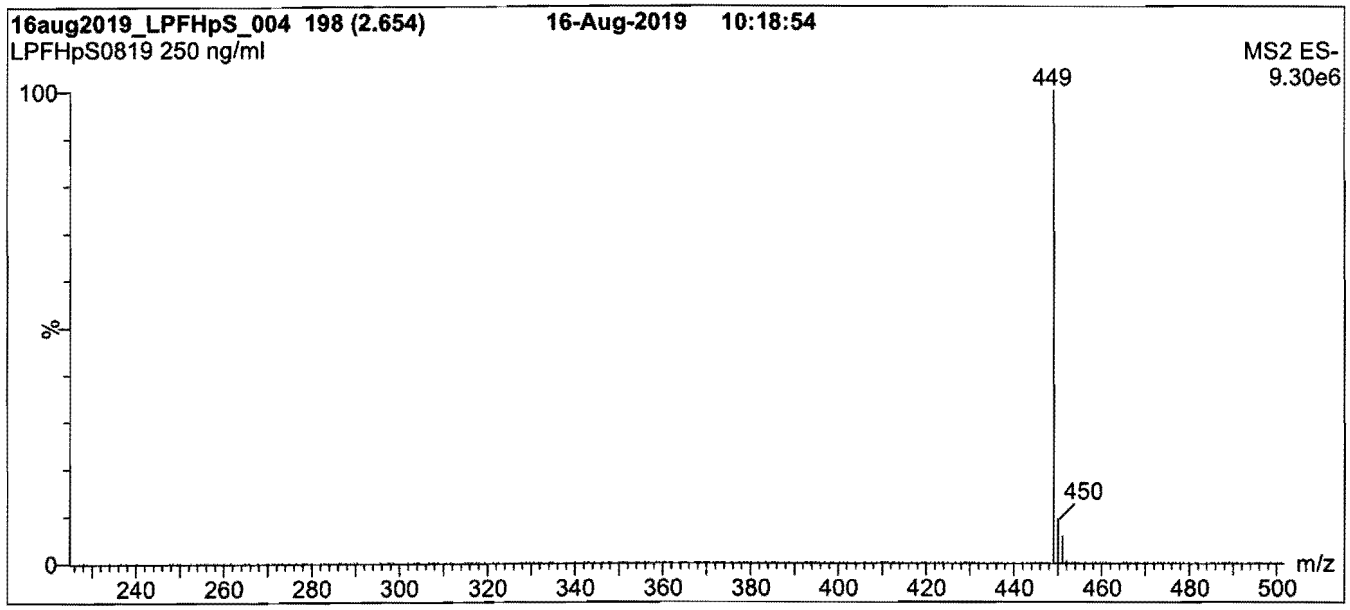
Collision Gas (mbar) = 3.61e-3

Collision Energy (eV) = 42

191650

Figure 1: **L-PFHpS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0650

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EXPIRY DATE / PERIOD OF VALIDITY:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

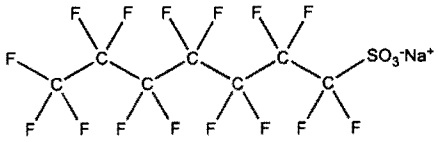
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0650

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFHpS	**LOT NUMBER:**	LPFHpS0819
COMPOUND:	Sodium perfluoro-1-heptanesulfonate		
STRUCTURE:		**CAS #:**	21934-50-9



MOLECULAR FORMULA:	$C_7F_{15}SO_3Na$	**MOLECULAR WEIGHT:**	472.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.6 ± 2.4 µg/ml (PFHpS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/16/2019		
EXPIRY DATE: (mm/dd/yyyy)	08/16/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

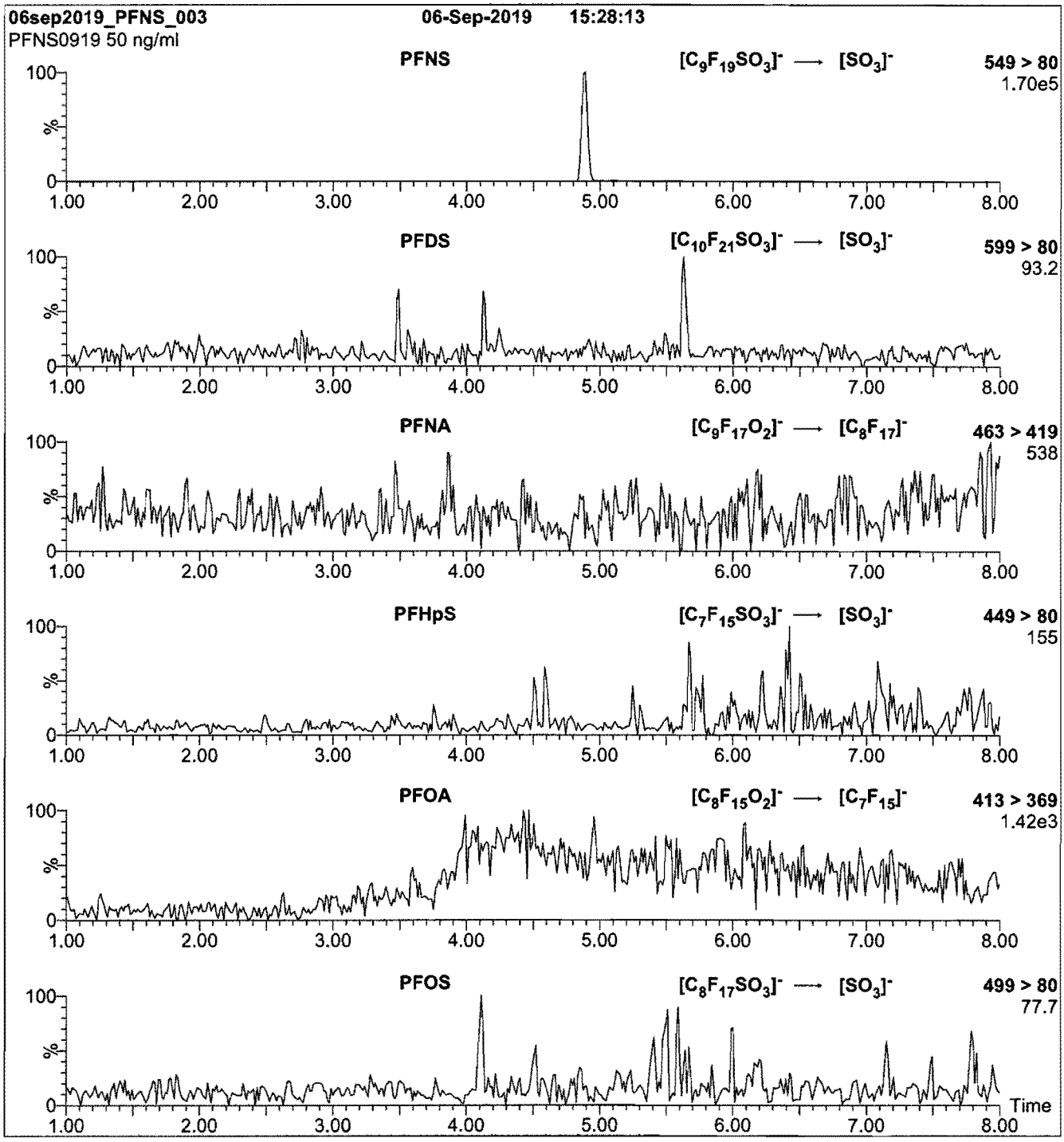
- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/29/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **L-PFNS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFNS)

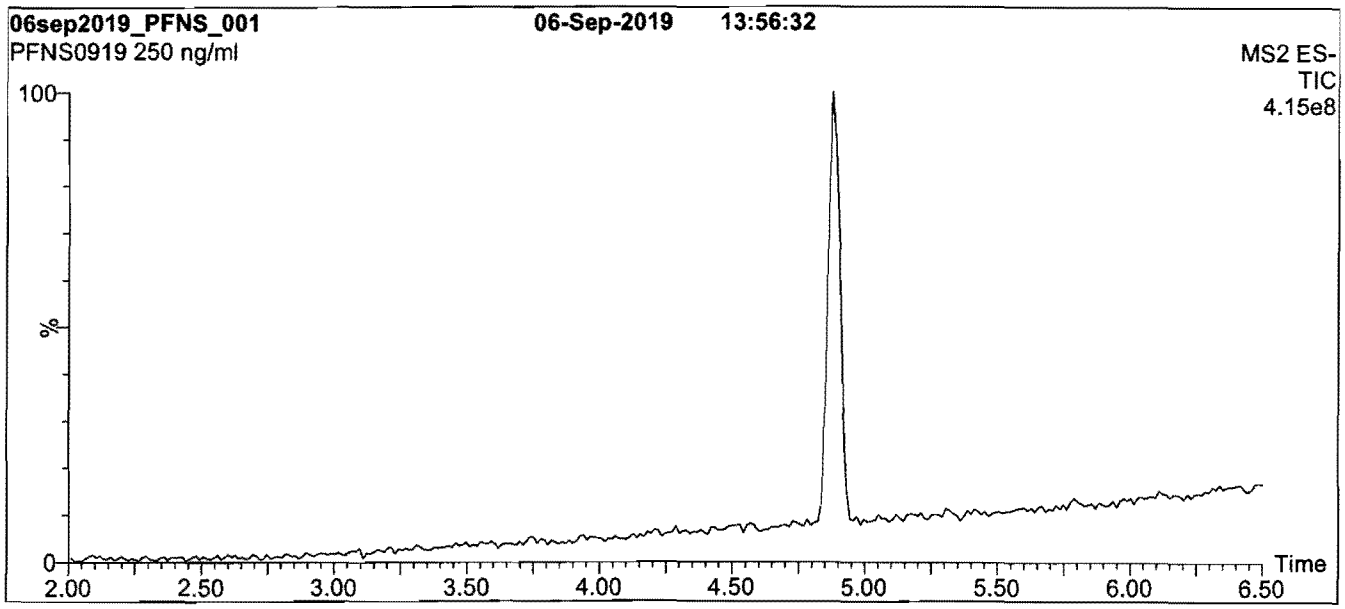
Mobile phase: Same as Figure 1

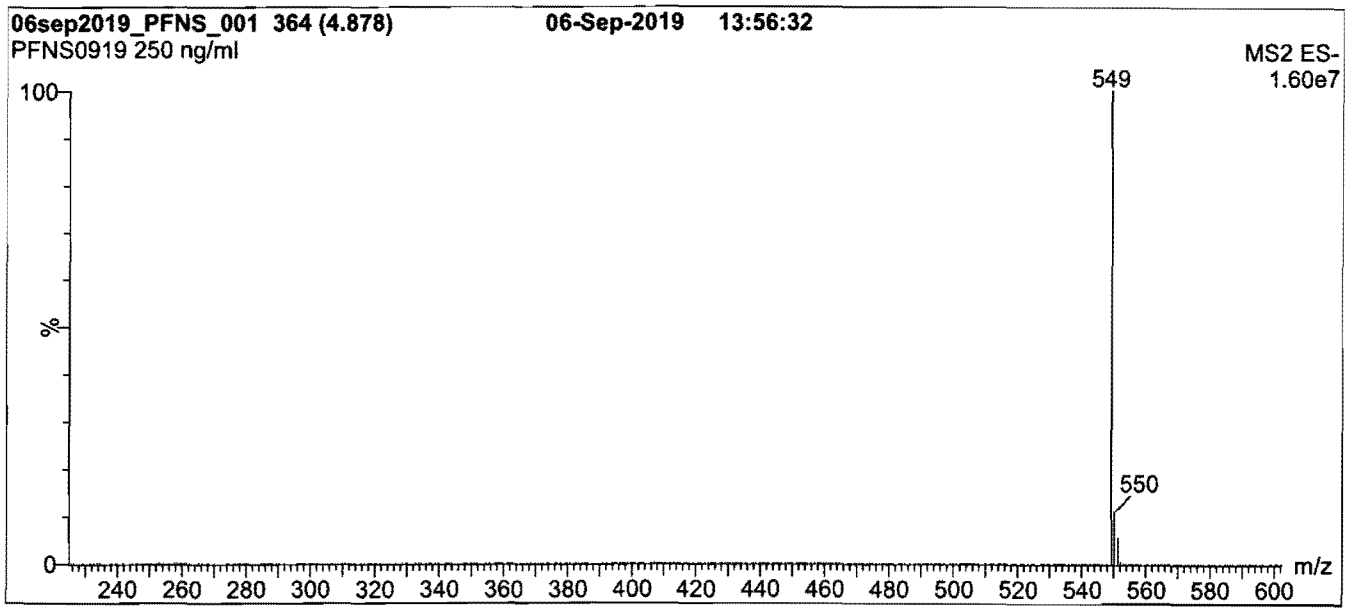
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.49e-3
Collision Energy (eV) = 64

Figure 1: **L-PFNS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0651

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

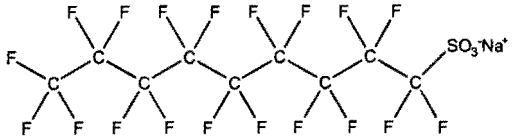
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFNS
LOT NUMBER: LPFNS0919
COMPOUND: Sodium perfluoro-1-nonanesulfonate

STRUCTURE:
CAS #: 98789-57-2



MOLECULAR FORMULA:	$C_9F_{19}SO_3Na$	**MOLECULAR WEIGHT:**	572.12
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 48.0 ± 2.4 µg/ml (PFNS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/06/2019		
EXPIRY DATE: (mm/dd/yyyy)	09/06/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

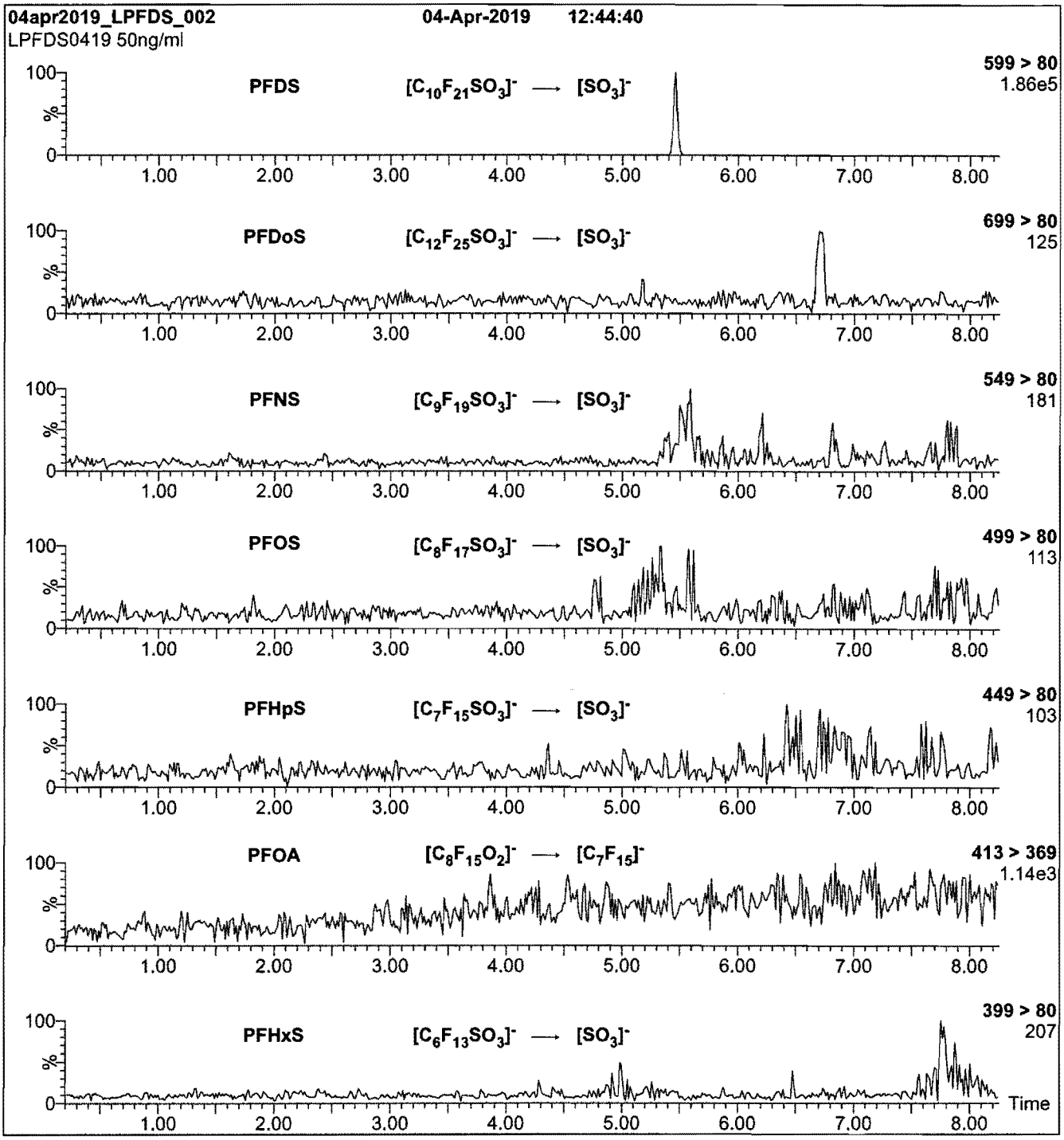
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0652

Figure 2: **L-PFDS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFDS)

Mobile phase: Same as Figure 1

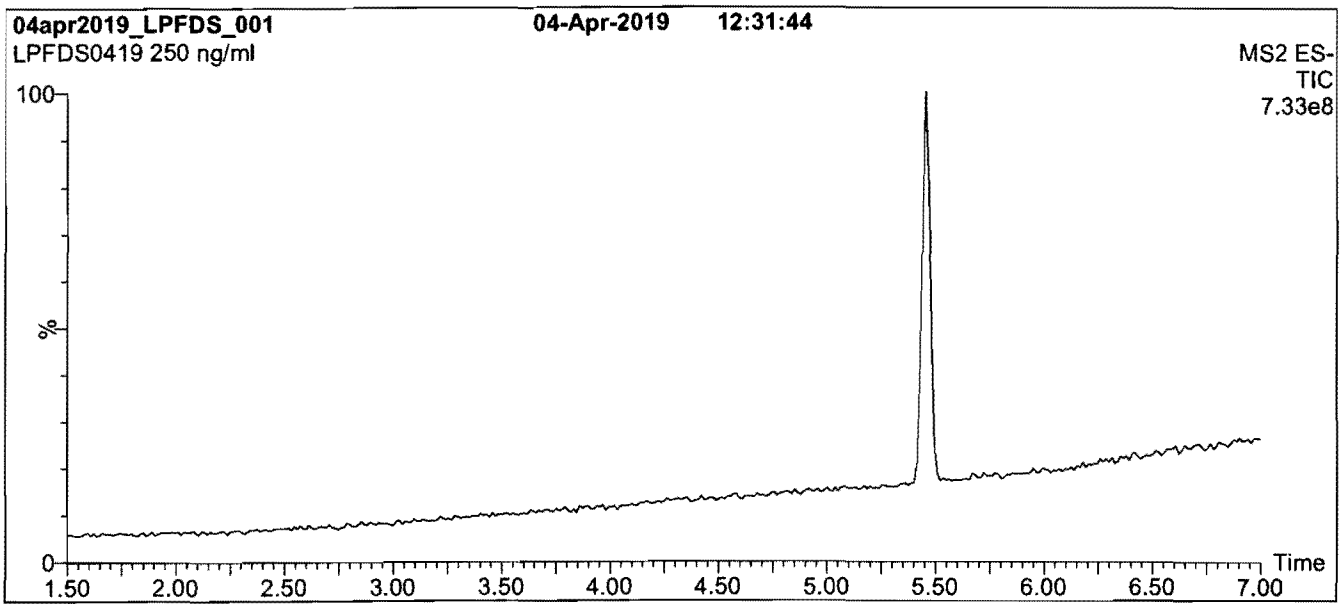
Flow: 300 µl/min

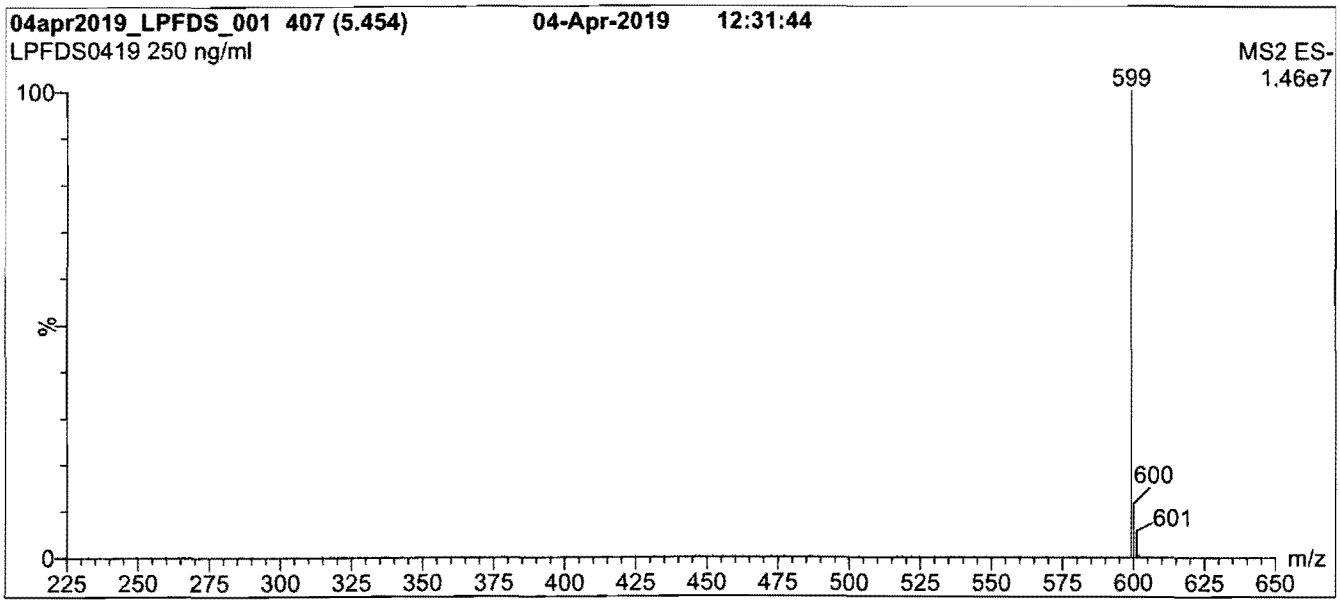
MS Parameters

Collision Gas (mbar) = 2.99e-3
Collision Energy (eV) = 56

19L0652

Figure 1: **L-PFDS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0652

INTENDED USE:

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

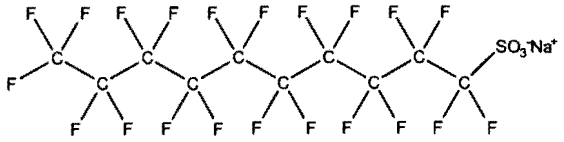
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0652

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFDS	**LOT NUMBER:**	LPFDS0419
COMPOUND:	Sodium perfluoro-1-decanesulfonate		
STRUCTURE:		**CAS #:**	2806-15-7



MOLECULAR FORMULA:	$C_{10}F_{21}SO_3Na$	**MOLECULAR WEIGHT:**	622.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 48.2 ± 2.4 µg/ml (PFDS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	04/04/2019		
EXPIRY DATE: (mm/dd/yyyy)	04/04/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

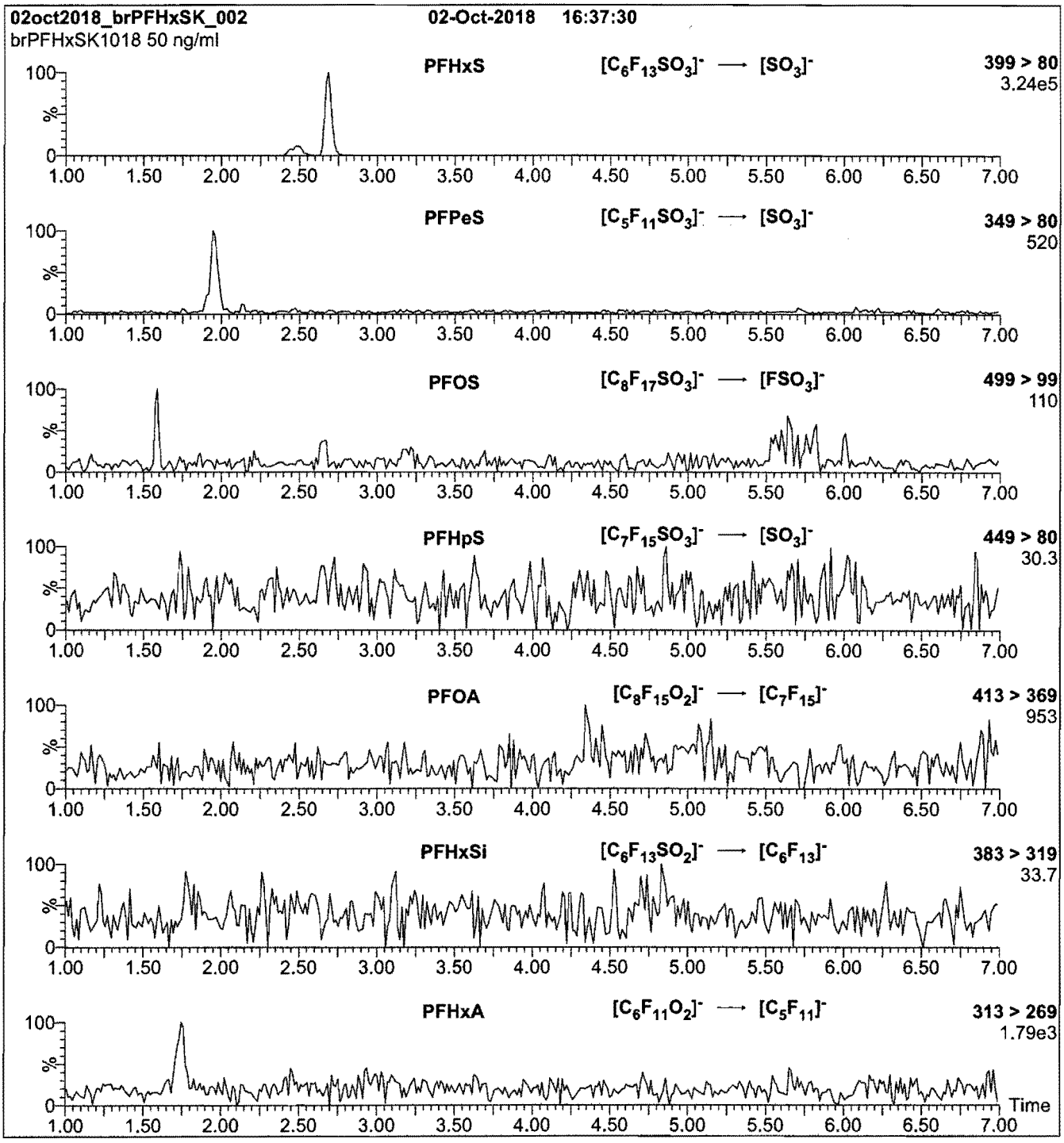
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/30/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0653

Figure 3: **br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (br-PFHxSK)

Mobile phase: Same as Figures 1 and 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.87e-3
Collision Energy (eV) = 42

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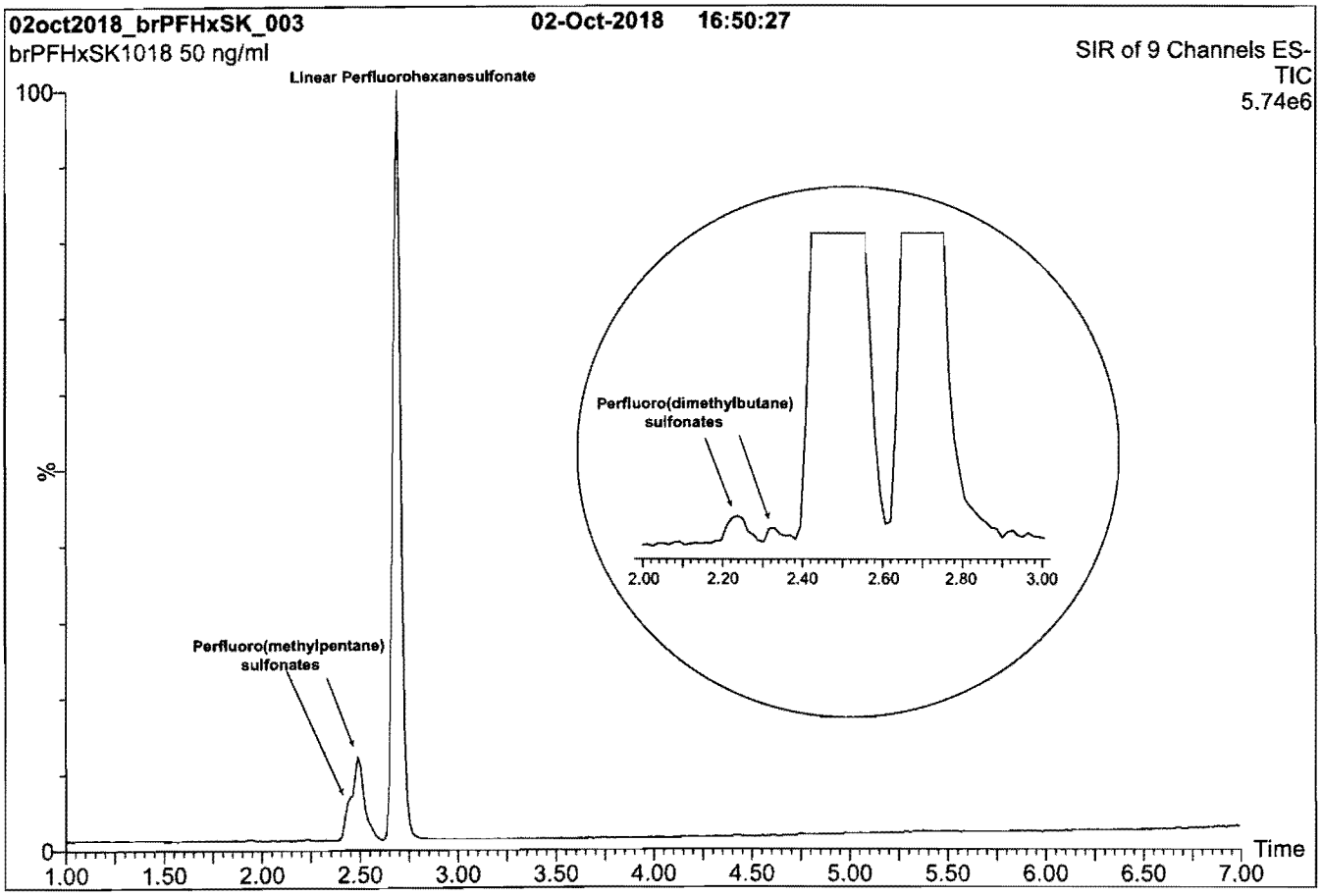
Figure 2: **br-PFHxSK; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min. Hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

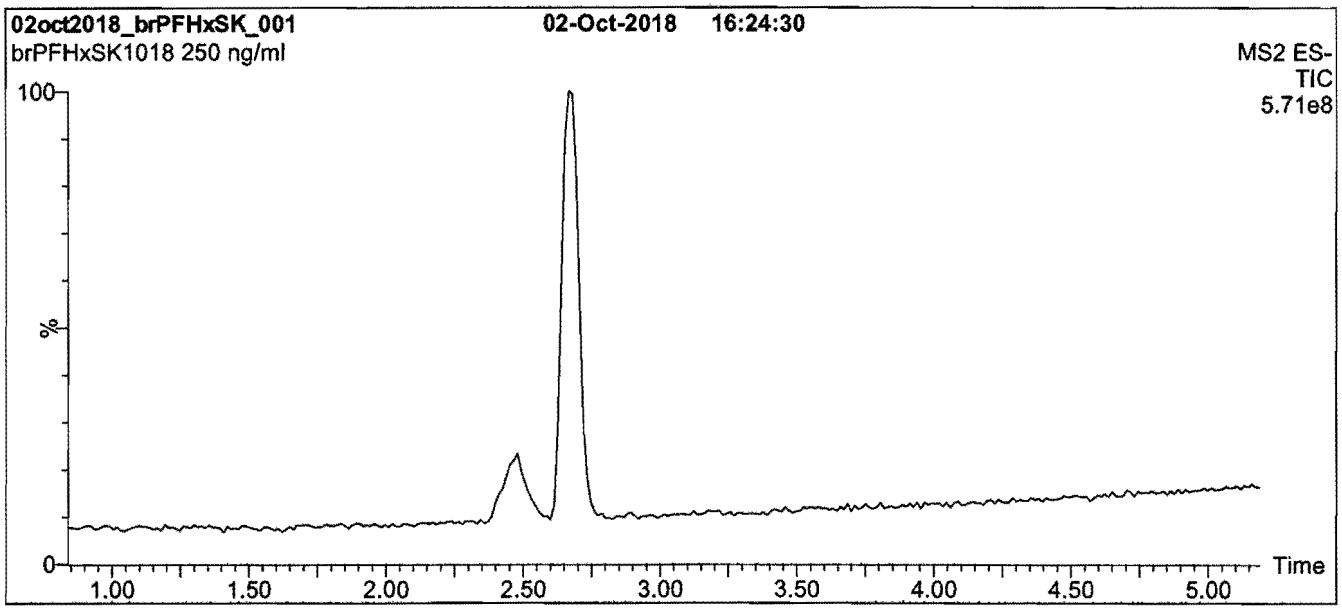
MS Parameters

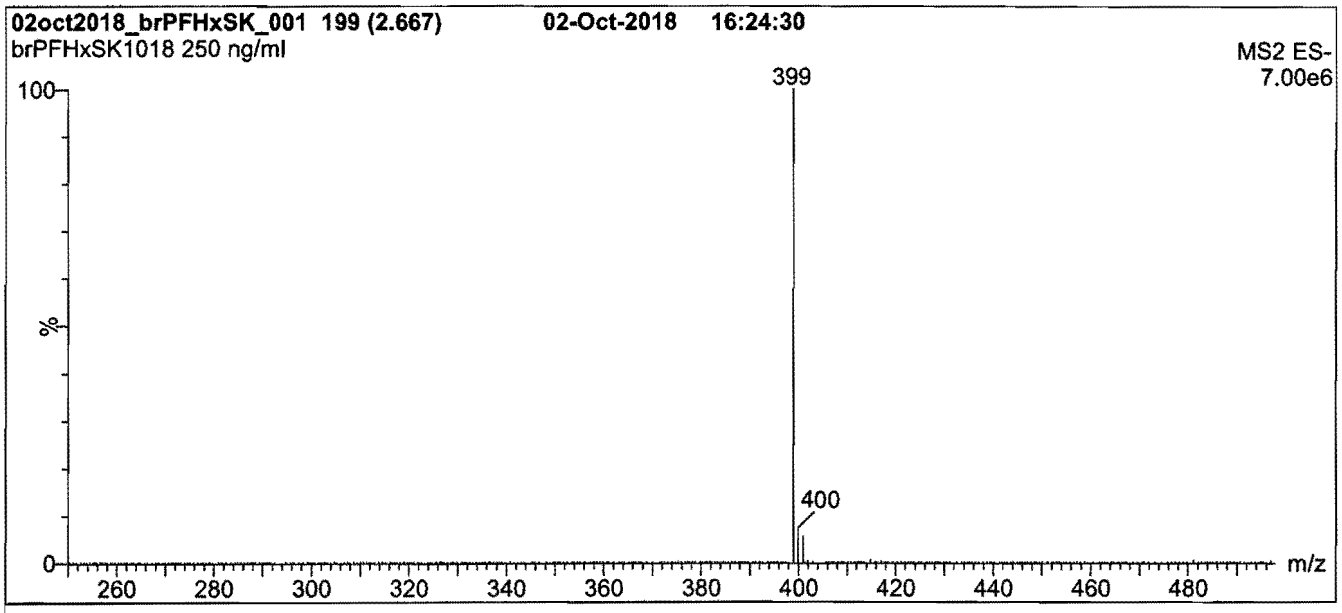
Experiment: SIR (9 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = variable (2 - 6)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0653

Figure 1: **br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
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Ramp to 90% organic over 8 min. Hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0653

Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FSO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2SO_3^-K^+$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2SO_3^-K^+$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2CF_2SO_3^-K^+$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{\overset{\displaystyle CF_3}{\overset{\vert}{C}}}}CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: _____ **Date:** 10/05/2018
(mm/dd/yyyy)
B.G. Chittim, General Manager

19L0653

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L0653

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK1018
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/01/2018
LAST TESTED: (mm/dd/yyyy)	10/02/2018
EXPIRY DATE: (mm/dd/yyyy)	10/02/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

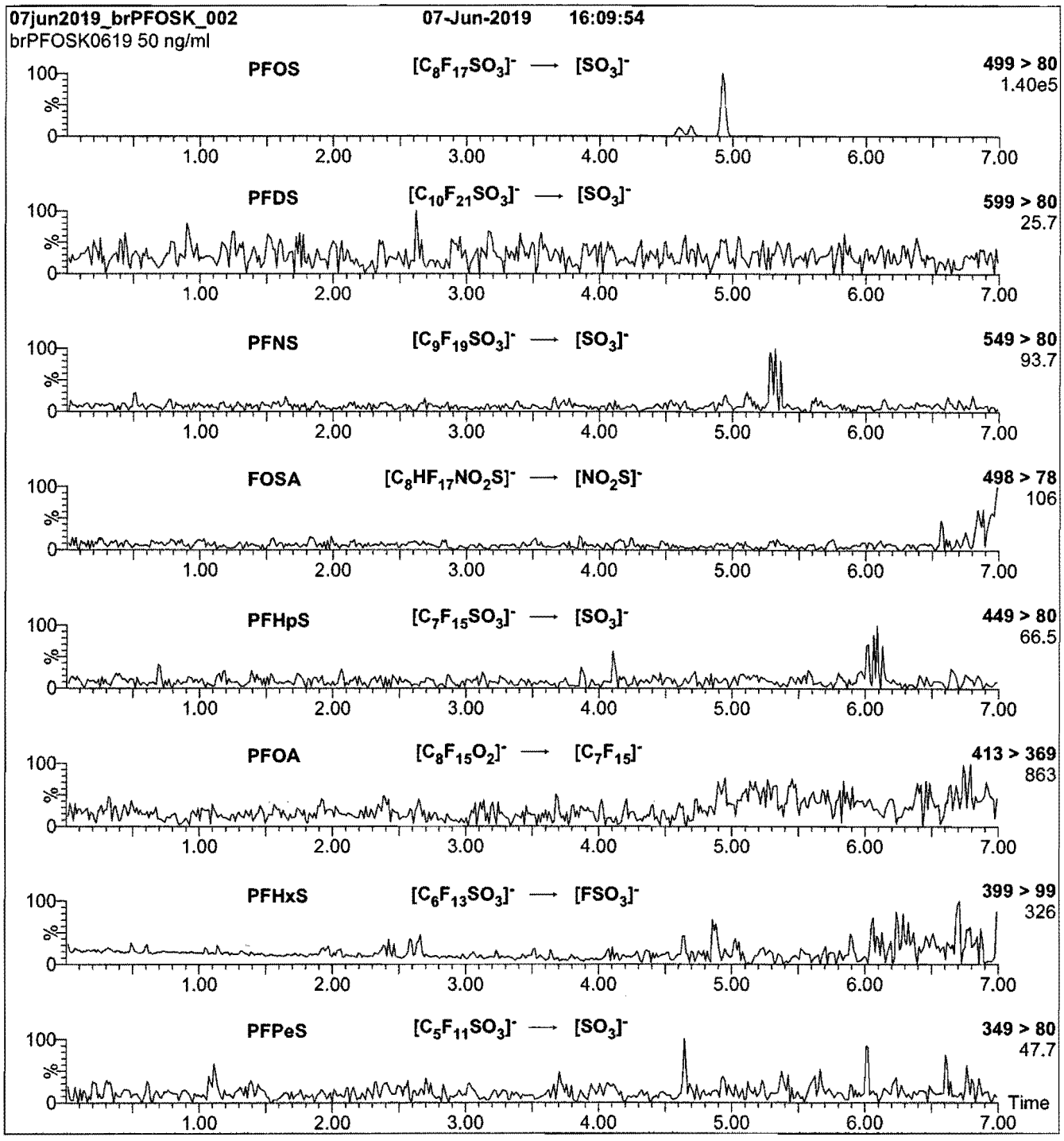
- See page 2 for further details.
- Contains ~ 0.3% of perfluoro-n-hexanoic acid and ~ 0.15% of perfluoro-1-pentanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0654

Figure 3: **br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (br-PFOSK)

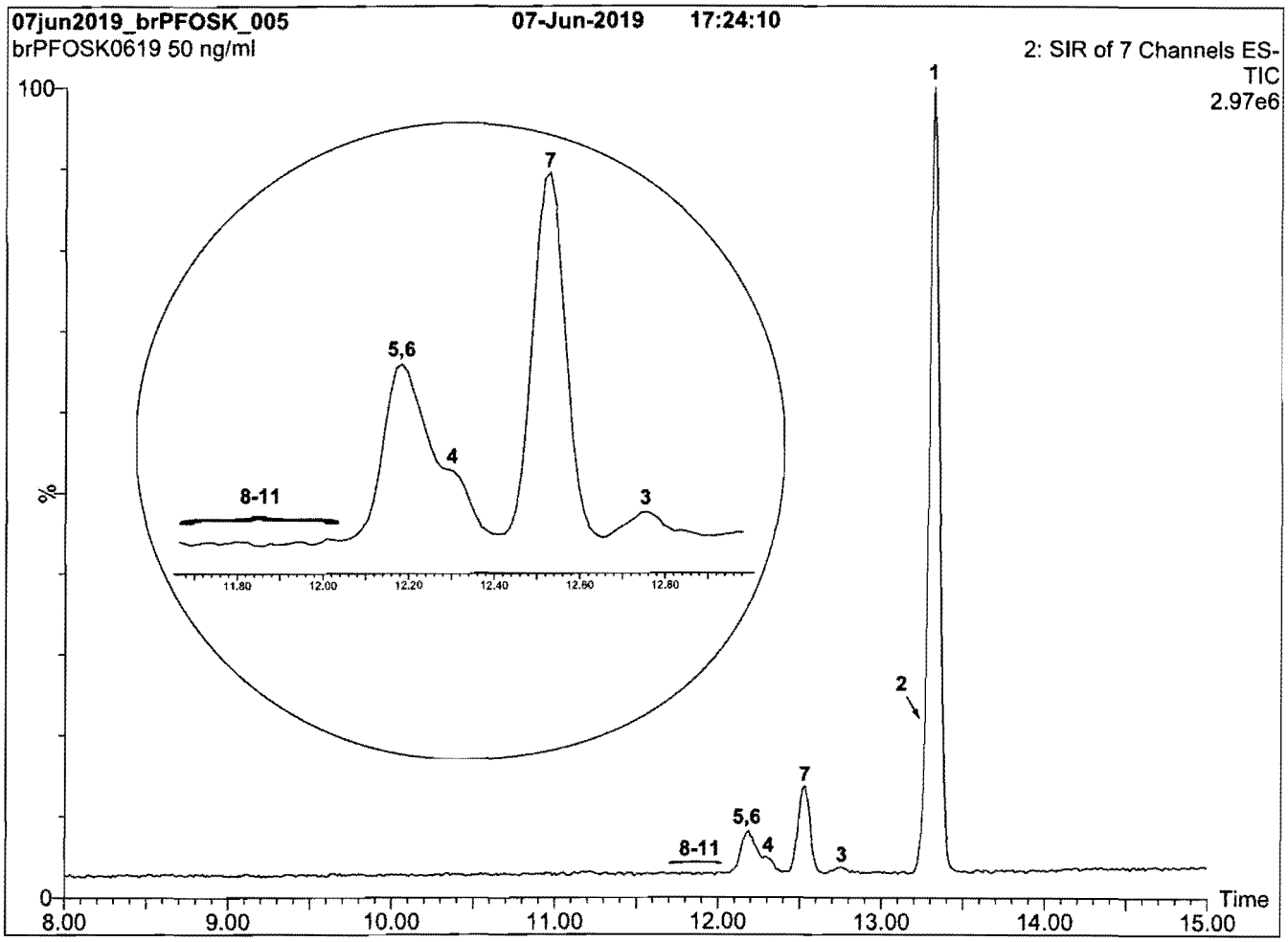
Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.97e-3
Collision Energy (eV) = 64

Figure 2: **br-PFOSK; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18} (1.7 µm, 2.1 x 100 mm)

Injection: 50 ng/ml of br-PFOSK

Mobile Phase: Gradient
50% (80:20 MeOH:ACN) / 50% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min.
Return to initial conditions over 0.75 min.
Time: 12 min

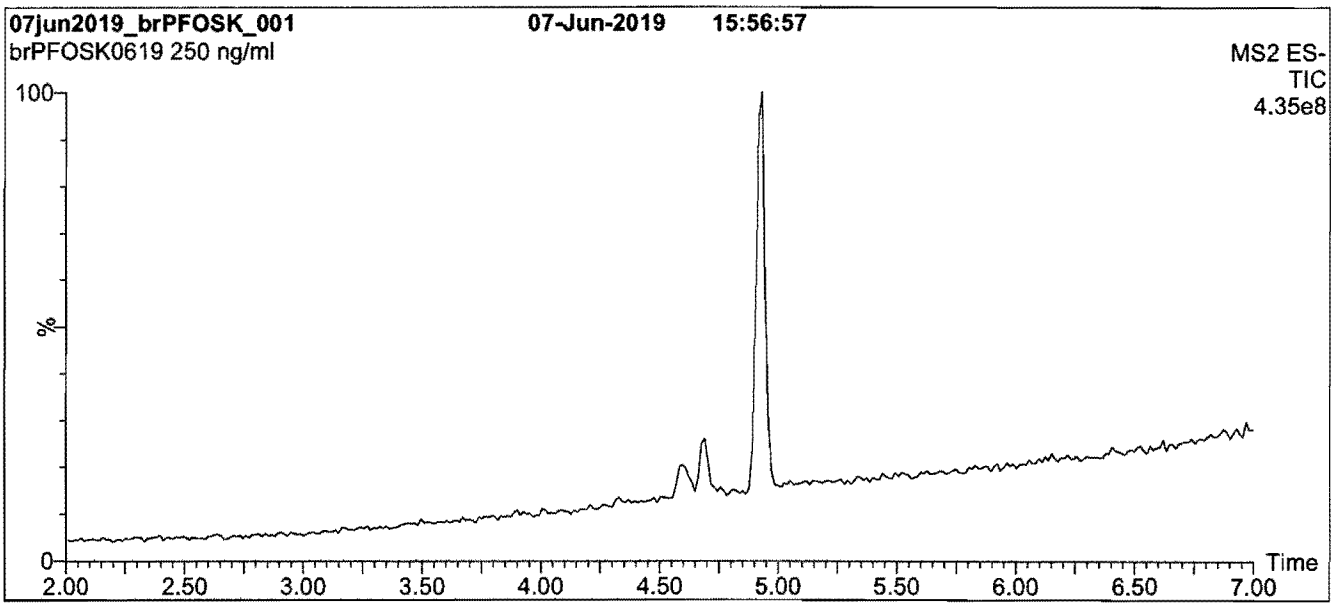
Flow: 300 µl/min

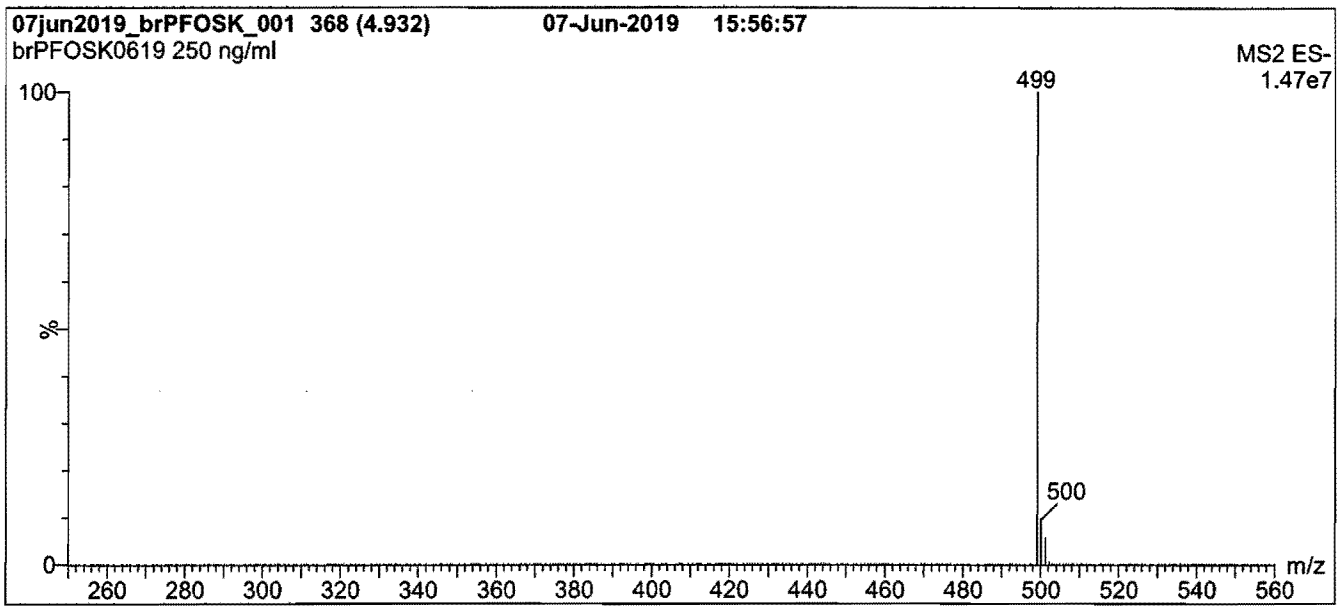
MS Conditions:

SIR (ES^-)
Source = 120 °C
Desolvation = 500 °C
Cone Voltage = 2.00V

1910654

Figure 1: **br-PFOSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min.
Return to initial conditions over 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)_2CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 06/17/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

19L0654

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0654

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0619
CONCENTRATION:	50 ± 2.5 µg/ml (total potassium salt)
	46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	06/03/2019
LAST TESTED: (mm/dd/yyyy)	06/07/2019
EXPIRY DATE: (mm/dd/yyyy)	06/07/2024
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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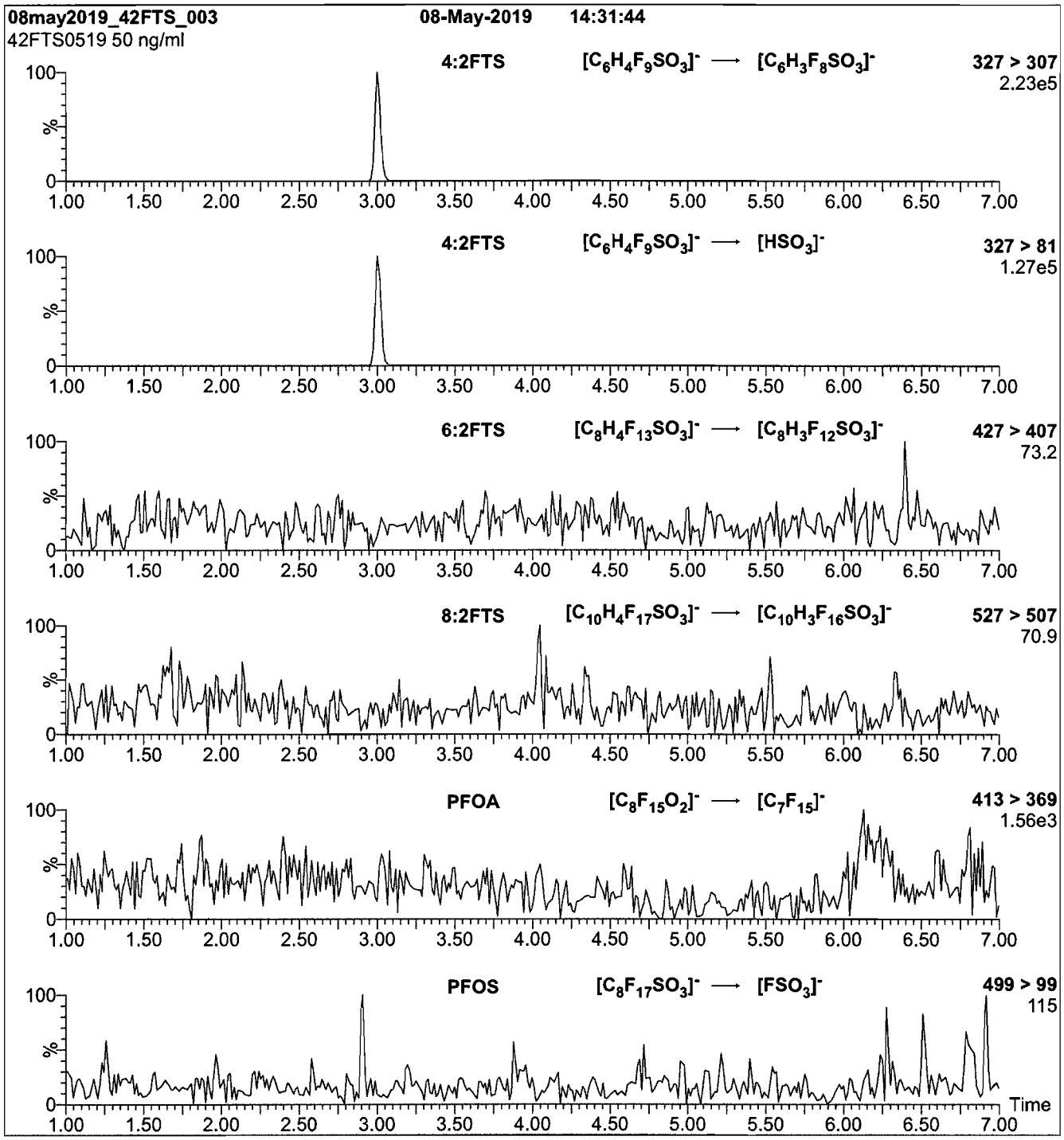
Figure 2: **4:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (4:2FTS)

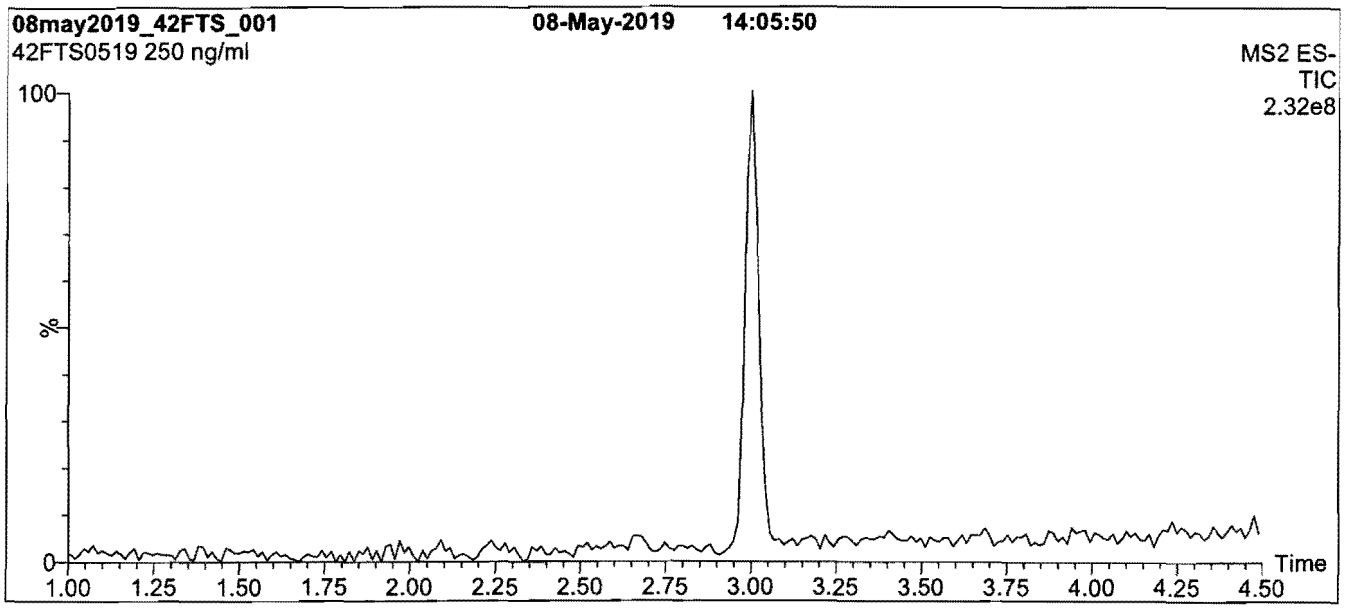
Mobile phase: Same as Figure 1

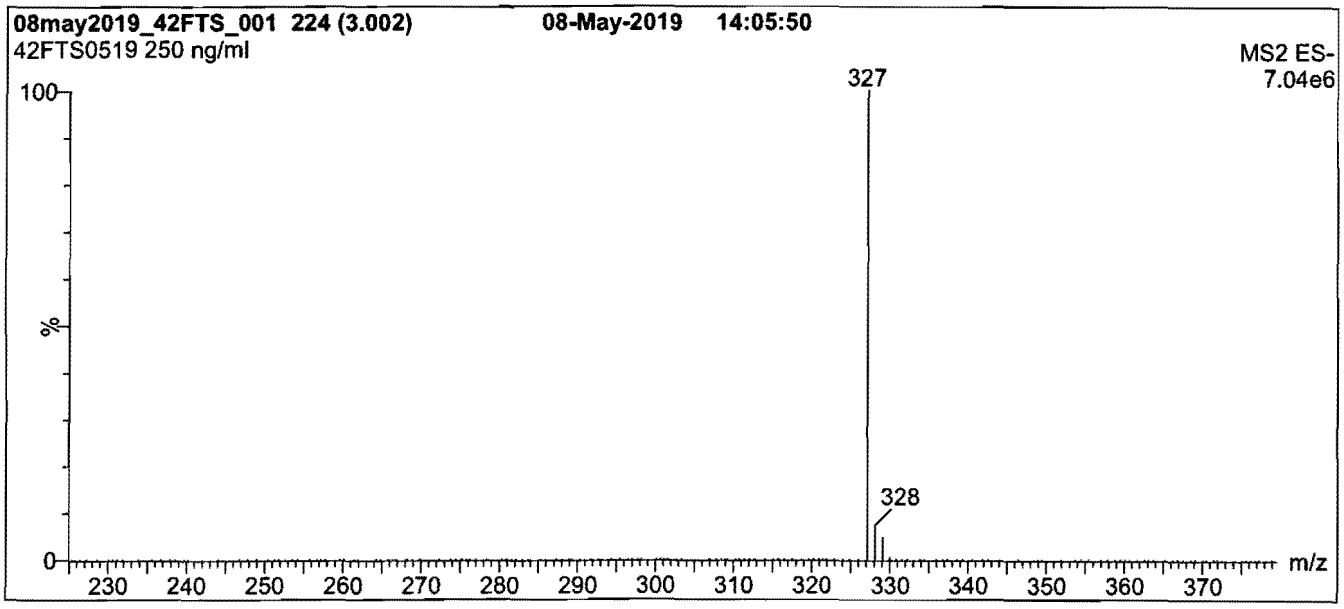
Flow: 300 µl/min

MS Parameters
Collision Gas (mbar) = 3.07e-3
Collision Energy (eV) = 18

19L0655

Figure 1: **4:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

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UNCERTAINTY:

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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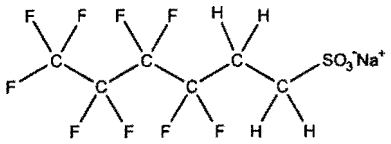
19L0655

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 4:2FTS **LOT NUMBER:** 42FTS0519
COMPOUND: Sodium 1H,1H,2H,2H-perfluorohexane sulfonate

STRUCTURE: **CAS #:** 27619-93-8



MOLECULAR FORMULA:	$C_6H_4F_9SO_3Na$	**MOLECULAR WEIGHT:**	350.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	46.7 ± 2.3 µg/ml (4:2FTS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/08/2019		
EXPIRY DATE: (mm/dd/yyyy)	05/08/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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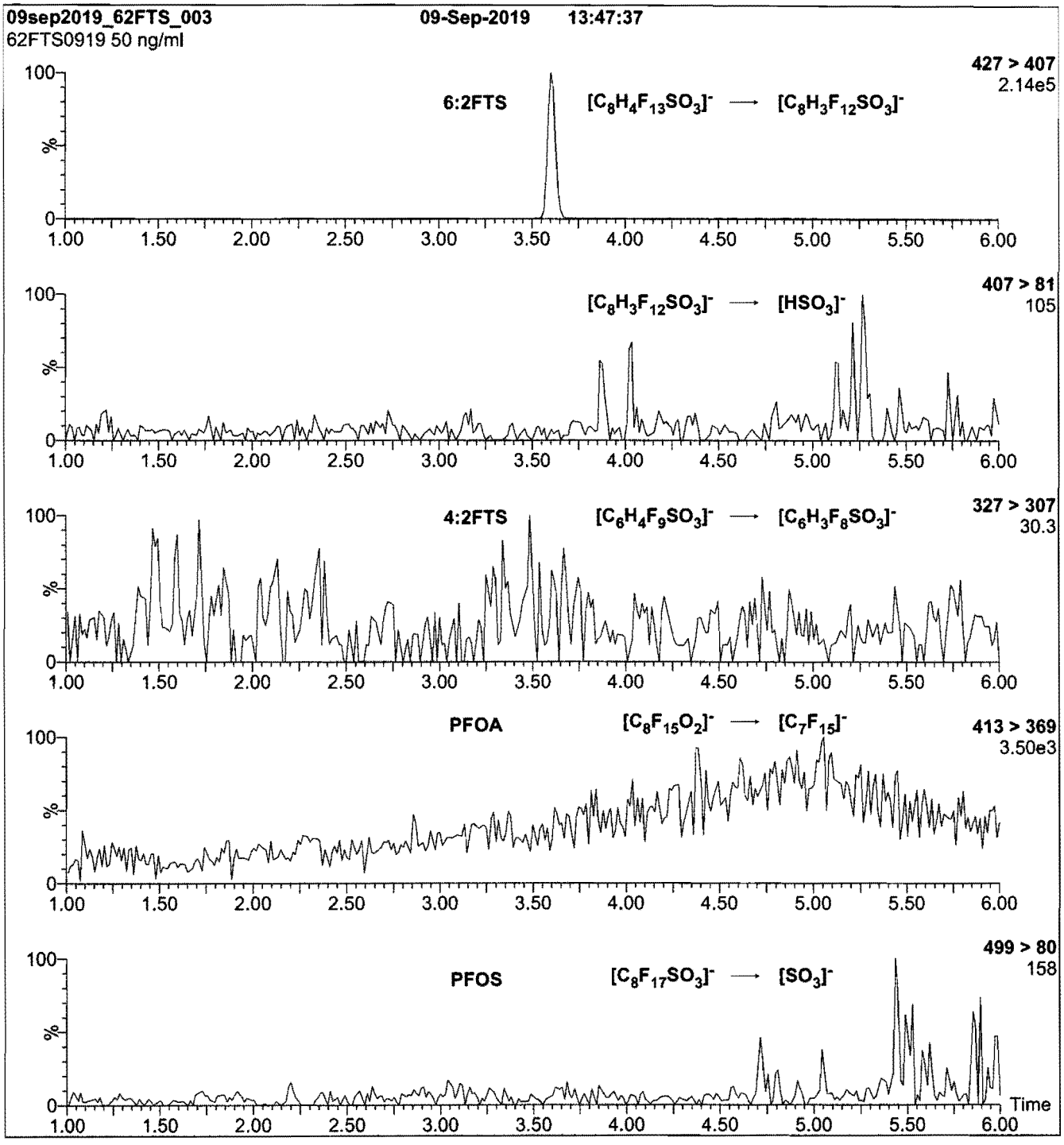
19L0656

Figure 2: **6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (6:2FTS)

Mobile phase: Same as Figure 1

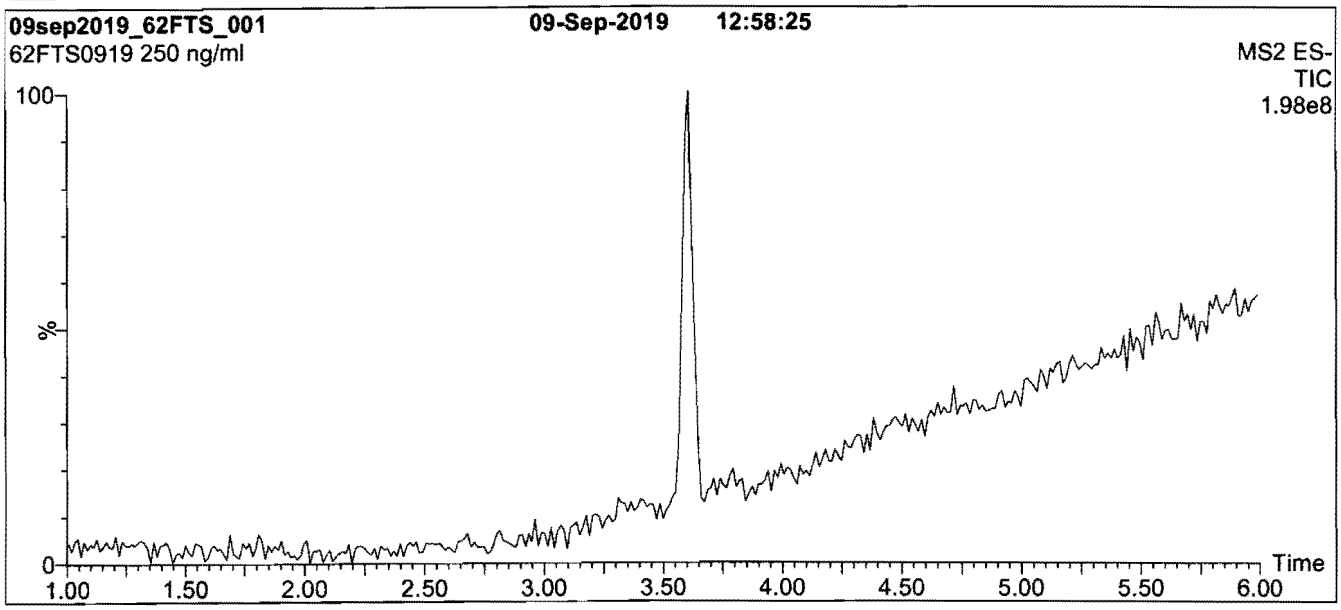
Flow: 300 µl/min

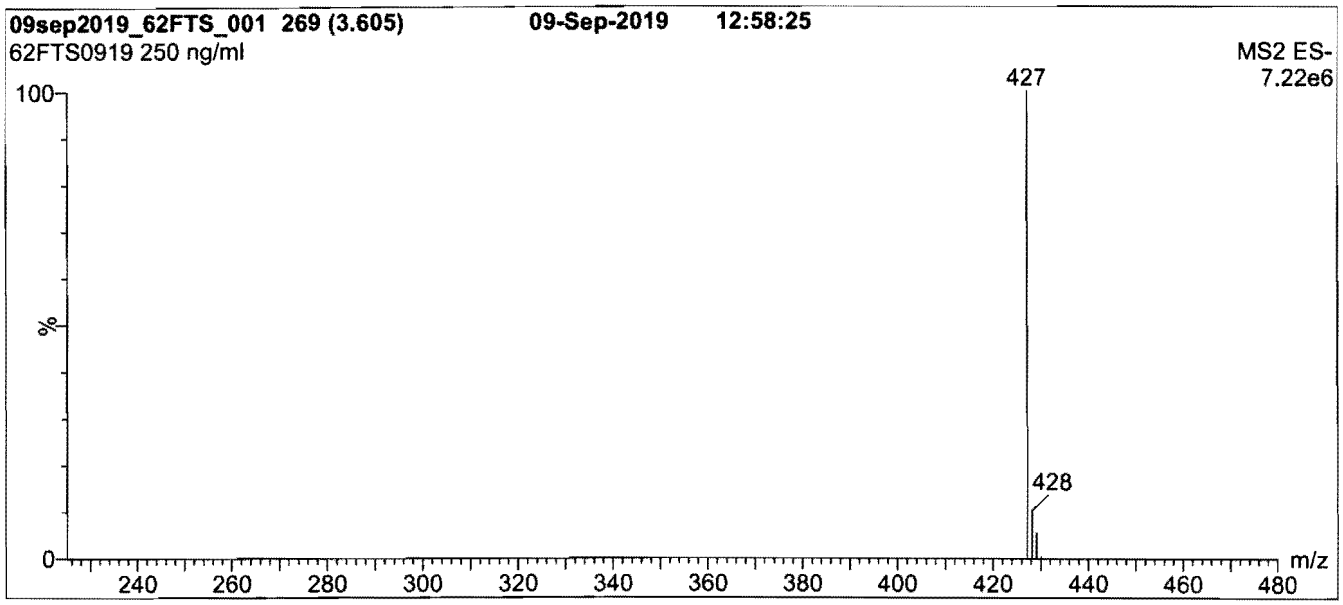
MS Parameters

Collision Gas (mbar) = 3.61e-3
Collision Energy (eV) = 20

19L0656

Figure 1: **6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





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Time: 12 min

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Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

191656

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where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0656

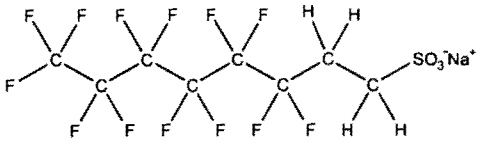
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0919

COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE: **CAS #:** 27619-94-9



MOLECULAR FORMULA:	$C_8H_4F_{13}SO_3Na$		**MOLECULAR WEIGHT:**	450.15
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	47.4 ± 2.4 µg/ml	(6:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	09/09/2019			
EXPIRY DATE: (mm/dd/yyyy)	09/09/2024			
RECOMMENDED STORAGE:	Refrigerate ampoule			

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

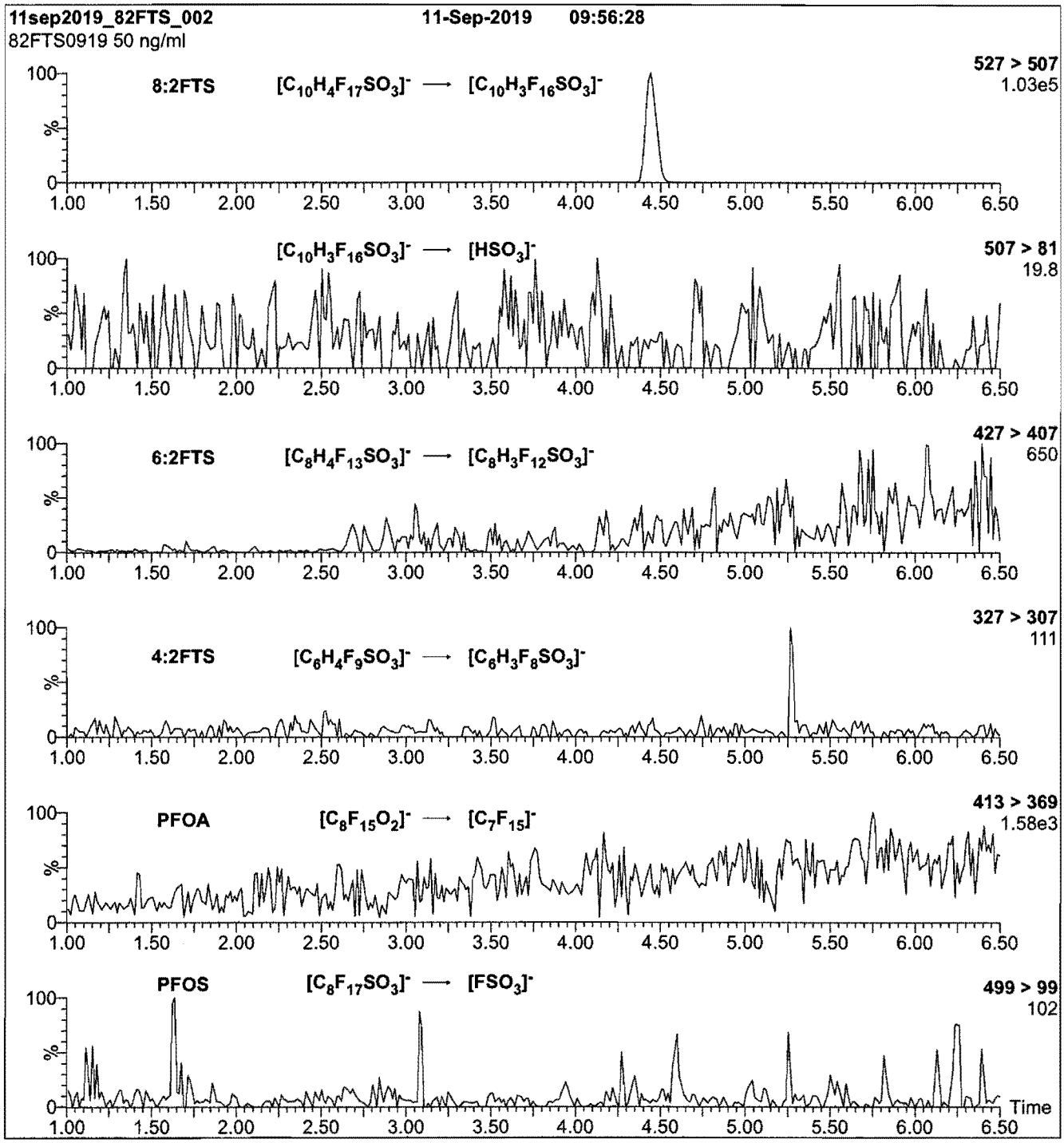
- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (8:2FTS)

Mobile phase: Same as Figure 1

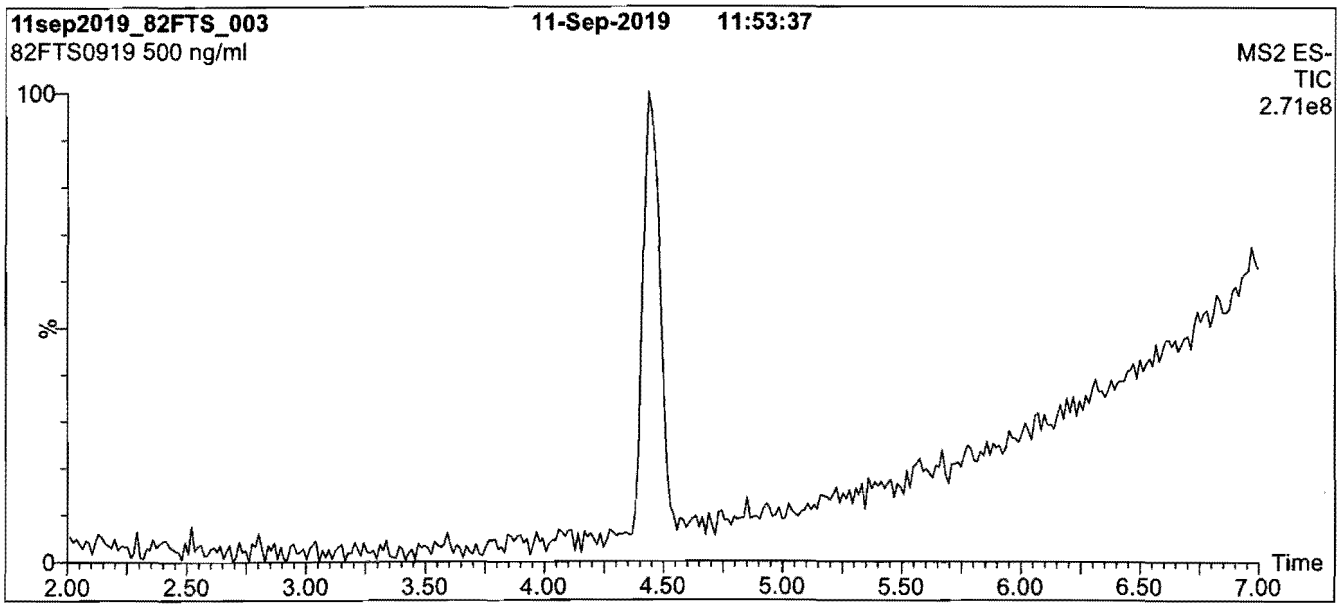
Flow: 300 µl/min

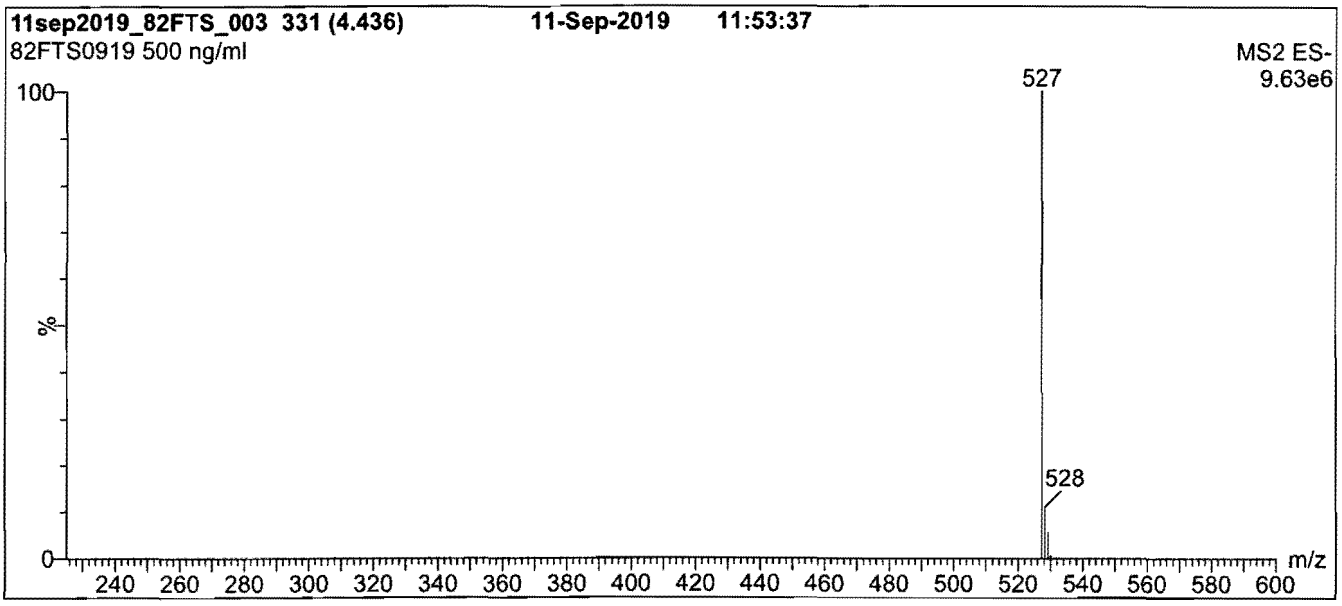
MS Parameters

Collision Gas (mbar) = 3.49e-3
Collision Energy (eV) = 26

19L0657

Figure 1: **8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0657

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L0657

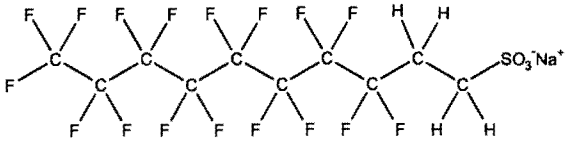
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0919

COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** 27619-96-1



MOLECULAR FORMULA:	$C_{10}H_4F_{17}SO_3Na$		**MOLECULAR WEIGHT:**	550.16
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	47.9 ± 2.4 µg/ml	(8:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	09/11/2019			
EXPIRY DATE: (mm/dd/yyyy)	09/11/2024			
RECOMMENDED STORAGE:	Refrigerate ampoule			

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

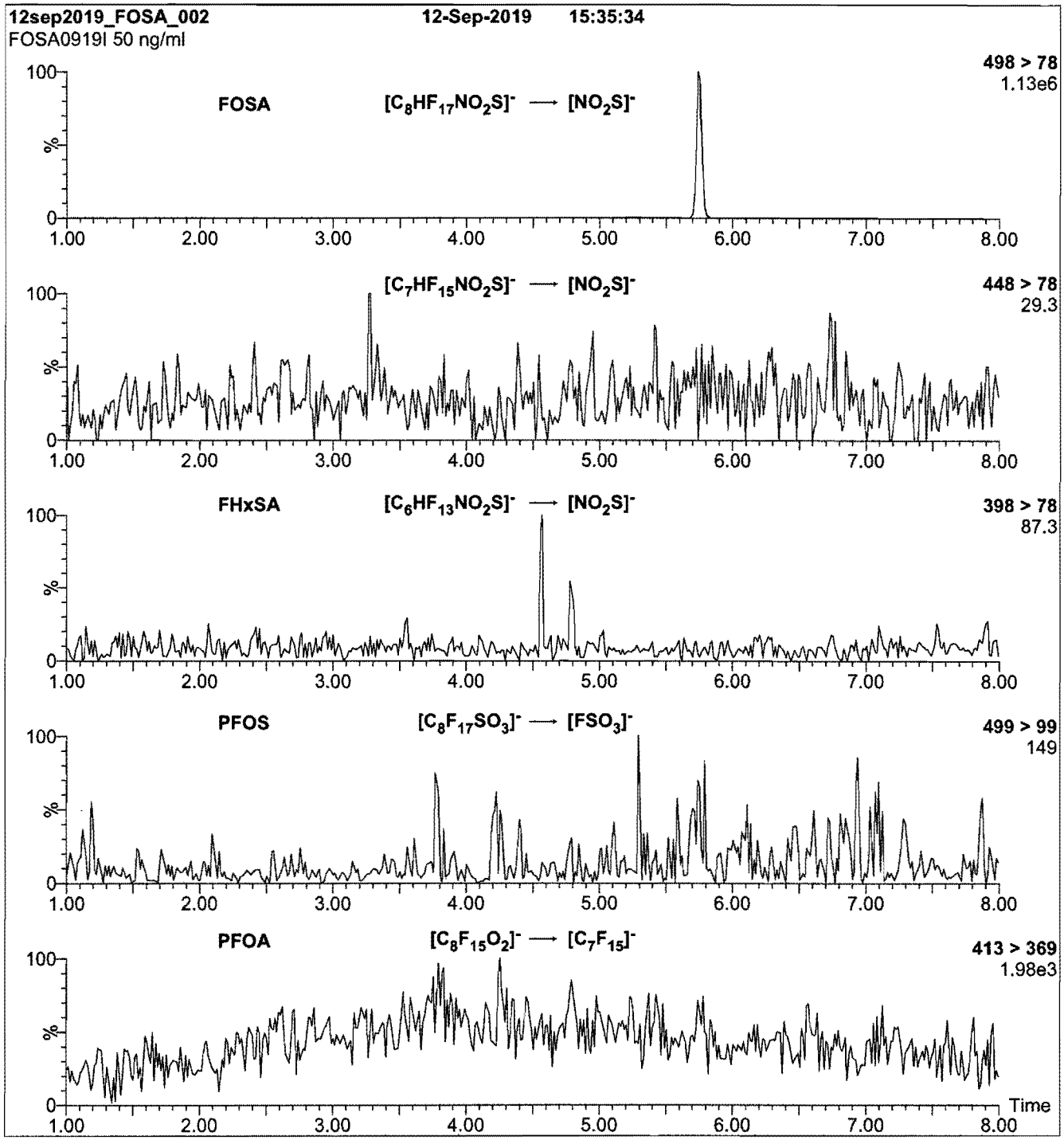
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/11/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0658

Figure 2: **FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FOSA-I)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

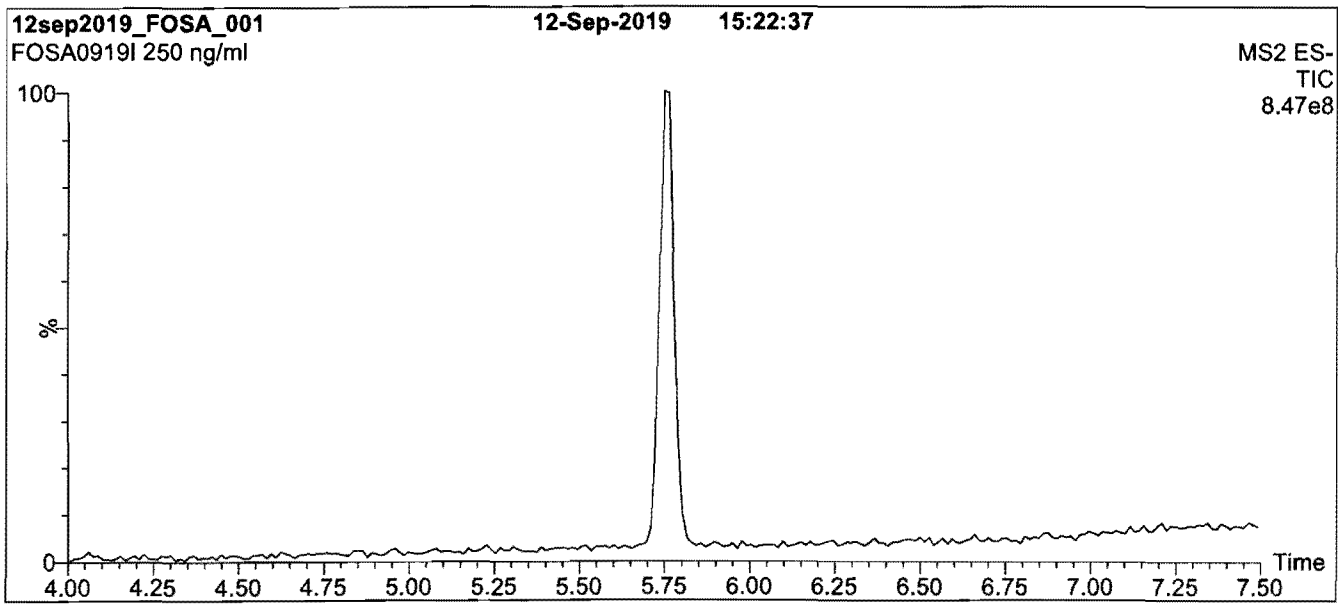
MS Parameters

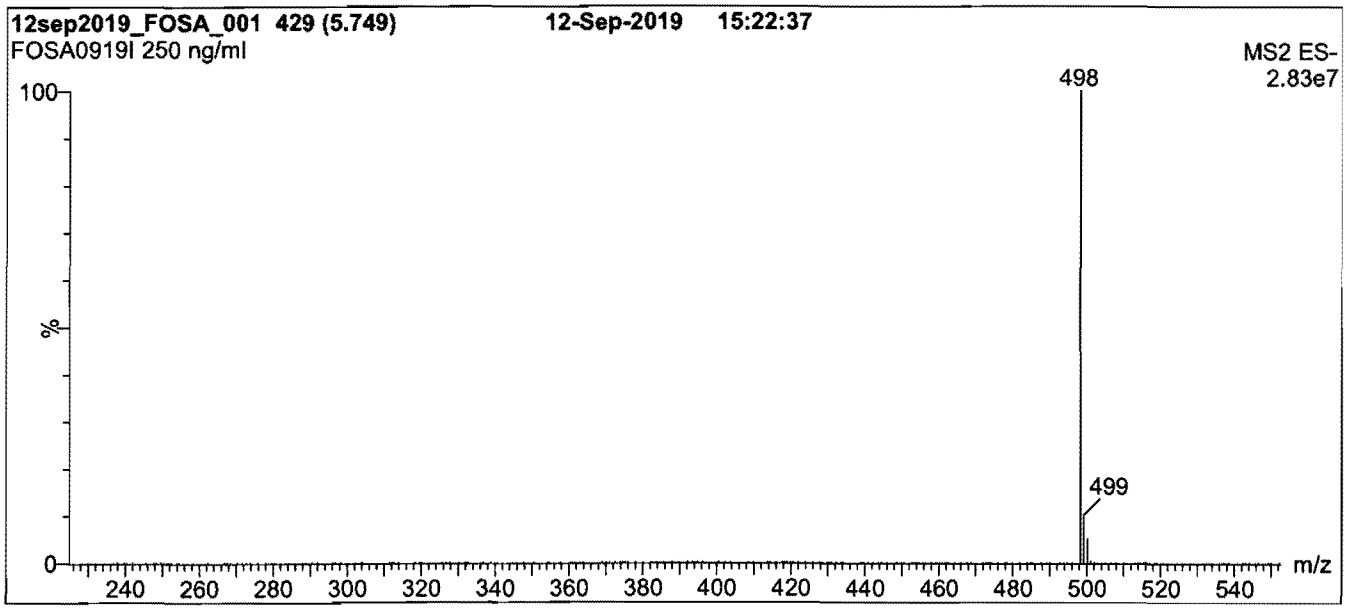
Collision Gas (mbar) = 3.57e-3

Collision Energy (eV) = 30

19L0658

Figure 1: **FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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where x is expressed as a relative standard uncertainty of the individual parameter.

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

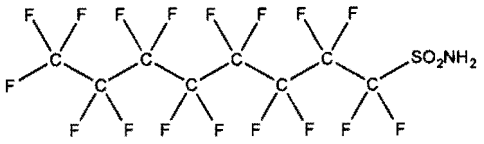
19L0658

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide
LOT NUMBER: FOSA0919I

STRUCTURE:
CAS #: 754-91-6



MOLECULAR FORMULA:	$C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	499.14
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/12/2019		
EXPIRY DATE: (mm/dd/yyyy)	09/12/2024		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

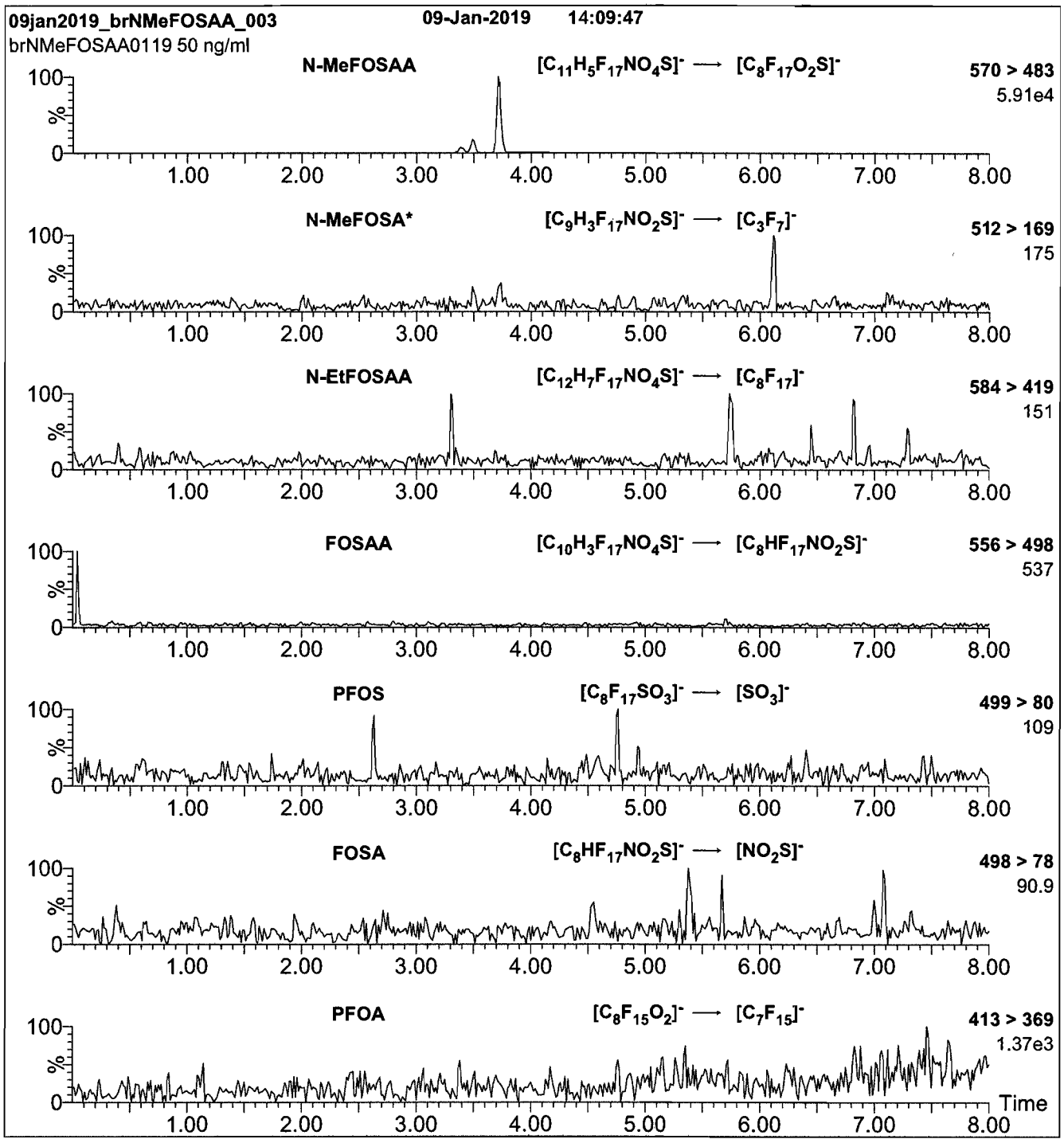
- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/13/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 3: **br-NMeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



*Note: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column (br-NMeFOSAA)

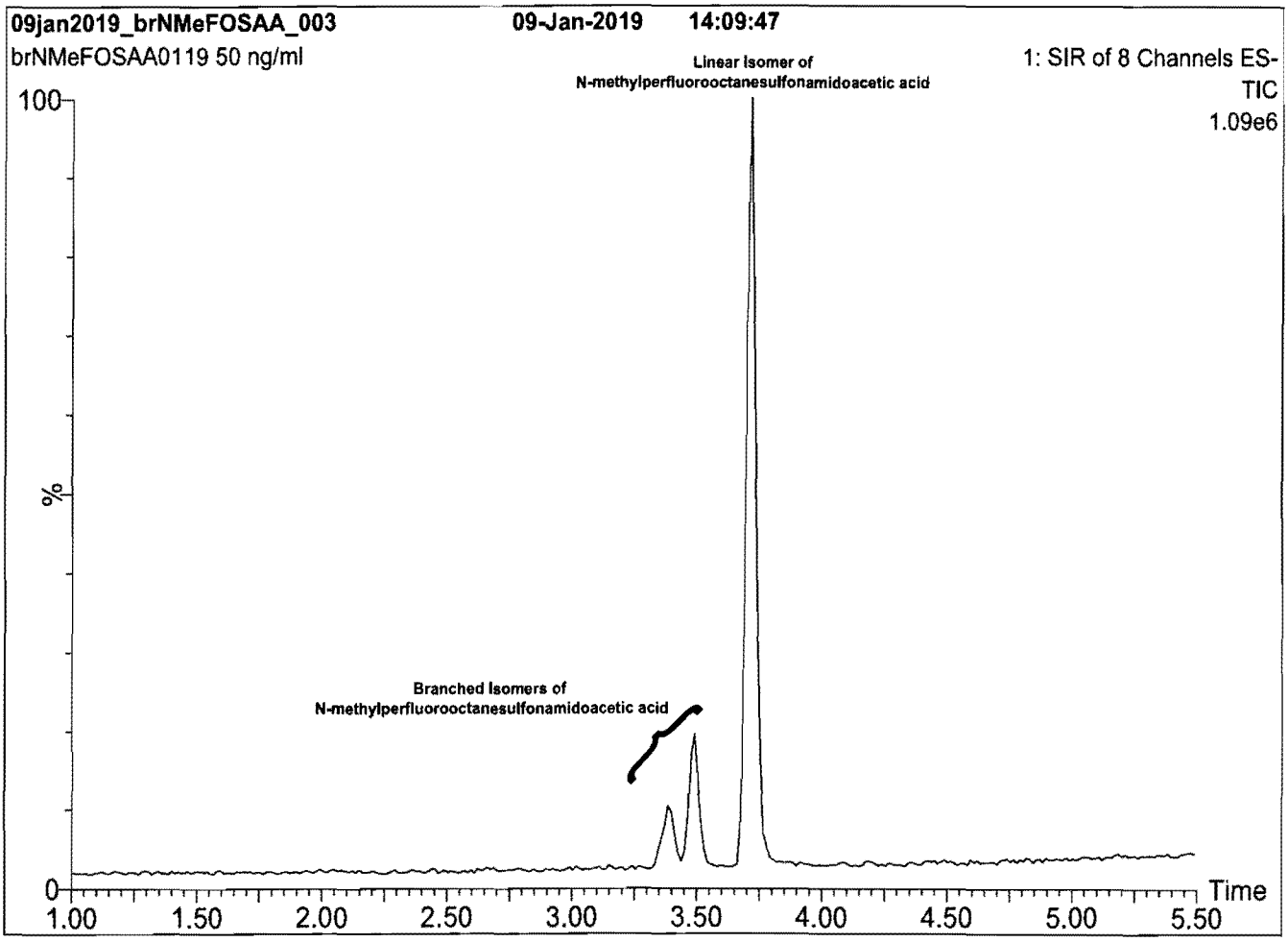
Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.79e-3
Collision Energy (eV) = 16

Figure 2: **br-NMeFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

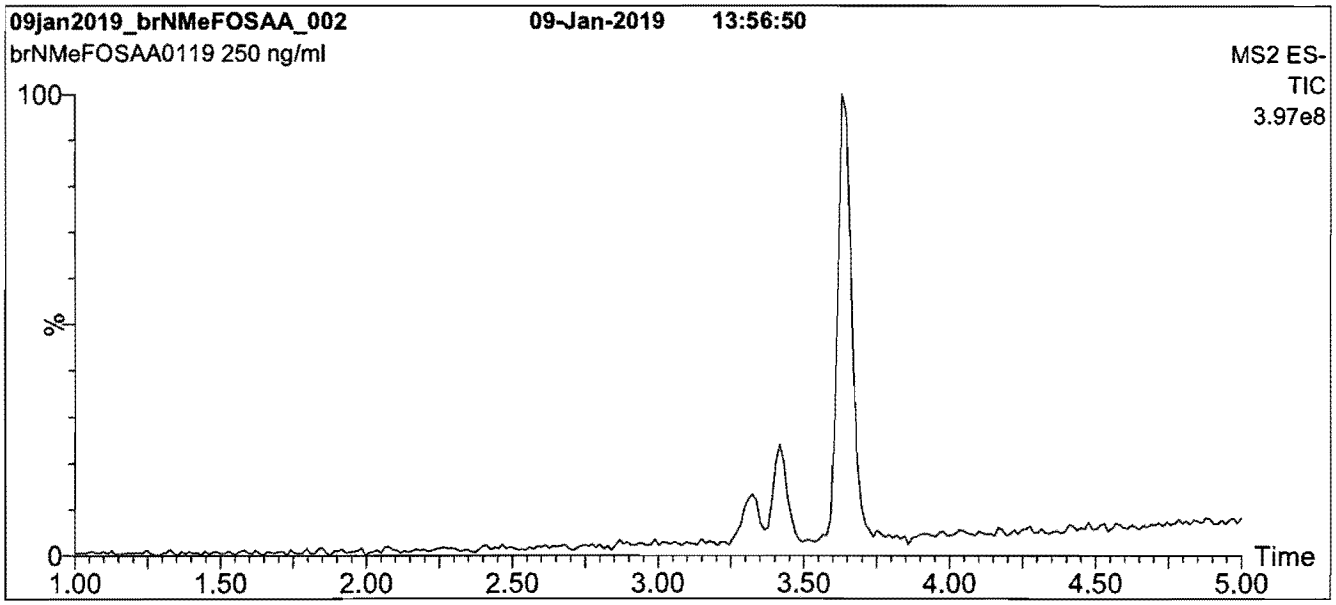
Flow: 300 µl/min

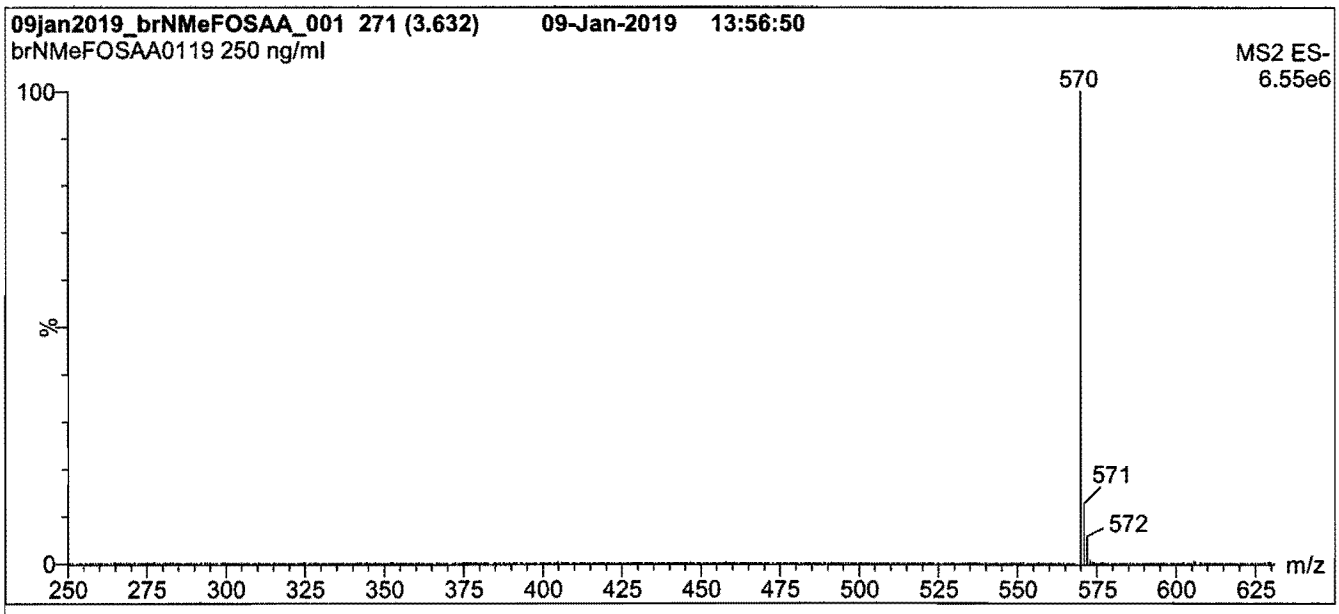
MS Parameters

Experiment: SIR (8 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 2-64
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 1: **br-NMeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





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Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Table A: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2
7	Other Unidentified Isomers		1.1

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Certified By: _____ **Date:** 01/16/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

19L0659

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HANDLING:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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19L0659

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NMeFOSAA

N-Methylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-NMeFOSAA
LOT NUMBER:	brNMeFOSAA0119
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/02/2019
LAST TESTED: (mm/dd/yyyy)	01/09/2019
EXPIRY DATE: (mm/dd/yyyy)	01/09/2024
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers). The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the acetic acid moiety to its respective methyl ester.

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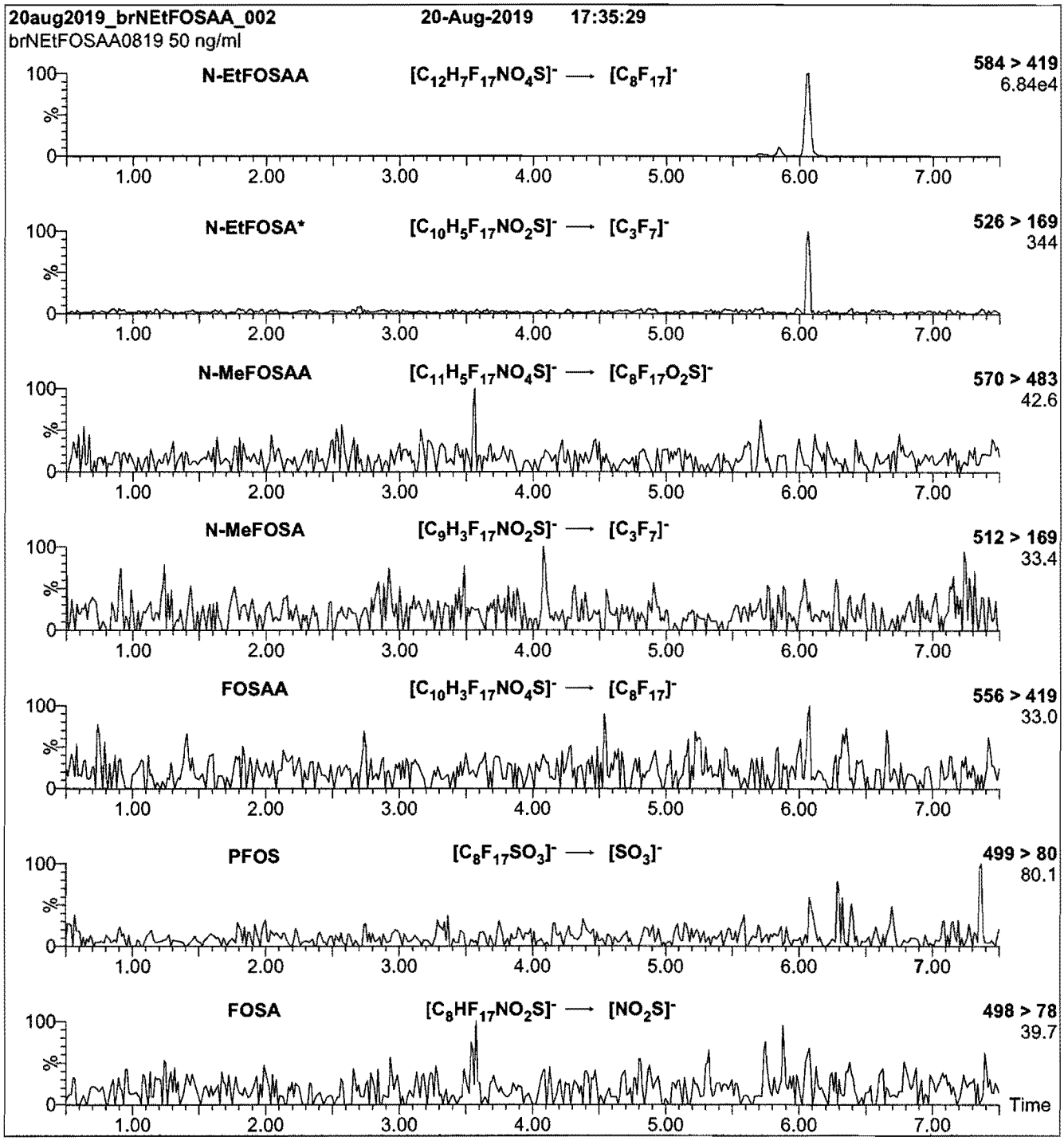
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 3: **br-NEtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



*Note: N-EtFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column (br-NEtFOSAA)

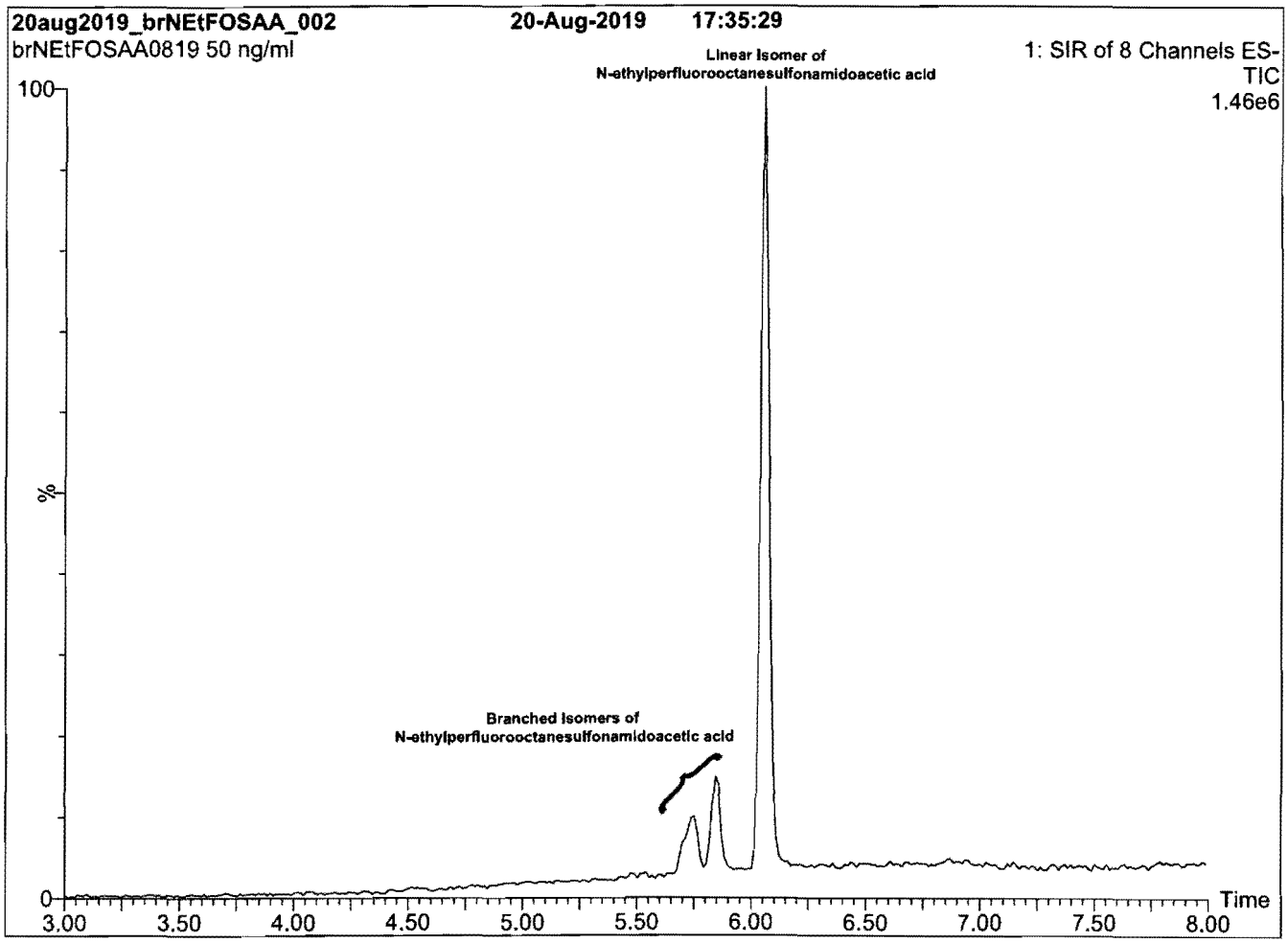
Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.53e-3
Collision Energy (eV) = 18

Figure 2: **br-NEtFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

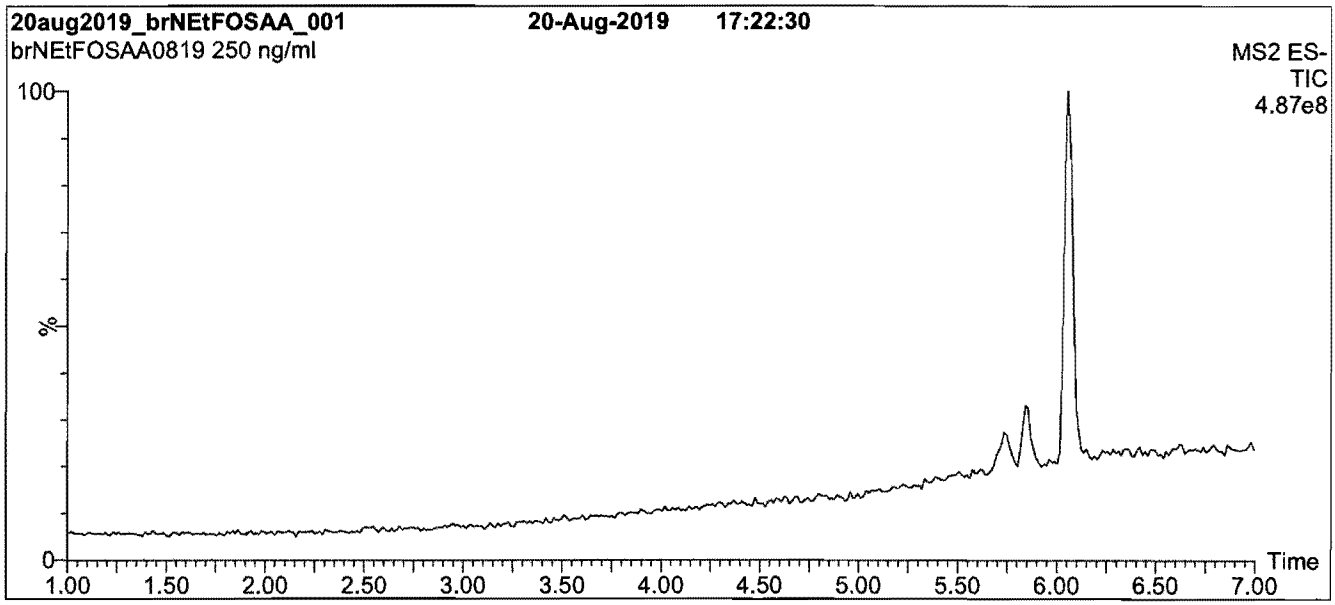
MS Parameters

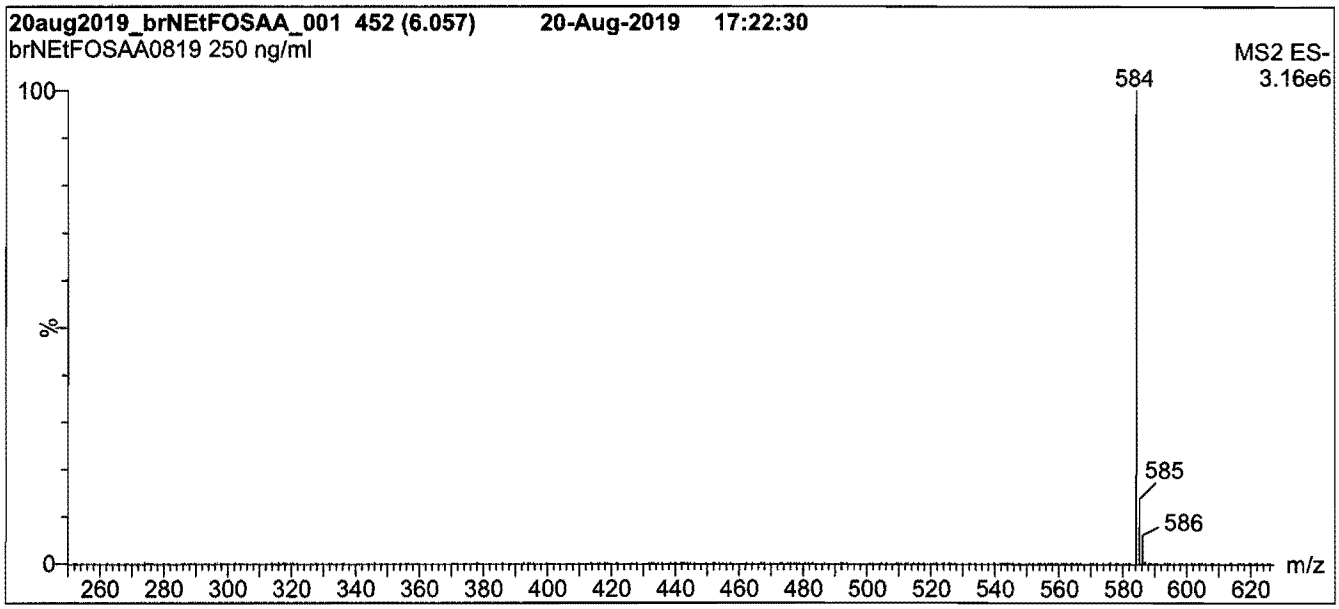
Experiment: SIR (8 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = variable (2-64)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0660

Figure 1: **br-NEtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Table A: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	0.3
9	Other Unidentified Isomers		1.3

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Certified By: _____ **Date:** 08/29/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NEtFOSAA

N-Ethylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-NEtFOSAA
LOT NUMBER:	brNEtFOSAA0819
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	08/20/2019
LAST TESTED: (mm/dd/yyyy)	08/20/2019
EXPIRY DATE: (mm/dd/yyyy)	08/20/2024
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers). The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the acetic acid moiety to its respective methyl ester.

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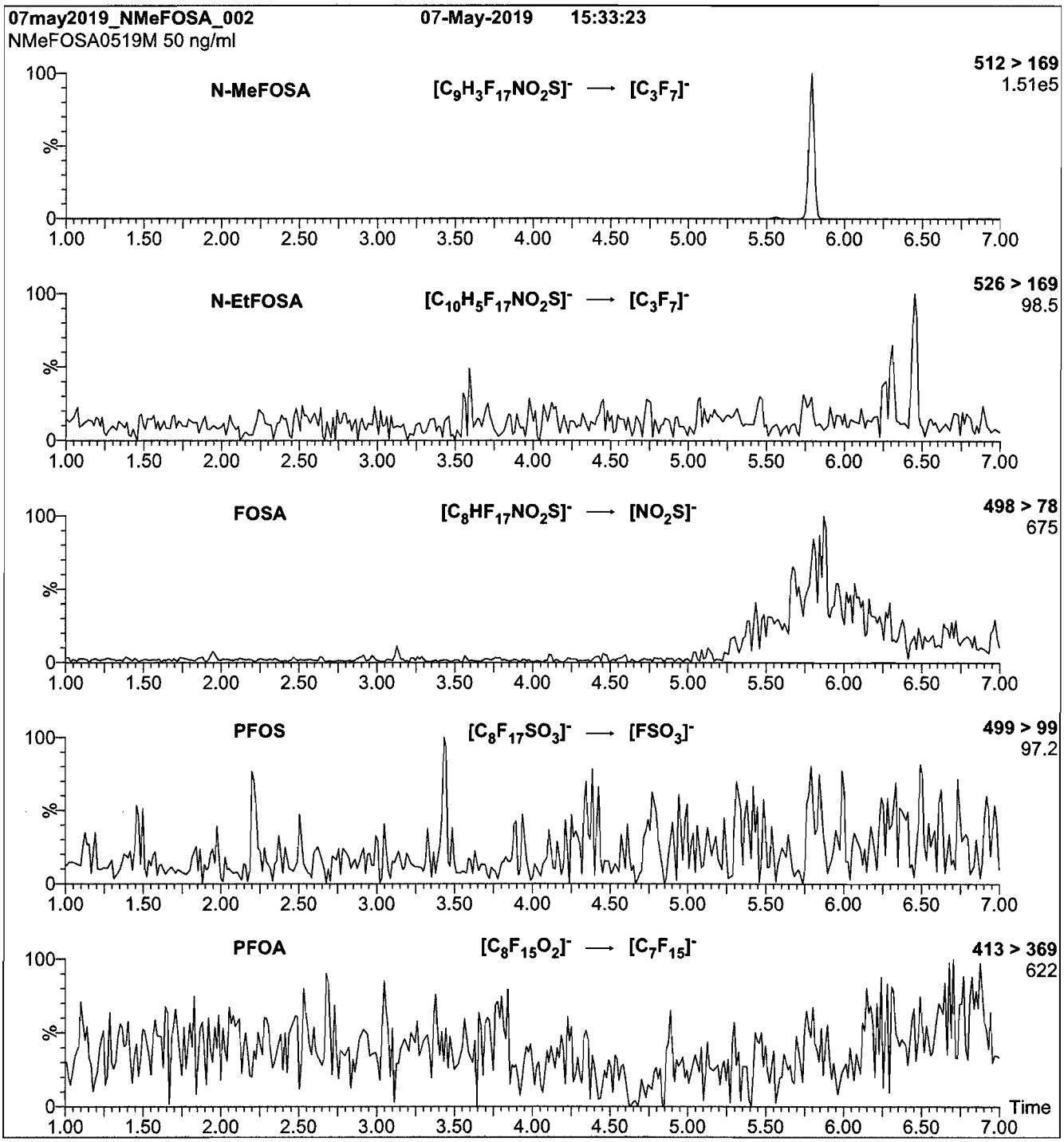
Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-MeFOSA-M)

Mobile phase: Same as Figure 1

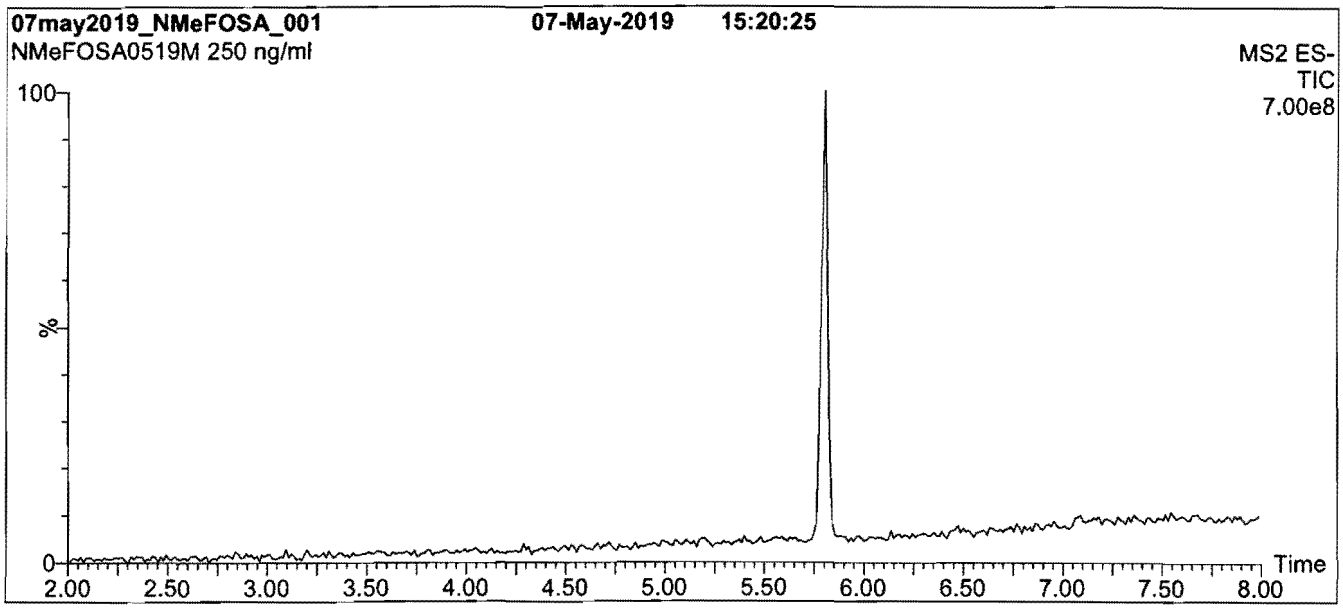
Flow: 300 µl/min

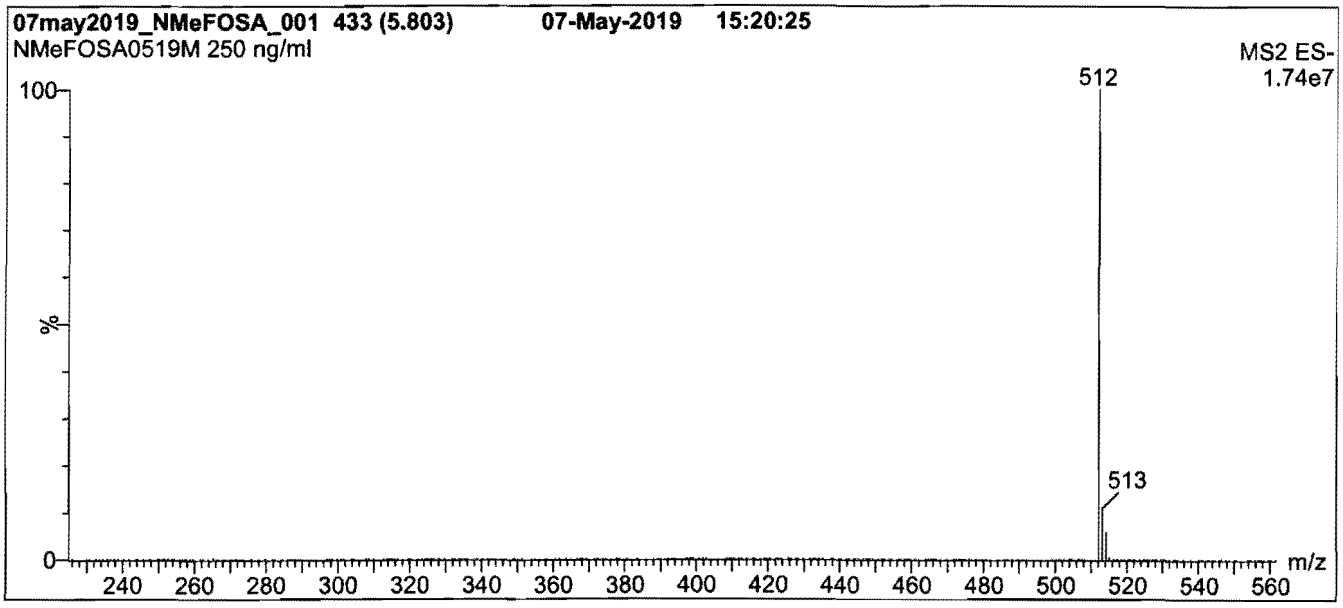
MS Parameters

Collision Gas (mbar) = 2.99e-3
Collision Energy (eV) = 24

19L0661

Figure 1: **N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0661

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UNCERTAINTY:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L0661

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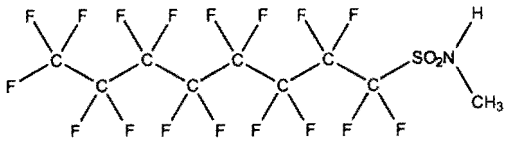
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-MeFOSA-M	**LOT NUMBER:**	NMeFOSA0519M
COMPOUND:	N-methylperfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	31506-32-8



MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/07/2019		
EXPIRY DATE: (mm/dd/yyyy)	05/07/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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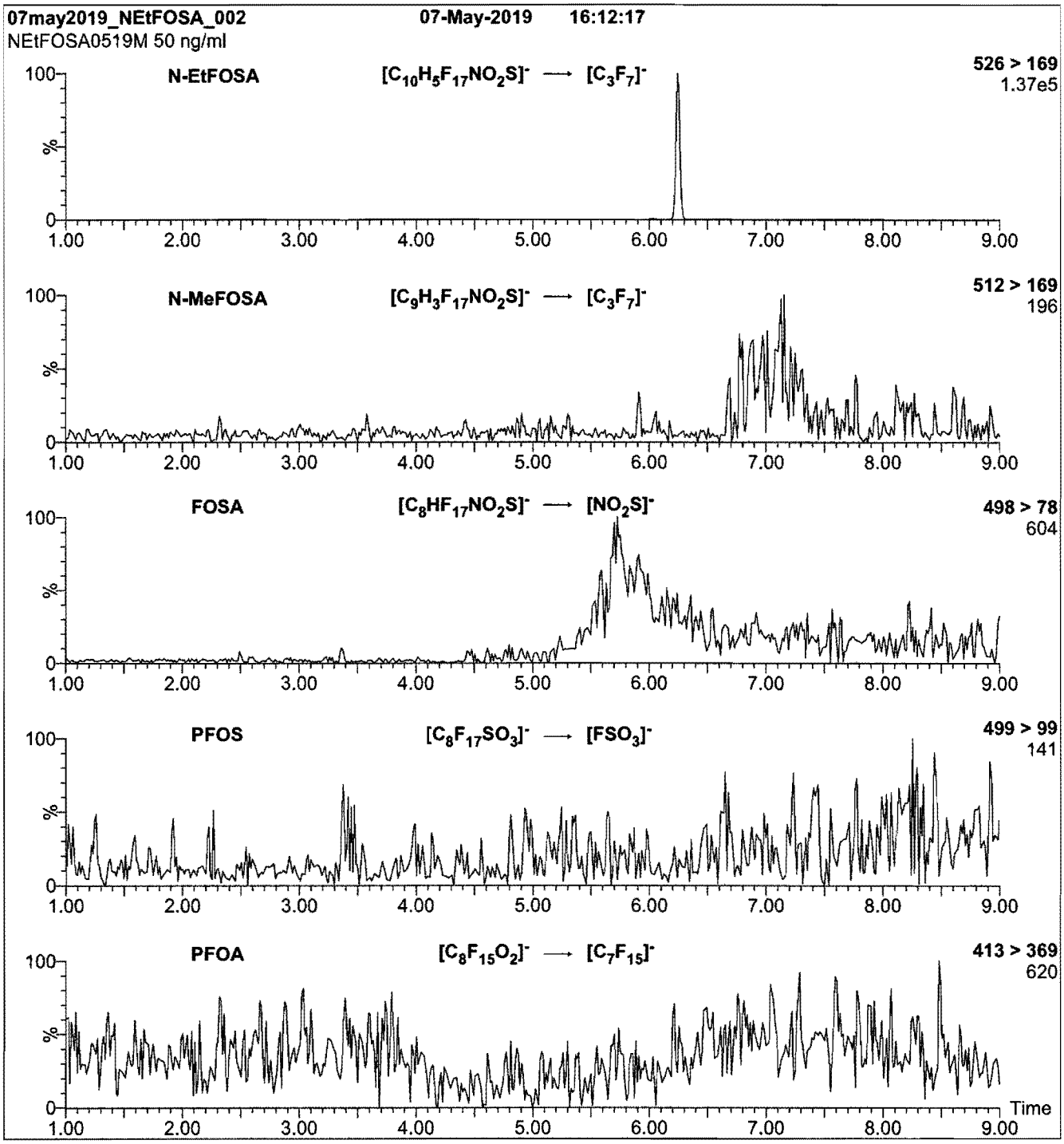
19L0662

Figure 2: **N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-EtFOSA-M)

Mobile phase: Same as Figure 1

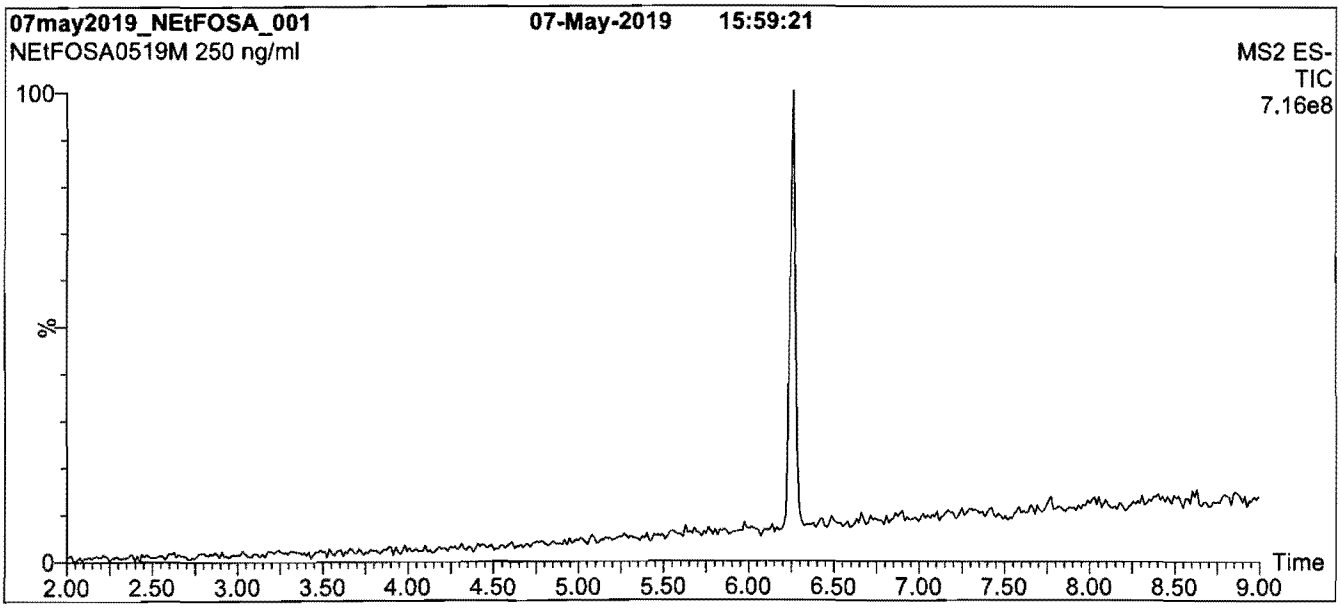
Flow: 300 µl/min

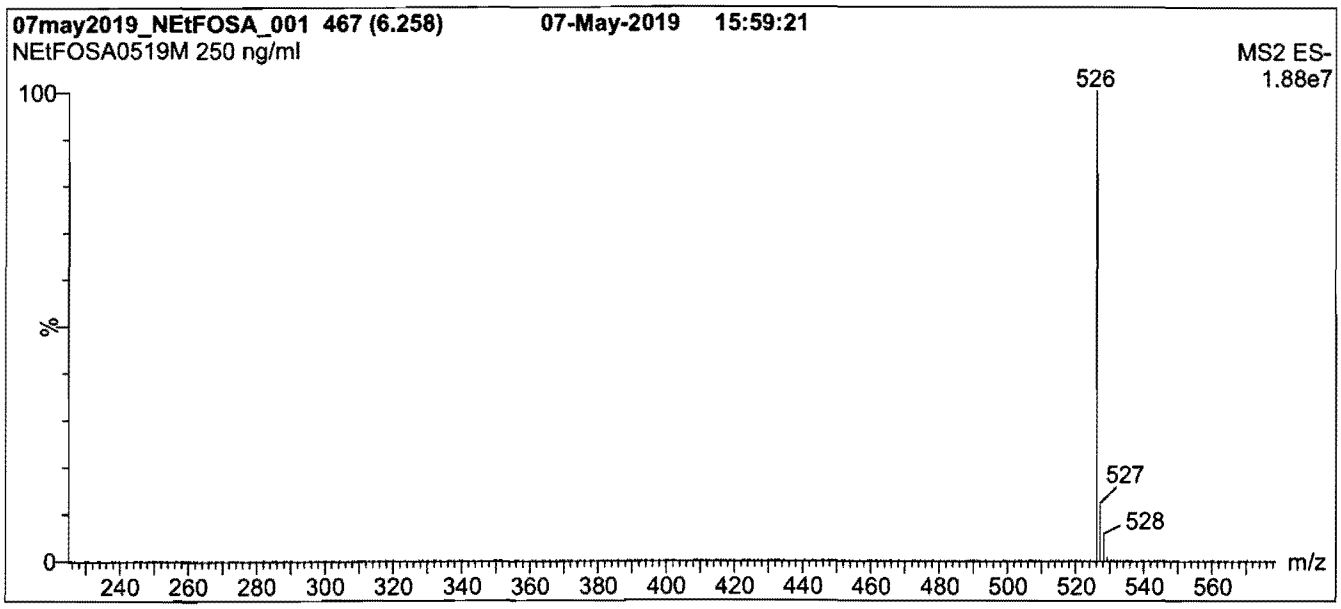
MS Parameters

Collision Gas (mbar) = 3.00e-3
Collision Energy (eV) = 24

19L0662

Figure 1: **N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





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1.7 µm, 2.1 x 100 mm

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(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 11 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0662

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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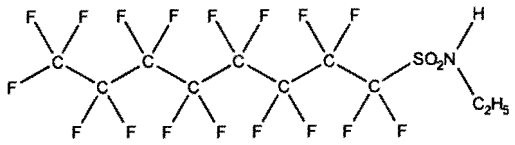
1910662

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-EtFOSA-M	**LOT NUMBER:**	NEtFOSA0519M
COMPOUND:	N-ethylperfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	4151-50-2



MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/07/2019		
EXPIRY DATE: (mm/dd/yyyy)	05/07/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

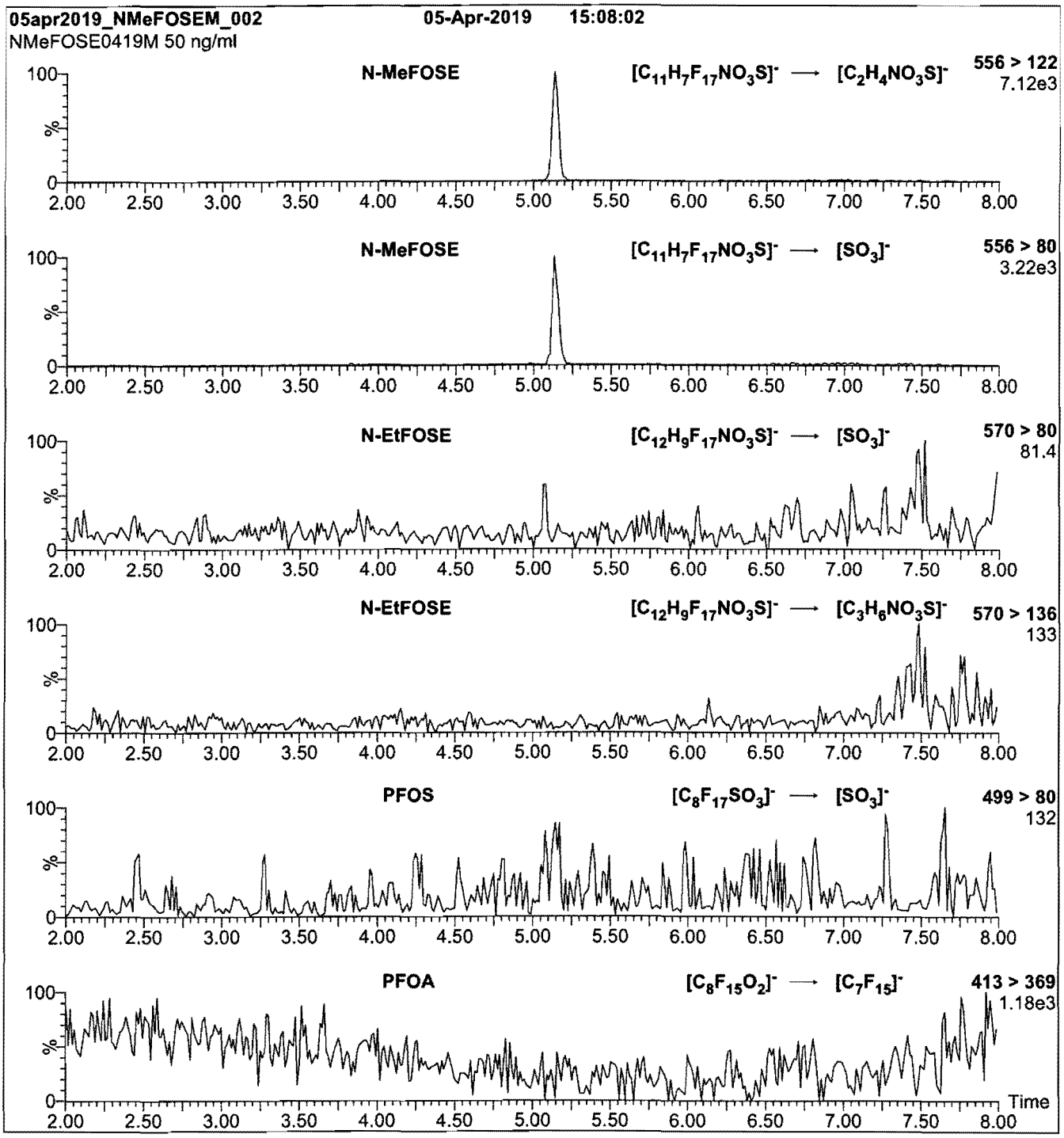
- See page 2 for further details.
- Contains ~ 0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/09/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 3: **N-MeFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-MeFOSE-M)

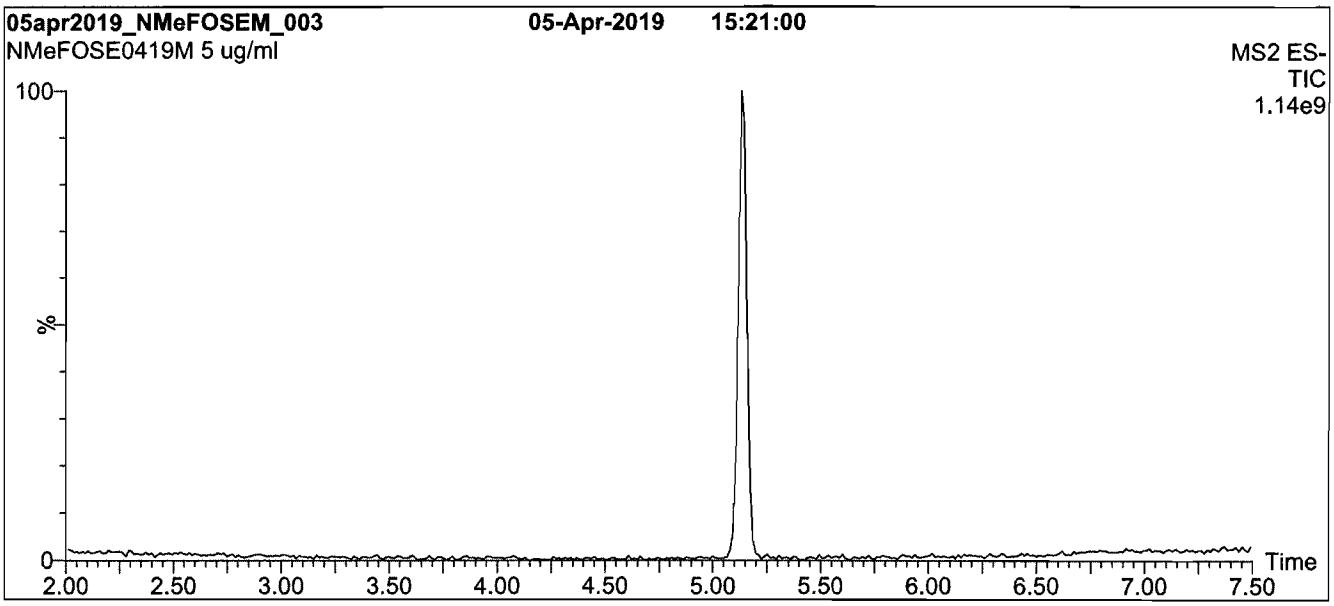
Mobile phase: Same as Figure 2

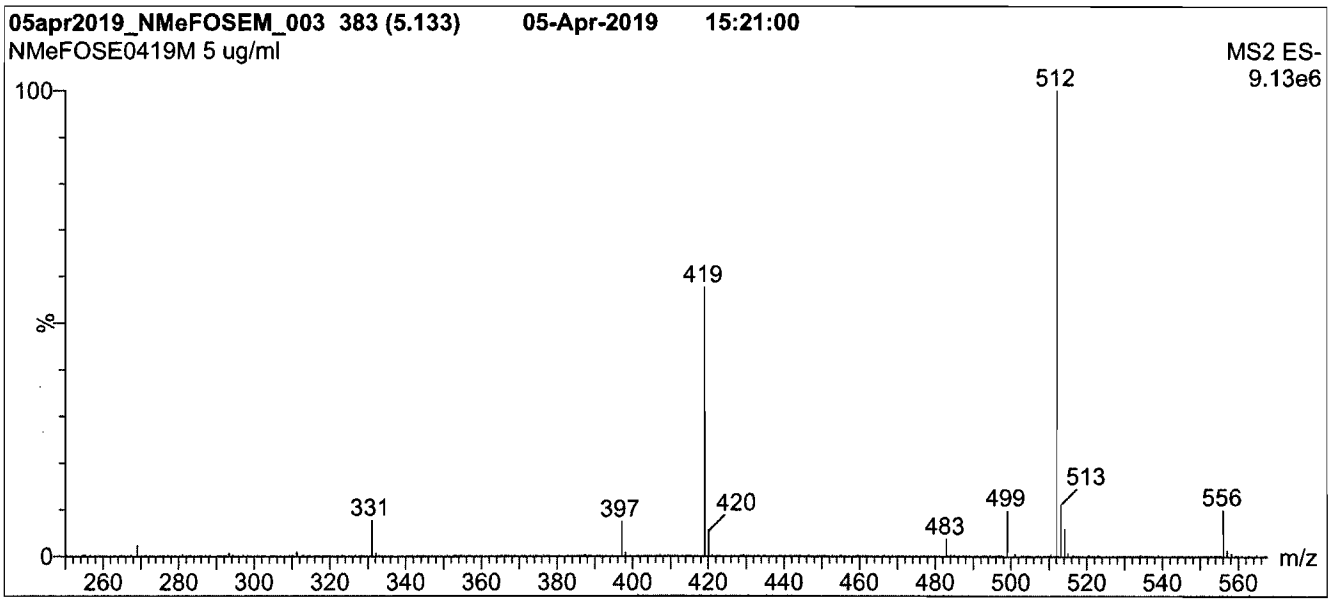
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.94e-3
Collision Energy (eV) = 36

Figure 2: **N-MeFOSE-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% MeOH / 35% H_2O
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

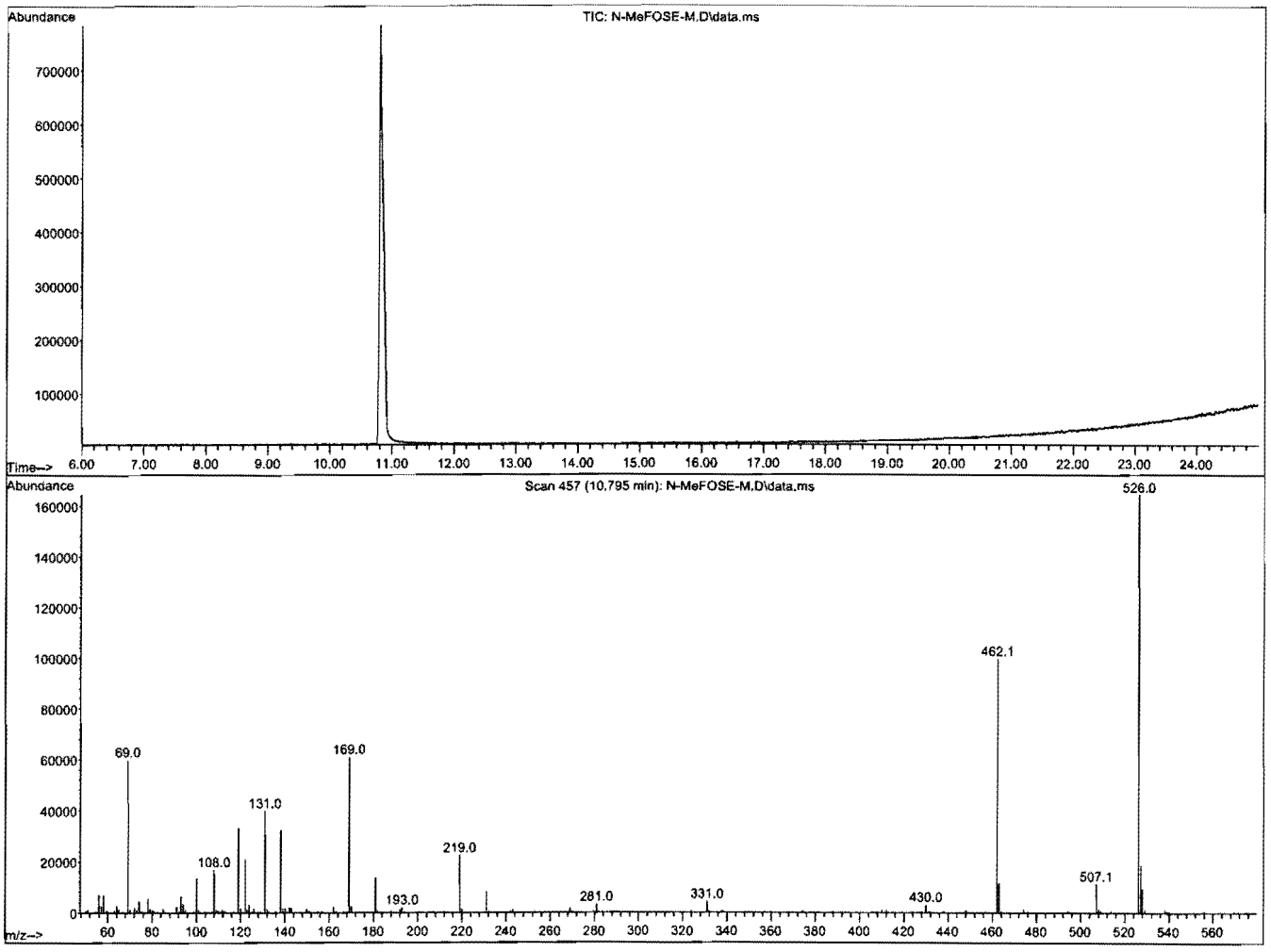
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (l/hr) = 1000

Figure 1: **N-MeFOSE-M; HRGC/LRMS Data (TIC and Mass Spectrum)**



HRGC/LRMS:

Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Injector:	250 °C (Splitless Injection)
Oven:	100 °C (5 min)
	10 °C/min to 325 °C
	325 °C (20 min)
Ionization:	EI+
Detector:	250 °C
	Full Scan (50-1000 amu)

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

1910663

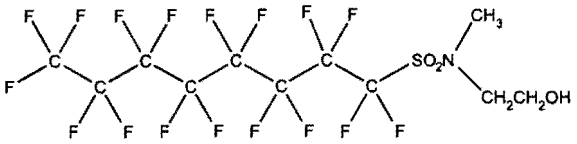
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0419M

COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 24448-09-7



MOLECULAR FORMULA:	$C_{11}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	557.22
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	04/08/2019 (HRGC/LRMS) 04/05/2019 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	04/08/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (TIC and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

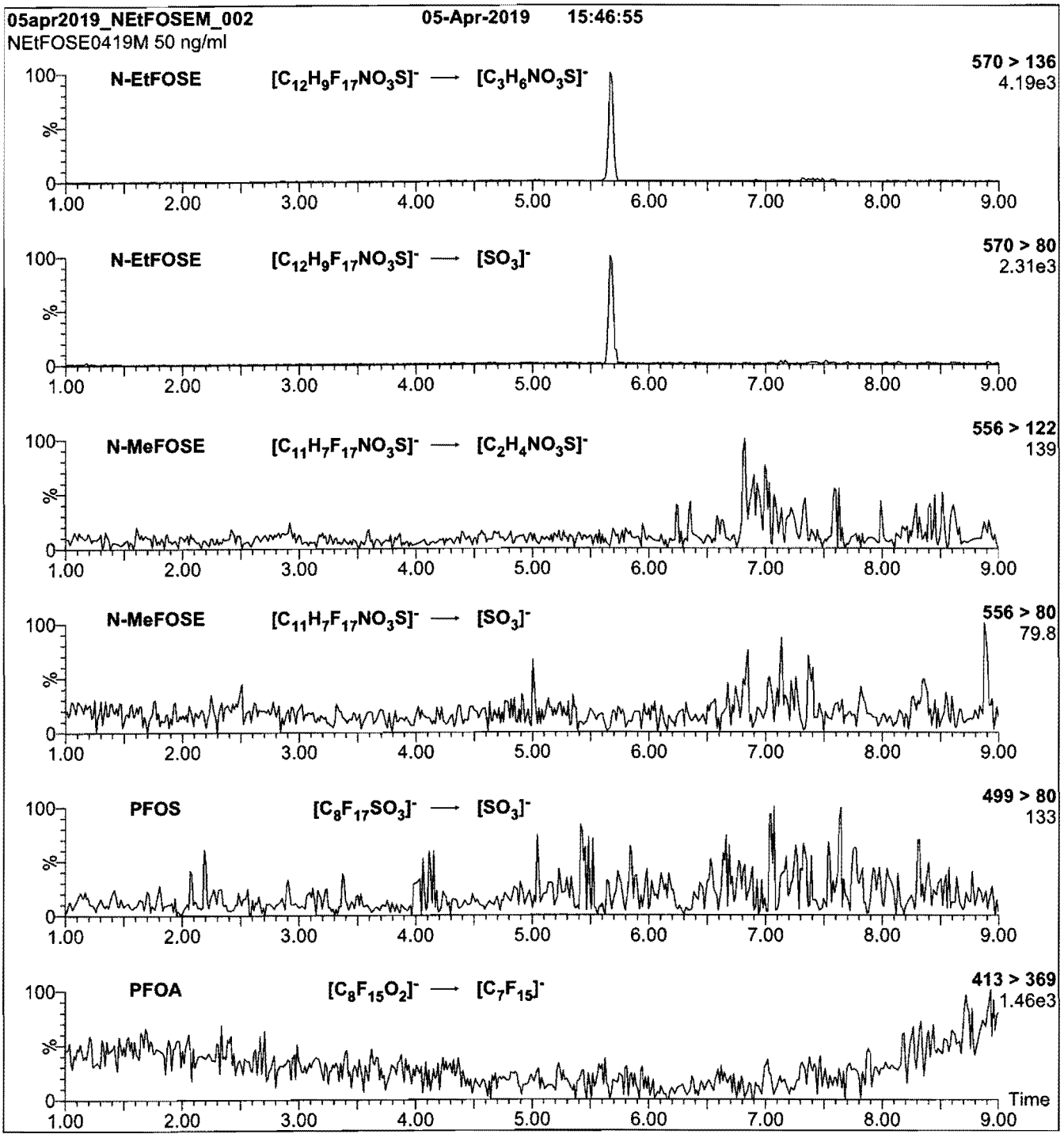
- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/12/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 3: **N-EtFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-EtFOSE-M)

Mobile phase: Same as Figure 2

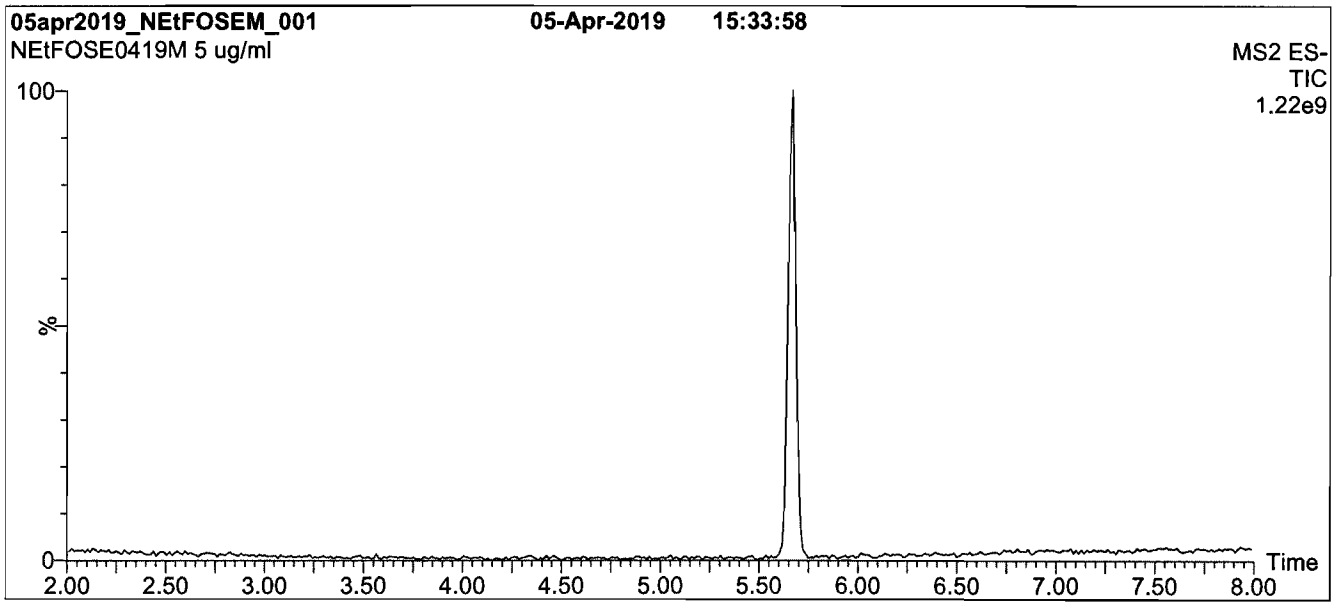
Flow: 300 µl/min

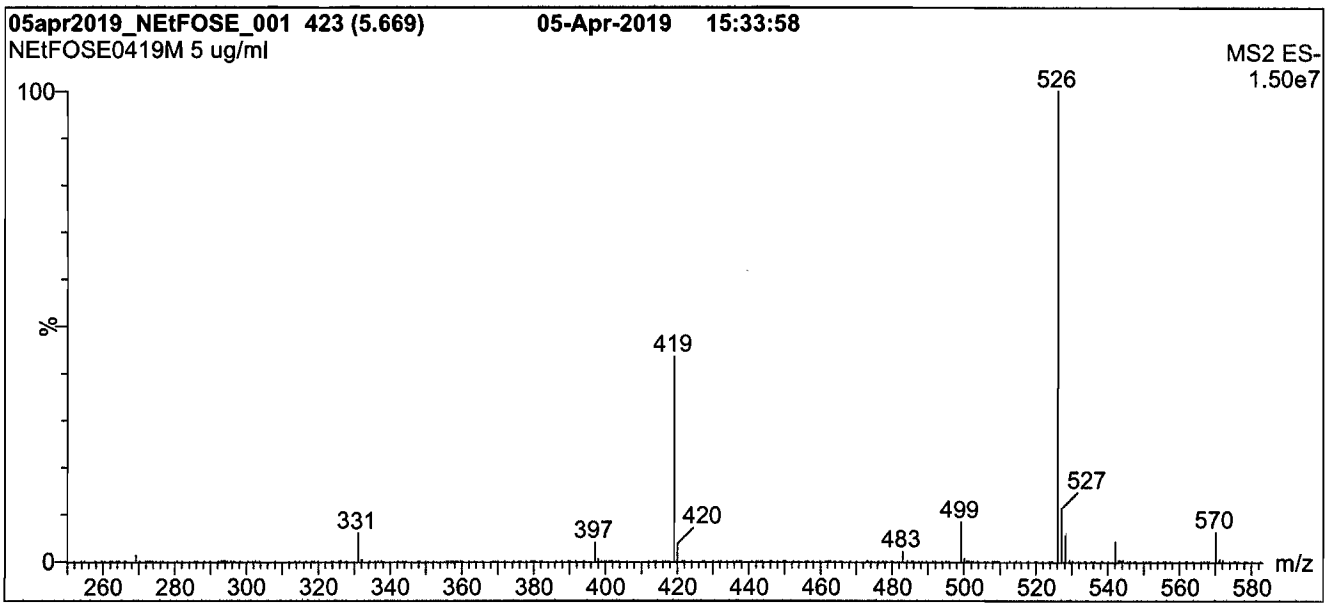
MS Parameters

Collision Gas (mbar) = 2.76e-3
Collision Energy (eV) = 32

19L0664

Figure 2: **N-EtFOSE-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% MeOH / 35% H_2O
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

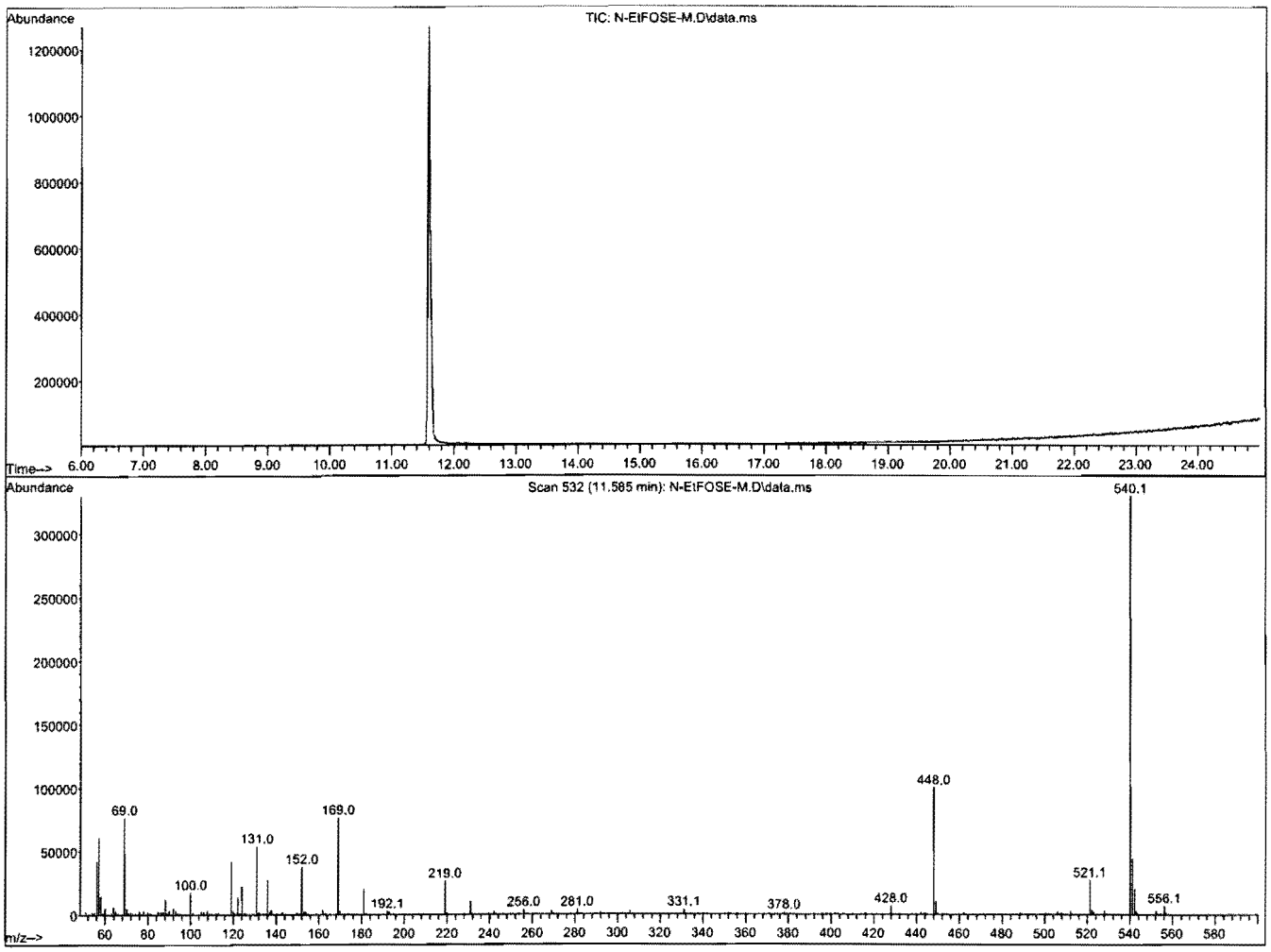
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (l/hr) = 1000

Figure 1: **N-EtFOSE-M; HRGC/LRMS Data (TIC and Mass Spectrum)**



HRGC/LRMS:

Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Injector:	250 °C (Splitless Injection)
Oven:	100 °C (5 min)
	10 °C/min to 325 °C
	325 °C (20 min)
Ionization:	EI+
Detector:	250 °C
	Full Scan (50-1000 amu)

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L 0664

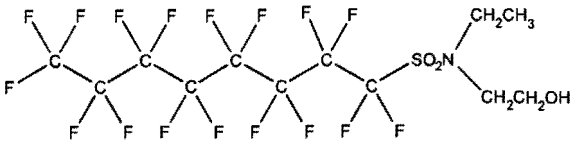
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0419M

COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 1691-99-2



MOLECULAR FORMULA:	$C_{12}H_{10}F_{17}NO_3S$	**MOLECULAR WEIGHT:**	571.25
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	04/08/2019 (HRGC/LRMS) 04/05/2019 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	04/08/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (TIC and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By: _____ **Date:** 04/15/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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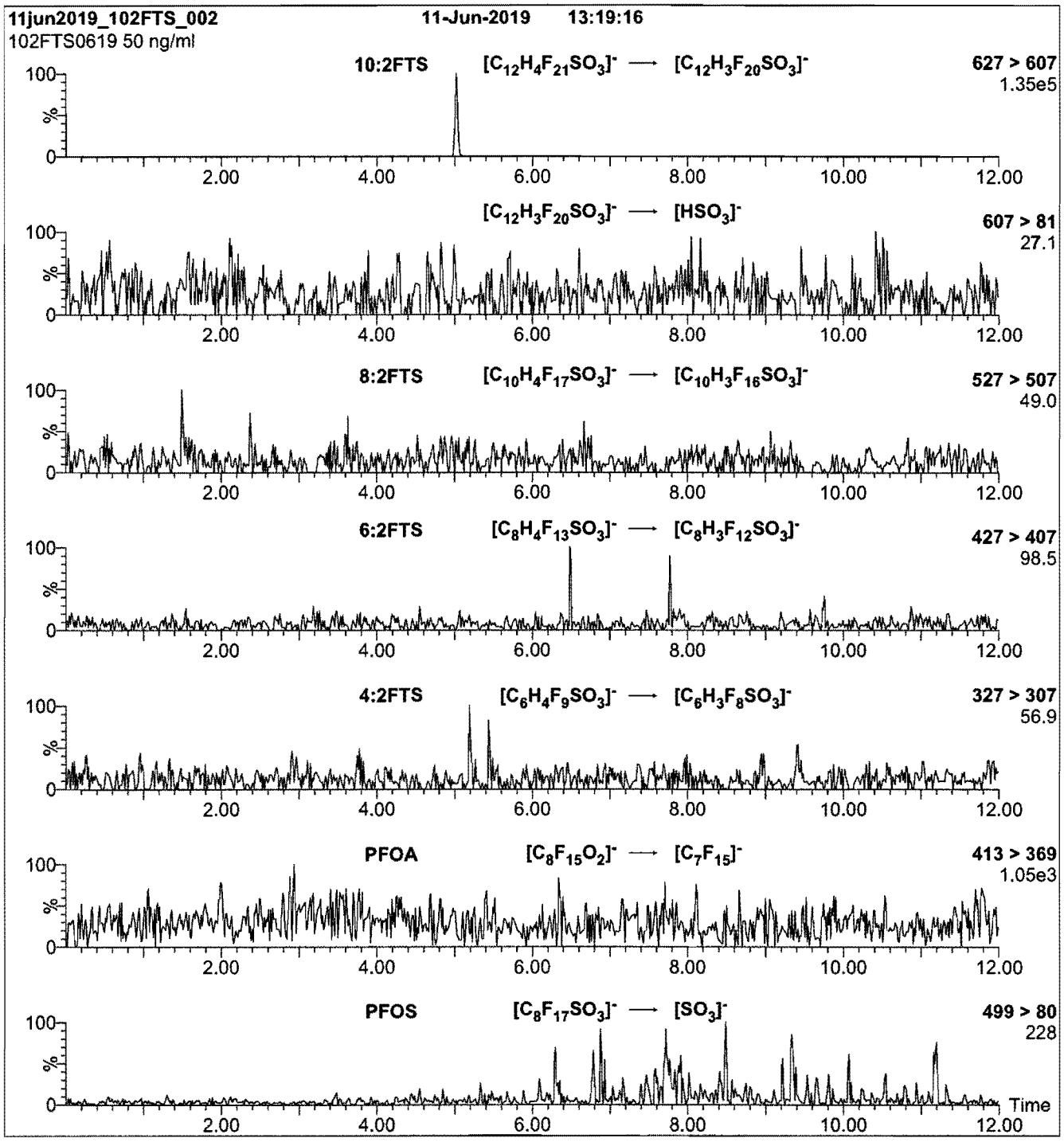
19L0665

Figure 2: **10:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (10:2FTS)

Mobile phase: Same as Figure 1

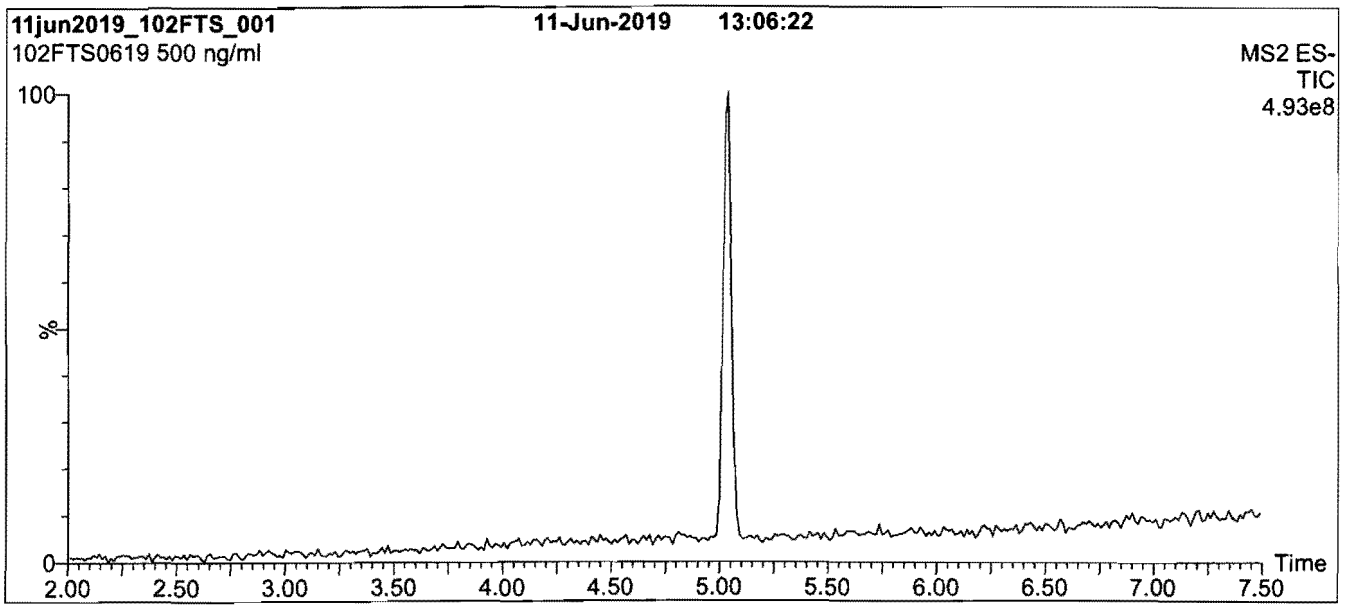
Flow: 300 µl/min

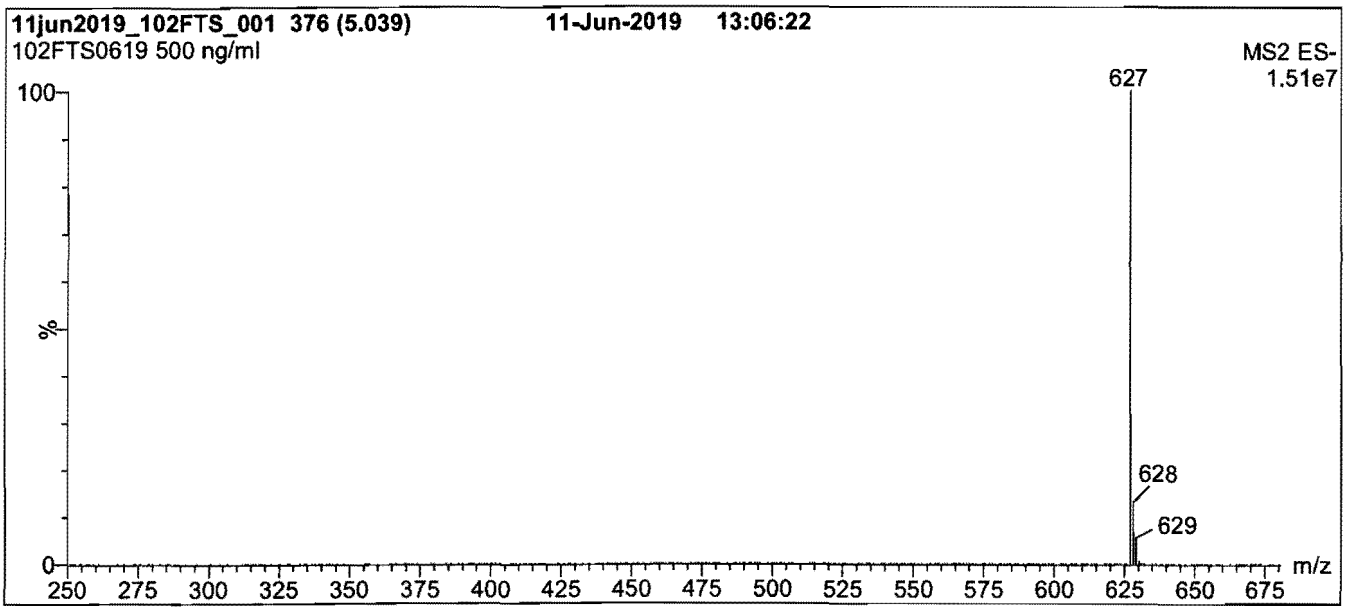
MS Parameters

Collision Gas (mbar) = 2.92e-3
Collision Energy (eV) = 25

19L0665

Figure 1: **10:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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19L0665

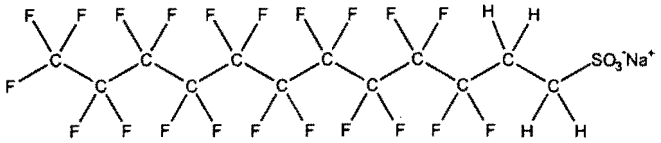
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0619

COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{12}H_4F_{21}SO_3Na$		**MOLECULAR WEIGHT:**	650.18
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	48.2 ± 2.4 µg/ml	(10:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	06/11/2019			
EXPIRY DATE: (mm/dd/yyyy)	06/11/2022			
RECOMMENDED STORAGE:	Refrigerate ampoule			

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

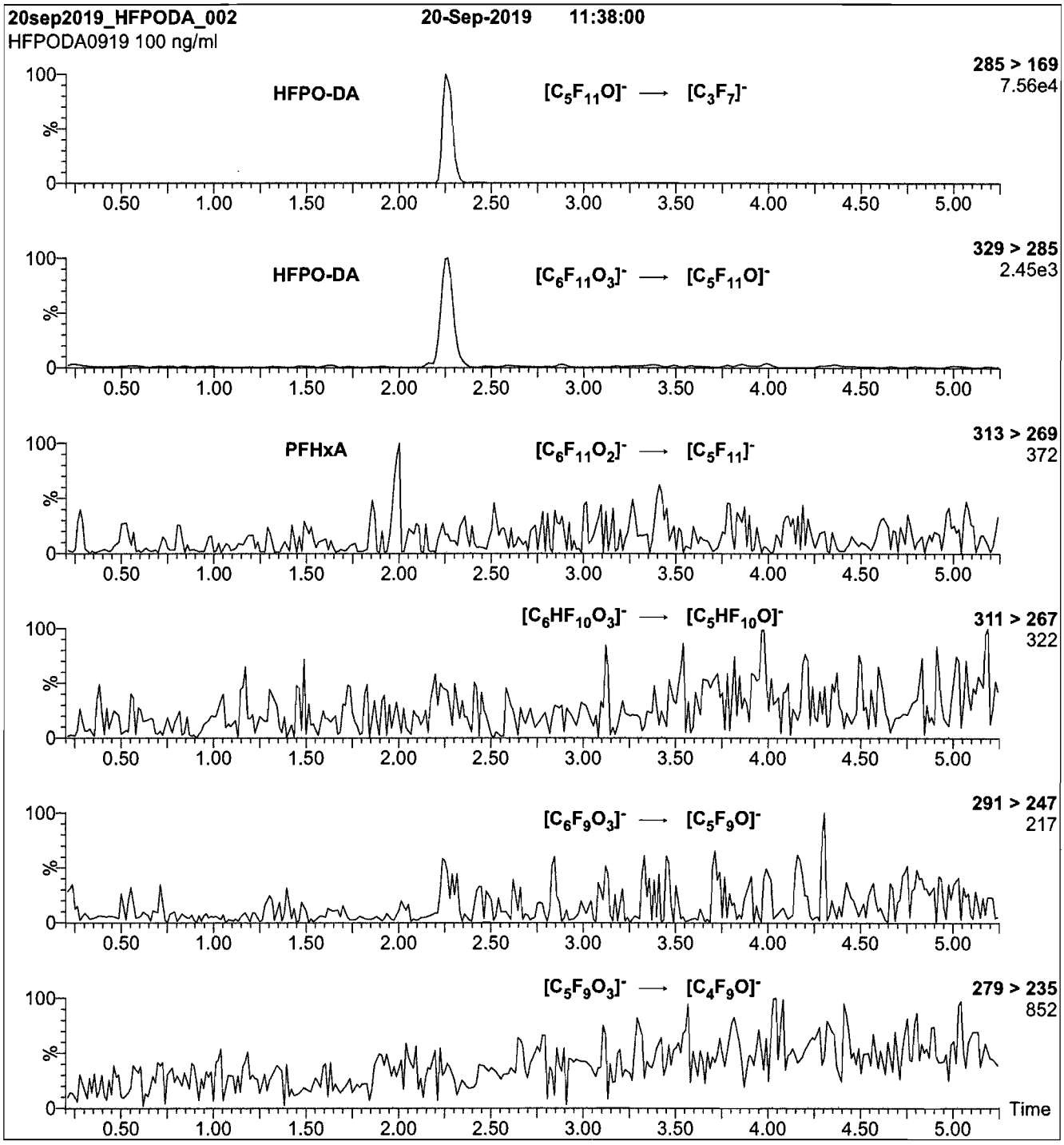
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/18/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1910666

Figure 2: **HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (HFPO-DA)

Mobile phase: Same as Figure 1

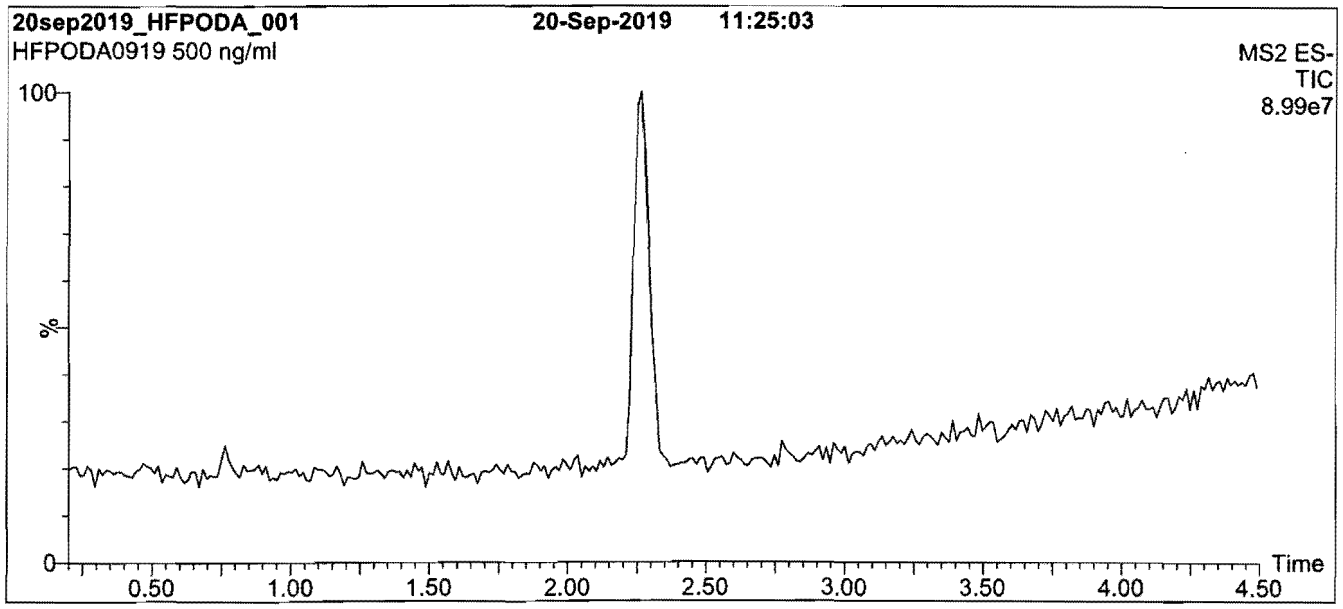
Flow: 300 µl/min

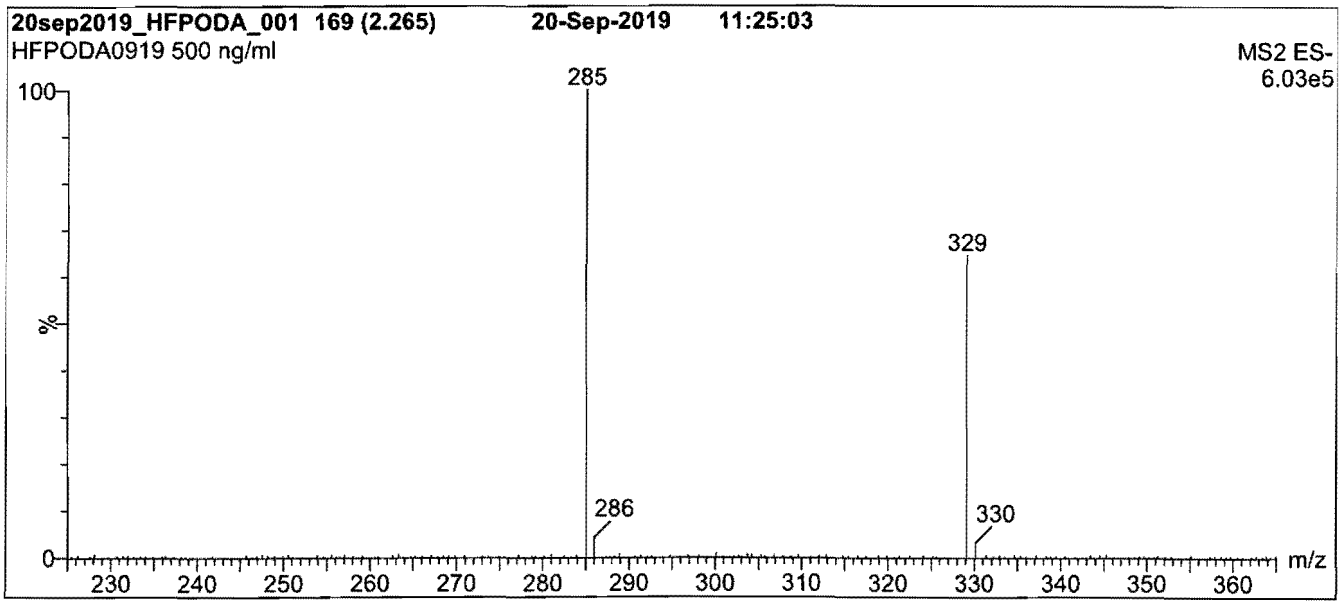
MS Parameters

Collision Gas (mbar) = 3.60e-3
Collision Energy (eV) = 8

1910666

Figure 1: **HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Desolvation Temperature (°C) = 325
Desolvation Gas Flow (l/hr) = 1000

19L 0666

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0666

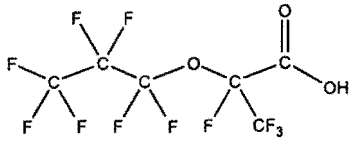
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: HFPO-DA **LOT NUMBER:** HFPODA0919

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE: **CAS #:** 13252-13-6



MOLECULAR FORMULA: $C_6HF_{11}O_3$ **MOLECULAR WEIGHT:** 330.05

CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 09/20/2019

EXPIRY DATE: (mm/dd/yyyy) 09/20/2022

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

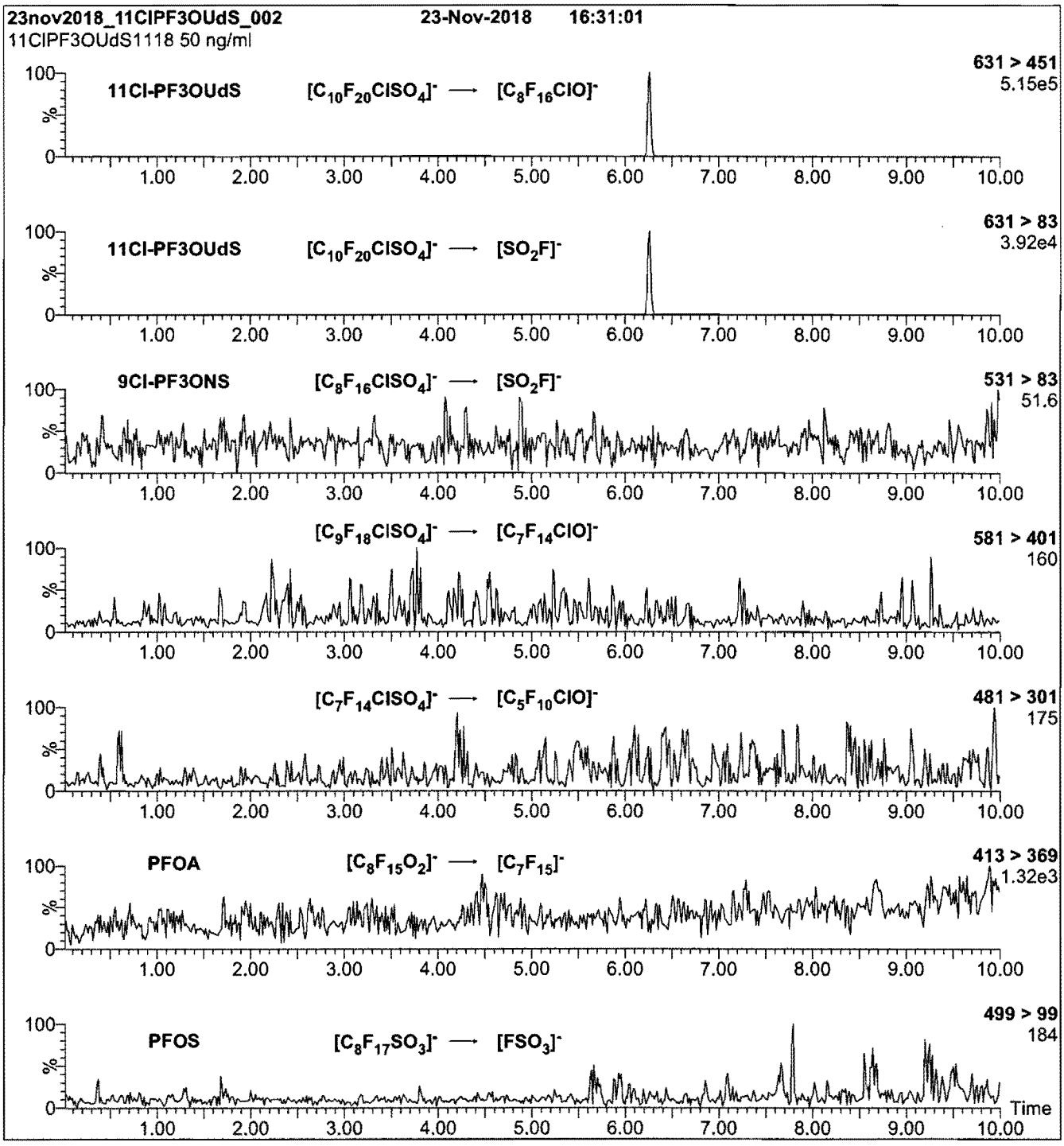
- See page 2 for further details.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/30/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **11Cl-PF3OUdS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (11Cl-PF3OUdS)

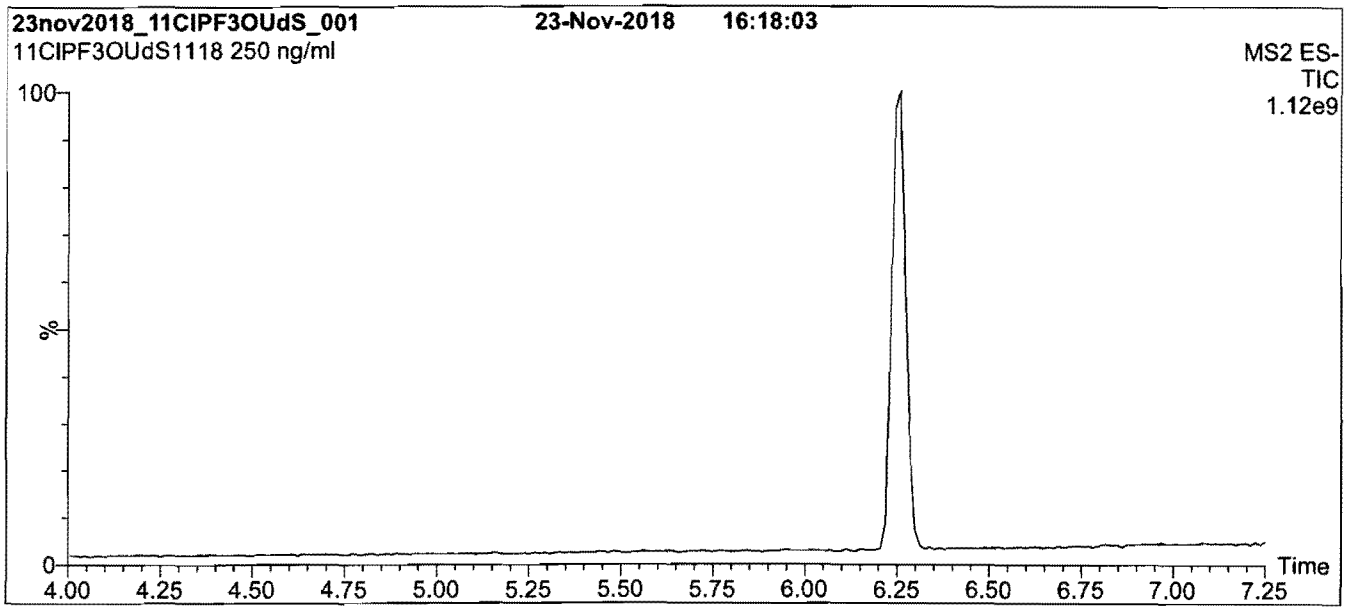
Mobile phase: Same as Figure 1

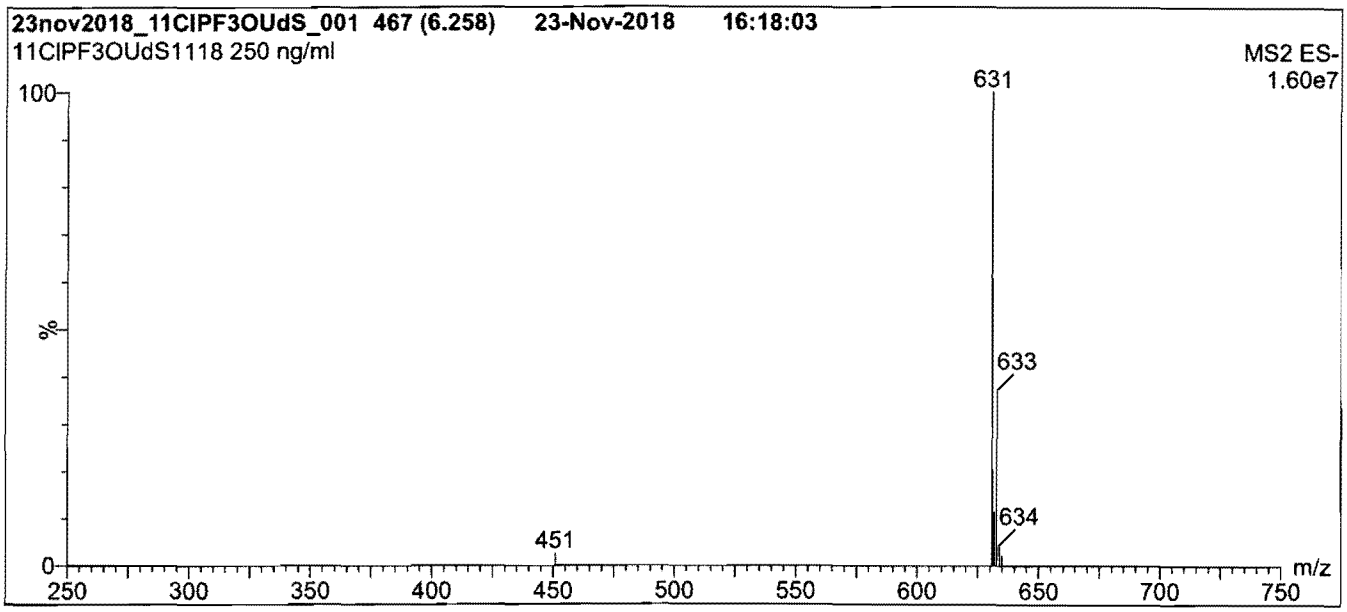
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.84e-3
Collision Energy (eV) = 24

Figure 1: **11Cl-PF3OUdS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 70.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

19L0667

INTENDED USE:

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HANDLING:

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UNCERTAINTY:

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

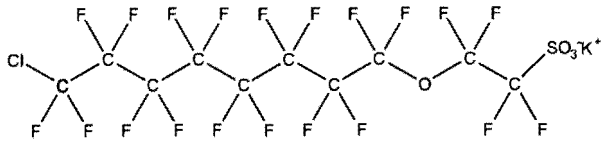
19L0667

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 11Cl-PF3OUdS **LOT NUMBER:** 11ClPF3OUdS1118
COMPOUND: Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate

STRUCTURE: **CAS #:** 83329-89-9



MOLECULAR FORMULA: $C_{10}F_{20}ClSO_4K$ **MOLECULAR WEIGHT:** 670.69
CONCENTRATION: 50.0 ± 2.5 µg/ml (K Salt) **SOLVENT(S):** Methanol
47.1 ± 2.4 µg/ml (11Cl-PF3OUdS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/23/2018
EXPIRY DATE: (mm/dd/yyyy) 11/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This compound is a minor component of the commercial formulation known as F-53B.

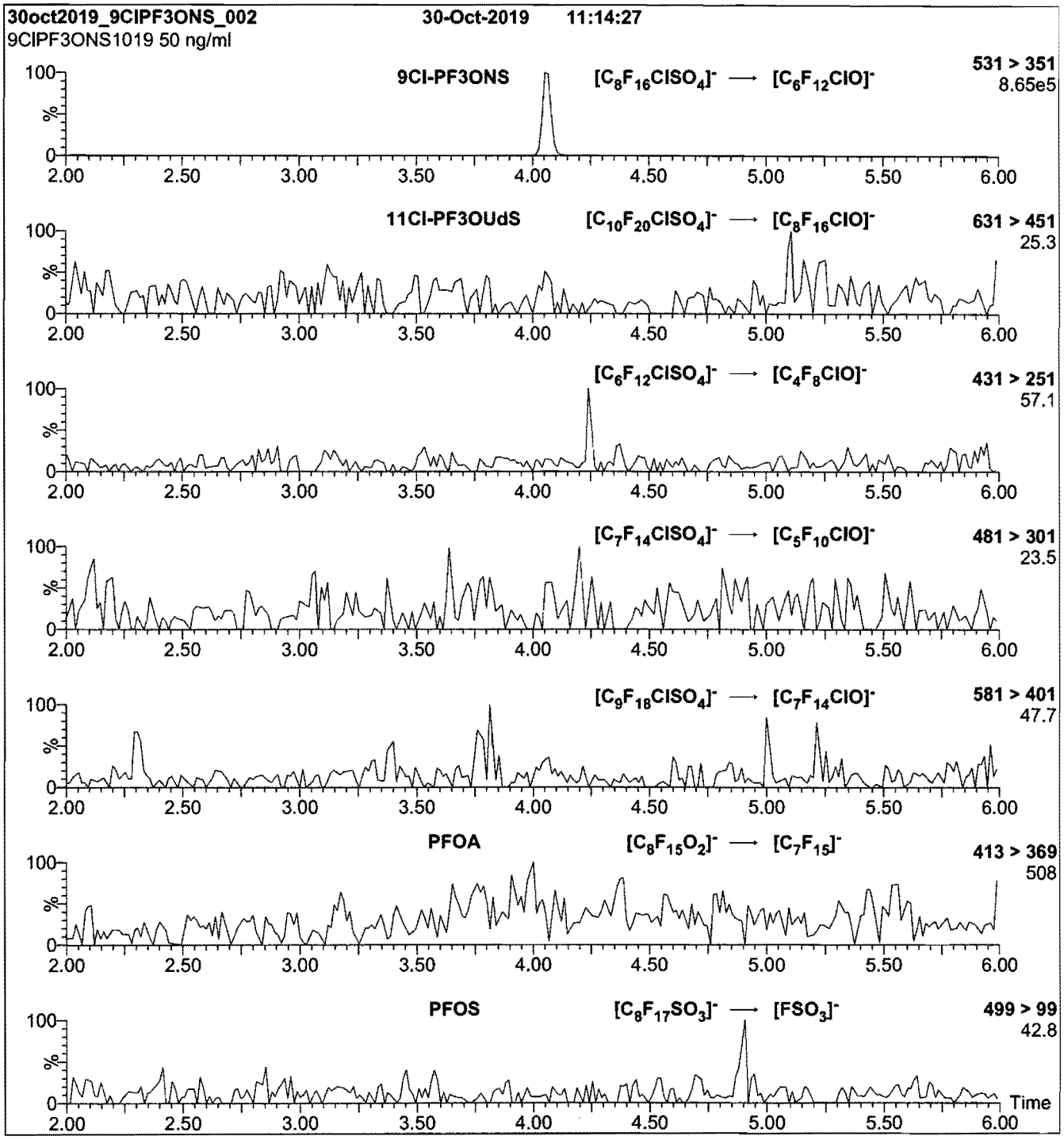
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/28/2018
(mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1910668

Figure 2: **9Cl-PF3ONS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (9Cl-PF3ONS)

Mobile phase: Same as Figure 1

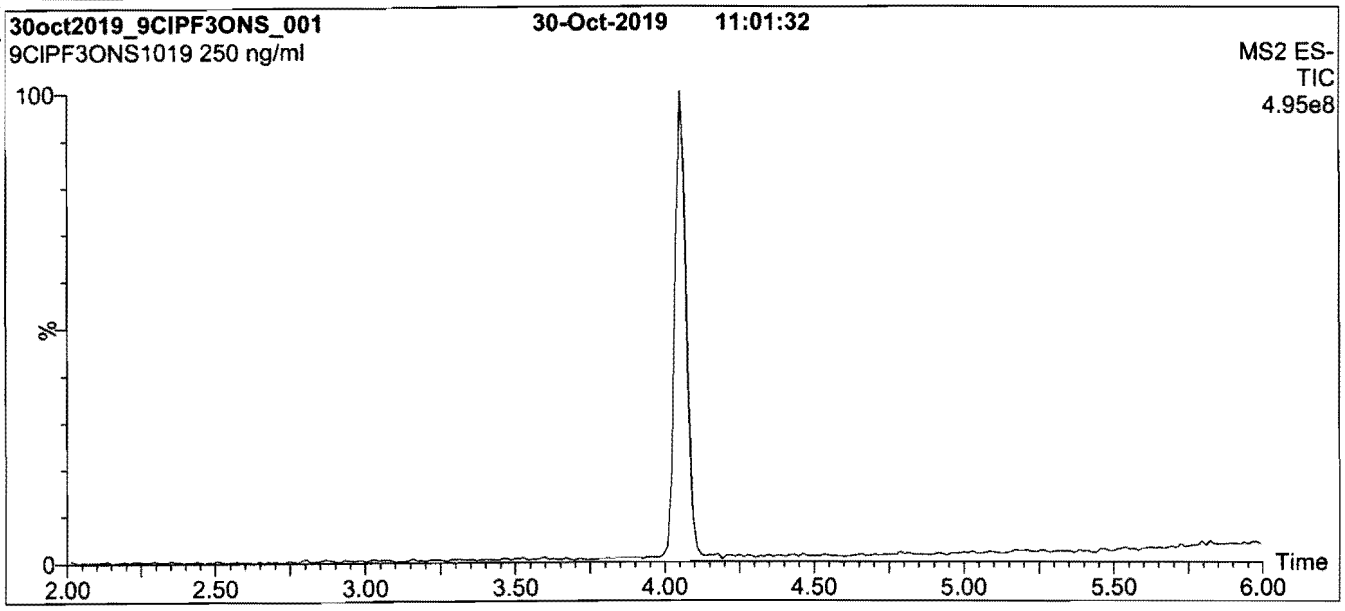
Flow: 300 µl/min

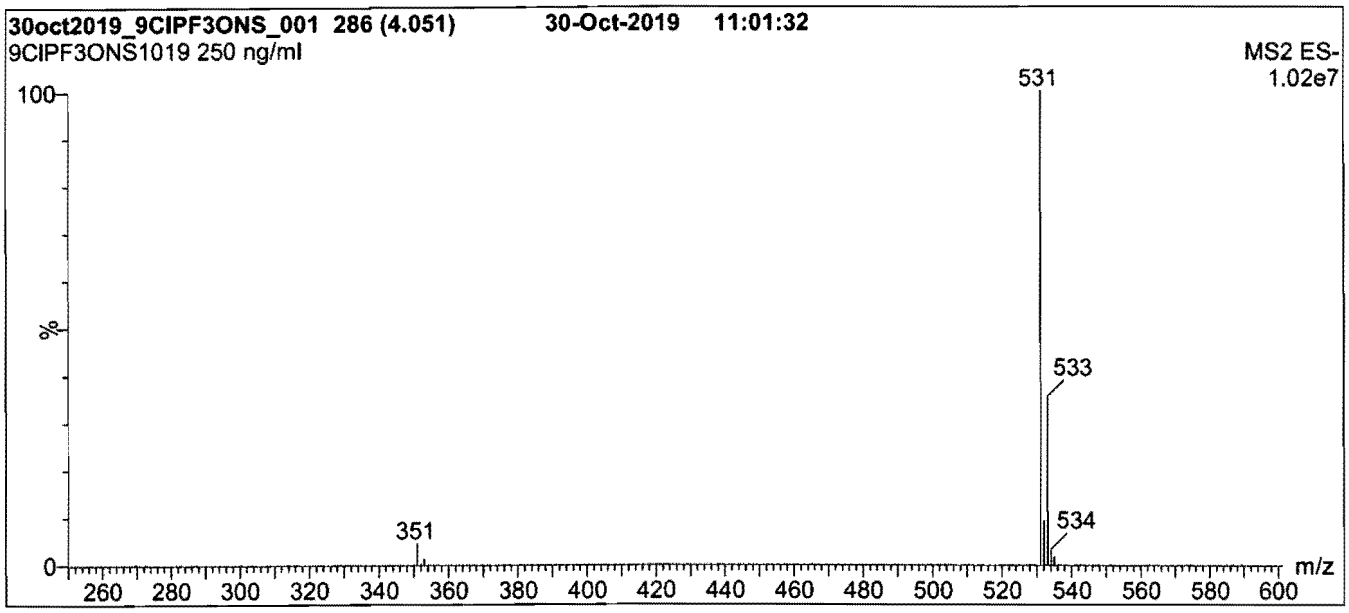
MS Parameters

Collision Gas (mbar) = 3.25e-3
Collision Energy (eV) = 20

19L0668

Figure 1: **9Cl-PF3ONS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 70.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

19L0668

INTENDED USE:

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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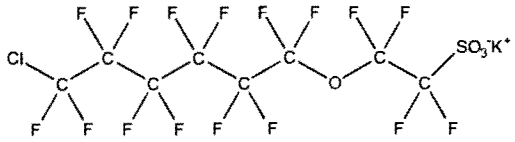
19L0668

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	9Cl-PF3ONS	**LOT NUMBER:**	9ClPF3ONS1019
COMPOUND:	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate		
STRUCTURE:		**CAS #:**	73606-19-6



MOLECULAR FORMULA:	$C_8F_{16}ClSO_4K$	**MOLECULAR WEIGHT:**	570.67
CONCENTRATION:	50.0 ± 2.5 µg/ml (K Salt) 46.6 ± 2.3 µg/ml (9Cl-PF3ONS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/30/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/30/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This compound is the major component of the commercial formulation known as F-53B.

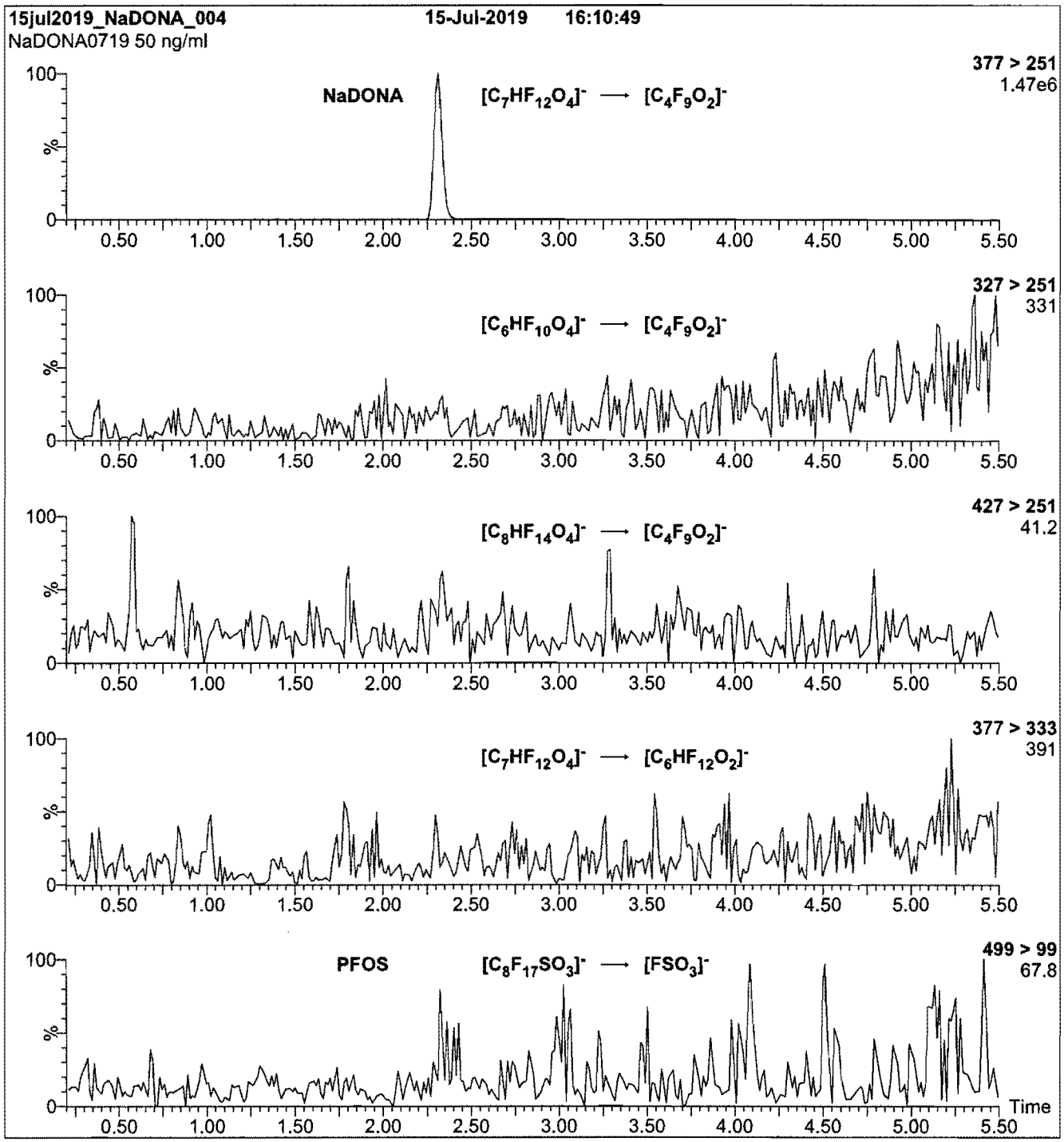
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/04/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0669

Figure 2: **NaDONA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (NaDONA)

Mobile phase: Same as Figure 1

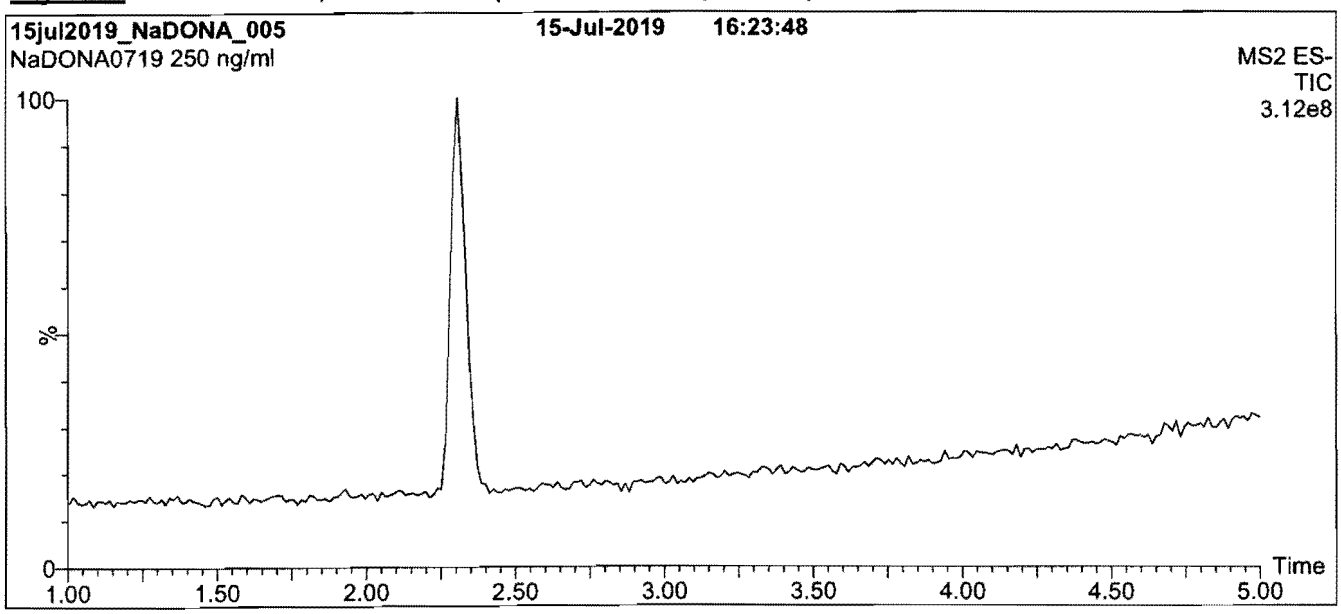
Flow: 300 µl/min

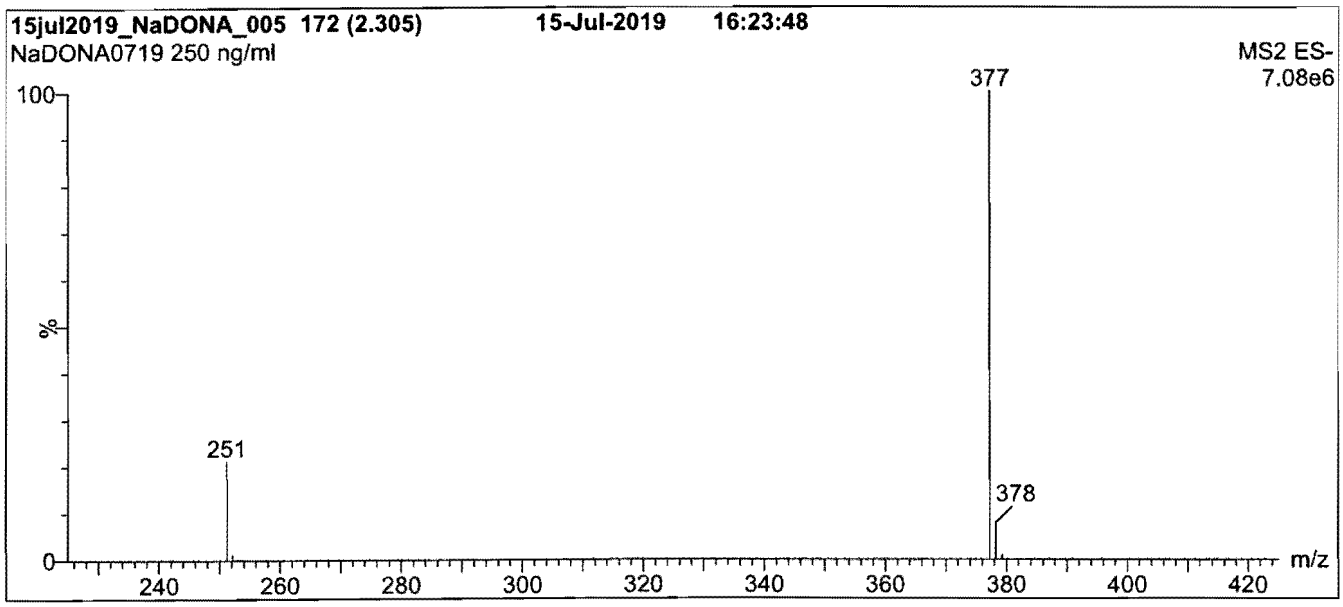
MS Parameters

Collision Gas (mbar) = 3.37e-3
Collision Energy (eV) = 10

19L0669

Figure 1: **NaDONA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.70
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0669

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

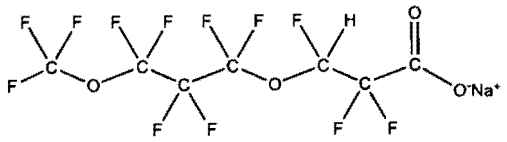
19L0669

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: NaDONA
LOT NUMBER: NaDONA0719
COMPOUND: Sodium dodecafluoro-3H-4,8-dioxanonanoate

STRUCTURE:



CAS #: 958445-44-8 (ammonium salt)

MOLECULAR FORMULA:	$C_7HF_{12}O_4Na$	**MOLECULAR WEIGHT:**	400.05
CONCENTRATION:	50 ± 2.5 µg/ml (Na Salt)	**SOLVENT(S):**	Methanol
	47.1 ± 2.4 µg/ml (NaDONA anion)		Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	07/15/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/15/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Product is commercially known as ADONA.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/25/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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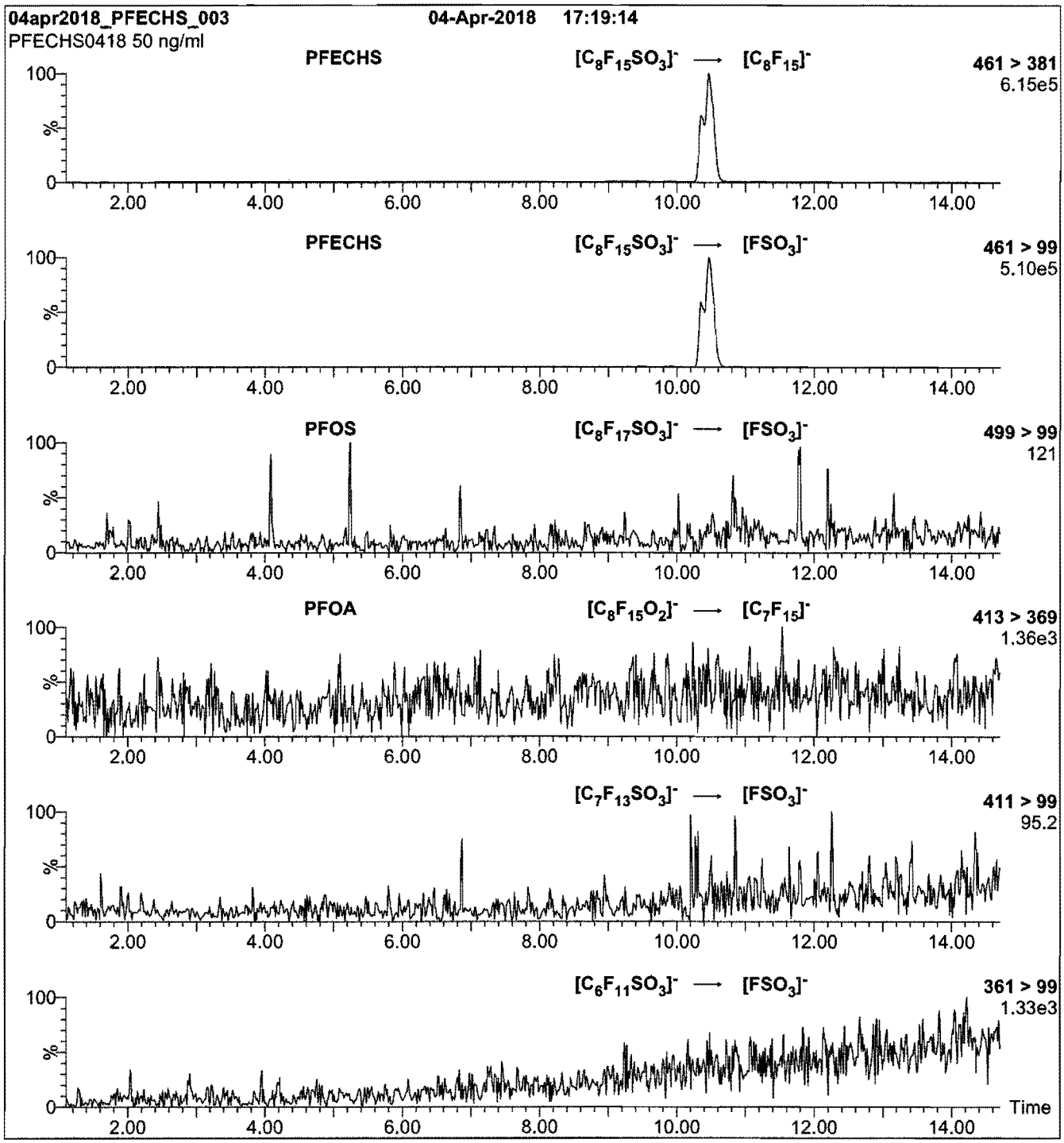
Figure 2: **PFECHS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFECHS)

Mobile phase: Same as Figure 1

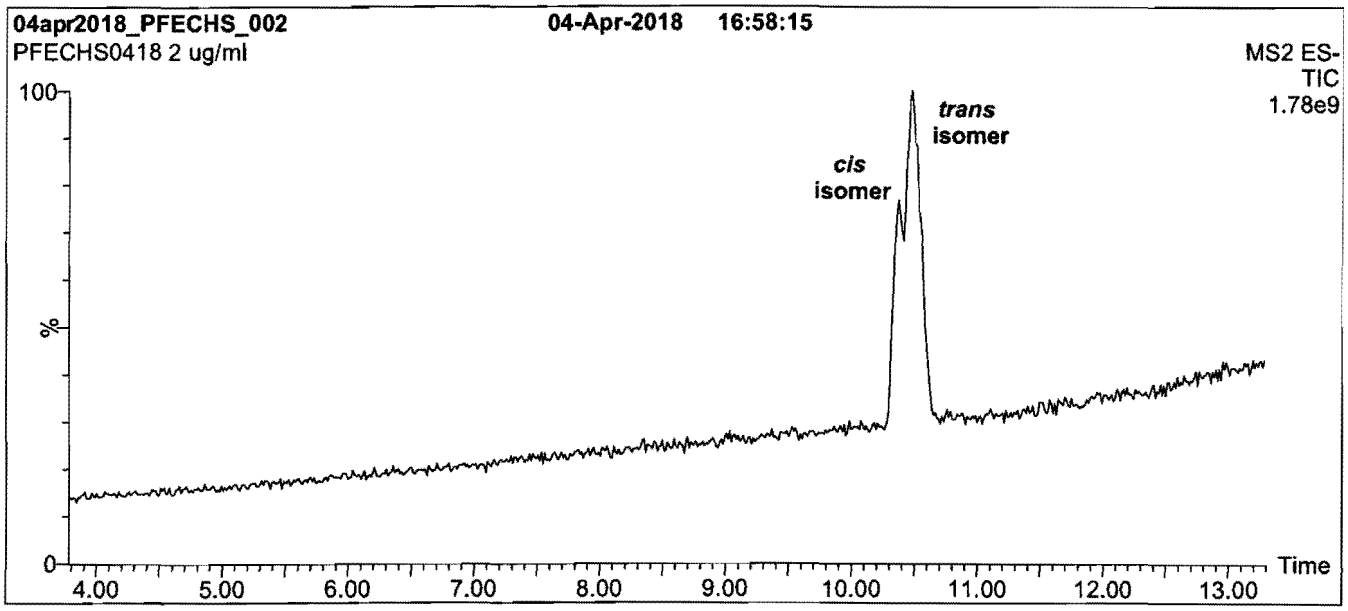
Flow: 300 µl/min

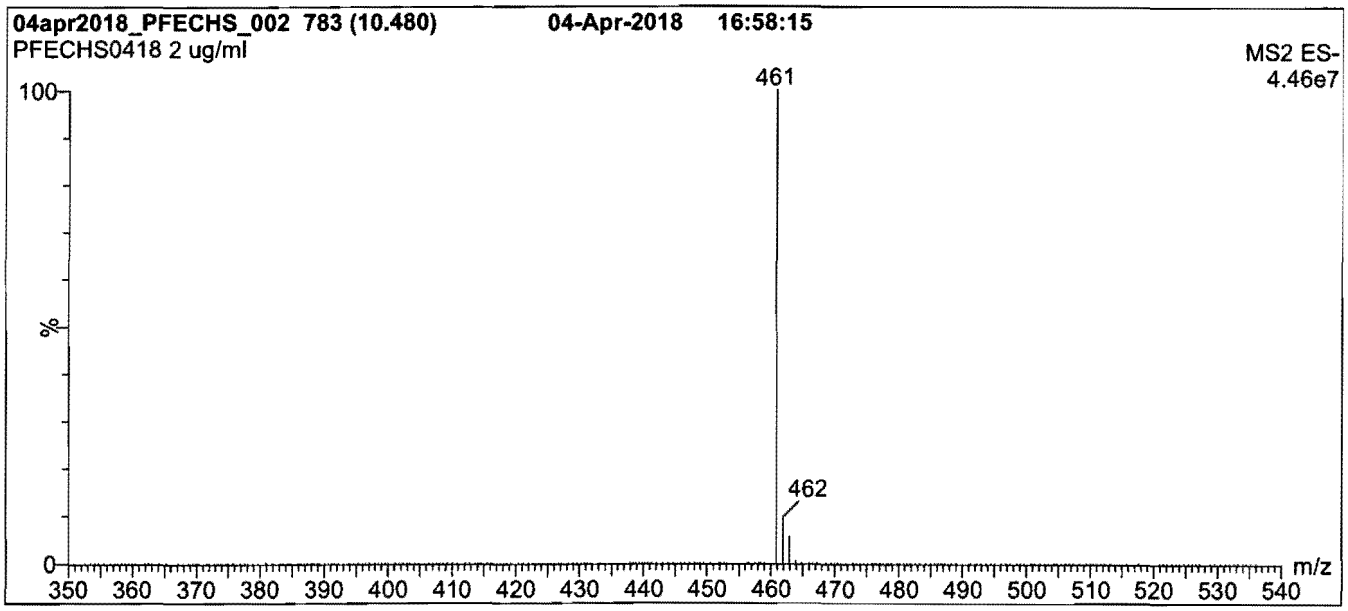
MS Parameters

Collision Gas (mbar) = 3.37e-3
Collision Energy (eV) = 24

1910670

Figure 1: **PFECHS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity CSH Fluoro-Phenyl
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 25% (80:20 MeOH:ACN) / 75% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 60% organic over 13 min.
Ramp to 80% organic over 2 min and hold for
2 min before returning to initial conditions in 1 min.
Time: 20 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (350 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 45.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

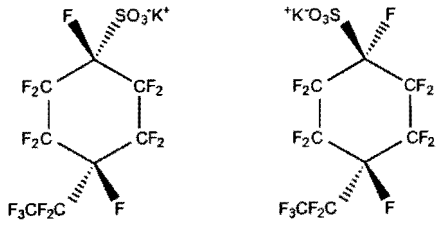
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS0418

COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



cis-isomer *trans*-isomer

CAS #: 67584-42-3

MOLECULAR FORMULA: $C_8F_{15}SO_3K$ **MOLECULAR WEIGHT:** 500.22

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
46.1 ± 2.3 µg/ml (PFECHS anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 04/04/2018

EXPIRY DATE: (mm/dd/yyyy) 04/04/2023

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis*/*trans* isomers of PFECHS at a ratio of 2:3 (*cis*:*trans*).
- Contains ~ 1.5% of other isomeric impurities.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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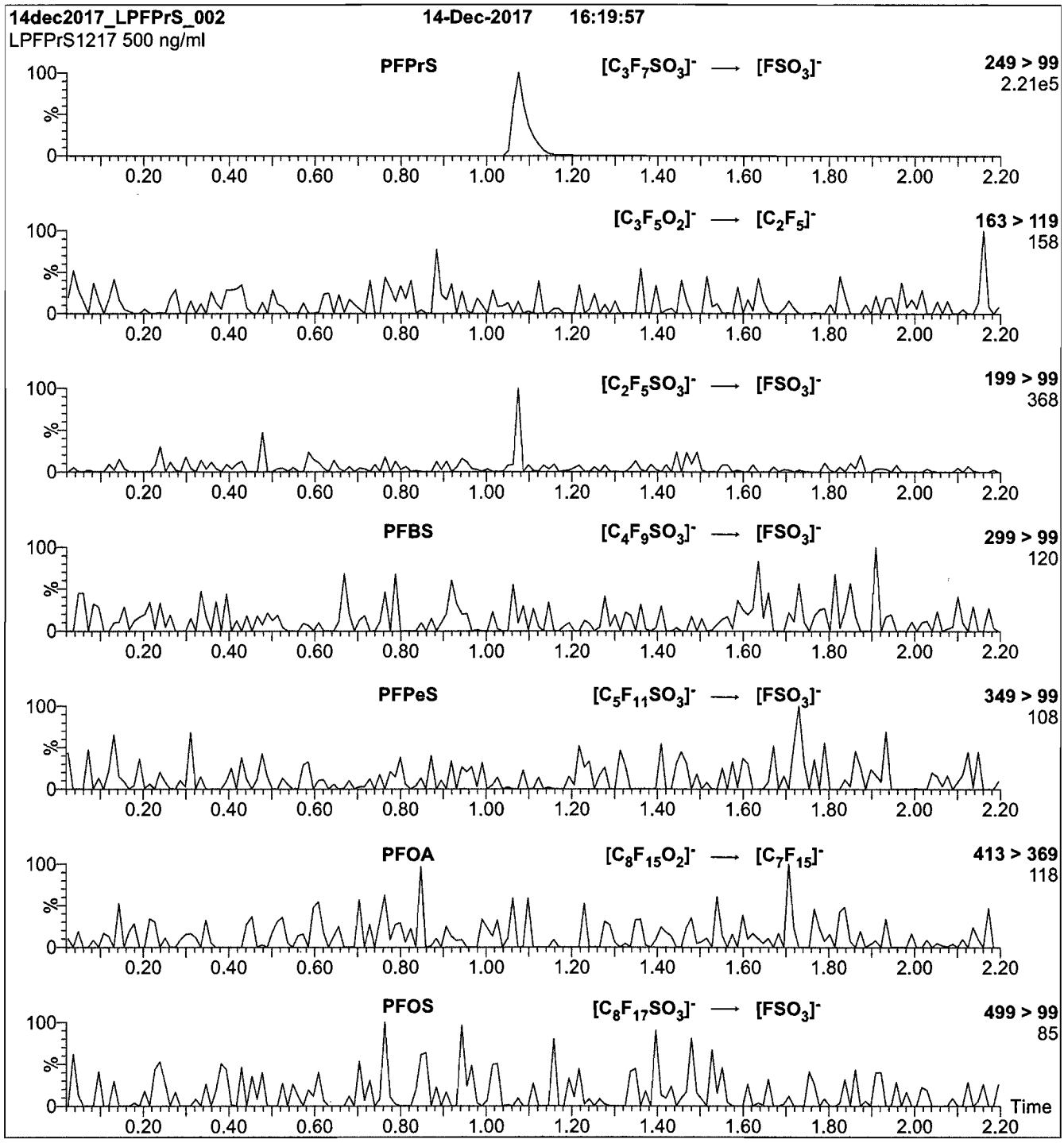
17L0671

Figure 2: **L-PFPrS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFPrS)

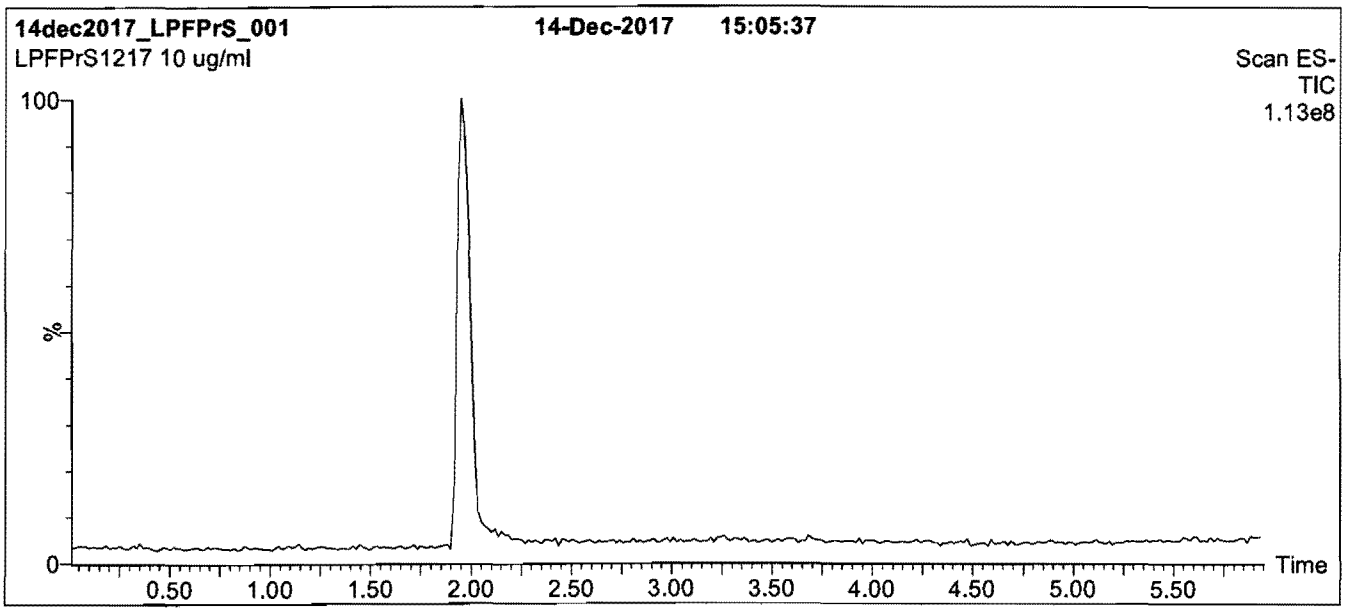
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

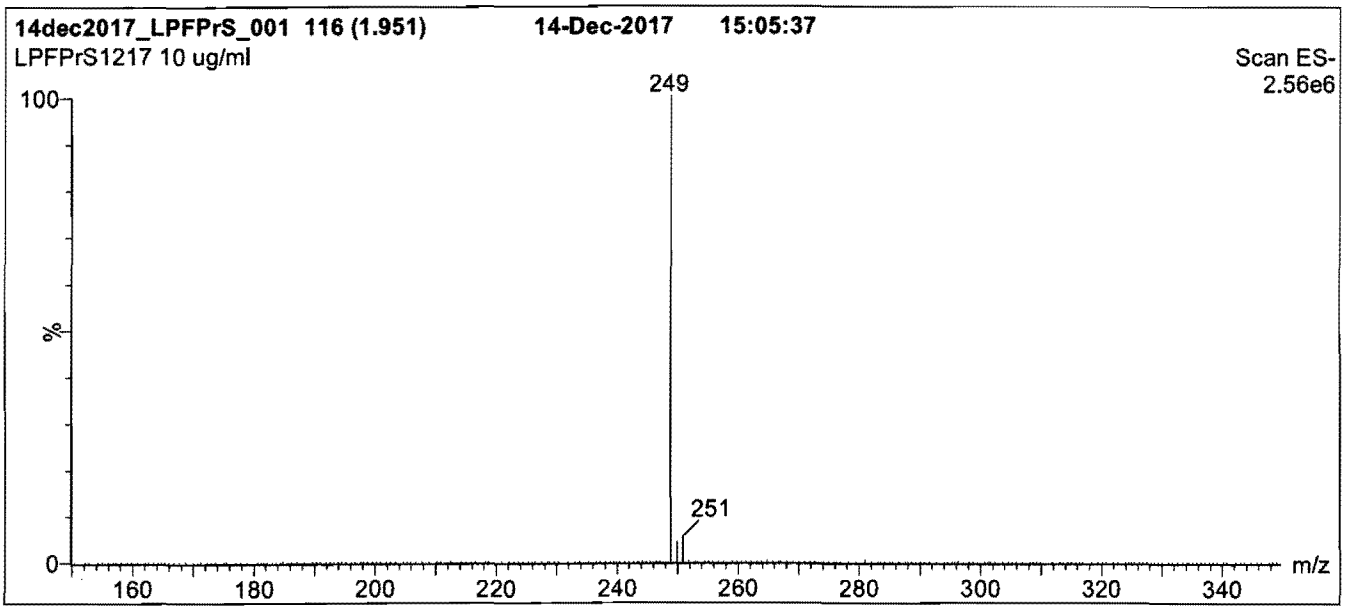
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 25

Figure 1: **L-PFPrS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

INTENDED USE:

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HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

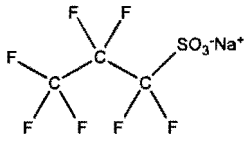
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

1910671

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	L-PFPrS	**LOT NUMBER:**	LPFPrS1217
COMPOUND:	Sodium perfluoro-1-propanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_3F_7SO_3Na$	**MOLECULAR WEIGHT:**	272.07
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 45.8 ± 2.3 µg/ml (PFPrS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/18/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

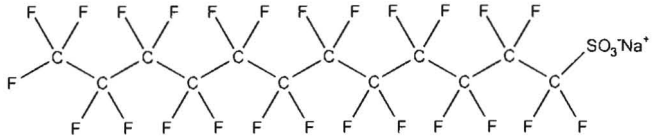
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L1707

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFDoS	**LOT NUMBER:**	LPFDoS1218
COMPOUND:	Sodium perfluoro-1-dodecanesulfonate		
STRUCTURE:		**CAS #:**	1260224-54-1



MOLECULAR FORMULA:	$C_{12}F_{25}SO_3Na$	**MOLECULAR WEIGHT:**	722.14
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	48.4 ± 2.4 µg/ml (PFDoS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/06/2018		
EXPIRY DATE: (mm/dd/yyyy)	12/06/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

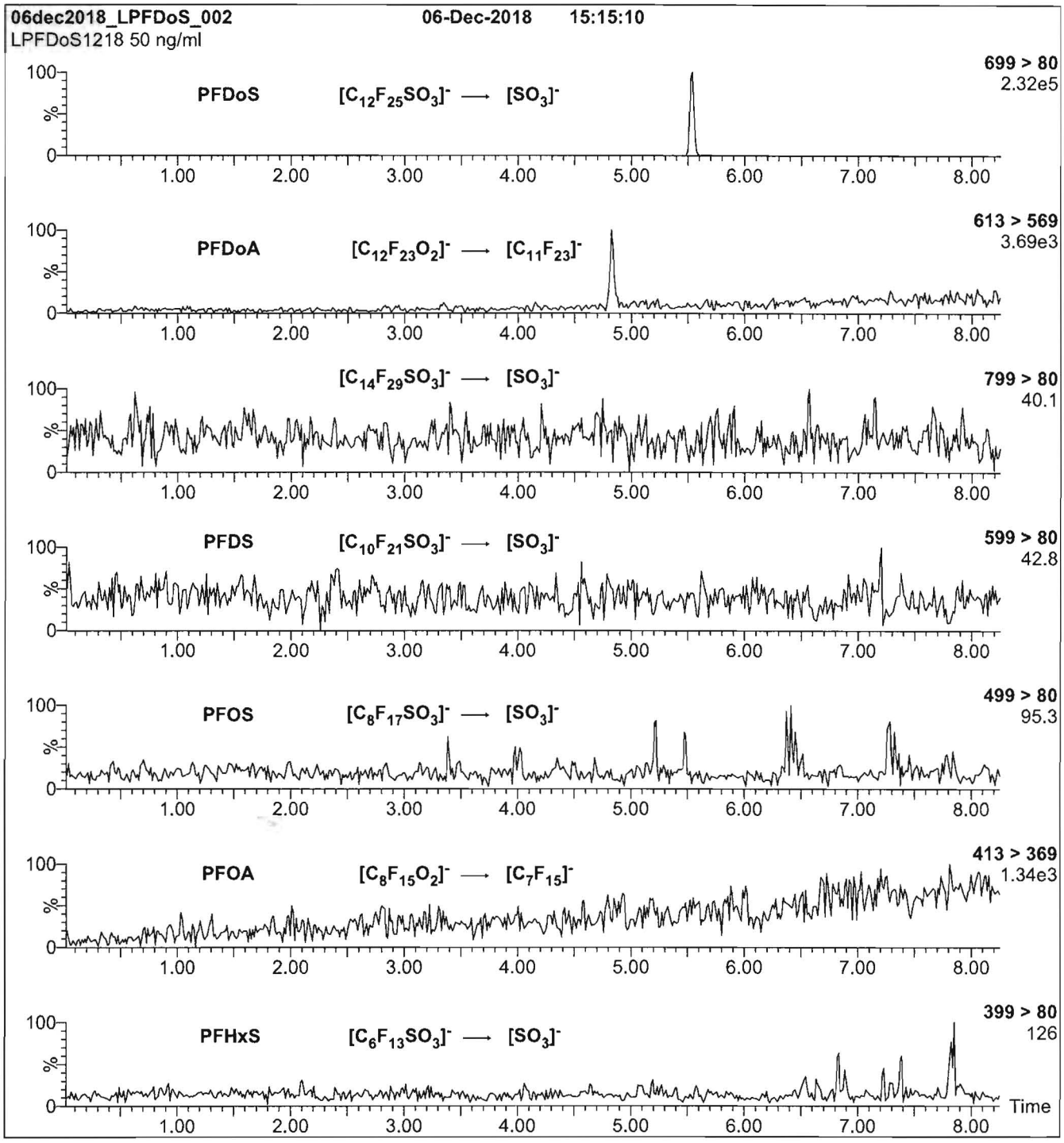
- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-dodecanoic acid (PFDoA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/20/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **L-PFDoS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFDoS)

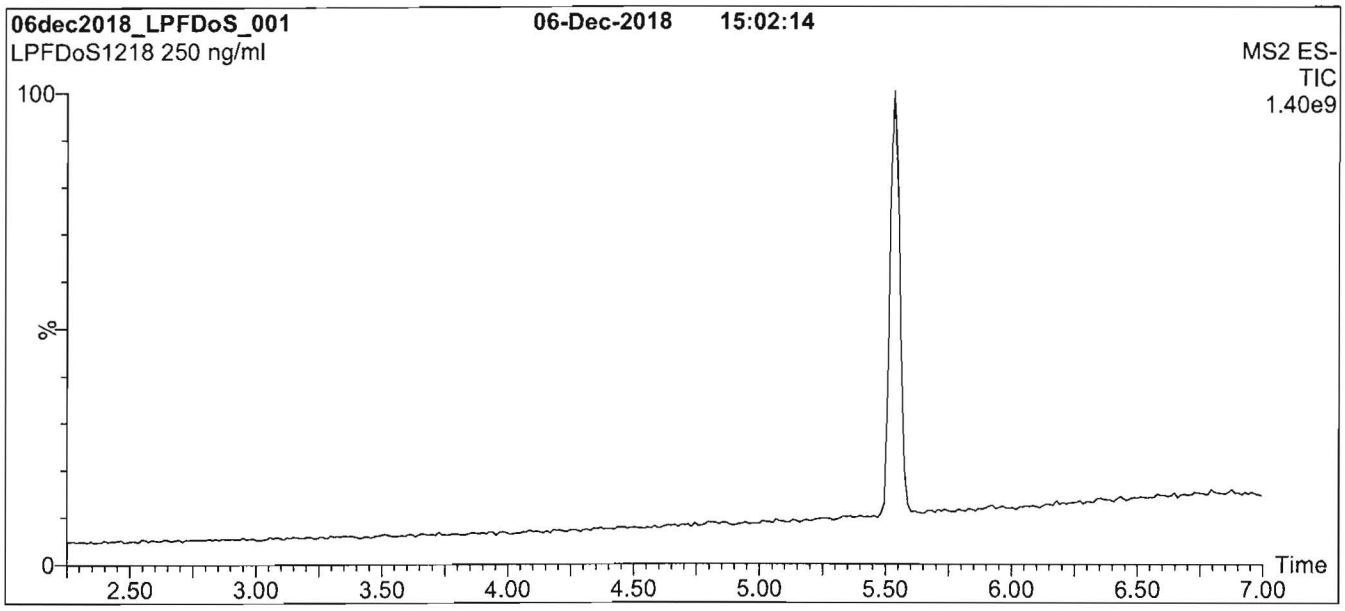
Mobile phase: Same as Figure 1

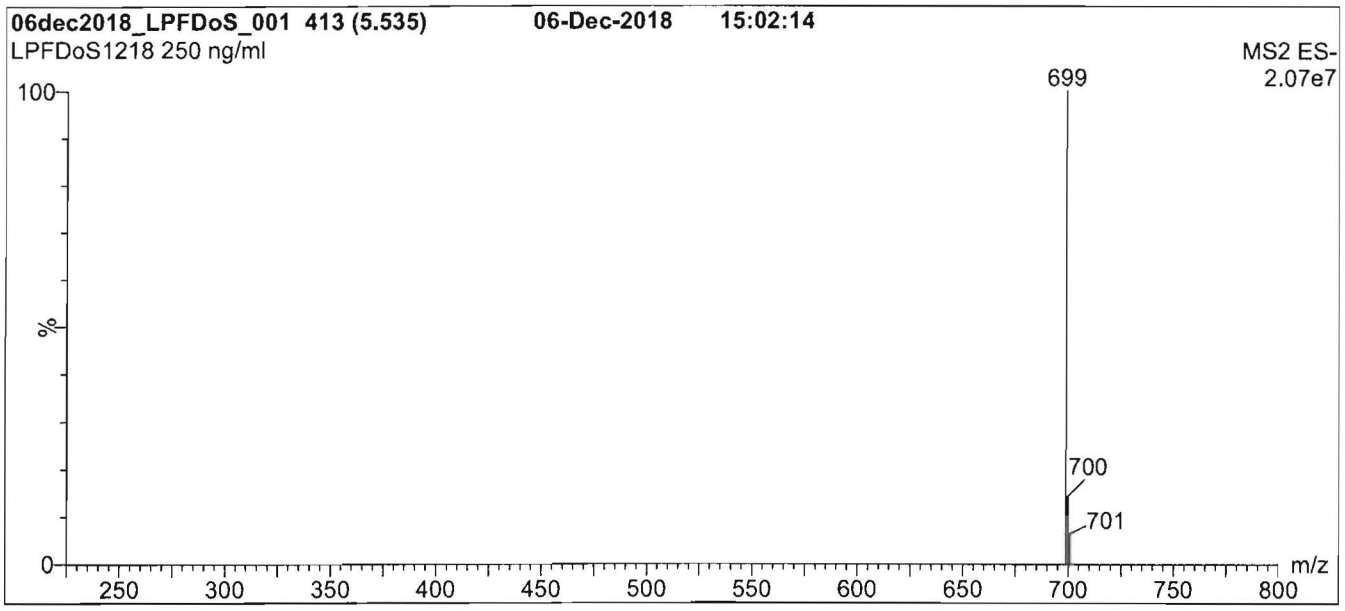
Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.27e-3
Collision Energy (eV) = 60

Figure 1: **L-PFDoS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L1707

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HOMOGENEITY:

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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Analytical Standard Record

Vista Analytical Laboratory

20A0804

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
19L0626	13C2-FOUEA	06-Dec-19	** Vendor **	29-Mar-21	1
19L0627	13C4-PFBA	06-Dec-19	** Vendor **	15-Nov-24	1
19L0628	13C6-PFDA	06-Dec-19	** Vendor **	25-Jul-24	1
19L0629	13C9-PFNA	06-Dec-19	** Vendor **	08-Sep-23	1
19L0630	13C7-PFUdA	06-Dec-19	** Vendor **	22-Jul-24	1
19L0631	13C5-PFHxA	06-Dec-19	** Vendor **	27-Sep-23	1
19L0632	18O2-PFHxS	06-Dec-19	** Vendor **	10-Jan-24	1.06
19L0633	13C4-PFOS	06-Dec-19	** Vendor **	01-Nov-24	1.05
19L0634	13C8-PFOA	06-Dec-19	** Vendor **	05-Mar-24	1.02

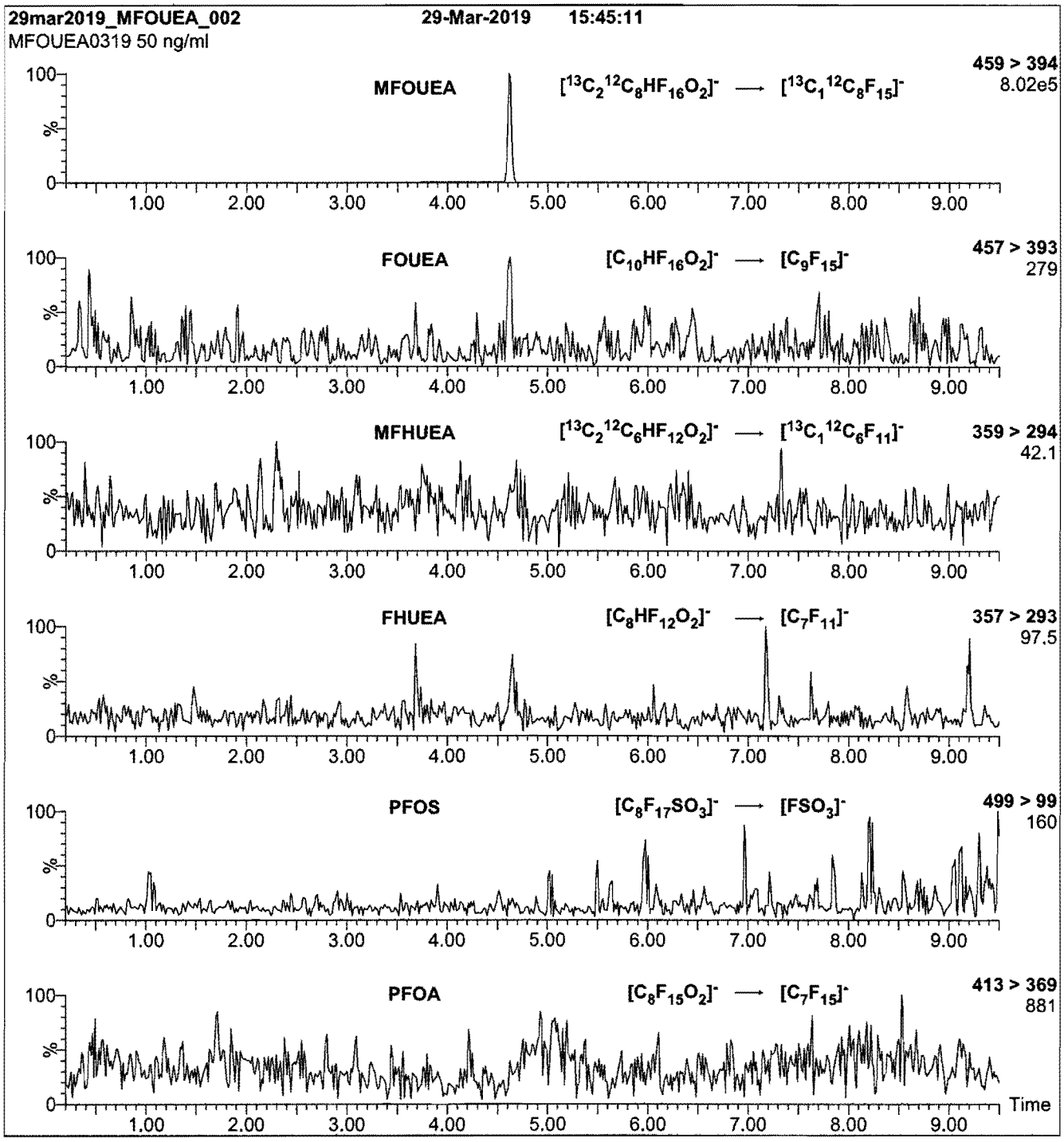
Description:	PFC-RS	Expires:	09-Jan-21
Standard Type:	Reagent	Prepared:	08-Jan-20
Solvent:	MeOH	Prepared By:	Brittany M. Lamb
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	08-Jan-20 12:43 by BML

10 uL spike

Analyte	CAS Number	Concentration	Units
18O2-PFHxS		1.25	ug/mL
13C9-PFNA		1.25	ug/mL
13C8-PFOA		1.25	ug/mL
13C7-PFUnA		1.25	ug/mL
13C6-PFDA		1.25	ug/mL
13C5-PFHxA		1.25	ug/mL
13C4-PFOS		1.25	ug/mL
13C4-PFBA		1.25	ug/mL
13C2-FOUEA		1.25	ug/mL

19L0626

Figure 2: **MFOUEA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MFOUEA)

Mobile phase: Same as Figure 1

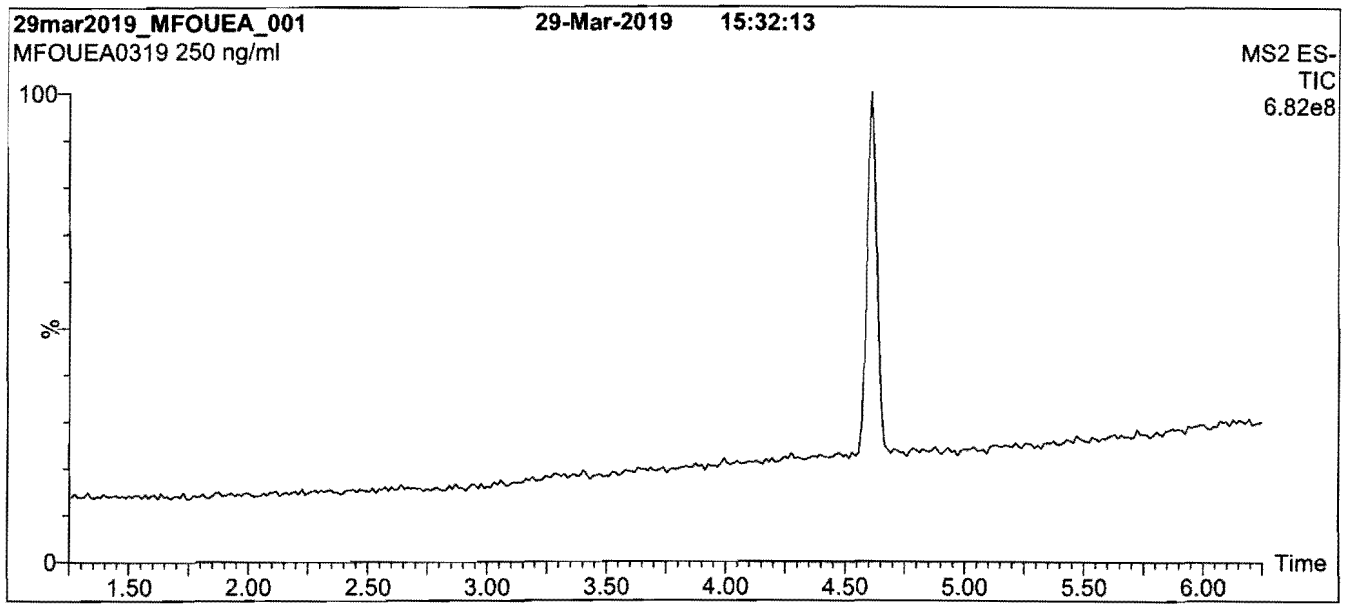
Flow: 300 µl/min

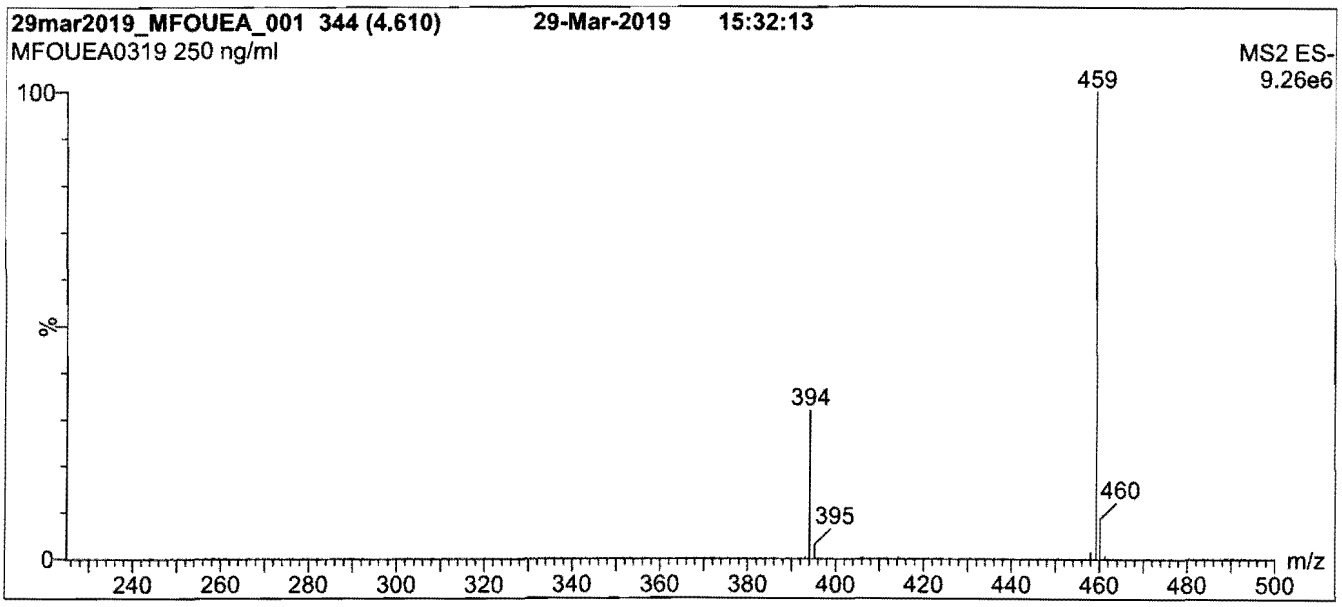
MS Parameters

Collision Gas (mbar) = 2.84e-3
Collision Energy (eV) = 10

19L0626

Figure 1: **MFOUEA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.70
Cone Voltage (V) = 28.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0626

INTENDED USE:

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HANDLING:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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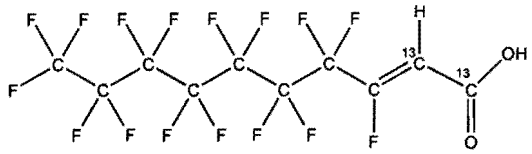
19L0626

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MFOUEA	**LOT NUMBER:**	MFOUEA0319
COMPOUND:	2H-Perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_2F_{16}O_2$	**MOLECULAR WEIGHT:**	460.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Anhydrous Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	03/29/2019		
EXPIRY DATE: (mm/dd/yyyy)	03/29/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Dilution of this standard in methanol may lead to the formation of 2H-3-methoxy-perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid. This reaction can be catalyzed by the presence of acid or base. All dilutions should be routinely checked for degradation.

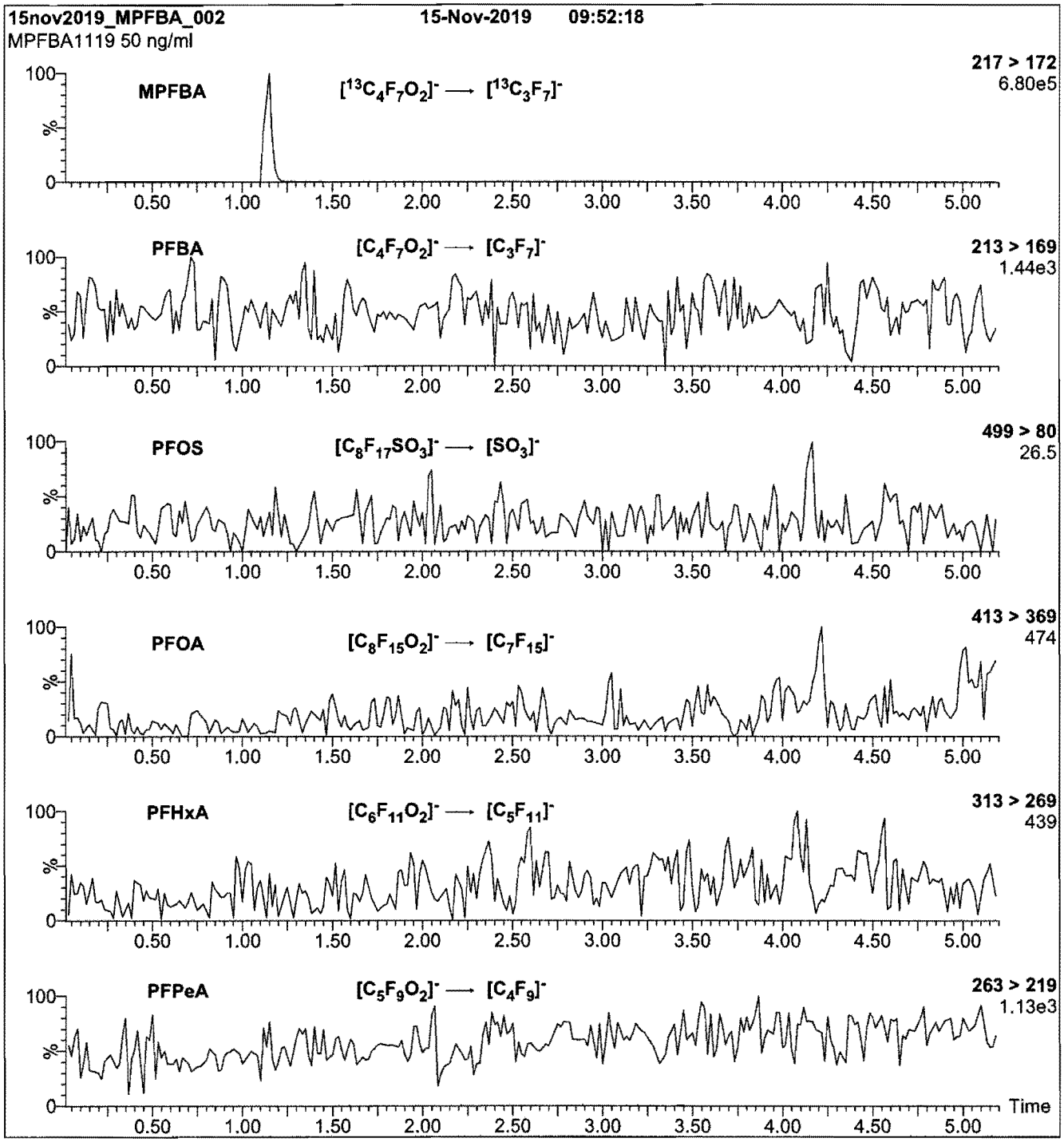
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/15/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0627

Figure 2: **MPFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFBA)

Mobile phase: Same as Figure 1

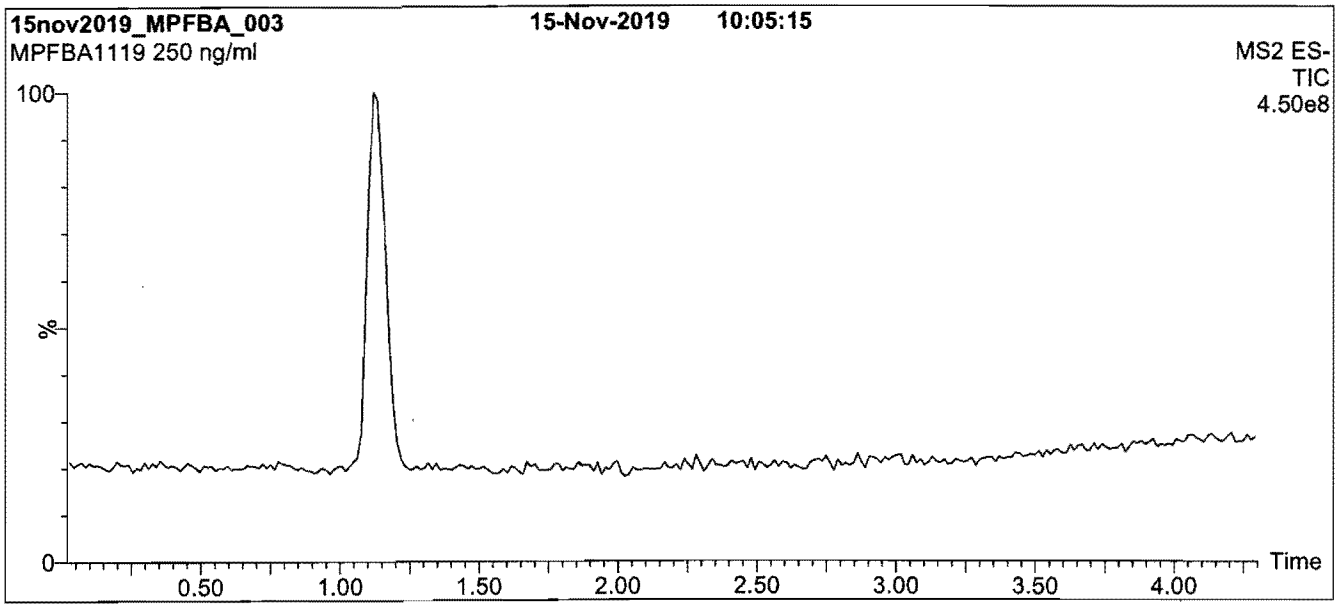
Flow: 300 µl/min

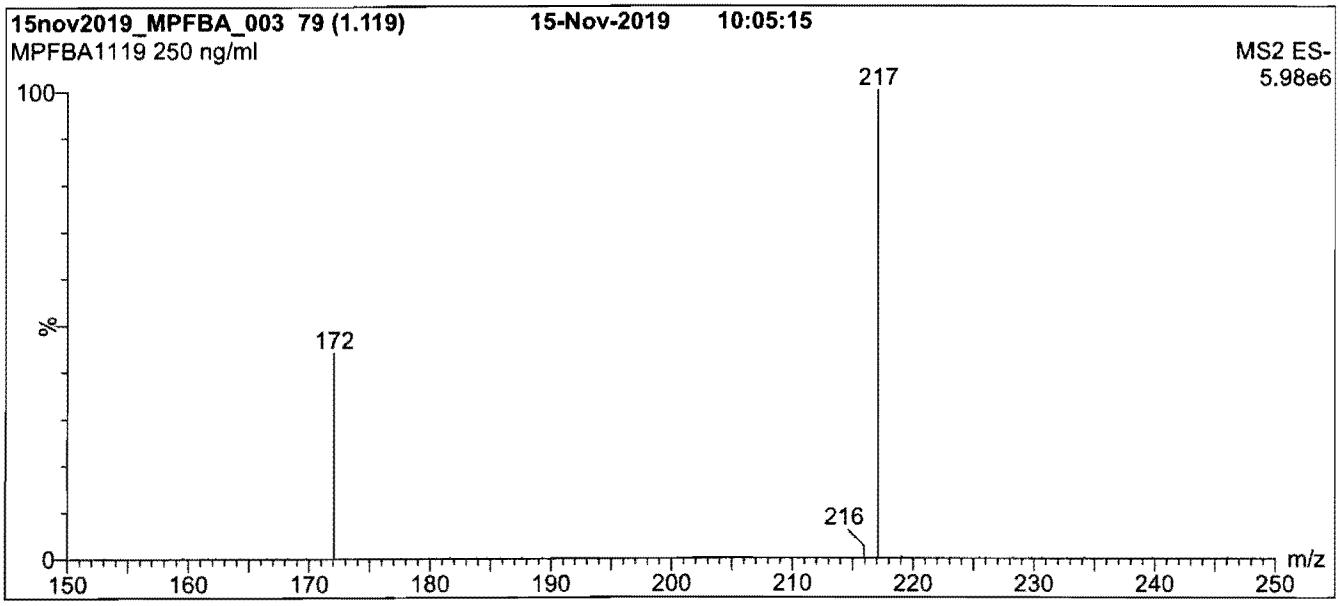
MS Parameters

Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 8

19L0627

Figure 1: **MPFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0627

INTENDED USE:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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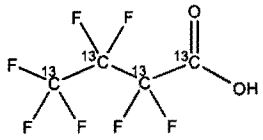
19L0627

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA1119
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4HF_7O_2$	**MOLECULAR WEIGHT:**	218.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/15/2019		
EXPIRY DATE: (mm/dd/yyyy)	11/15/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

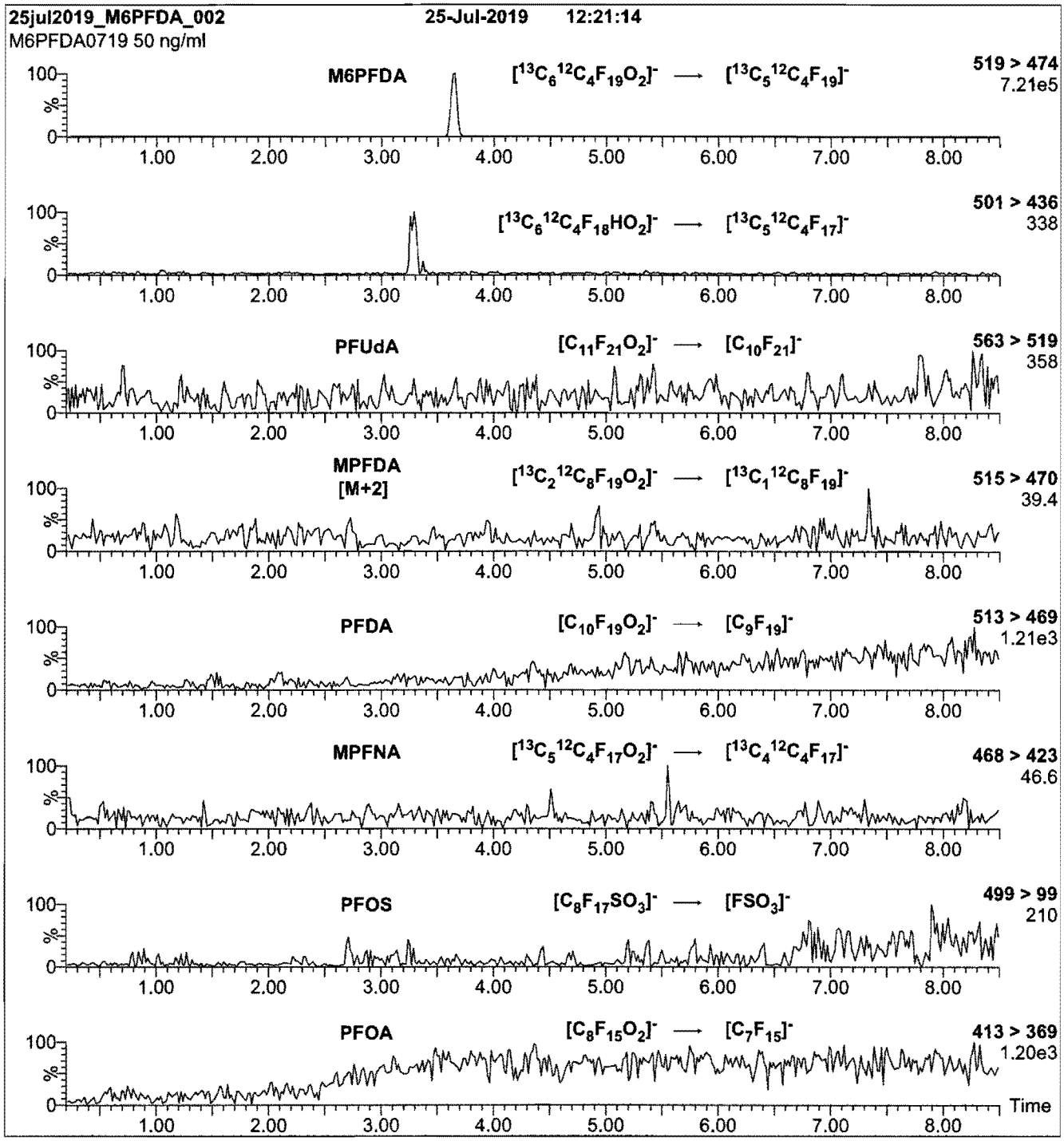
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/15/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0628

Figure 2: **M6PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M6PFDA)

Mobile phase: Same as Figure 1

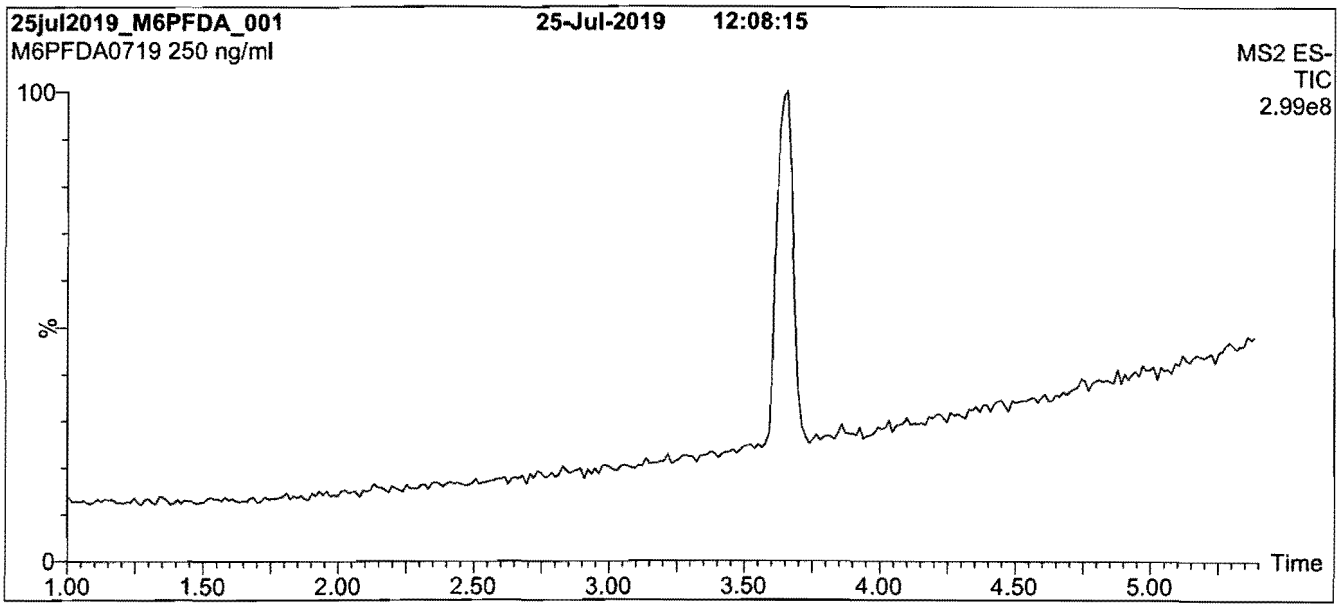
Flow: 300 µl/min

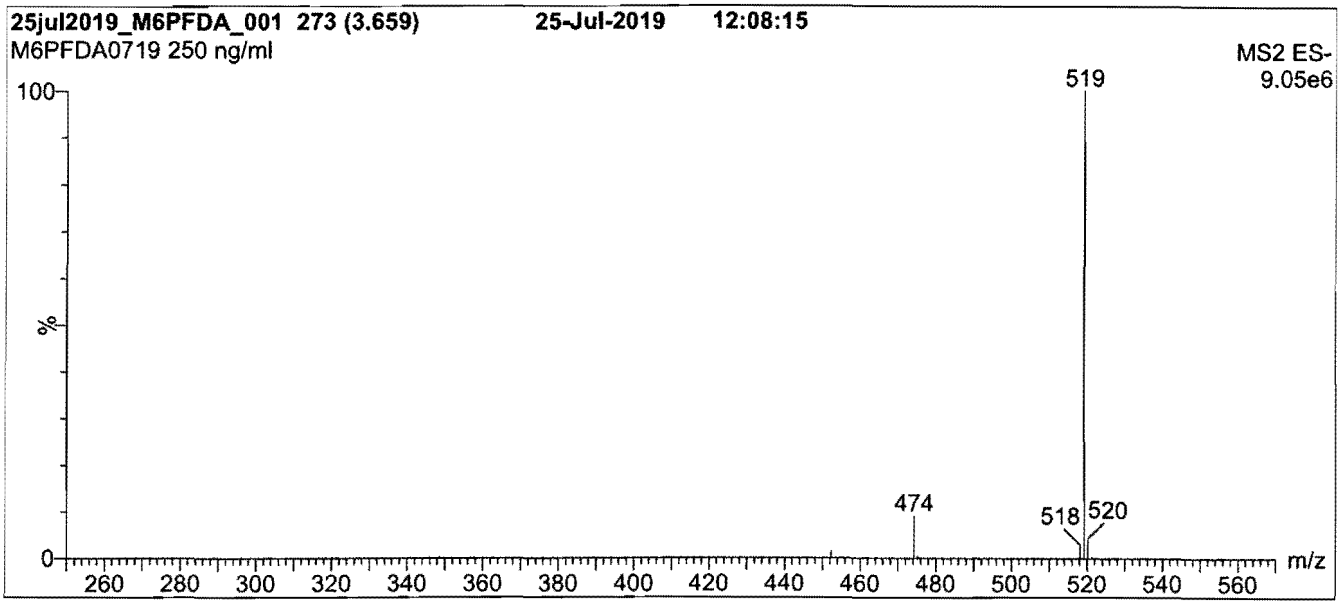
MS Parameters

Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 10

19L0628

Figure 1: **M6PFDA; LC/MS Data (TIC and Mass Spectrum)**





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1.7 µm, 2.1 x 100 mm

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Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
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19L0628

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QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

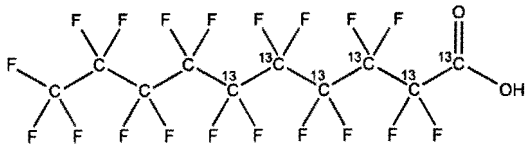
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0628

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M6PFDA	**LOT NUMBER:**	M6PFDA0719
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_6{}^{12}C_4HF_{19}O_2$	**MOLECULAR WEIGHT:**	520.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4,5,6$-$^{13}C_6$)
LAST TESTED: (mm/dd/yyyy)	07/25/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/25/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

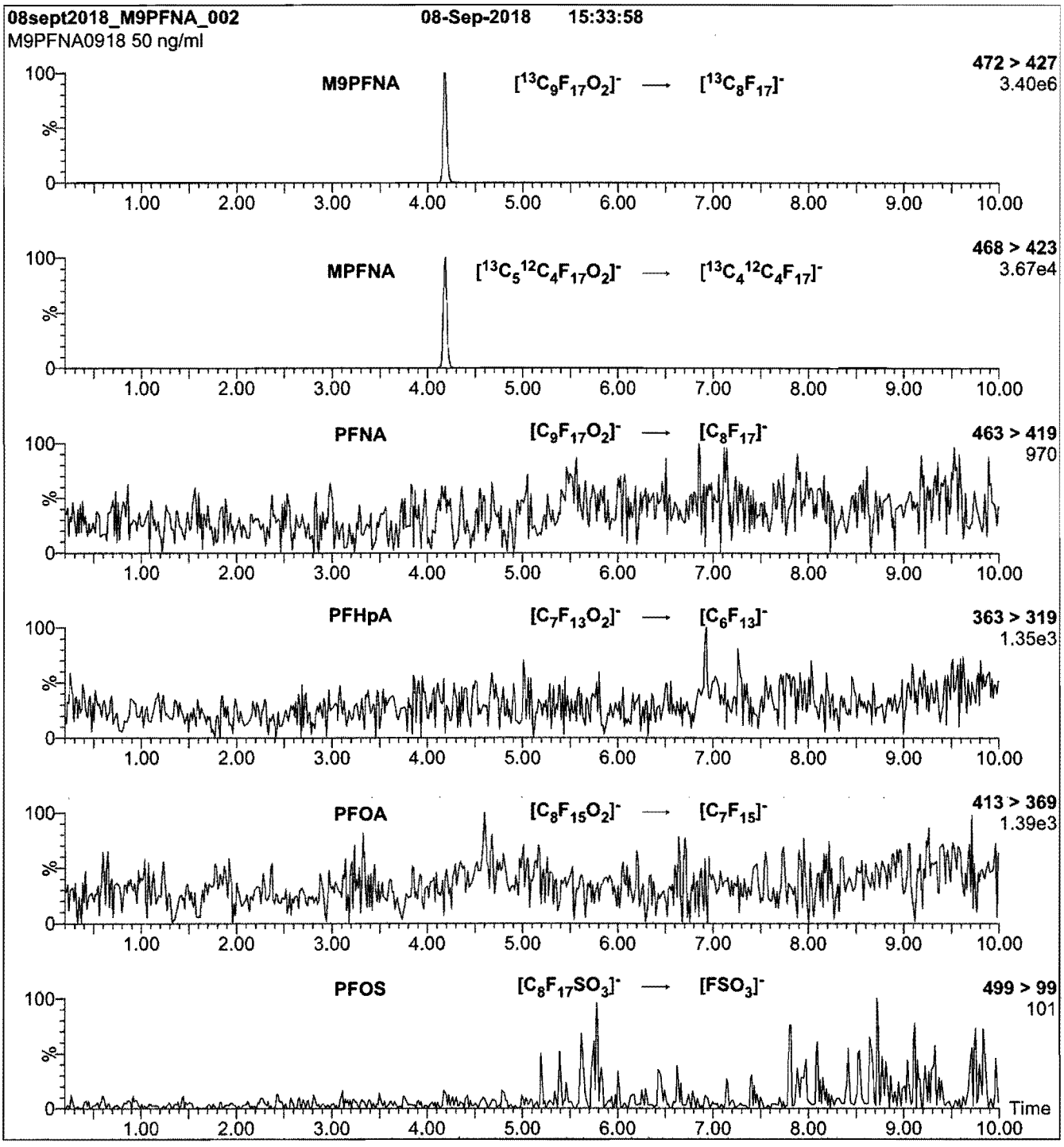
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/26/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0629

Figure 2: **M9PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M9PFNA)

Mobile phase: Same as Figure 1

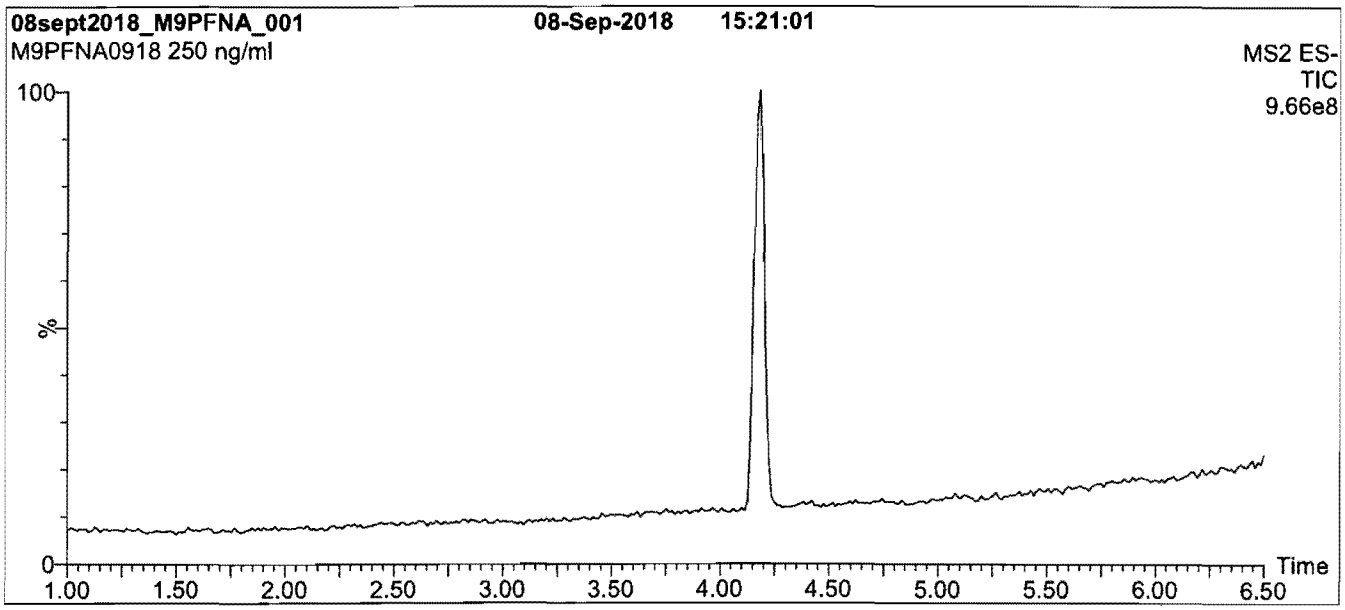
Flow: 300 µl/min

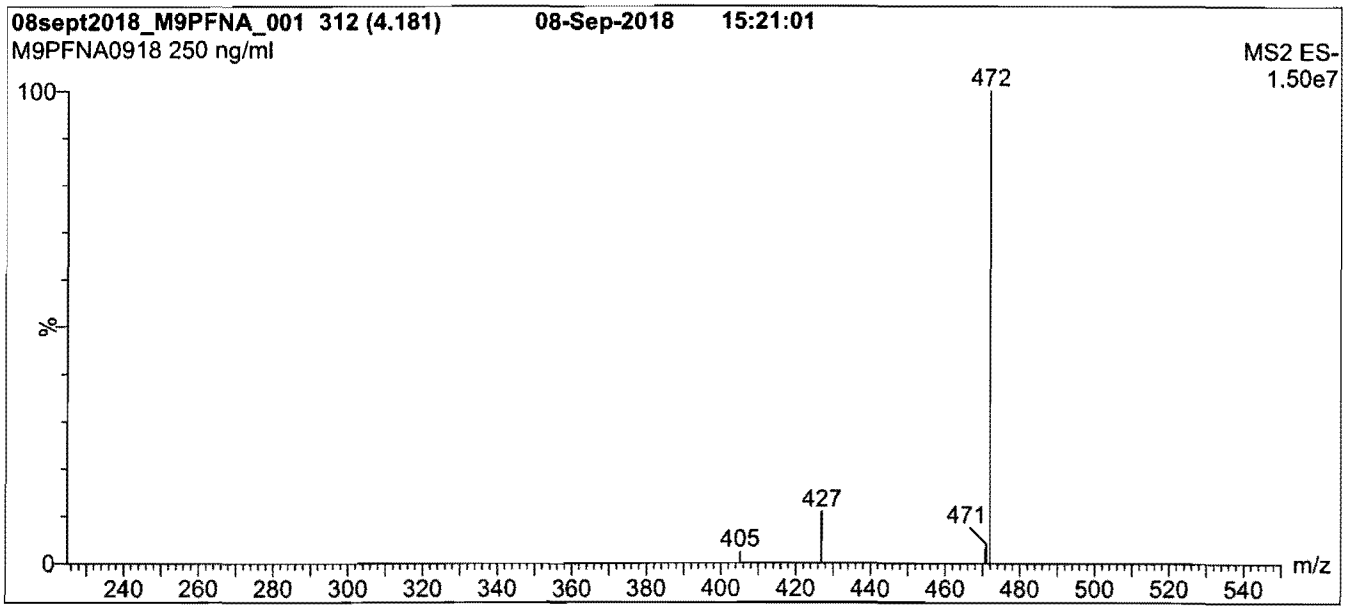
MS Parameters

Collision Gas (mbar) = 2.95e-3
Collision Energy (eV) = 10

19L0629

Figure 1: **M9PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0629

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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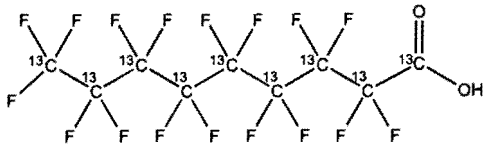
19L0629

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M9PFNA	**LOT NUMBER:**	M9PFNA0918
COMPOUND:	Perfluoro-n-[$^{13}C_9$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_9HF_{17}O_2$	**MOLECULAR WEIGHT:**	473.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_9$)
LAST TESTED: (mm/dd/yyyy)	09/08/2018		
EXPIRY DATE: (mm/dd/yyyy)	09/08/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of $^{13}C_5{}^{12}C_4HF_{17}O_2$ (MPFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/19/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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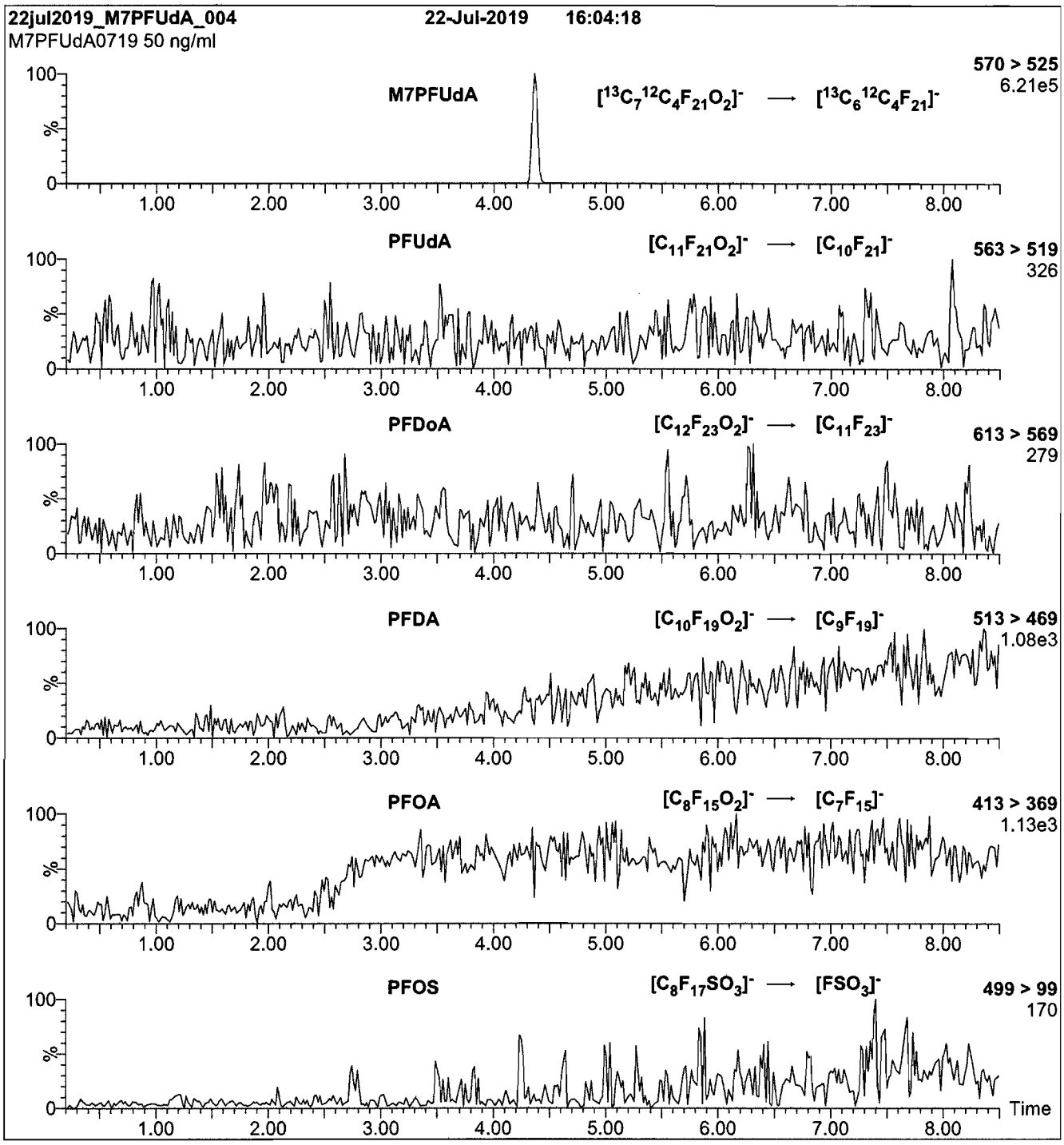
19L0630

Figure 2: **M7PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M7PFUdA)

Mobile phase: Same as Figure 1

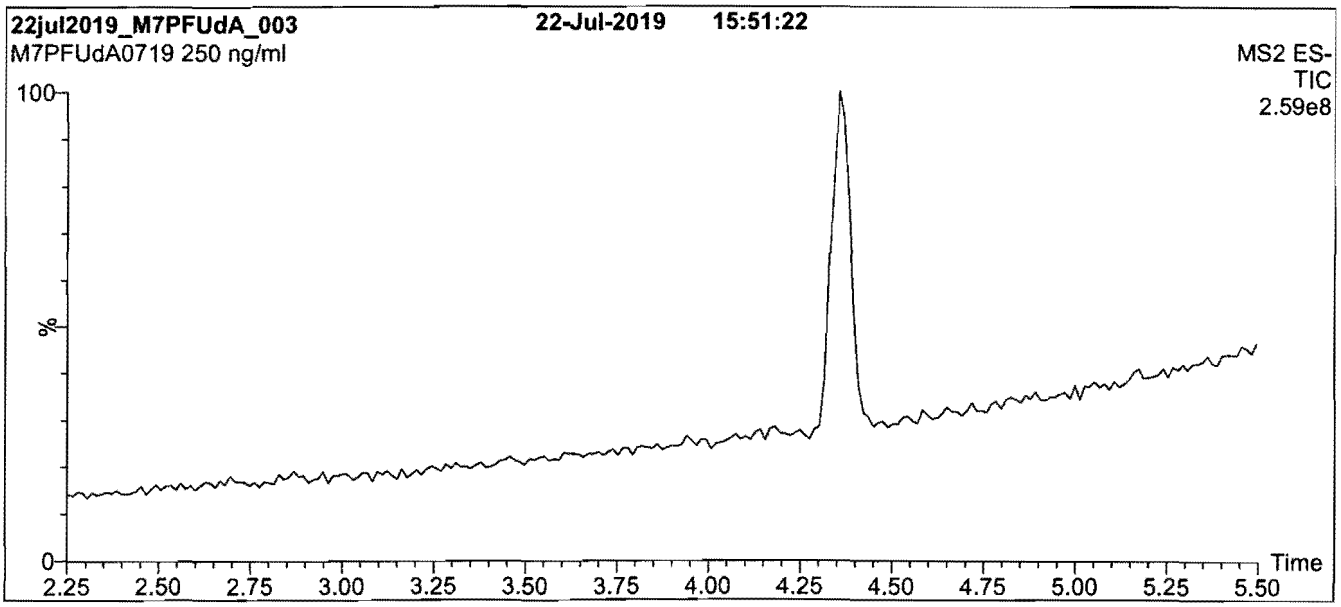
Flow: 300 µl/min

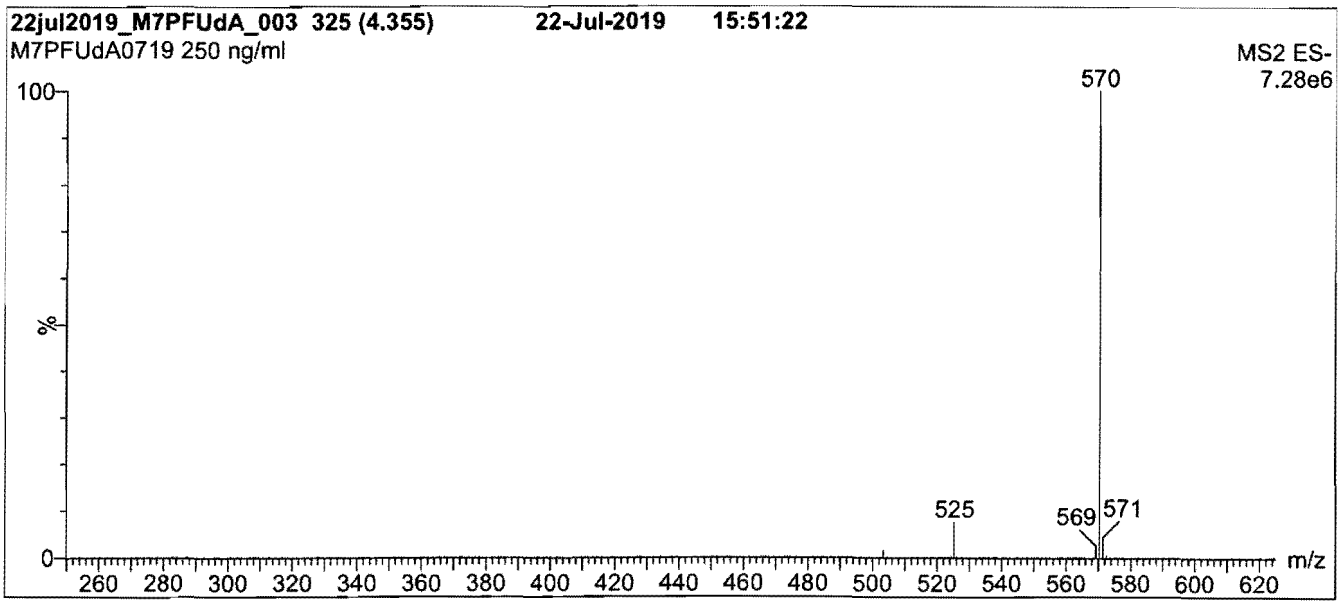
MS Parameters

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 12

19L0630

Figure 1: **M7PFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0630

INTENDED USE:

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HANDLING:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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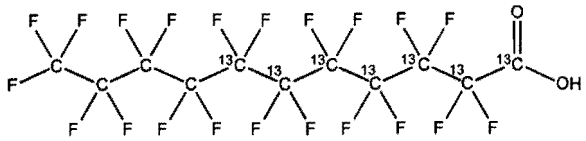
19L0630

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M7PFUdA	**LOT NUMBER:**	M7PFUdA0719
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_7{}^{12}C_4HF_{21}O_2$	**MOLECULAR WEIGHT:**	571.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	07/22/2019		(1,2,3,4,5,6,7-$^{13}C_7$)
EXPIRY DATE: (mm/dd/yyyy)	07/22/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

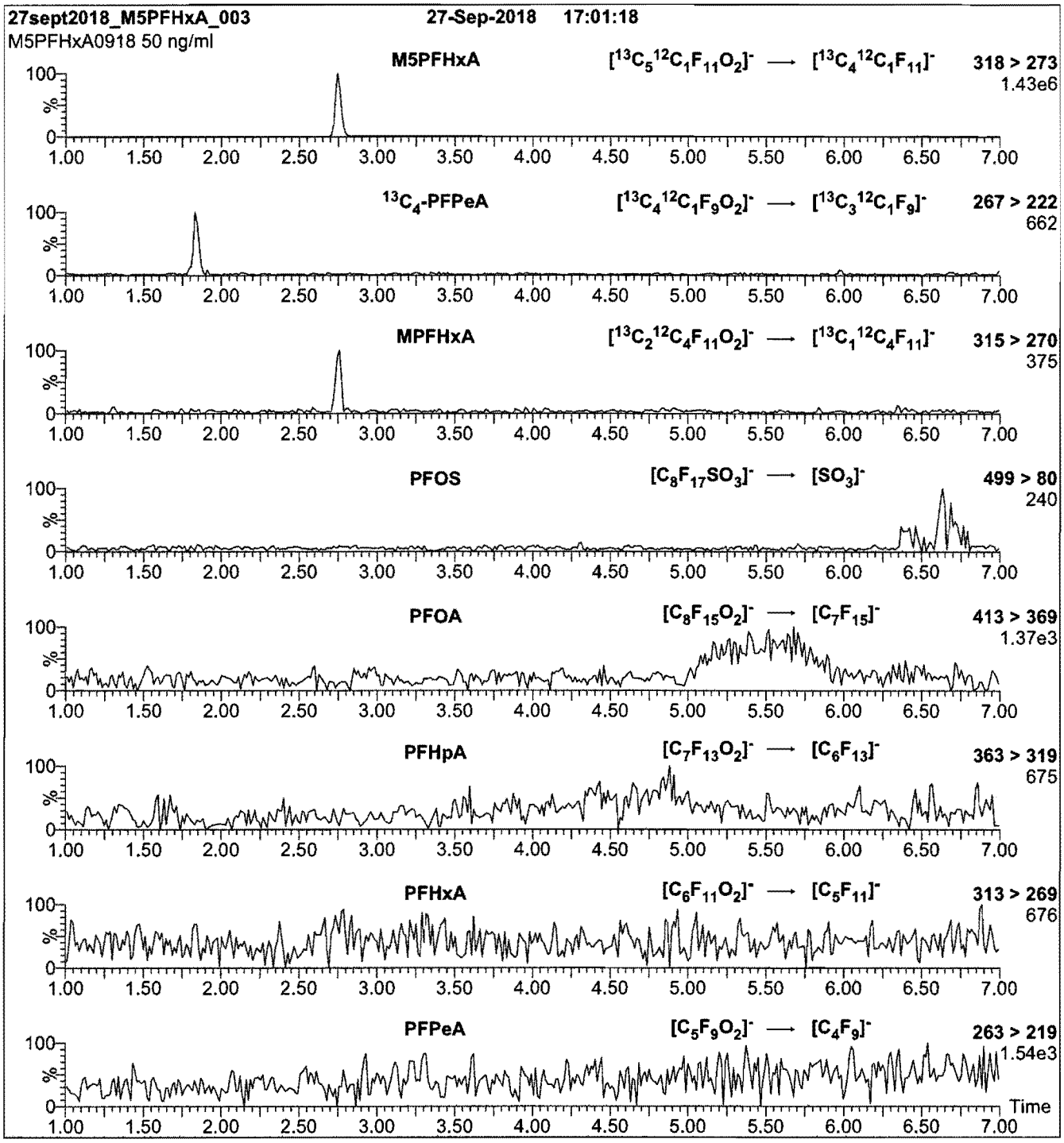
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/12/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0631

Figure 2: **M5PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M5PFHxA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

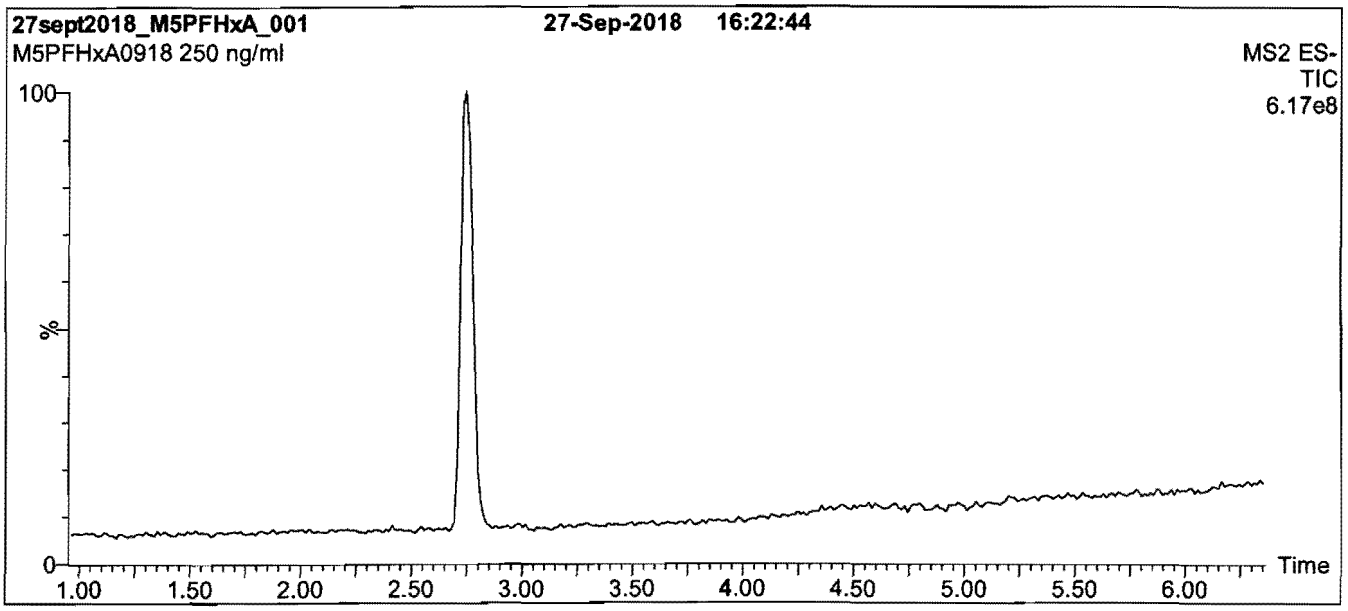
MS Parameters

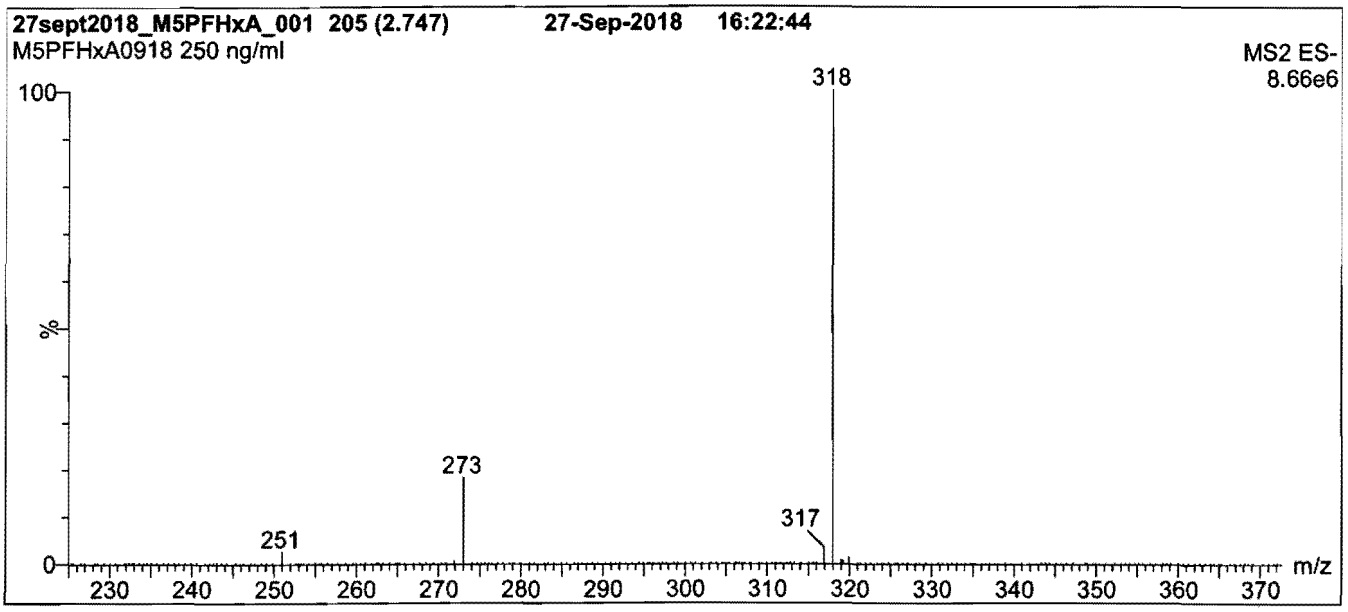
Collision Gas (mbar) = 2.97e-3
Collision Energy (eV) = 8

Form#:27, Issued 2004-11-10
Revision#:6, Revised 2018-08-14

19L0631

Figure 1: **M5PFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

19L0631

INTENDED USE:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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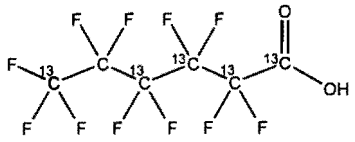
19L0631

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M5PFHxA	**LOT NUMBER:**	M5PFHxA0918
COMPOUND:	Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_1HF_{11}O_2$	**MOLECULAR WEIGHT:**	319.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4,6\text{-}^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	09/27/2018		
EXPIRY DATE: (mm/dd/yyyy)	09/27/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

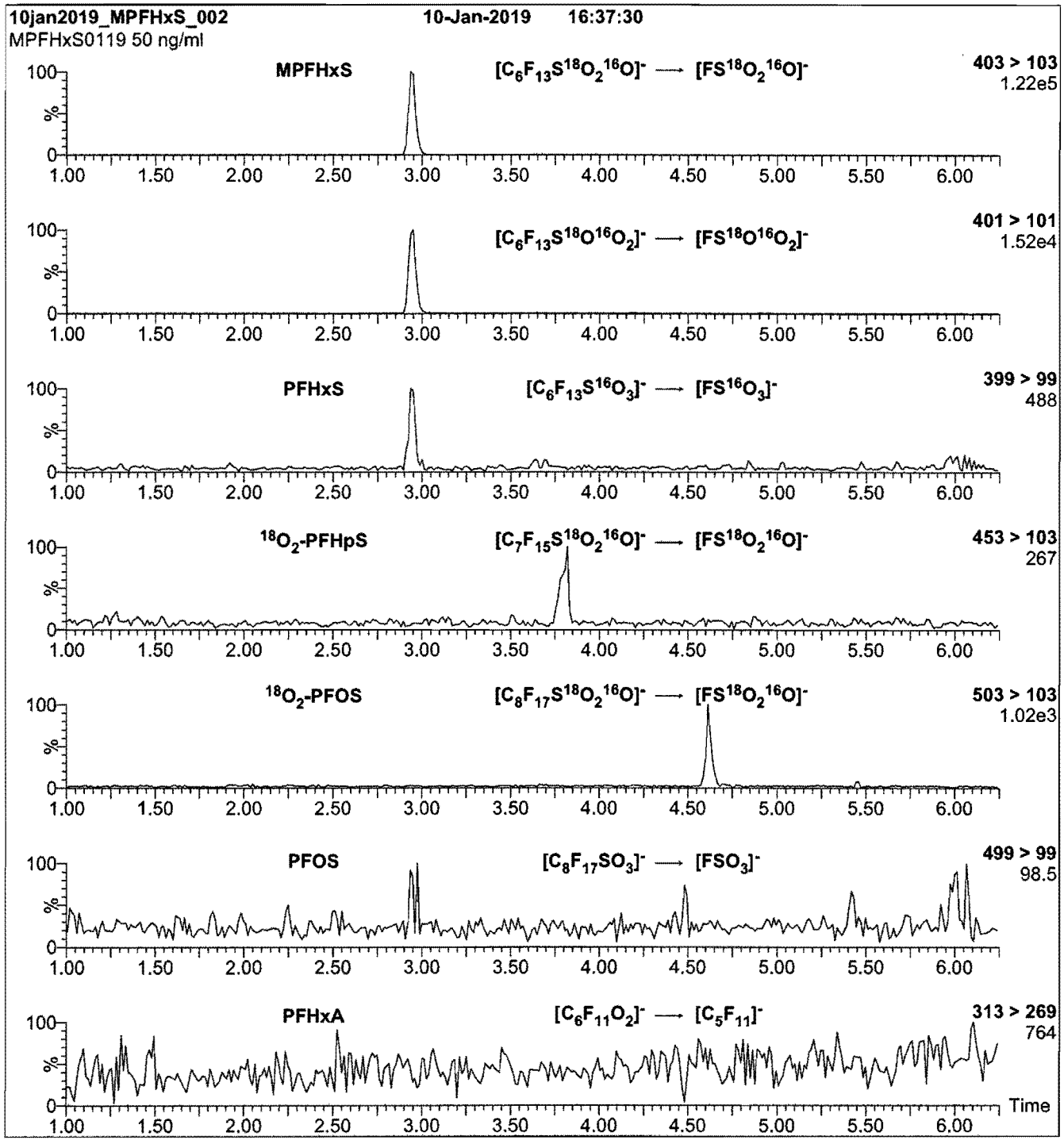
- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/01/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxS)

Mobile phase: Same as Figure 1

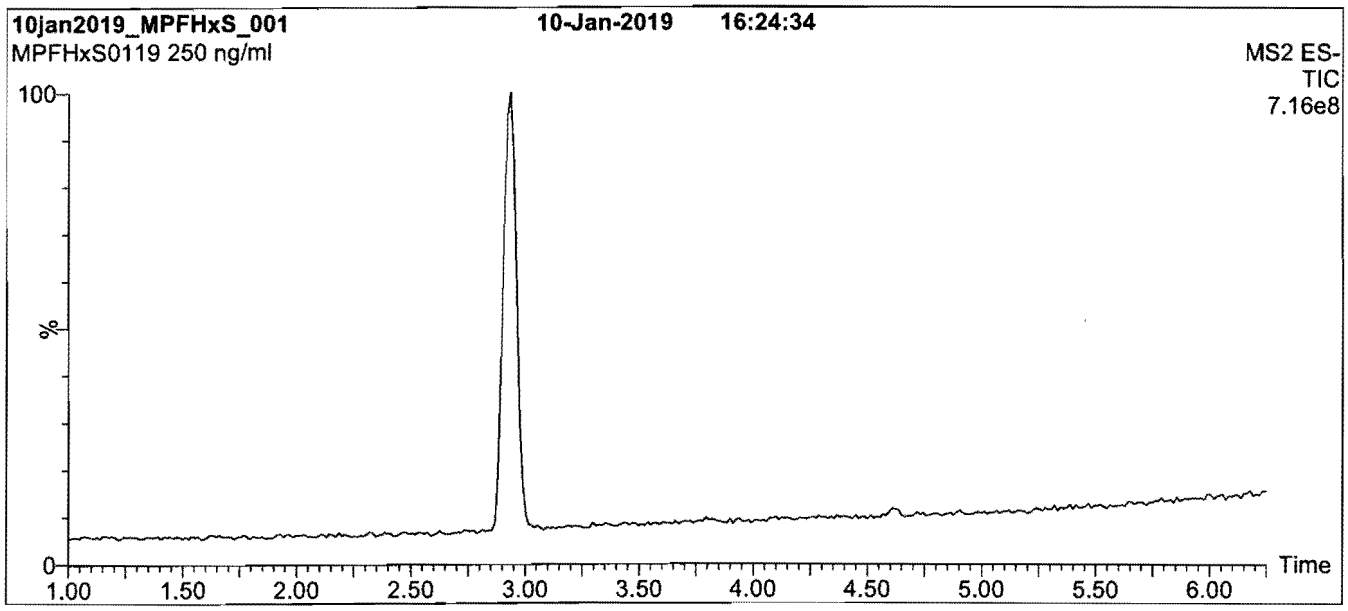
Flow: 300 µl/min

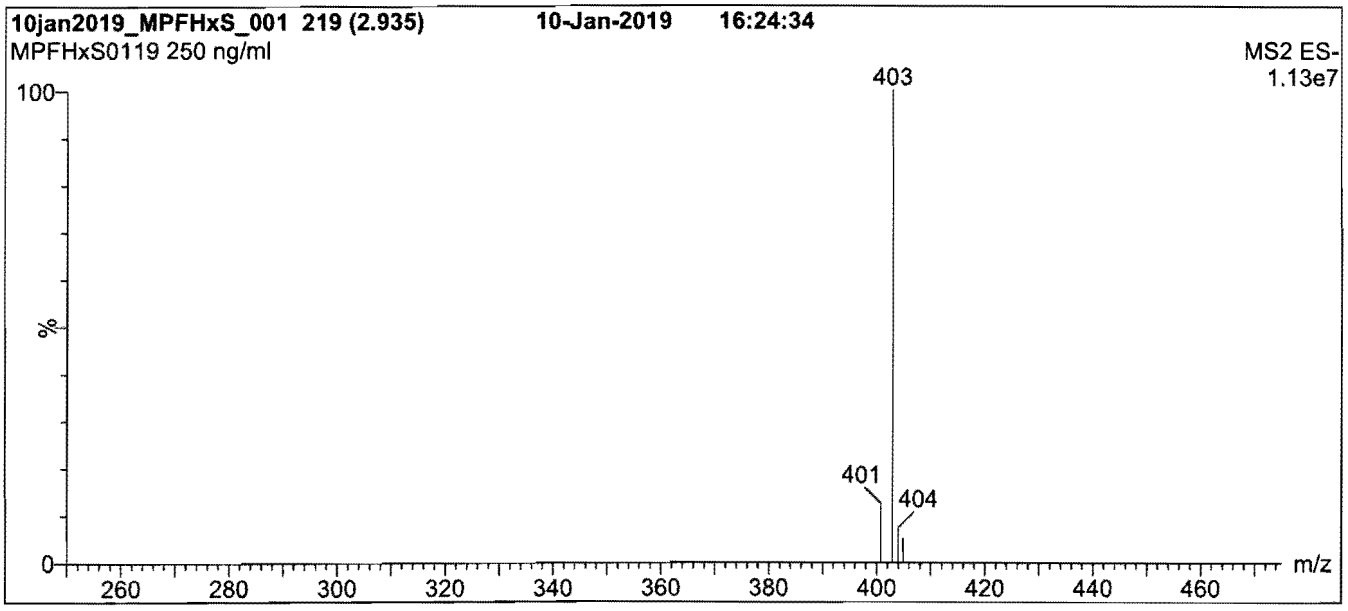
MS Parameters

Collision Gas (mbar) = 2.88e-3
Collision Energy (eV) = 32

19L0632

Figure 1: **MPFHxS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

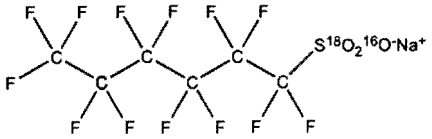
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0632

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS0119
COMPOUND:	Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate		
STRUCTURE:		**CAS #:**	1585941-14-5



MOLECULAR FORMULA:	$C_6F_{13}S^{16}O_2{}^{18}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
LAST TESTED: (mm/dd/yyyy)	01/10/2019		
EXPIRY DATE: (mm/dd/yyyy)	01/10/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS ($C_6F_{13}S^{16}O_2{}^{18}O^-$) has been observed to be up to 10% lower than for PFHxS ($C_6F_{13}S^{16}O_3^-$) when both compounds are injected together. This difference may vary between instruments.
- Contains ~ 0.6% of sodium perfluoro-1-octane[$^{18}O_2$]sulfonate ($^{18}O_2$-PFOS) and ~ 0.2% of sodium perfluoro-1-heptane[$^{18}O_2$]sulfonate ($^{18}O_2$-PFHpS).
- Due to the isotopic purity of the starting material ($^{18}O_2$ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

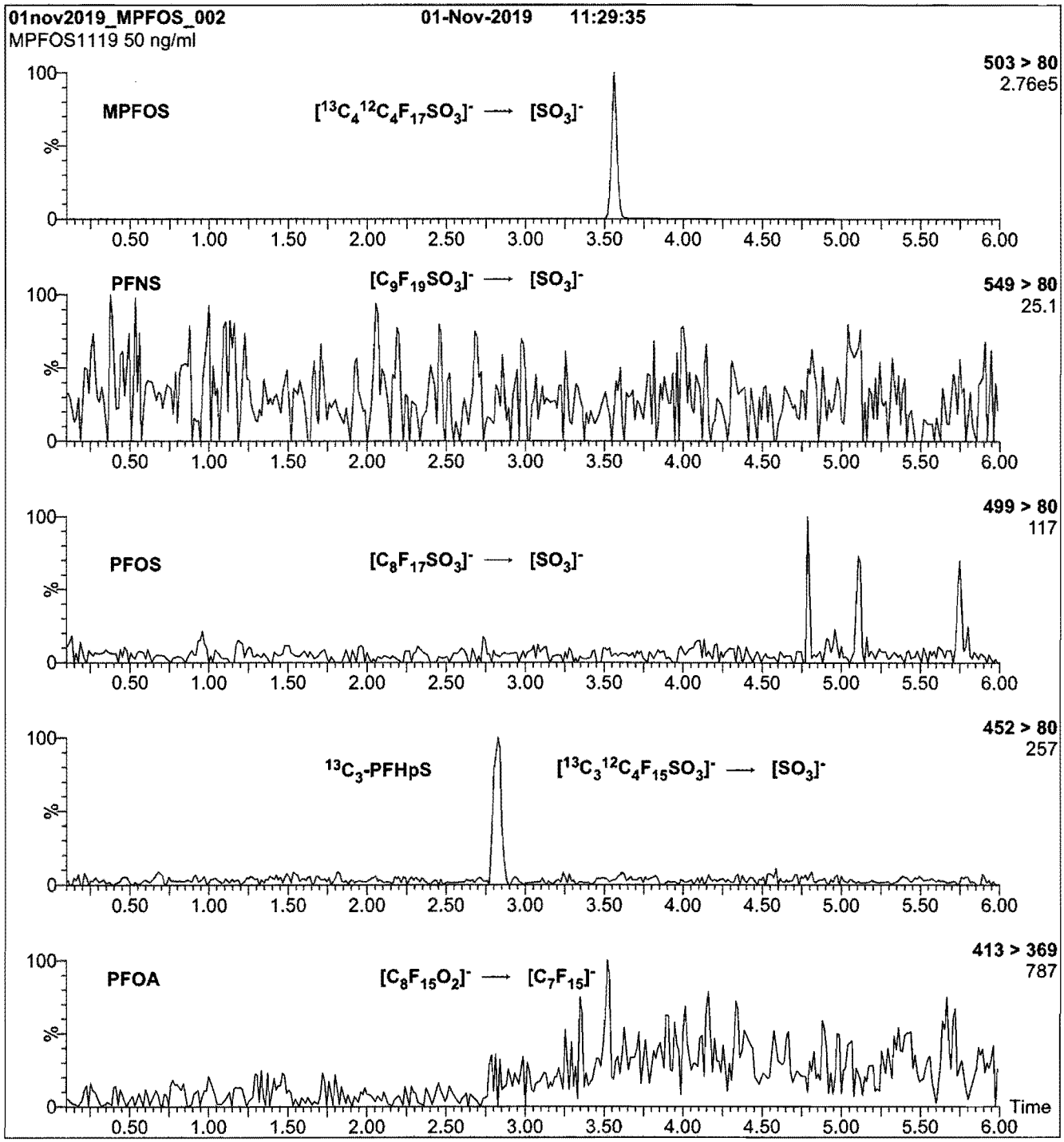
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/21/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0633

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFOS)

Mobile phase: Same as Figure 1

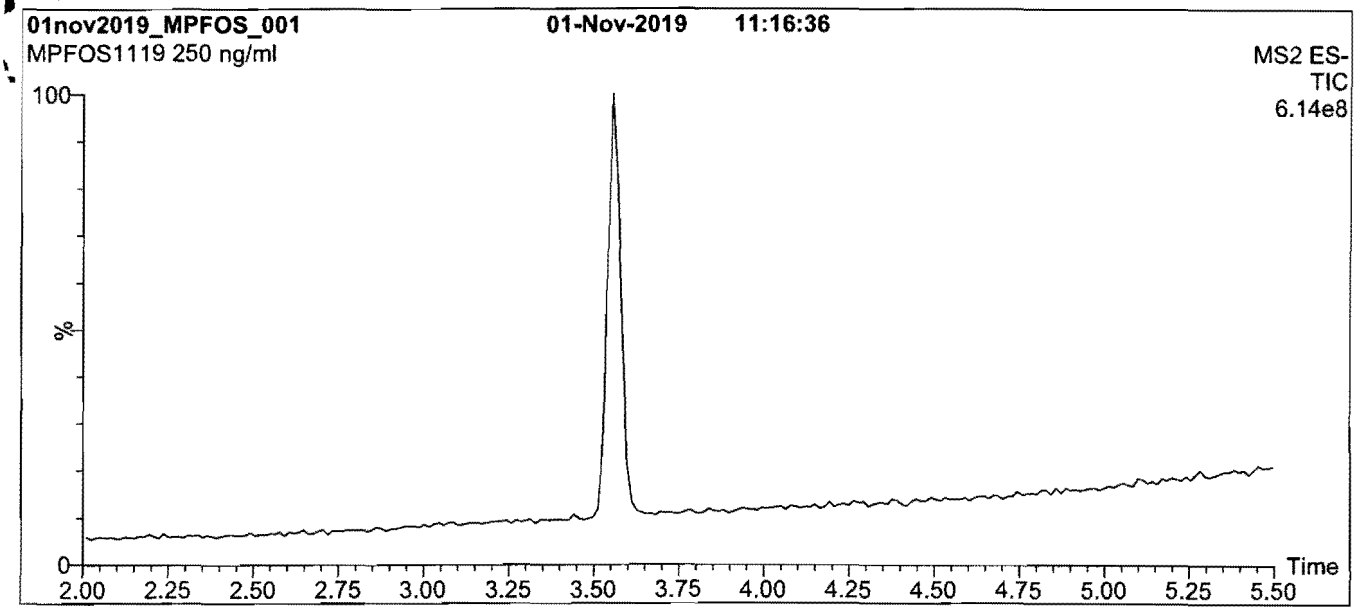
Flow: 300 µl/min

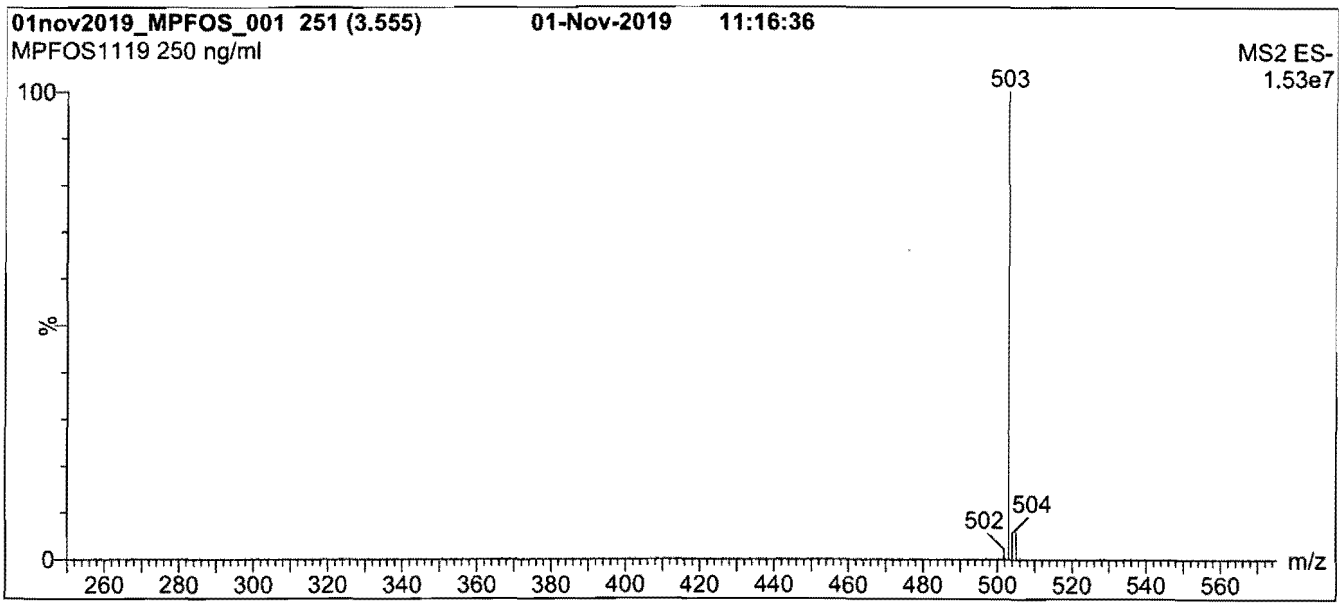
MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 42

19L0633

Figure 1: **MPFOS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

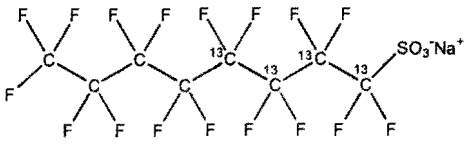
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

1912-0633

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1119
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/01/2019		
EXPIRY DATE: (mm/dd/yyyy)	11/01/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

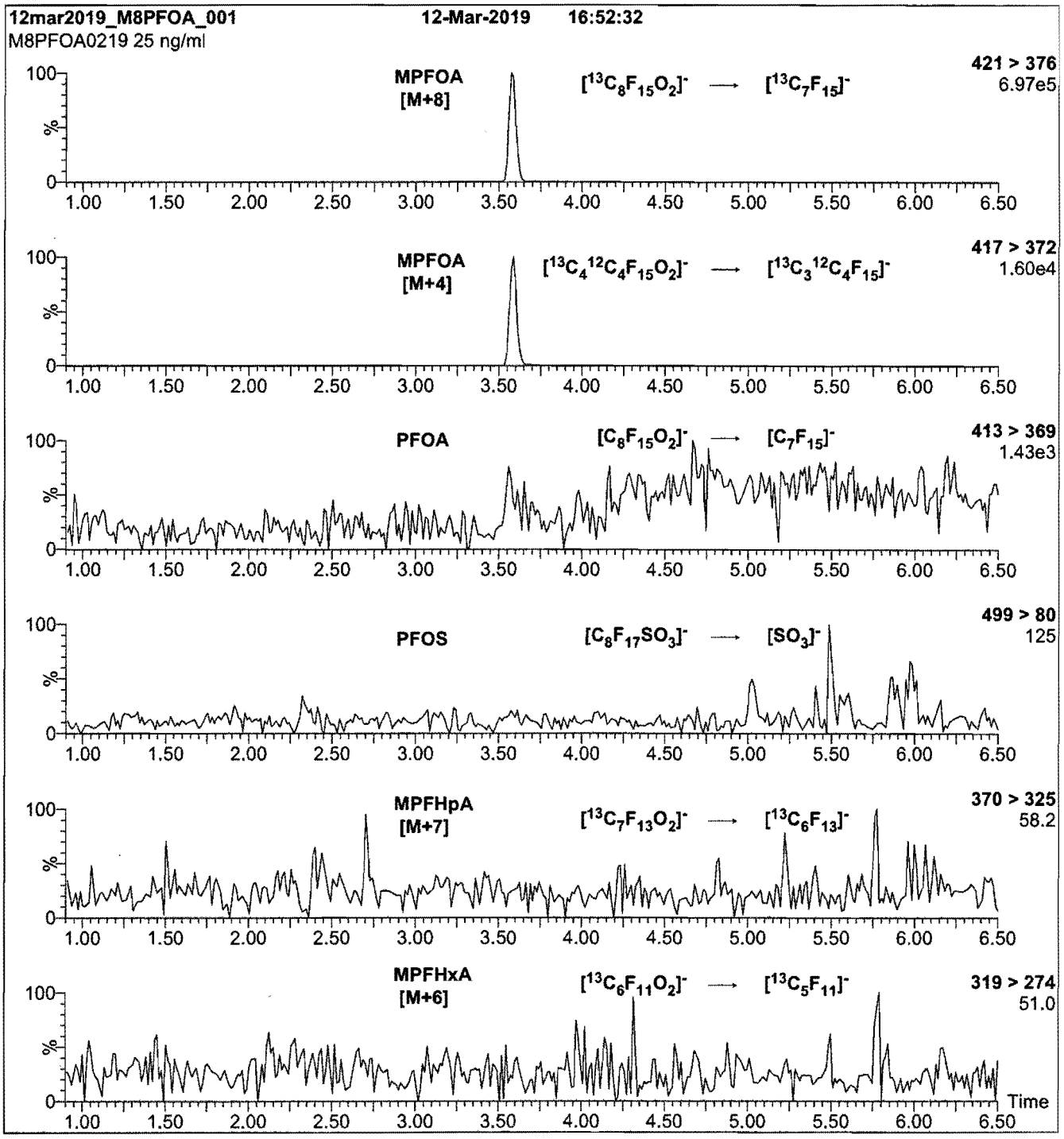
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

19L0634

Figure 2: **M8PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M8PFOA)

Mobile phase: Same as Figure 1

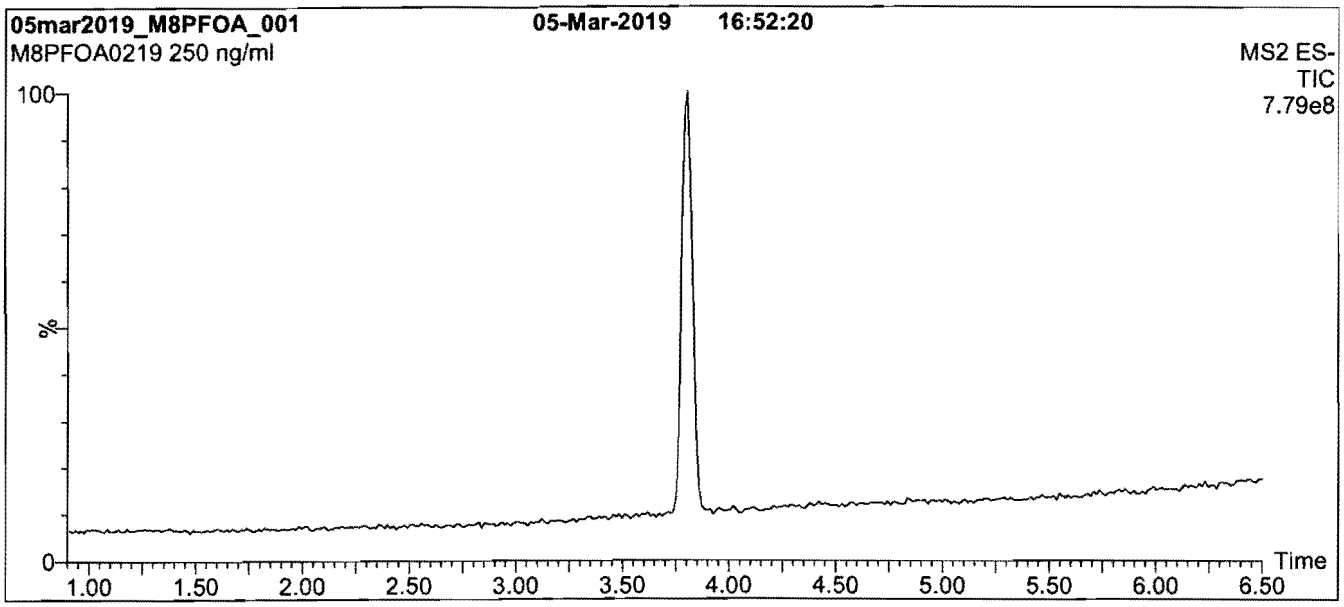
Flow: 300 µl/min

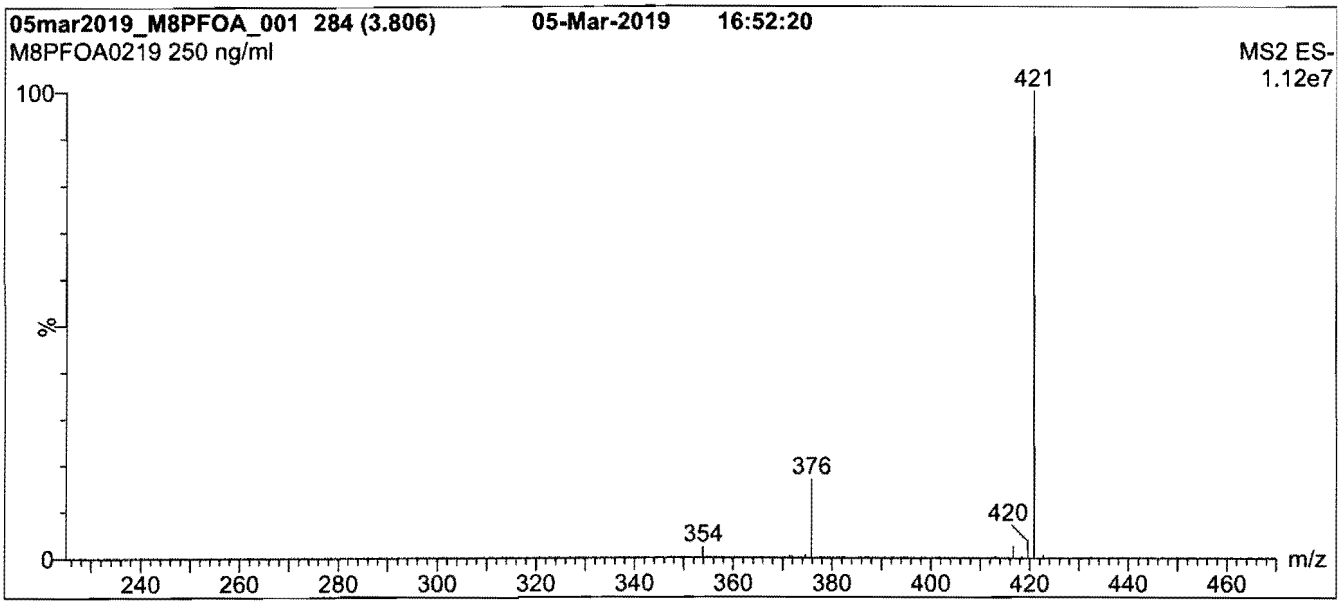
MS Parameters

Collision Gas (mbar) = 2.74e-3
Collision Energy (eV) = 8

19L0634

Figure 1: **M8PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Waters Xevo TQ-S micro MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

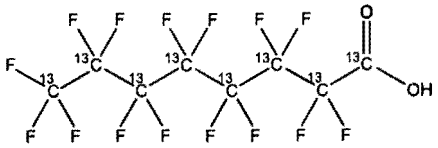
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

19L0634

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8PFOA	**LOT NUMBER:**	M8PFOA0219
COMPOUND:	Perfluoro-n-[$^{13}C_8$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	422.01
CONCENTRATION:	48.9 ± 2.4 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	97.8% (M8PFOA) 2.2% (MPFOA [M+4])	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	03/05/2019		
EXPIRY DATE: (mm/dd/yyyy)	03/05/2024		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of native perfluoro-n-octanoic acid (PFOA) and ~ 2.2% of [M+4] perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/07/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

"sys_sample_code","lab_anl_method_name","analysis_date","analysis_time","total_or_dissolved","column_number","test_type","cas_rn","chemical_name","result_value","result_error_delta","result_type_code","reportable_result","detect_flag","lab_qualifiers","organic_yn","method_detection_limit","reporting_detection_limit","quantatation_limit","result_unit","detection_limit_unit","tic_retention_time","result_comment","qc_original_conc","qc_spike_added","qc_spike_measured","qc_spike_recovery","qc_dup_original_conc","qc_dup_spike_added","qc_dup_spike_measured","qc_dup_spike_recovery","qc_rpd","qc_spike_lcl","qc_spike_ucl","qc_rpd_cl","qc_spike_status","qc_dup_spike_status","qc_rpd_status"
"EB06-20200221","537_MOD","03/05/20","00:46","N","NA","000","375-73-5","PFBS","","","TRG","Yes","N","U","Y","0.00134","0.00196","0.00393","UG_L","UG_L","","","

(PFUNA)","","","TRG","Yes","N","U","Y","0.00134","0.00196","0.00393","UG_L","UG_L","","","

"EB06-20200221","537_MOD","03/05/20","00:46","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","72.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","72.4","72.4","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","375-73-5","PFBS","0.0362","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00396","UG_L","UG_L","","","","","","

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"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","307-55-1","PERFLUORODODECANOIC ACID
(PFDOA)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00396","UG_L","UG_L","
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","72629-94-8","PFTrDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00396","UG_L","UG_L","
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","376-06-7","PFTeDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00396","UG_L","UG_L","
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C3-PFBS","13C3-PFBS","92.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.8","92.8","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C3-HFPO-DA","13C3-HFPO-DA","90.9","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","90.9","90.9","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFHxA","13C2-PFHxA","87.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","87.5","87.5","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C4-PFHpA","13C4-PFHpA","86.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","86.4","86.4","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C3-PFHxS","13C3-PFHxS","89.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.4","89.4","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C5-PFNA","13C5-PFNA","90.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","90.4","90.4","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFOA","13C2-PFOA","83.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","83.7","83.7","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C8-PFOS","13C8-PFOS","92.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.4","92.4","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFDA","13C2-PFDA","89.9","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.9","89.9","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","d3-MeFOSAA","d3-MeFOSAA","92.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.1","92.1","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFUnA","13C2-PFUnA","73.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","73.3","73.3","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","d5-EtFOSAA","d5-EtFOSAA","71.9","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","71.9","71.9","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFDoA","13C2-PFDoA","64.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","64.7","64.7","","","","","","50","150","","","","",""
"TW14S-20200221","537_MOD","03/05/20","00:57","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","54.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","54.1","54.1","","","","","","50","150","","","","",""
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","375-73-

5","PFBS","0.551","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00396","UG_L","UG_L","","","

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"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","72629-94-
8","PFTrDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00396","UG_L","UG_L","","","","","","","","","
","","","","","","","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","376-06-
7","PFTeDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00396","UG_L","UG_L","","","","","","","","","
","","","","","","","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C3-PFBS","13C3-
PFBS","92.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.8","92.8","","","","","","50","150","","
","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C3-HFPO-DA","13C3-HFPO-
DA","87.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","87.4","87.4","","","","","","50","150","","
","","","
"TW17S-20200221","537_MOD","03/05/20","20:23","N","NA","DL1","13C2-PFHxA","13C2-
PFHxA","144","","IS","Yes","Y","D","Y","","","","PCT_REC","","","","","100","144","144","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C4-PFHpA","13C4-
PFHpA","85.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","85.5","85.5","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","20:23","N","NA","DL1","13C3-PFHxS","13C3-
PFHxS","150","","IS","Yes","Y","D","Y","","","","PCT_REC","","","","","100","150","150","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C5-PFNA","13C5-
PFNA","90.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","90.5","90.5","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","20:23","N","NA","DL1","13C2-PFOA","13C2-
PFOA","160","","IS","Yes","Y","D,
H","Y","","","","","PCT_REC","","","","","100","160","160","","","","","","50","150","","*","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C8-PFOS","13C8-
PFOS","85.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","85.5","85.5","","","","","","50","150","","
","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C2-PFDA","13C2-
PFDA","89.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.0","89.0","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","d3-MeFOSAA","d3-
MeFOSAA","97.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","97.2","97.2","","","","","","50","15
0","","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C2-PFUnA","13C2-
PFUnA","77.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","77.8","77.8","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","d5-EtFOSAA","d5-
EtFOSAA","87.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","87.3","87.3","","","","","","50","150
","","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C2-PFDoA","13C2-
PFDoA","76.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","76.0","76.0","","","","","","50","150","
","","","","
"TW17S-20200221","537_MOD","03/05/20","01:08","N","NA","000","13C2-PFTeDA","13C2-
PFTeDA","71.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","71.5","71.5","","","","","","50","150"
","","","","","
"TW16S-20200221","537_MOD","03/05/20","20:13","N","NA","000","375-73-
5","PFBS","0.0536","","TRG","Yes","Y","","Y","0.00137","0.00199","0.00399","UG_L","UG_L","","","","","","","","","
","","","","","","","","","","
"TW16S-20200221","537_MOD","03/05/20","20:13","N","NA","000","307-24-4","PERFLUOROHEXANOIC ACID
(PFHXA)","0.172","","TRG","Yes","Y","","Y","0.00137","0.00199","0.00399","UG_L","UG_L","","","","","","","","","

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"TW16S-20200221","537_MOD","03/05/20","20:13","N","NA","000","376-06-7","PFTeDA","","","TRG","Yes","N","U","Y","0.00137","0.00199","0.00399","UG_L","UG_L","","","

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"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","375-85-9","PERFLUOROHEPTANOIC ACID (PFHPA)","0.184","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","919005-14-4","4,8-DIOXA-3H-PERFLUORONONANOIC ACID (ADONA)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","355-46-4","PERFLUOROHEXANESULFONIC ACID (PFHXS)","0.468","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID (PFOA)","0.721","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","375-95-1","PERFLUORONONANOIC ACID (PFNA)","0.00341","","TRG","Yes","Y","J,Q","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","1763-23-1","HEPTADECAFLUOROACTANESULFONIC ACID SOLUTION","0.155","","TRG","Yes","Y","","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","756426-58-1","9-CHLOROHEXADECAFLUORO-3-OXANONE-1-SULFONIC ACID (9Cl-PF3ONS)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","335-76-2","PERFLUORODECANOIC ACID (PFDA)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","2355-31-9","MeFOSAA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","2991-50-6","EtFOSAA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","2058-94-8","PERFLUOROUNDECANOIC ACID (PFUNA)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","763051-92-9","11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SULFONIC ACID (11Cl-PF3OUdS)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","307-55-1","PERFLUORODODECANOIC ACID (PFDOA)","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","72629-94-8","PFTrDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","376-06-7","PFTeDA","","","TRG","Yes","N","U","Y","0.00136","0.00198","0.00397","UG_L","UG_L","
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C3-PFBS","13C3-

PFBS","90.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","90.5","90.5","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C3-HFPO-DA","13C3-HFPO-DA","85.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","85.4","85.4","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFHxA","13C2-PFHxA","84.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","84.8","84.8","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C4-PFHpA","13C4-PFHpA","89.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.7","89.7","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C3-PFHxS","13C3-PFHxS","89.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.0","89.0","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C5-PFNA","13C5-PFNA","84.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","84.0","84.0","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFOA","13C2-PFOA","77.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","77.5","77.5","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C8-PFOS","13C8-PFOS","98.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","98.3","98.3","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFDA","13C2-PFDA","84.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","84.7","84.7","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","d3-MeFOSAA","d3-MeFOSAA","105","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","105","105","","","","","","50","150","","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFUnA","13C2-PFUnA","82.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","82.1","82.1","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","d5-EtFOSAA","d5-EtFOSAA","88.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","88.0","88.0","","","","","","50","150","","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFDoA","13C2-PFDoA","74.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","74.4","74.4","","","","","","50","150","","","","",""
"TW15S-20200221","537_MOD","03/05/20","01:29","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","65.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","65.1","65.1","","","","","","50","150","","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","375-73-5","PFBS","","","TRG","Yes","N","U","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","","","

"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","919005-14-4","4,8-DIOXA-3H-PERFLUORONONANOIC ACID (ADONA)","","","TRG","Yes","N","U","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","

"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFHxA","13C2-PFHxA","92.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.3","92.3","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C4-PFHpA","13C4-PFHpA","96.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","96.5","96.5","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C3-PFHxS","13C3-PFHxS","89.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.2","89.2","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C5-PFNA","13C5-PFNA","95.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.1","95.1","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFOA","13C2-PFOA","90.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","90.3","90.3","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C8-PFOS","13C8-PFOS","88.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","88.1","88.1","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFDA","13C2-PFDA","91.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","91.8","91.8","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","d3-MeFOSAA","d3-MeFOSAA","83.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","83.8","83.8","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFUnA","13C2-PFUnA","81.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","81.8","81.8","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","d5-EtFOSAA","d5-EtFOSAA","71.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","71.2","71.2","","","","","","50","150","","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFDoA","13C2-PFDoA","67.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","67.2","67.2","","","","","","50","150","","","","",""
"B0B0213-BLK1","537_MOD","03/04/20","21:48","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","72.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","72.7","72.7","","","","","","50","150","","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","375-73-5","PFBS","0.0413","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0413","103","","","","","","72","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","307-24-4","PERFLUOROHEXANOIC ACID (PFHXA)","0.0441","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0441","110","","","","","","72","129","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13252-13-6","HEXAFLUOROPROPYLENE OXIDE DIMER ACID (HFPO-DA)","0.0407","","TRG","Yes","Y","","Y","0.00241","0.00300","0.00400","UG_L","UG_L","","","","0.0400","0.0407","102","","","","","","70","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","375-85-9","PERFLUOROHEPTANOIC ACID (PFHPA)","0.0428","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0428","107","","","","","","72","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","919005-14-4","4,8-DIOXA-3H-PERFLUORONONANOIC ACID (ADONA)","0.0404","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0404","101","","","","","","70","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","355-46-4","PERFLUOROHEXANESULFONIC

ACID
(PFHXS)","0.0397","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0397","99.2","","","","","","","68","131","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID
(PFOA)","0.0429","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0429","107","","","","","","","71","133","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","375-95-1","PERFLUORONONANOIC ACID
(PFNA)","0.0443","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0443","111","","","","","","","69","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","1763-23-
1","HEPTADECAFLUOROACTANESULFONIC ACID SOLUTION
","0.0403","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0403","101","","","","","","","65","140","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","756426-58-1","9-
CHLOROHEXADECAFLUORO-3-OXANONE-1-SULFONIC ACID (9Cl-
PF3ONS)","0.0409","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0409","102","","","","","","","70","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","335-76-2","PERFLUORODECANOIC ACID
(PFDA)","0.0422","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0422","105","","","","","","","71","129","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","2355-31-
9","MeFOSAA","0.0412","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0412","103","","","","","","","65","136","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","2991-50-
6","EtFOSAA","0.0400","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0400","100","","","","","","","61","135","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","2058-94-8","PERFLUOROUNDECANOIC ACID
(PFUNA)","0.0424","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0424","106","","","","","","","69","133","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","763051-92-9","11-CHLOROEICOSAFLUORO-3-
OXAUNDECANE-1-SULFONIC ACID (11Cl-
PF3OUdS)","0.0405","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0405","101","","","","","","","70","130","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","307-55-1","PERFLUORODODECANOIC ACID
(PFDOA)","0.0433","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0433","108","","","","","","","72","134","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","72629-94-
8","PFTrDA","0.0414","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0414","104","","","","","","","65","144","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","376-06-
7","PFTeDA","0.0405","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0405","101","","","","","","","71","132","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C3-PFBS","13C3-
PFBS","95.9","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.9","95.9","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C3-HFPO-DA","13C3-HFPO-
DA","95.9","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.9","95.9","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFHxA","13C2-
PFHxA","95.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.4","95.4","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C4-PFHpA","13C4-
PFHpA","97.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","97.3","97.3","","","","","","50","150","","","","",""

"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C3-PFHxS","13C3-PFHxS","102","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","102","102","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C5-PFNA","13C5-PFNA","95.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.0","95.0","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFOA","13C2-PFOA","89.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","89.2","89.2","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C8-PFOS","13C8-PFOS","96.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","96.0","96.0","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFDA","13C2-PFDA","97.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","97.8","97.8","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","d3-MeFOSAA","d3-MeFOSAA","87.0","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","87.0","87.0","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFUnA","13C2-PFUnA","80.2","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","80.2","80.2","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","d5-EtFOSAA","d5-EtFOSAA","74.1","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","74.1","74.1","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFDoA","13C2-PFDoA","82.6","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","82.6","82.6","","","","","","50","150","","","","",""
"B0B0213-BS1","537_MOD","03/04/20","21:58","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","76.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","76.5","76.5","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","375-73-5","PFBS","0.0353","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0353","88.2","","","","","15.7","72","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","307-24-4","PERFLUOROHEXANOIC ACID (PFHXA)","0.0437","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0437","109","","","","","1.11","72","129","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13252-13-6","HEXAFLUOROPROPYLENE OXIDE DIMER ACID (HFPO-DA)","0.0433","","TRG","Yes","Y","","Y","0.00241","0.00300","0.00400","UG_L","UG_L","","","","0.0400","0.0433","108","","","","","6.17","70","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","375-85-9","PERFLUOROHEPTANOIC ACID (PFHPA)","0.0408","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0408","102","","","","","4.76","72","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","919005-14-4","4,8-DIOXA-3H-PERFLUORONONANOIC ACID (ADONA)","0.0395","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0395","98.9","","","","","2.12","70","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","355-46-4","PERFLUOROHEXANESULFONIC ACID (PFHXS)","0.0419","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0419","105","","","","","5.42","68","131","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID (PFOA)","0.0420","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0420","105","","","","","2.03","71","133","","","",""

"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","375-95-1","PERFLUORONONANOIC ACID (PFNA)","0.0435","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0435","109","","","","","1.80","69","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","1763-23-1","HEPTADECAFLUOROACTANESULFONIC ACID SOLUTION","0.0436","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0436","109","","","","","7.91","65","140","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","756426-58-1","9-CHLOROHEXADECAFLUORO-3-OXANONE-1-SULFONIC ACID (9Cl-PF3ONS)","0.0361","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0361","90.3","","","","","12.5","70","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","335-76-2","PERFLUORODECANOIC ACID (PFDA)","0.0446","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0446","112","","","","","5.63","71","129","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","2355-31-9","MeFOSAA","0.0426","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0426","107","","","","","3.50","65","136","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","2991-50-6","EtFOSAA","0.0414","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0414","104","","","","","3.45","61","135","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","2058-94-8","PERFLUOROUNDECANOIC ACID (PFUNA)","0.0392","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0392","98.0","","","","","7.83","69","133","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","763051-92-9","11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SULFONIC ACID (11Cl-PF3OUdS)","0.0443","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0443","111","","","","","9.01","70","130","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","307-55-1","PERFLUORODODECANOIC ACID (PFDOA)","0.0487","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0487","122","","","","","11.8","72","134","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","72629-94-8","PFTrDA","0.0449","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0449","112","","","","","8.03","65","144","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","376-06-7","PFTeDA","0.0425","","TRG","Yes","Y","","Y","0.00137","0.00200","0.00400","UG_L","UG_L","","","","0.0400","0.0425","106","","","","","4.69","71","132","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C3-PFBS","13C3-PFBS","102","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","102","102","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C3-HFPO-DA","13C3-HFPO-DA","87.3","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","87.3","87.3","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFHxA","13C2-PFHxA","92.7","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.7","92.7","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C4-PFHpA","13C4-PFHpA","95.5","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","95.5","95.5","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C3-PFHxS","13C3-PFHxS","97.4","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","97.4","97.4","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C5-PFNA","13C5-PFNA","92.8","","IS","Yes","Y","","Y","","","","PCT_REC","","","","","100","92.8","92.8","","","","","","50","150","",

,"","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFOA","13C2-PFOA","91.6","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","91.6","91.6","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C8-PFOS","13C8-PFOS","98.5","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","98.5","98.5","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFDA","13C2-PFDA","91.6","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","91.6","91.6","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","d3-MeFOSAA","d3-MeFOSAA","86.3","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","86.3","86.3","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFUnA","13C2-PFUnA","83.5","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","83.5","83.5","","","","","","50","150","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","d5-EtFOSAA","d5-EtFOSAA","80.6","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","80.6","80.6","","","","","","50","150","","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFDoA","13C2-PFDoA","79.6","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","79.6","79.6","","","","","","50","150","","","","","",""
"B0B0213-BSD1","537_MOD","03/04/20","22:09","N","NA","000","13C2-PFTeDA","13C2-PFTeDA","78.2","","IS","Yes","Y","","Y","","","","","PCT_REC","","","","","100","78.2","78.2","","","","","","50","150","","","","","",""

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Wood Environment & Infrastructure Solutions, Inc. March 20, 2020
7376 SW Durham Road
Portland, OR 97224
Attn: Ms. Kimberly Shiroodi
Kimberly.Shiroodi@woodplc.com

SUBJECT: MCAS El Toro & Tustin PFAs, Data Validation

Dear Ms. Shiroodi,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on March 11, 2020. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #47508:

SDG #	**Fraction**
2000314,2000321,2000330 2000356,2000372,2000390	Perfluoroalkyl & Polyfluoroalkyl Substances

The data validation was performed under Stage 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve -Outs 2, 5, 6 & 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1, February 2020
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.3, 2019
- DoD General Validation Guidelines, February 2018

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Pgeng@lab-data.com
Project Manager/Senior Chemist

6,538 pages-ADV (100% Stage 4 for this job)

Attachment 1

Client Select / Stage 2B/4

LDC #47508 (Wood/KMEA - National City, CA / MCAS El Toro & Tustin PFAs)

PO001184

LDC	SDG#	DATE REC'D	(2) DATE DUE	PFAs (537M/ QSM 5.3)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	2000314	03/11/20	03/25/20	13	0																														
B	2000321	03/11/20	03/25/20	10	0																														
C	2000330	03/11/20	03/25/20	4	0																														
D	2000356	03/11/20	03/25/20	9	0																														
E	2000372	03/11/20	03/25/20	7	0																														
F	2000390	03/11/20	03/25/20	4	0																														
Total	J/PG			47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS/MSD, and DUPs

L:\Wood Environmental\El Toro\47508ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 19, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000314

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
I006MW03SR-20200212	2000314-03	Water	02/12/20
I006MW05SR-20200212	2000314-04	Water	02/12/20
DUP01-20200212	2000314-05	Water	02/12/20
I006MW01S-20200212	2000314-06	Water	02/12/20
I006MW08S-20200212	2000314-07	Water	02/12/20
BMW07S-20200212	2000314-08	Water	02/12/20
I005MW01SR-20200212	2000314-09	Water	02/12/20
DUP05-20200212	2000314-10	Water	02/12/20
IS72MW15S-20200212	2000314-11	Water	02/12/20
IS72MW18SR-20200212	2000314-12	Water	02/12/20
222MW02S-20200212	2000314-13	Water	02/12/20
DUP03-20200212	2000314-14	Water	02/12/20
A000MW42S-20200212	2000314-15	Water	02/12/20
I006MW03SR-20200212MS	2000314-03MS	Water	02/12/20
I006MW03SR-20200212MSD	2000314-03MSD	Water	02/12/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB01-20200212 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For I006MW03SR-20200212MS/MSD, no data were qualified for perfluorohexane sulfonic acid (PFHxS) percent recoveries (%R) and Perfluorohexanoic acid (PFHxA) and Perfluoroheptanoic acid (PFHpA) relative percent differences (RPD) outside the QC limits since the parent sample results were greater than 4X the spike concentration. All other relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples I006MW05SR-20200212 and DUP01-20200212, samples I005MW01SR-20200212 and DUP05-20200212, and samples 222MW02S-20200212 and DUP03-20200212 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	I006MW05SR-20200212	DUP01-20200212				
Perfluorobutanesulfonic acid (PFBS)	0.0509	0.0556	9 (≤30)	-	-	-
Perfluorohexanoic acid (PFHxA)	0.129	0.130	1 (≤30)	-	-	-
Perfluoroheptanoic acid (PFHpA)	0.0436	0.0468	7 (≤30)	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	0.215	0.205	5 (≤30)	-	-	-
Perfluorooctanoic acid (PFOA)	0.0464	0.0441	5 (≤30)	-	-	-
Perfluorooctanesulfonic acid (PFOS)	0.0182	0.0226	22 (≤30)	-	-	-

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	I005MW01SR-20200212	DUP05-20200212				
Perfluorobutanesulfonic acid (PFBS)	0.501	0.525	5 (≤30)	-	-	-
Perfluorohexanoic acid (PFHxA)	1.52	1.51	1 (≤30)	-	-	-
Perfluoroheptanoic acid (PFHpA)	0.395	0.411	4 (≤30)	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	2.62	2.84	8 (≤30)	-	-	-
Perfluorooctanoic acid (PFOA)	3.76	4.15	10 (≤30)	-	-	-
Perfluorononanoic acid (PFNA)	0.0245	0.0267	9 (≤30)	-	-	-
Perfluorooctanesulfonic acid (PFOS)	1.08	1.11	3 (≤30)	-	-	-
Perfluorodecanoic acid (PFDA)	0.00196U	0.00176	-	0.0002 (≤0.00396)	-	-

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	222MW02S-20200212	DUP03-20200212				
Perfluorobutanesulfonic acid (PFBS)	0.00456	0.00587	-	0.00131 (≤0.00409)	-	-
Perfluorohexanesulfonic acid (PFHxS)	0.0145	0.0166	-	0.0021 (≤0.00409)	-	-
Perfluorooctanesulfonic acid (PFOS)	0.00624	0.00544	-	0.0008 (≤0.00409)	-	-

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits with the following exceptions:

Sample	Labeled Compound	%R (Limits)	Affected Compound	Flag	A or P
IS72MW15S-20200212	13C2-PFTeDA	34.4 (50-150)	Perfluorotetradecanoic acid (PFTeDA)	NA	-

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria with the following exceptions:

Sample	Compound	Ion Abundance Ratio (Limits)	Flag	A or P
BMW07S-20200212	Perfluorodecanoic acid (PFDA)	50.940 (4.8175-14.4525)	J (all detects)	A
DUP03-20200212	Perfluorooctanesulfonic acid (PFOS)	3.412 (1.12-3.36)	J (all detects)	A
A000MW42S-20200212	Perfluorooctanesulfonic acid (PFOS)	9.108 (1.12-3.36)	J (all detects)	A
DUP05-20200212	Perfluorodecanoic acid (PFDA)	14.922 (4.8175-14.4525)	J (all detects)	A

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to ion abundance ratio, data were qualified as estimated in four samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000314

Sample	Compound	Flag	A or P	Reason
BMW07S-20200212	Perfluorodecanoic acid (PFDA)	J (all detects)	A	Target compound identification (ion abundance ratio)
DUP03-20200212	Perfluorooctanesulfonic acid (PFOS)	J (all detects)	A	Target compound identification (ion abundance ratio)
A000MW42S-20200212	Perfluorooctanesulfonic acid (PFOS)	J (all detects)	A	Target compound identification (ion abundance ratio)
DUP05-20200212	Perfluorodecanoic acid (PFDA)	J (all detects)	A	Target compound identification (ion abundance ratio)

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000314

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000314

No Sample Data Qualified in this SDG

LDC #: 47508A96 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/26/20

SDG #: 2000314 Stage 4 Page: 1 of 2

Laboratory: Vista Analytical Laboratory Reviewer: 2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤20% .Y² True /ICV≤30%
IV.	Continuing calibration/ISC	A	CCV/ISC≤30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=2. SB=1
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	
X.	Labeled Compounds	SW	D=4+5. 13+14. 9+10
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	SW	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~SB01-20200212~~	~~2000314-01~~	~~Water~~	~~02/12/20~~
~~2~~	~~EB01-20200212~~	~~2000314-02~~	~~Water~~	~~02/12/20~~
3	I006MW03SR-20200212	2000314-03	Water	02/12/20
4	I006MW05SR-20200212	2000314-04	Water	02/12/20
5	DUP01-20200212	2000314-05	Water	02/12/20
6	I006MW01S-20200212	2000314-06	Water	02/12/20
7	I006MW08S-20200212	2000314-07	Water	02/12/20
8	BMW07S-20200212	2000314-08	Water	02/12/20
9	I005MW01SR-20200212	2000314-09	Water	02/12/20
10	DUP05-20200212	2000314-10	Water	02/12/20
11	IS72MW15S-20200212	2000314-11	Water	02/12/20
12	IS72MW18SR-20200212	2000314-12	Water	02/12/20
13	222MW02S-20200212	2000314-13	Water	02/12/20
14	DUP03-20200212	2000314-14	Water	02/12/20
15	A000MW42S-20200212	2000314-15	Water	02/12/20

LDC #: 47508A96 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/13/20
SDG #: 2000314 Stage 4 Page: 2 of 2
Laboratory: Vista Analytical Laboratory Reviewer:
2nd Reviewer: JW

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

16	I006MW03SR-20200212MS	2000314-03MS	Water	02/12/20
17	I006MW03SR-20200212MSD	2000314-03MSD	Water	02/12/20
18				
19				
20				

Notes:

	B0B0118-BK1						

LDC #: 47528A86

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: CF
2nd Reviewer: JM

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		

LDC #: 47508A 46

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: [illegible]
2nd Reviewer: JVG

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?		✓		
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data	✓			
Overall assessment of data was found to be acceptable.				

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47508A96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 0
2nd Reviewer: JVG

METHOD: LC/MS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		16/17	~~PFHxS~~	172 (68-131)	132 (68-131)	( )	3	No Qual (>4x)
			~~PFHxA~~	( )	( )	46.4 (≤30)		
			~~PFHpA~~	( )	( )	41.7 (↓)		↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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LDC#: 47508A96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: Q
2nd Reviewer: JM6

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Compound	Concentration (ug/L)		(≤30) RPD	Difference (≤LOQ)	Limits	Qual
	4	5				
PFBS	0.0509	0.0556	9			
PFHxA	0.129	0.130	1			
PFHpA	0.0436	0.0468	7			
PFHxS	0.215	0.205	5			
PFOA	0.0464	0.0441	5			
PFOS	0.0182	0.0226	22			

Compound	Concentration (ug/L)		(≤30) RPD	Difference (≤LOQ)	Limits	Qual
	9	10				
PFBS	0.501	0.525	5			
PFHxA	1.52	1.51	1			
PFHpA	0.395	0.411	4			
PFHxS	2.62	2.84	8			
PFOA	3.76	4.15	10			
PFNA	0.0245	0.0267	9			
PFOS	1.08	1.11	3			
PFDA	0.00196U	0.00176		0.0002	≤0.00396	

Compound	Concentration (ug/L)		(≤30) RPD	Difference (≤LOQ)	Limits	Qual
	13	14				
PFBS	0.00456	0.00587		0.00131	≤0.00409	
PFHxS	0.0145	0.0166		0.0021	≤0.00409	
PFOS	0.00624	0.00544		0.0008	≤0.00409	

LDC #: 47503A96

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Reviewer: 9
2nd Reviewer: JK

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Labeled Compound	% Recovery	(Limit)	Qualifications
		11 (NO)	13C2-PFTeDA	34.4	(50-150)	J (all detects) (PFTeDA)
					( )	
					( )	
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					( )	

LDC #: 47508A96

VALIDATION FINDINGS WORKSHEET
Target Compound Identification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.1.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was the signal to noise (S/N) ratio for all compounds within the validation criteria?
Y N N/A Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?
Y N N/A Were ion ratios between 50-150%?

#	Date	Sample ID	Associated Samples	Ion Ratio ~~20-8~~ 50-150% Finding	Qualifications
		8	PFDA	50.940 (4.8175-14.4525)	Jdet3/A
		14	PFOS	3.412 (1.12-3.36)	
		15	PFOS	9.108	
		10	PFDA	14.922 (4.8175-14.4525)	

LDC#: 47508896

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/20/2020	MQ4	PFBS	1	0.778438094	0.250
			2	1.089880137	0.500
			3	2.682696141	1.000
			4	4.958188677	2.000
			5	12.64820119	5.000
			6	25.44695127	10.000
			7	117.4792844	50.000
			8	238.0977354	100.000
			9	566.0823864	250.000
			10	1133.899995	500.000

Regression Output		*Reported*
Constant	*2.209556*	*0.162081*
Std Err of Y Est		
R Squared	*0.999907*	*0.999487*
Degrees of Freedom		
X Coefficient(s)	*2.265108*	*2.287390*
Std Err of Coef.		
Correlation Coefficient	*0.999953*	
Coefficient of Determination (r^2)	*0.999907*	*0.999487*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/20/2020	MQ4	PFHxA	1	0.284890588	0.250
			2	0.446339310	0.500
			3	0.984796904	1.000
			4	2.021324537	2.000
			5	5.003588711	5.000
			6	9.977193119	10.000
			7	47.15559216	50.000
			8	92.60790279	100.000
			9	225.8014014	250.000
			10	431.1547913	500.000

Regression Output		***Reported***
Constant	*1.829494*	*0.066967*
Std Err of Y Est		
R Squared	*0.999430*	*0.998785*
Degrees of Freedom		
X Coefficient(s)	*0.867639*	*0.886822*
Std Err of Coef.		
Correlation Coefficient	*0.999715*	
Coefficient of Determination (r^2)	*0.999430*	*0.998785*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/25/2020	MQ4	PFHxA	1	0.248125134	0.250
			2	0.539146786	0.500
			3	1.168615070	1.000
			4	2.008352724	2.000
			5	5.175495037	5.000
			6	10.07310758	10.000
			7	47.12403550	50.000
			8	93.66908582	100.000
			9	221.5552772	250.000
			10	439.8474496	500.000

Regression Output		***Reported***
Constant	*1.341585*	*0.084469*
Std Err of Y Est		
R Squared	*0.999839*	*0.999064*
Degrees of Freedom		
X Coefficient(s)	*0.879448*	*0.893131*
Std Err of Coef.		
Correlation Coefficient	*0.999919*	
Coefficient of Determination (r^2)	*0.999839*	*0.999064*

LDC #: 47508A96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: CA
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/25/2020	MQ4	PFOS	1	0.170391718	0.250	0.0625
			2	0.424665941	0.500	0.25
			3	0.885487794	1.000	1
			4	2.19426531	2.000	4
			5	5.106805482	5.000	25
			6	10.73537158	10.000	100
			7	43.83599873	50.000	2500
			8	96.62892738	100.000	10000
			9	229.6765896	250.000	62500
			10	466.5084977	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.40720		-0.00626015
Std Err of Y Est				
R Squared		0.9998589		0.9992040
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	0.917505066	2.81034E-05	0.936367	-0.00001248
Std Err of Coef.				
Correlation Coefficient		0.999929		
Coefficient of Determination (r^2)		0.999859		

Validation Findings Worksheet
Initial Calibration Calculation Verification

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/27/2020	MQ4	PFOA	1	0.322971593	0.250	0.0625
			2	0.664649291	0.500	0.25
			3	1.41593446	1.000	1
			4	2.504266854	2.000	4
			5	6.608790835	5.000	25
			6	12.89285388	10.000	100
			7	58.00272182	50.000	2500
			8	117.4198491	100.000	10000
			9	276.2363349	250.000	62500
			10	502.6360698	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.20152		0.0799012
Std Err of Y Est				
R Squared		0.9999868		0.9998180
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.20400609	-0.000398275	1.20955	-0.000410213
Std Err of Coef.				
Correlation Coefficient		0.999993		
Coefficient of Determination (r^2)		0.999987		

LDC #: 47308A90

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: JB

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	20022004-37	2-20-20	~~PFOA ($^{13}C_2$-PFOA)~~ PFBS	10.000	11.8	11.77	17.7	17.7
			~~PFOS ($^{13}C_8$-PFOS)~~ PFHxA	↓	10.6	10.58	5.8	5.8
2	20022004-50	2/21/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFBS	10.000	10.9	10.87	8.7	8.7
			PFOS ($^{13}C_8$-PFOS) PFHxA	↓	10.7	10.66	6.6	6.6
3	20022504-53	2/26/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFHxA	10.00	11.1	11.06	10.6	10.6
			PFOS ($^{13}C_8$-PFOS) PFOS	10.00	11.2	11.20	12.0	12.0
4	20022704-86	2/28/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFOA	10.00	9.67	9.67	3.3	3.3
			~~PFOS ($^{13}C_8$-PFOS)~~					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 41508A96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: JVG

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 16/17

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD *	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFOA	0.038T	0.0395	0.303	0.350	0.349	123	121	116	116	5.86	4.22
PFOS	↓	↓	0.00993	0.0498	0.044T	103	103	88.1	88.0	15.6	15.6

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results. * Use %R to calculated RPD due to a different spike conc.

Privileged and Confidential

LDC #: 41508A96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: BQB0118-BS1

Compound	Spike Added (µg/L)		Spike Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	NA	0.0355	NA	88.7	88.7				
PFOS	V	V	0.0369	V	92.2	92.2				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47528A96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: Cr
2nd reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, PFBS

Conc. = $\frac{(\frac{3.5Te3 \times 12.5}{1.49e3} - 0.162081)(\quad)(1)(\quad)}{(2.28739)(254)(\quad)(\quad)}$

= 0.0513 µg/L

#	Sample ID	Compound	Reported Concentration µg/L	Calculated Concentration ( )	Qualification
	1	PFBS	0.0513		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 19, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000321

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB02-20200213	2000321-01	Water	02/13/20
I013WMW02SR-20200213	2000321-02	Water	02/13/20
IS72MW17S-20200213	2000321-03	Water	02/13/20
I012MW01SR-20200213	2000321-04	Water	02/13/20
I012MW10S-20200213	2000321-05	Water	02/13/20
I012MW11S-20200213	2000321-06	Water	02/13/20
I012MW15S-20200213	2000321-07	Water	02/13/20
DUP02-20200213	2000321-08	Water	02/13/20
I003MW01S-20200213	2000321-09	Water	02/13/20
I003MW15S-20200213	2000321-10	Water	02/13/20
I003MW02S-20200213	2000321-11	Water	02/13/20
IS72MW17S-20200213MS	2000321-03MS	Water	02/13/20
IS72MW17S-20200213MSD	2000321-03MSD	Water	02/13/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB02-20200213 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 (from SDG 2000314) was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For IS72MW17S-20200213MS/MSD, no data were qualified for perfluorohexanoic acid (PFHxA), perfluorohexanesulfonic acid (PFHxS), and perfluorooctanoic acid (PFOA) percent recoveries (%R) and perfluorooctanoic acid (PFOA), relative percent differences (RPD) outside the QC limits since the parent sample results were greater than 4X the spike concentration. All other relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples I012MW15S-20200213 and DUP02-20200213 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	I012MW15S-20200213	DUP02-20200213				
Perfluorobutanesulfonic acid (PFBS)	0.179	0.181	1 (≤30)	-	-	-
Perfluorohexanoic acid (PFHxA)	0.908	0.881	3 (≤30)	-	-	-
Perfluoroheptanoic acid (PFHpA)	0.200	0.191	5 (≤30)	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	0.526	0.505	4 (≤30)	-	-	-
Perfluorooctanoic acid (PFOA)	0.312	0.306	2 (≤30)	-	-	-
Perfluorononanoic acid (PFNA)	0.00292	0.00251	-	0.0004 (≤0.00406)	-	-
Perfluorooctanesulfonic acid (PFOS)	0.109	0.112	3 (≤30)	-	-	-

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria with the following exceptions:

Sample	Compound	Ion Abundance Ratio (Limits)	Flag	A or P
I013WMW02SR-20200213	Perfluorooctanesulfonic acid (PFOS)	4.901 (1.304-3.912)	J (all detects)	A

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to ion abundance ratio, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000321

Sample	Compound	Flag	A or P	Reason
I013WMW02SR-20200213	Perfluorooctanesulfonic acid (PFOS)	J (all detects)	A	Target compound identification (ion abundance ratio)

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000321

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000321

No Sample Data Qualified in this SDG

LDC #: 47508B96

SDG #: 2000321

Laboratory: Vista Analytical Laboratory

VALIDATION COMPLETENESS WORKSHEET

Stage 4

Date: 3/16/20

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A+A	RSD ≤ 20%. r^2 Time/ICV ≤ 30%
IV.	Continuing calibration/ISC	A	CCV/ISC ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1. SB=SB01-20200212 (2000314)
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D=T+B
X.	Labeled Compounds	SW	
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	SW	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~EB02-20200213~~	~~2000321-01~~	~~Water~~	~~02/13/20~~
2	I013WMW02SR-20200213	2000321-02	Water	02/13/20
3	IS72MW17S-20200213	2000321-03	Water	02/13/20
4	I012MW01SR-20200213	2000321-04	Water	02/13/20
5	I012MW10S-20200213	2000321-05	Water	02/13/20
6	I012MW11S-20200213	2000321-06	Water	02/13/20
7	I012MW15S-20200213	2000321-07	Water	02/13/20
8	DUP02-20200213	2000321-08	Water	02/13/20
9	I003MW01S-20200213	2000321-09	Water	02/13/20
10	I003MW15S-20200213	2000321-10	Water	02/13/20
11	I003MW02S-20200213	2000321-11	Water	02/13/20
12	IS72MW17S-20200213MS	2000321-03MS	Water	02/13/20
13	IS72MW17S-20200213MSD	2000321-03MSD	Water	02/13/20
14				
15	BOB012T-B4-1			

LDC #: 47508B9S

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: JM

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		

LDC #: 47528B96

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: JM

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?		✓		
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47308B96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 9+
2nd Reviewer: SV6

METHOD: LC/MS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?
Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?
Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		12/13	PFHxA	101 (72-129)	145 (72-129)	( )	3	No Qual >4x
			PFHxS	191 (68-131)	158 (68-131)	( )		↓
			PFOA	419 (71-133)	225 (71-133)	( )		
			PFOA	( )	( )	60.2 (≤30)		✓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )	

LDC#: 47508B96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JV4

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Compound	Concentration (ug/L)		(≤30) RPD	Difference (≤LOQ)	Limits	Qual
	7	8				
PFBS	0.179	0.181	1			
PFHxA	0.908	0.881	3			
PFHpA	0.200	0.191	5			
PFHxS	0.526	0.505	4			
PFOA	0.312	0.306	2			
PFNA	0.00292	0.00251		0.0004	≤0.00406	
PFOS	0.109	0.112	3			

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2020\47508B96_WOOD.wpd

LDC #: 47008B96

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Page: 1 of 1
Reviewer: 9
2nd Reviewer: AM

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Labeled Compound	% Recovery	(Limit)	Qualifications
		9	$^{13}C_3$-PFHxS	35.2	(50-150)	No Qual (20x)
			$^{13}C_8$-PFOS	156	(↓)	↓ (10x)
					( )	
					( )	
					( )	
					( )	
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LDC #: 47508B96

VALIDATION FINDINGS WORKSHEET
Target Compound Identification

Reviewer: 9
2nd Reviewer: JM6

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.1.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was the signal to noise (S/N) ratio for all compounds within the validation criteria?
Y N N/A Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?
Y N N/A Were ion ratios between 50-150%?

#	Date	Sample ID	Associated Samples	Finding (Ion Ratio (50-150%))	Qualifications
		2	PFOS	4.901 (1.304 - 3.913)	Lots/J

LDC#: 47508B96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: SV

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/25/2020	MQ4	PFHxA	1	0.248125134	0.250
			2	0.539146786	0.500
			3	1.168615070	1.000
			4	2.008352724	2.000
			5	5.175495037	5.000
			6	10.07310758	10.000
			7	47.12403550	50.000
			8	93.66908582	100.000
			9	221.5552772	250.000
			10	439.8474496	500.000

Regression Output		***Reported***
Constant	*1.341585*	*0.084469*
Std Err of Y Est		
R Squared	*0.999839*	*0.999064*
Degrees of Freedom		
X Coefficient(s)	*0.879448*	*0.893131*
Std Err of Coef.		
Correlation Coefficient	*0.999919*	
Coefficient of Determination (r^2)	*0.999839*	*0.999064*

LDC #: 47528B96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: SM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/25/2020	MQ4	PFOS	1	0.170391718	0.250	0.0625
			2	0.424665941	0.500	0.25
			3	0.885487794	1.000	1
			4	2.19426531	2.000	4
			5	5.106805482	5.000	25
			6	10.73537158	10.000	100
			7	43.83599873	50.000	2500
			8	96.62892738	100.000	10000
			9	229.6765896	250.000	62500
			10	466.5084977	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.40720		-0.00626015
Std Err of Y Est				
R Squared		0.9998589		0.9992040
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	0.917505066	2.81034E-05	0.936367	-0.00001248
Std Err of Coef.				
Correlation Coefficient		0.999929		
Coefficient of Determination (r^2)		0.999859		

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/20/2020	MQ4	PFBS	1	0.218140541	0.250
			2	0.476012601	0.500
			3	0.98083487	1.000
			4	2.429106694	2.000
			5	6.071180012	5.000
			6	11.56255063	10.000
			7	59.02012306	50.000
			8	115.8441307	100.000
			9	268.6755383	250.000
			10	533.3780838	500.000

Regression Output		***Reported***
Constant	*1.855723*	*0.000349*
Std Err of Y Est		
R Squared	*0.999682*	*0.998678*
Degrees of Freedom		
X Coefficient(s)	*1.066774*	*1.087170*
Std Err of Coef.		
Correlation Coefficient	*0.999841*	
Coefficient of Determination (r^2)	*0.999682*	*0.998678*

LDC #: 47288B46

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/26/2020	MQ4	PFOA	1	0.364321782	0.250	0.0625
			2	0.719574409	0.500	0.25
			3	1.352100428	1.000	1
			4	2.401378426	2.000	4
			5	6.039297964	5.000	25
			6	11.76681779	10.000	100
			7	54.54803356	50.000	2500
			8	115.7280924	100.000	10000
			9	272.0486296	250.000	62500
			10	521.2496897	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.18709		0.120191
Std Err of Y Est				
R Squared		0.9999340		0.9997660
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.143310231	-0.000203208	1.14636	-0.000209775
Std Err of Coef.				
Correlation Coefficient		0.999967		
Coefficient of Determination (r^2)		0.999934		

LDC #: 45088B96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: DM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/29/2020	MQ4	PFHxS	1	0.090312611	0.250	0.0625
			2	0.554619134	0.500	0.25
			3	0.879094479	1.000	1
			4	1.88339845	2.000	4
			5	5.243644386	5.000	25
			6	11.85984225	10.000	100
			7	50.53408586	50.000	2500
			8	102.9247442	100.000	10000
			9	270.4999765	250.000	62500
			10	481.5067366	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	-1.40260		-0.145925
Std Err of Y Est				
R Squared		0.9994316		0.9986790
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.155909744	-0.000375202	1.09858	-0.000251852
Std Err of Coef.				
Correlation Coefficient		0.999716		
Coefficient of Determination (r^2)		0.999432		

LDC #: 47503B96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: A
2nd Reviewer: JVG

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/29/2020	MQ4	PFOA	1	0.341872059	0.250	0.0625
			2	0.833811058	0.500	0.25
			3	1.310270348	1.000	1
			4	2.523838971	2.000	4
			5	6.966030299	5.000	25
			6	13.0191009	10.000	100
			7	62.65294692	50.000	2500
			8	116.749093	100.000	10000
			9	284.132683	250.000	62500
			10	558.8260031	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	1.01258		0.255567
Std Err of Y Est				
R Squared		0.9999339		0.9995660
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.162937577	-9.60201E-05	1.19871	-0.000173152
Std Err of Coef.				
Correlation Coefficient		0.999967		
Coefficient of Determination (r^2)		0.999934		

LDC #: 47588396

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JV6

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	20022501-3C	2/25/20	PFOA ($^{13}C_2$-PFOA) PFHxA	10.00	10.9	10.87	8.7	8.7
			PFOS ($^{13}C_8$-PFOS) PFOS	10.00	10.6	10.55	5.5	5.5
2	20022501-3	2/26/20	PFOA ($^{13}C_2$-PFOA) PFHxA	10.0	11.1	11.06	10.6	10.6
			PFOS ($^{13}C_8$-PFOS) PFOS	↓	11.2	11.2	12.0	12.0
3	20022601-3	2/26/20	PFOA ($^{13}C_2$-PFOA) PFBA	10.0	10.4	10.41	4.1	4.1
			PFOS ($^{13}C_8$-PFOS) PFOA	10.0	10.7	10.66	6.6	6.6
4	20022601-5	2/27/20	PFOA ($^{13}C_2$-PFOA) PFBA	10.00	10.1	10.13	1.3	1.3
			PFOS ($^{13}C_8$-PFOS) PFOA	10.00	9.56	9.56	4.4	4.4

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 41508B46

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 4
2nd Reviewer: JVL

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 13/13

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFOA	0.0396	0.0408	0.881	1.05	0.973	419	417	~~60.2~~ 25	225	60.2	62.0
PFOS	↓	↓	0.134	0.175	0.184	103	103	120	122	15.2	16.9

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47988B96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JVG

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: BOB012T-BS1

Compound	Spike Added (µg/L)		Spike Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	NA	0.0406	NA	102	102				
PFOS	↓	↓	0.0342	↓	~~85.6~~	~~85.5~~				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508B96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2, PFOA:

Conc. = $\frac{(-1.14636+\sqrt{(1.14636)^2-4(-0.000209775)(-\frac{22.24\times12.5}{1.38e4}+0.120191)})}{(2)(-0.000209775)(245)(\quad)}$

= 0.7401 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	2	PFOA	0.741		

LDC Report# 47508C96

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 19, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000330

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
I003MW05S-20200214	2000330-02	Water	02/14/20
I003MW12S-20200214	2000330-03	Water	02/14/20
DUP04-20200214	2000330-04	Water	02/14/20
I003MW14S-20200214	2000330-05	Water	02/14/20
I003MW14S-20200214MS	2000330-05MS	Water	02/14/20
I003MW14S-20200214MSD	2000330-05MSD	Water	02/14/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB03-20200214 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 (from SDG 2000314) was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For I003MW14S-20200214MS/MSD, no data were qualified for perfluorobutanesulfonic acid (PFBS), perfluorohexanoic acid (PFHxA), perfluoroheptanoic acid (PFHpA), and perfluorooctanoic acid (PFOA) percent outside the QC limits since the parent sample results were greater than 4X the spike concentration.

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
I003MW14S-20200214MS/MSD (I003MW14S-20200214)	MeFOSAA	32.5 (≤30)	NA	-

For I003MW14S-20200214MS/MSD, no data were qualified for perfluorobutanesulfonic acid (PFBS), perfluorohexanoic acid (PFHxA), perfluoroheptanoic acid (PFHpA), and perfluorooctanoic acid (PFOA) relative percent differences (RPD) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples I003MW12S-20200214 and DUP04-20200214 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	I003MW12S-20200214	DUP04-20200214				
Perfluorobutanesulfonic acid (PFBS)	0.0346	0.0349	1 (≤30)	-	-	-
Perfluorohexanoic acid (PFHxA)	0.164	0.155	6 (≤30)	-	-	-

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	I003MW12S-20200214	DUP04-20200214				
Perfluoroheptanoic acid (PFHpA)	0.0538	0.0547	2 (≤30)	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	0.190	0.166	13 (≤30)	-	-	-
Perfluorooctanoic acid (PFOA)	0.402	0.403	0 (≤30)	-	-	-
Perfluorooctanesulfonic acid (PFOS)	0.0519	0.0574	10 (≤30)	-	-	-

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits with the following exceptions:

Sample	Labeled Compound	%R (Limits)	Affected Compound	Flag	A or P
DUP04-20200214	13C2-PFTeDA	39.9 (50-150)	Perfluorotetradecanoic acid (PFTeDA)	NA	-

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000330

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000330

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000330

No Sample Data Qualified in this SDG

LDC #: 47508C96 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/16/20
SDG #: 2000330 Stage 4 Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤20%, r^2 TWO/ICV≤30%
IV.	Continuing calibration/ISC	A	CCV/ISC≤30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1 .SB=SB01-20200212(2000314)
VII.	Matrix spike/Matrix spike duplicates	TW	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	TW	D=3+4
X.	Labeled Compounds	TW	
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~EB03-20200214~~	~~2000330-01~~	~~Water~~	~~02/14/20~~
2	I003MW05S-20200214	2000330-02	Water	02/14/20
3	I003MW12S-20200214	2000330-03	Water	02/14/20
4	DUP04-20200214	2000330-04	Water	02/14/20
5	I003MW14S-20200214	2000330-05	Water	02/14/20
6	I003MW14S-20200214MS	2000330-05MS	Water	02/14/20
7	I003MW14S-20200214MSD	2000330-05MSD	Water	02/14/20
8				
9				
10				

Notes:

	B0B0137-B4-1						

LDC #: 47508C96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: JVC

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		

LDC #: 47508C96

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: SM6

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?	✓			
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47508c96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 2
2nd Reviewer: JM

METHOD: LC/MS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?
Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?
Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		6/7	~~PFBS~~	53.1 (72-130)	68.3 (72-130)	( )	5	No Qual >4x
			~~PFHxA~~	( )	69.9 (72-129)	69.9 (≤30)		
			~~PFHpA~~	138 (72-130)	~~572~~ (70-130) -314	614 ( )		
				( )	( )	( )		
			~~PFHxS~~	44.2 (68-131)	-379 (68-131)	253 ( )		
			PFOA	64.4 (71-133)	26.4 (71-133)	83.7 ( )		
				( )	( )	( )		
			MeFOSAA	( )	( )	32.5 (≤30)	5 (ND)	Hold/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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LDC#: 47508C96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Compound	Concentration (ug/L)		(≤30) RPD	Difference (≤LOQ)	Limits	Qual
	3	4				
PFBS	0.0346	0.0349	1			
PFHxA	0.164	0.155	6			
PFHpA	0.0538	0.0547	2			
PFHxS	0.190	0.166	13			
PFOA	0.402	0.403	0			
PFOS	0.0519	0.0574	10			

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2020\47508C96_WOOD.wpd

LDC #: 47508C96

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Labeled Compound	% Recovery	(Limit)	Qualifications
		2	13C2-PFOA	161	(50-150)	No qual (5x)
					( )	
		4 (N/D)	13C2PFTeDA	39.9	( )	Verify (PFTeDA)
					( )	
		5	13C3-PFHxA	187	( )	No qual (5x)
			13C3-PFOA	174	( )	
					( )	
					( )	
					( )	
					( )	
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LDC#: 47508C96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 2
2nd Reviewer: JV6

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/24/2020	MQ4	PFBS	1	0.633875728	0.250
			2	1.101680907	0.500
			3	2.371425822	1.000
			4	5.122410556	2.000
			5	12.14561292	5.000
			6	24.17966012	10.000
			7	120.66273230	50.000
			8	249.1365015	100.000
			9	585.9840235	250.000
			10	1193.961241	500.000

Regression Output		*Reported*
Constant	*0.816967*	*0.022226*
Std Err of Y Est		
R Squared	*0.999841*	*0.999677*
Degrees of Freedom		
X Coefficient(s)	*2.380549*	*2.389200*
Std Err of Coef.		
Correlation Coefficient	*0.999921*	
Coefficient of Determination (r^2)	*0.999841*	*0.999677*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/24/2020	MQ4	PFHxA	1	0.315503721	0.250
			2	0.503071002	0.500
			3	1.029558277	1.000
			4	2.035496213	2.000
			5	5.038662651	5.000
			6	9.900583622	10.000
			7	47.51574284	50.000
			8	91.75496192	100.000
			9	228.7017249	250.000
			10	450.1274278	500.000

Regression Output		***Reported***
Constant	*0.859876*	*0.075621*
Std Err of Y Est		
R Squared	*0.999930*	*0.999659*
Degrees of Freedom		
X Coefficient(s)	*0.901577*	*0.910113*
Std Err of Coef.		
Correlation Coefficient	*0.999965*	
Coefficient of Determination (r^2)	*0.999930*	*0.999659*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/27/2020	MQ4	PFBS	1	0.632118722	0.250
			2	1.586507597	0.500
			3	2.742775839	1.000
			4	4.901326024	2.000
			5	12.22165384	5.000
			6	27.67974785	10.000
			7	128.6912281	50.000
			8	253.2448455	100.000
			9	578.2133693	250.000
			10	1165.917419	500.000

Regression Output		***Reported***
Constant	*3.957059*	*0.185525*
Std Err of Y Est		
R Squared	*0.999640*	*0.998443*
Degrees of Freedom		
X Coefficient(s)	*2.325181*	*2.366230*
Std Err of Coef.		
Correlation Coefficient	*0.999820*	
Coefficient of Determination (r^2)	*0.999640*	*0.998443*

LDC #: 47508C96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: DV

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/27/2020	MQ4	PFOA	1	0.322971593	0.250	0.0625
			2	0.664649291	0.500	0.25
			3	1.41593446	1.000	1
			4	2.504266854	2.000	4
			5	6.608790835	5.000	25
			6	12.89285388	10.000	100
			7	58.00272182	50.000	2500
			8	117.4198491	100.000	10000
			9	276.2363349	250.000	62500
			10	502.6360698	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.20152		0.0799012
Std Err of Y Est				
R Squared		0.9999868		0.9998180
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.20400609	-0.000398275	1.20955	-0.000410213
Std Err of Coef.				
Correlation Coefficient		0.999993		
Coefficient of Determination (r^2)		0.999987		

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
2/28/2020	MQ4	PFHxA	1	0.303600128	0.250
			2	0.597584798	0.500
			3	1.164206205	1.000
			4	1.968289604	2.000
			5	5.098500037	5.000
			6	9.640800994	10.000
			7	47.14252829	50.000
			8	95.7879666	100.000
			9	219.0447367	250.000
			10	420.3159336	500.000

Regression Output		***Reported***
Constant	*2.481143*	*0.122807*
Std Err of Y Est		
R Squared	*0.999080*	*0.997551*
Degrees of Freedom		
X Coefficient(s)	*0.844901*	*0.870570*
Std Err of Coef.		
Correlation Coefficient	*0.999540*	
Coefficient of Determination (r^2)	*0.999080*	*0.997551*

LDC #: 47988C96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: SM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	Instrument	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
2/28/2020	MQ4	PFHxS	1	0.12583571	0.250	0.0625
			2	0.546220095	0.500	0.25
			3	1.100093989	1.000	1
			4	2.268965029	2.000	4
			5	5.842901742	5.000	25
			6	12.00998324	10.000	100
			7	51.40861626	50.000	2500
			8	106.1284785	100.000	10000
			9	267.918899	250.000	62500
			10	468.4202122	500.000	250000

Regression Output	Calculated		*Reported*	
Constant	c	-1.04004		-0.0812317
Std Err of Y Est				
R Squared		0.9996150		0.9990280
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.170779375	-0.000459763	1.12704	-0.00036565
Std Err of Coef.				
Correlation Coefficient		0.999807		
Coefficient of Determination (r^2)		0.999615		

LDC #: 47508C96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: JM

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	200224P1-34	2/24/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFBS	10.00	10.4	10.37	3.7	3.7
			~~PFOS ($^{13}C_8$-PFOS)~~	10.00	10.8	10.77	7.7	7.7
2	200228P2-75	2/29/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFHxA	10.0	11.1	11.14	11.4	11.4
			~~PFOS ($^{13}C_8$-PFOS)~~	10.0	9.57	9.57	4.3	4.3
3			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
4			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 47508C96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JV6

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 6/7

Compound	Spike Added (ng/L)		Sample Concentration (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFOA	0.202	0.202	4.36	4.49	4.42	64.4	64.4	26.4	29.7	83.7	31.57
PFOS	~~0.675~~ 0.0403	0.0405	0.601	~~0.695~~ 0.649	0.649	111	109	120	119	7.79	0.62

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508C96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA

Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: B0B013T-BS1

Compound	Spike Added (µg/L)		Spike Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	NA	0.0354	NA	88.5	88.5				
PFOS	↓	↓	0.0359	↓	89.7	89.7				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508C96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, PFBS:

Conc. = $\frac{(1380)(\frac{13400 \times 12.5}{2.3892})(\frac{-0.0222262}{256})(\quad)(\quad)}{(\quad)(\quad)}$

= 0.198 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	1	PFBS	0.198		

LDC Report# 47508D96

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 19, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000356

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
IS720W02D-20200219	2000356-02	Water	02/19/20
IS720W06D-20200219	2000356-03	Water	02/19/20
IS720W03D-20200219	2000356-04	Water	02/19/20
TW08S-20200219	2000356-05	Water	02/19/20
TW09S-20200219	2000356-06	Water	02/19/20
TW10S-20200219	2000356-07	Water	02/19/20
TW11S-20200219	2000356-08	Water	02/19/20
TW13S-20200219	2000356-09	Water	02/19/20
TW12S-20200219	2000356-10	Water	02/19/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB04-20200219 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 (from SDG 2000314) was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria with the following exceptions:

Sample	Compound	Ion Abundance Ratio (Limits)	Flag	A or P
IS720W06D-20200219	Perfluorononanoic acid (PFNA)	14.064 (2.6685-8.0055)	J (all detects)	A
TW08S-20200219	Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS)	8.031 (2.6685-8.005) 3.631 (1.027-3.081)	J (all detects) J (all detects)	A
TW09S-20200219	Perfluorononanoic acid (PFNA)	8.314 (2.6685-8.0055)	J (all detects)	A

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to ion abundance ratio, data were qualified as estimated in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000356

Sample	Compound	Flag	A or P	Reason
IS720W06D-20200219 TW09S-20200219	Perfluorononanoic acid (PFNA)	J (all detects)	A	Target compound identification (ion abundance ratio)
TW08S-20200219	Perfluorononanoic acid (PFNA) Perfluorooctanesulfonic acid (PFOS)	J (all detects) J (all detects)	A	Target compound identification (ion abundance ratio)

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000356

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000356

No Sample Data Qualified in this SDG

LDC #: 47508D96

SDG #: 2000356

Laboratory: Vista Analytical Laboratory

VALIDATION COMPLETENESS WORKSHEET

Stage 4

Date: 3/14/20

Page: 1 of 1

Reviewer: V

2nd Reviewer: JVG

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSD≤20%. r² TMC/ICV≤30%
IV.	Continuing calibration/ISC	A	CCV/ISC≤30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1. EB=SB01-20200212 (2000314)
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Labeled Compounds	TW	
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	TW	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~EB04-20200219~~	~~2000356-01~~	~~Water~~	~~02/19/20~~
2	IS720W02D-20200219	2000356-02	Water	02/19/20
3	IS720W06D-20200219	2000356-03	Water	02/19/20
4	IS720W03D-20200219	2000356-04	Water	02/19/20
5	TW08S-20200219	2000356-05	Water	02/19/20
6	TW09S-20200219	2000356-06	Water	02/19/20
7	TW10S-20200219	2000356-07	Water	02/19/20
8	TW11S-20200219	2000356-08	Water	02/19/20
9	TW13S-20200219	2000356-09	Water	02/19/20
10	TW12S-20200219	2000356-10	Water	02/19/20
11				

Notes:

	B0B0186-BK1						

LDC #: 47808696

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 47583D96

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: JW

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?		✓		
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47508096

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Reviewer: 9
2nd Reviewer: JV4

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Labeled Compound	% Recovery	(Limit)	Qualifications
		300B0186-BLK1	d5-EtFOSAA	45.1	(30-150)	J+ (all detects) A
					( )	
					( )	
					( )	
					( )	
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					( )	

LDC #: 47508D 96

VALIDATION FINDINGS WORKSHEET
Target Compound Identification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.1.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was the signal to noise (S/N) ratio for all compounds within the validation criteria?
Y N N/A Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?
Y N N/A Were ion ratios between 50-150%?

#	Date	Sample ID	Associated Samples	Ion Ratio 50-150% Finding	Qualifications
		3	PFNA	14.064 (2.6685 - 8.0055)	Jdets/A
		5	PFNA	8.031 (2.6685 - 8.0055)	
			PFOS	3.631 (1.027 - 3.081)	
		6	PFNA	8.314 (2.6685 - 8.0055)	

LDC#: 47508D96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 4
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/3/2020	MQ4	PFBS	1	0.554705098	0.250
			2	1.200240315	0.500
			3	2.661566497	1.000
			4	4.565038616	2.000
			5	11.70798422	5.000
			6	24.59190858	10.000
			7	123.1772944	50.000
			8	228.7428464	100.000
			9	652.3548228	250.000
			10	1232.788197	500.000

Regression Output		***Reported***
Constant	*-0.438622*	*-0.055572*
Std Err of Y Est		
R Squared	*0.999028*	*0.998545*
Degrees of Freedom		
X Coefficient(s)	*2.488959*	*2.484790*
Std Err of Coef.		
Correlation Coefficient	*0.999514*	
Coefficient of Determination (r^2)	*0.999028*	*0.998545*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/3/2020	MQ4	PFHxA	1	0.284453925	0.250
			2	0.563641632	0.500
			3	0.853216191	1.000
			4	1.758122628	2.000
			5	3.931533913	5.000
			6	8.197558343	10.000
			7	44.22352528	50.000
			8	88.16450415	100.000
			9	228.8115199	250.000
			10	439.6866489	500.000

Regression Output		***Reported***
Constant	*0.288773*	*0.023652*
Std Err of Y Est		
R Squared	*0.999657*	*0.999493*
Degrees of Freedom		
X Coefficient(s)	*0.885537*	*0.888423*
Std Err of Coef.		
Correlation Coefficient	*0.999829*	
Coefficient of Determination (r^2)	*0.999657*	*0.999493*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFBS	1	0.587190232	0.250
			2	1.302489993	0.500
			3	2.382420295	1.000
			4	4.640189802	2.000
			5	12.43729927	5.000
			6	22.28433527	10.000
			7	120.4758055	50.000
			8	242.8732193	100.000
			9	682.9602572	250.000
			10	1288.660676	500.000

Regression Output		***Reported***
Constant	*-1.500233*	*-0.116823*
Std Err of Y Est		
R Squared	*0.999024*	*0.998244*
Degrees of Freedom		
X Coefficient(s)	*2.605286*	*2.590230*
Std Err of Coef.		
Correlation Coefficient	*0.999512*	
Coefficient of Determination (r^2)	*0.999024*	*0.998244*

LDC#: 47898D96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFHxA	1	0.31107562	0.250
			2	0.537330688	0.500
			3	0.920922420	1.000
			4	1.813037164	2.000
			5	4.474043531	5.000
			6	9.166550489	10.000
			7	43.86348346	50.000
			8	85.83019426	100.000
			9	226.2737151	250.000
			10	433.2922326	500.000

Regression Output		***Reported***
Constant	*0.492762*	*0.058589*
Std Err of Y Est		
R Squared	*0.999590*	*0.999543*
Degrees of Freedom		
X Coefficient(s)	*0.872441*	*0.877166*
Std Err of Coef.		
Correlation Coefficient	*0.999795*	
Coefficient of Determination (r^2)	*0.999590*	*0.999543*

LDC #: 47088D96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: SM

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	20030422S9	3/5/20	~~PFOA ($^{13}C_2$-PFOA)~~ ~~PFBS~~	10.00	9.86	9.86	1.4	1.4
			~~PFOS ($^{13}C_8$-PFOS)~~	10.00	10.1	10.08	0.8	0.8
2			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
3			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
4			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #41608D96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 80B0186-BS1/BSD1

Compound	Spike Added (µL)		Spike Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	0.0400	0.0374	0.0385	93.4	93.4	96.3	96.3	3.06	2.90
PFOS	↓	↓	0.0361	0.0403	90.2	90.2	101	101	11.1	11.0

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508D96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2, PFBS

Conc. = $\frac{(\frac{995 \times 12.5}{756})(\quad)(0.055572)(1)(\quad)}{(2.48474)(252)(\quad)(\quad)}$

= 0.0264 µg/L

#	Sample ID	Compound	Reported Concentration µg/L	Calculated Concentration ( )	Qualification
	2	PFBS	0.0264		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 19, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000372

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TW07S-20200220	2000372-02	Water	02/20/20
TW05S-20200220	2000372-03	Water	02/20/20
TW06S-20200220	2000372-04	Water	02/20/20
TW21S-20200220	2000372-05	Water	02/20/20
TW20S-20200220	2000372-06	Water	02/20/20
TW19S-20200220	2000372-07	Water	02/20/20
TW18S-20200220	2000372-08	Water	02/20/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB04-20200219 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 (from SDG 2000314) was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria with the following exceptions:

Sample	Compound	Ion Abundance Ratio (Limits)	Flag	A or P
TW05S-20200220	Perfluorononanoic acid (PFNA)	9.388 (2.6685-8.0055)	J (all detects)	A
TW21S-20200220	Perfluorononanoic acid (PFNA)	16.165 (3.6265-10.8795)	J (all detects)	A
TW20S-20200220	Perfluorohexanoic acid (PFHxA)	125.926 (10.3835-31.1505)	J (all detects)	A
TW18S-20200220	Perfluoroheptanoic acid (PFHpA)	27.375 (8.382-25.146)	J (all detects)	A

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to ion abundance ratio, data were qualified as estimated in four samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000372

Sample	Compound	Flag	A or P	Reason
TW05S-20200220 TW21S-20200220	Perfluorononanoic acid (PFNA)	J (all detects)	A	Target compound identification (ion abundance ratio)
TW20S-20200220	Perfluorohexanoic acid (PFHxA)	J (all detects)	A	Target compound identification (ion abundance ratio)
TW18S-20200220	Perfluoroheptanoic acid (PFHpA)	J (all detects)	A	Target compound identification (ion abundance ratio)

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000372

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000372

No Sample Data Qualified in this SDG

LDC #: 47508E96

SDG #: 2000372

Laboratory: Vista Analytical Laboratory

VALIDATION COMPLETENESS WORKSHEET

Stage 4

Date: 3/16/20

Page: 1 of 1

Reviewer:

2nd Reviewer: JVG

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20% . r^2 TWL/ICV ≤ 30%
IV.	Continuing calibration/ISC	A	CCV/ISC ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1 SB=SB01-20200212(2000314)
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Labeled Compounds	A	
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	TW	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~EB05--20200220~~	~~2000372-01~~	~~Water~~	~~02/20/20~~
2	TW07S-20200220	2000372-02	Water	02/20/20
3	TW05S-20200220	2000372-03	Water	02/20/20
4	TW06S-20200220	2000372-04	Water	02/20/20
5	TW21S-20200220	2000372-05	Water	02/20/20
6	TW20S-20200220	2000372-06	Water	02/20/20
7	TW19S-20200220	2000372-07	Water	02/20/20
8	TW18S-20200220	2000372-08	Water	02/20/20
9				
10				

Notes:

	B0B0213-BK1						

LDC #: 47508296

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: JW

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 47508296

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: 9
2nd Reviewer: JV6

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?	✓			
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?		✓		
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47508E96

VALIDATION FINDINGS WORKSHEET
Target Compound Identification

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.1.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was the signal to noise (S/N) ratio for all compounds within the validation criteria?
Y (N) N/A Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?
Y (N) N/A Were ion ratios between 50-150%?

#	Date	Sample ID	Associated Samples	Ion Ratio (50-150%) Finding	Qualifications
		3	PFNA	9.388 (2.685-8.0055)	J+ (all) / A
		5	PFNA	16.165 (3.6265-10.8795)	
		6	PFHxA	125.926 (10.3835-31.1505)	
		8	PFHpA	27.375 (0.382-25.146)	

LDC#: 41582 98

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFBS	1	0.587190232	0.250
			2	1.302489993	0.500
			3	2.382420295	1.000
			4	4.640189802	2.000
			5	12.43729927	5.000
			6	22.28433527	10.000
			7	120.4758055	50.000
			8	242.8732193	100.000
			9	682.9602572	250.000
			10	1288.660676	500.000

Regression Output		***Reported***
Constant	*-1.500233*	*-0.116823*
Std Err of Y Est		
R Squared	*0.999024*	*0.998244*
Degrees of Freedom		
X Coefficient(s)	*2.605286*	*2.590230*
Std Err of Coef.		
Correlation Coefficient	*0.999512*	
Coefficient of Determination (r^2)	*0.999024*	*0.998244*

LDC#: 47582-96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer:
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFHxA	1	0.31107562	0.250
			2	0.537330688	0.500
			3	0.920922420	1.000
			4	1.813037164	2.000
			5	4.474043531	5.000
			6	9.166550489	10.000
			7	43.86348346	50.000
			8	85.83019426	100.000
			9	226.2737151	250.000
			10	433.2922326	500.000

Regression Output		***Reported***
Constant	*0.492762*	*0.058589*
Std Err of Y Est		
R Squared	*0.999590*	*0.999543*
Degrees of Freedom		
X Coefficient(s)	*0.872441*	*0.877166*
Std Err of Coef.		
Correlation Coefficient	*0.999795*	
Coefficient of Determination (r^2)	*0.999590*	*0.999543*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/5/2020	MQ4	PFBS	1	0.726555356	0.250
			2	1.104992504	0.500
			3	2.524191830	1.000
			4	5.242095397	2.000
			5	12.56394309	5.000
			6	24.35921505	10.000
			7	128.0155043	50.000
			8	263.9439244	100.000
			9	580.1280986	250.000
			10	1282.892279	500.000

Regression Output		***Reported***
Constant	*-1.958225*	*0.020965*
Std Err of Y Est		
R Squared	*0.997967*	*0.997821*
Degrees of Freedom		
X Coefficient(s)	*2.526349*	*2.504810*
Std Err of Coef.		
Correlation Coefficient	*0.998983*	
Coefficient of Determination (r^2)	*0.997967*	*0.997821*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/5/2020	MQ4	PFHxA	1	0.303339179	0.250
			2	0.512576408	0.500
			3	0.938837798	1.000
			4	1.910591972	2.000
			5	4.666418299	5.000
			6	9.287534991	10.000
			7	45.54031784	50.000
			8	89.32557222	100.000
			9	217.1793728	250.000
			10	414.4291907	500.000

Regression Output		***Reported***
Constant	*1.769943*	*0.082029*
Std Err of Y Est		
R Squared	*0.999397*	*0.998840*
Degrees of Freedom		
X Coefficient(s)	*0.834171*	*0.852543*
Std Err of Coef.		
Correlation Coefficient	*0.999698*	
Coefficient of Determination (r^2)	*0.999397*	*0.998840*

LDC #: ~~41508270~~

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	~~20030SP-31~~	~~3/6/20~~	~~PFOA ($^{13}C_2$-PFOA)~~ ~~PFBS~~	10.00	9.65	9.65	3.5	3.5
			~~PFOS ($^{13}C_8$-PFOS)~~ ~~PFHxA~~	10.00	10.4	10.42	4.2	4.2
2			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
3			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
4			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47008296

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JVC

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: BOB0213-BS1/-BSD1

Compound	Spike Added (µg/L)		Spike Concentration (ng)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	0.0400	0.0429	0.0420	107	107	105	105	2.03	2.12
PFOS	↓	↓	0.0403	0.0436	101	101	109	109	7.91	7.87

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508296

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: JM

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2, PFHxA

Conc. = $\frac{(1.33e4 \times 12.5)}{(1.38e4 \times 1)} \times \frac{0.005859}{(0.877166)(254)} \times \frac{(1)}{(\quad)} \times \frac{(\quad)}{(\quad)}$

= 0.0497 ng/L

#	Sample ID	Compound	Reported Concentration (ng/L)	Calculated Concentration ( )	Qualification
	2	PFHxA	0.0494		

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro and Tustin PFAS

LDC Report Date: March 20, 2020

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 2000390

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TW14S-20200221	2000390-02	Water	02/21/20
TW17S-20200221	2000390-03	Water	02/21/20
TW16S-20200221	2000390-04	Water	02/21/20
TW15S-20200221	2000390-05	Water	02/21/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances in Groundwater in Carve-Outs 2, 5, 6, and 9 and Groundwater and Surface Water Near Operable Unit 3, Former Marine Corps Air Station Tustin, Tustin, California, with Addendum #02 to Final Sampling and Analysis Plan for Per- and Polyfluoroalkyl Substances Sampling for Groundwater Remedial Action at Operable Unit 3, Installation Restoration Program Site 1 (February 2020), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), and the DoD General Validation Guidelines (February 2018). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537 Modified and LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the methods.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

Retention time windows were established as required by the methods.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB06-20200221 was identified as an equipment blank. No contaminants were found.

Sample SB01-20200212 (from SDG 2000314) was identified as a source blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

XII. Target Compound Identifications

All target compound identifications met validation criteria with the following exceptions:

Sample	Compound	Ion Abundance Ratio (Limits)	Flag	A or P
TW14S-20200221	Perfluorononanoic acid (PFNA)	8.665 (2.6685-8.0055)	J (all detects)	A
TW15S-20200221	Perfluorononanoic acid (PFNA)	8.257 (2.6685-8.0055)	J (all detects)	A

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to ion abundance ratio, data were qualified as estimated in two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 2000390

Sample	Compound	Flag	A or P	Reason
TW14S-20200221 TW15S-20200221	Perfluorononanoic acid (PFNA)	J (all detects)	A	Target compound identification (ion abundance ratio)

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 2000390

No Sample Data Qualified in this SDG

MCAS El Toro and Tustin PFAS
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 2000390

No Sample Data Qualified in this SDG

LDC #: 47508F96

SDG #: 2000390

Laboratory: Vista Analytical Laboratory

VALIDATION COMPLETENESS WORKSHEET

Stage 4

Date: 3/16/20

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537M DOD QSM 5.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ASO ≤ 20% · r² TMC/ICV ≤ 3%
IV.	Continuing calibration/ISC	A	CCV/ISC ≤ 3%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1 SB=SB01-20200212 (2000314)
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Labeled Compounds	SW	
VI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	SW	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
~~1~~	~~EB06-20200221~~	~~2000390-01~~	~~Water~~	~~02/21/20~~
2	TW14S-20200221	2000390-02	Water	02/21/20
3	TW17S-20200221	2000390-03	Water	02/21/20
4	TW16S-20200221	2000390-04	Water	02/21/20
5	TW15S-20200221	2000390-05	Water	02/21/20
6				
7				
8				
9				
10				

Notes:

	B0B0213-B44						

LDC #: 47508F96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: JM

Method: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
III. Initial calibration and Initial Calibration Verification				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the coefficient of determination (r^2) criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were the retention time windows properly established?	✓			
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) of the initial calibration verification ≤ 30%?	✓			
IV. Continuing calibration and Instrument Sensitivity Check				
Was a continuing calibration analyzed prior to sample analysis, after every 10 samples and at the end of the analytical sequence?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
Were all the retention times within the acceptance windows?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 47508F96

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: 9
2nd Reviewer: SW

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
Were retention times within 0.4 minutes of the associated calibration standard?	✓			
XI. Compound quantitation				
Did the laboratory reporting limits (i.e. DL, LOD, LOQ) meet the QAPP?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound retention times within 0.1 minutes of the associated labeled compound for compounds with a labeled analog?	✓			
Were compound quantitation and reporting limits adjusted to reflect all sample dilutions and dry weight factors applicable to Stage 4 validation?	✓			
XII. Target compound identification				
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
Were ion ratios between 50-150%?		✓		
XIII. System performance				
System performance was found to be acceptable.	✓			
XIV. Overall assessment of Data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC #: 47308E96

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Reviewer: 9
2nd Reviewer: JVG

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.3
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Labeled Compound	% Recovery	(Limit)	Qualifications
		3	13C2-PFOA	160	(50-150)	No Qual (15X)
					( )	
					( )	
					( )	
					( )	
					( )	
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LDC #: 47508E96

VALIDATION FINDINGS WORKSHEET
Target Compound Identification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS/MS and Isotope Dilution Compliant with Table B-15 of DoD QSM 5.1.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was the signal to noise (S/N) ratio for all compounds within the validation criteria?
Y N N/A Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?
Y N N/A Were ion ratios between 50-150%?

#	Date	Sample ID	Associated Samples	Ion Ratio (50-150%) Finding	Qualifications
		2	PFNA	8.665 (2.6685 - 8.0055)	Ldets/A
		5	PFNA	8.257	

LDC#: 47508F96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 2nd Reviewer:

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFBS	1	0.587190232	0.250
			2	1.302489993	0.500
			3	2.382420295	1.000
			4	4.640189802	2.000
			5	12.43729927	5.000
			6	22.28433527	10.000
			7	120.4758055	50.000
			8	242.8732193	100.000
			9	682.9602572	250.000
			10	1288.660676	500.000

Regression Output		*Reported*
Constant	*-1.500233*	*-0.116823*
Std Err of Y Est		
R Squared	*0.999024*	*0.998244*
Degrees of Freedom		
X Coefficient(s)	*2.605286*	*2.590230*
Std Err of Coef.		
Correlation Coefficient	*0.999512*	
Coefficient of Determination (r^2)	*0.999024*	*0.998244*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/4/2020	MQ4	PFHxA	1	0.31107562	0.250
			2	0.537330688	0.500
			3	0.920922420	1.000
			4	1.813037164	2.000
			5	4.474043531	5.000
			6	9.166550489	10.000
			7	43.86348346	50.000
			8	85.83019426	100.000
			9	226.2737151	250.000
			10	433.2922326	500.000

Regression Output		***Reported***
Constant	*0.492762*	*0.058589*
Std Err of Y Est		
R Squared	*0.999590*	*0.999543*
Degrees of Freedom		
X Coefficient(s)	*0.872441*	*0.877166*
Std Err of Coef.		
Correlation Coefficient	*0.999795*	
Coefficient of Determination (r^2)	*0.999590*	*0.999543*

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/5/2020	MQ4	PFBS	1	0.726555356	0.250
			2	1.104992504	0.500
			3	2.524191830	1.000
			4	5.242095397	2.000
			5	12.56394309	5.000
			6	24.35921505	10.000
			7	128.0155043	50.000
			8	263.9439244	100.000
			9	580.1280986	250.000
			10	1282.892279	500.000

Regression Output		*Reported*
Constant	*-1.958225*	*0.020965*
Std Err of Y Est		
R Squared	*0.997967*	*0.997821*
Degrees of Freedom		
X Coefficient(s)	*2.526349*	*2.504810*
Std Err of Coef.		
Correlation Coefficient	*0.998983*	
Coefficient of Determination (r^2)	*0.997967*	*0.997821*

LDC#: 47608F96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFCs (EPA Method 537)

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
3/5/2020	MQ4	PFHxA	1	0.303339179	0.250
			2	0.512576408	0.500
			3	0.938837798	1.000
			4	1.910591972	2.000
			5	4.666418299	5.000
			6	9.287534991	10.000
			7	45.54031784	50.000
			8	89.32557222	100.000
			9	217.1793728	250.000
			10	414.4291907	500.000

Regression Output		***Reported***
Constant	*1.769943*	*0.082029*
Std Err of Y Est		
R Squared	*0.999397*	*0.998840*
Degrees of Freedom		
X Coefficient(s)	*0.834171*	*0.852543*
Std Err of Coef.		
Correlation Coefficient	*0.999698*	
Coefficient of Determination (r^2)	*0.999397*	*0.998840*

LDC #: 47508F96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: JVG

METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF	Recalculated RRF	Reported %D	Recalculated %D
1	200324P2-29	3/5/20	~~PFOA ($^{13}C_2$-PFOA)~~ PFBS	10.00	9.73	9.73	2.7	2.7
			~~PFOS ($^{13}C_8$-PFOS)~~ PFHxA	10.00	9.92	9.92	0.8	0.8
2			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
3			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					
4			PFOA ($^{13}C_2$-PFOA)					
			PFOS ($^{13}C_8$-PFOS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47808-7D

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: Q
2nd Reviewer: JM6

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 280B0213-BS1/-BSD1

Compound	Spike Added (µg/L)		Spike Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.0400	0.0400	0.0429	0.0420	107	107	105	105	2.03	2.12
PFOS	↓	↓	0.0403	0.0436	101	101	109	109	7.91	7.87

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Privileged and Confidential

LDC #: 47508F96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [signature]
2nd reviewer: [signature]

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2 PFHxA:

Conc. = $\frac{1.51e4 \times 12.5}{(1.33e4)(0.877166)(252)} - 0.05859 \; (1)(\quad)(\quad)$

= 0.0639 µg/L

#	Sample ID	Compound	Reported Concentration µg/L	Calculated Concentration ( )	Qualification
	2	PFHxA	00640		

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW17S	Temporary well point	6083380.313	2202401.875	TW17S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW15S	Temporary well point	6082614.688	2202798.75	TW15S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
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TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
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TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B SOUTH	TW16S	Temporary well point	6082730.313	2202355	TW16S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
TUSTIN_MCAS	OU 0000001B NORTH	TW14S	Temporary well point	6083956.736	2206280.566	TW14S-20200221	Ground water	21-Feb-20	Perfluoroalkyl Compounds	2000390
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