Navy_CLEAN_PFAS_FOIA_request_covers.indd

NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, and the Sample Location Report, SDG 1701855

Naval Weapons Industrial Reserve Plant Calverton
Riverhead, New York

August 2019

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

December 15, 2017

Vista Work Order No. 1701855

Ms. Kristi Francisco
Tetra Tech
5700 Lake Wright Drive, Suite 309
Norfolk, VA 23502

Dear Ms. Francisco,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 06, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name '112G08005-WE05 NWIRP Calverton PFAS Inv.'. The SDG Number is WE05.

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.

SDG Number WE05
Vista Work Order No. 1701855
Case Narrative

Sample Condition on Receipt:

One aqueous sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537

The aqueous sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537.

Holding Times

The sample was 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 method acceptance criteria. The RPD for PFUnA was 39.3%.

The extracts were re-injected because one or more Injection Internal Standard Analyte response areas were outside of criteria. The area criteria passed for the second injections and the results from the re-injections have been reported.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

In addition, the laboratory QC officer must read and sign a copy of the Quality Assurance Review Form displayed on the next page of this Attachment. Electronic deliverables are not considered to be complete without the accompanying Quality Assurance Review Form.

I Anna Helak, as the designated Quality Assurance Officer, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (916) 673-1520 If there are any questions or problems with the enclosed electronic deliverables.

Signature: Anna Title: QA Manager Date: 12/15/2017

Revision 9
ISG
08/18/16

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701855-01	CA-AQIDW01-20171205	05-Dec-17 12:30	06-Dec-17 09:58	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Tetra Tech
Project: 112G08005-WE05 NWIRP Calverton PFAS Inv.
Matrix: Aqueous

Laboratory Data

Lab Sample: B7L0046-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.895	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFHxA	ND	1.09	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFHpA	ND	0.296	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFHxS	ND	0.474	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFOA	ND	0.326	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFOS	ND	0.404	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFNA	ND	0.405	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFDA	ND	0.745	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
MeFOSAA	ND	0.825	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFUnA	ND	0.525	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
EtFOSAA	ND	0.685	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFDoA	ND	0.396	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFTrDA	ND	0.247	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
PFTeDA	ND	0.378	2.50	4.00		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.7	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFHxA	IS	108	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C4-PFHpA	IS	103	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
18O2-PFHxS	IS	119	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFOA	IS	100	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C8-PFOS	IS	103	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C5-PFNA	IS	89.5	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFDA	IS	95.1	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
d3-MeFOSAA	IS	118	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFUnA	IS	97.1	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
d5-EtFOSAA	IS	104	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFDoA	IS	78.9	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1
13C2-PFTeDA	IS	108	50 - 150		B7L0046	09-Dec-17	0.250 L	13-Dec-17 22:31	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **Modified EPA Method 537**

Name:	Tetra Tech	Lab Sample:	B7L0046-BS1/B7L0046-BSD1	Date Extracted:	09-Dec-17
Project:	112G08005-WE05 NWIRP Calverton PFAS Inv.	QC Batch:	B7L0046	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Analyte	LCS (ng/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	39.9	40.0	99.7		39.3	40.0	98.2	1.52		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFHxA	44.8	40.0	112		37.5	40.0	93.7	17.9		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFHpA	41.3	40.0	103		35.5	40.0	88.9	14.9		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFHxS	42.6	40.0	106		31.9	40.0	79.8	28.7		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFOA	44.2	40.0	111		38.3	40.0	95.6	14.5		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFOS	35.6	40.0	89.1		40.1	40.0	100	11.7		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFNA	30.9	40.0	77.3		35.6	40.0	89.0	14.1		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFDA	38.8	40.0	96.9		42.6	40.0	107	9.48		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
MeFOSAA	41.8	40.0	104		40.9	40.0	102	2.05		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFUnA	41.7	40.0	104		28.0	40.0	70.0	39.3	H	70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
EtFOSAA	33.0	40.0	82.6		34.5	40.0	86.3	4.49		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFDoA	40.2	40.0	100		40.1	40.0	100	0.226		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFTrDA	40.1	40.0	100		52.0	40.0	130	25.9		60-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1
PFTeDA	34.9	40.0	87.3		34.9	40.0	87.2	0.101		70-130	30	13-Dec-17 21:46	1	13-Dec-17 21:57	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBS	IS	107		107		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFHxA	IS	101		103		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C4-PFHpA	IS	97.6		103		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
18O2-PFHxS	IS	83.2		107		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFOA	IS	83.3		99.0		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C8-PFOS	IS	109		102		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C5-PFNA	IS	111		113		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFDA	IS	85.0		84.0		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
d3-MeFOSAA	IS	99.2		85.0		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFUnA	IS	83.2		93.3		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
d5-EtFOSAA	IS	112		93.4		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFDoA	IS	85.0		65.3		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1
13C2-PFTeDA	IS	124		109		50-150	13-Dec-17 21:46	1	13-Dec-17 21:57	1

Sample ID: CA-AQIDW01-20171205

Modified EPA Method 537

Client Data

Name: Tetra Tech
Project: 112G08005-WE05 NWIRP Calverton PFAS Inv.
SDG: WE05
Matrix: Aqueous
Date Collected: 05-Dec-17 12:30

Laboratory Data

Lab Sample: 1701855-01
Date Received: 06-Dec-17 09:58
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.852	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFHxA	ND	1.04	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFHpA	ND	0.281	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFHxS	ND	0.451	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFOA	ND	0.310	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFOS	ND	0.384	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFNA	0.419	0.386	2.38	3.81	J	B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFDA	ND	0.709	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
MeFOSAA	ND	0.785	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFUnA	ND	0.500	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
EtFOSAA	ND	0.652	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFDoA	ND	0.377	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFTrDA	ND	0.235	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
PFTeDA	ND	0.359	2.38	3.81		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	122	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFHxA	IS	114	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C4-PFHpA	IS	112	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
18O2-PFHxS	IS	110	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFOA	IS	92.0	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C8-PFOS	IS	135	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C5-PFNA	IS	92.5	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFDA	IS	112	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
d3-MeFOSAA	IS	108	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFUnA	IS	101	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
d5-EtFOSAA	IS	120	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFDoA	IS	99.4	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1
13C2-PFTeDA	IS	141	50 - 150		B7L0046	09-Dec-17	0.263 L	13-Dec-17 23:04	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS 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.**
D	**Dilution**
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**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
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

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
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

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	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
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 Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701855 Temp: 1.5 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: 112G08005-WEOS NWIRP Calverton PFAS Inv. PO#: Sampler: Jacob Birkett Bow Benfield (name)

TAT (check one): Standard: ☐ 21 days; Rush (surcharge may apply): ☐ 14 days ☒ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
	Tetra Tech	5700 Lake Wright Dr. Suite 102	Norfolk	VA	757-466-4902	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Jacob Birkett	12-5-17	1600	FedEx Sydney Roughton	12/6/17	1017
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN:

Method of Shipment: FedEx

Tracking No.: 8102-9107-0547

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537 PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only) PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
CA-AQIDW01-20171205	12-5-17	1230	Holding Tank #1	2	P	AQ			2						IDW Sample (Rush TAT)

12-5-17

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: Kristi Francisco
Company: Tetra Tech
Address: 5700 Lake Wright Dr, Suite 102
City: Norfolk State: VA Zip: 23502
Phone: 757-466-4902 Fax:
Email: Kristi.Francisco@tetratech.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701855 **TAT** 7

Samples Arrival:	**Date/Time** 12/6/17 0958	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 12/6/17 1123	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** F3

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.4 (uncorrected)	**Time:** 1015	**Thermometer ID:** IR-1
Temp °C: 1.5 (corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill — Trk # 8102 9107 0547	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?							✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	(None)		(Yes)	No	NA
Shipping Container	(Vista)	Client		Retain	Return	Dispose	

Comments:

EXTRACTION INFORMATION

Process Sheet

RUSH

Workorder: 1701855

Prep Expiration: 2017-Dec-19
Client: Tetra Tech

Workorder Due: 13-Dec-17 00:00
TAT: 7

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

Prep Batch: B7L0046

Prep Data Entered: 12·1·17 TC
Date and Initials

Version: 537 (14 Analyte)
DoD: DoD QSM 5.1

Initial Sequence: S7L0037

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1701855-01	A	☑	☑	CA-AQIDW01-20171205		WR-2 F-3	HDPE Bottle, 250 mL

WO Comments: **Provide all analytical runs.**
MS/MSD per batch, if MS/MSD is not provided - LCS/LCSD.

Pre-Prep Check Out: 12/8/17 ST
Pre-Prep Check In: ~~AA~~ 12·8·17 TC

Prep Check Out: HN 12/9/17
Prep Check In: NA

Prep Reconciled Initals/Date: 12/16/17 ST
Spike Reconciled Initals/Date: HN 12/9/17
VialBoxID: Glenn

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M Linear All/Branched/Total PFHxS/PFOA/
Method: 537M PFAS
Method: 537M PFAS DOD (LOQ as mRL)

B7L0046

Chemist: HC

Prep Date/Time: 08-Dec-17 07:56

12-9-17 0820 HC

Prepared using: LCMS - SPE Extraction-LCMS

Date/Initals: 12/8/17 ST BalanceID: ARMS-8

Cen	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
☐	B7L0046-BLK1	5	2	0	2	N/A	N/A	(0.250)	HC HN 12.9.17	HC 12-9-17	HC HN 12-9-17
☐	B7L0046-BS1	5	2	0	2	↓	↓	(0.250)	↓	↓	↓
☐	B7L0046-BSD1	5	2	0	2	↓	↓	(0.250)	↓	↓	↓
☐	1701820-01 (A)(B)	6	2	0	2	76.66	26.22	~~0.05044~~ 0.05044	↓	↓	↓
☐	1701820-02	6	2	0	2	78.00	26.28	~~0.05172~~ 0.05172	↓	↓	↓
☐	1701820-03	6	2	0	2	78.23	26.27	~~0.05196~~ 0.05196	↓	↓	↓
☐	1701820-04	6	2	0	2	79.74	26.35	~~0.05339~~ 0.05339	↓	↓	↓
☒	1701820-05	6	2	0	2	78.98	26.31	~~0.05267~~ 0.05267	↓	↓	↓
☐	1701820-06	5	2	0	2	80.48	26.32	~~0.05416~~ 0.05416	↓	↓	↓
☐	1701820-07	6	2	0	2	78.16	26.33	~~0.05183~~ 0.05183	↓	↓	↓
☒	1701820-08	6	2	0	2	81.47	26.37	~~0.05510~~ 0.05510	↓	↓	↓
☒	1701820-09	6	2	0	2	79.60	26.28	~~0.05332~~ 0.05332	↓	↓	↓
☒	1701820-10	6	2	0	2	80.44	26.19	~~0.05425~~ 0.05425	↓	↓	↓
☐	1701820-11	6	2	0	2	76.56	26.20	~~0.05036~~ 0.05036	↓	↓	↓
☒	1701820-12	6	2	0	2	76.29	26.21	~~0.05007~~ 0.05007	↓	↓	↓
☐	1701820-13	6	2	0	2	77.50	26.33	~~0.05147~~ 0.05117 GRB 12/11/17	↓	↓	↓

IS: 17K0822, 10µL (V1)
IS SUP: NA
NS: 17J1820, 10µL (V2)
RS: 17K2502, 10µL (V4)

SPE Chem: Strata X-AW 33µm 200mg 6mL
Ele SOLV: 0.5T. NH4OH in MeOH / MeOH
Final Volume(s): 1 or 2 mL

Notes: (A) moved 50mL into 125mL HDPE bottles then filled with HPLC H_2O 12/8/17 ST
(B) SAMPLE AMOUNT REWRITTEN FROM ML TO L. GRB 12/11/17.

Comments: Assume 1 g = 1 mL
Cen = Centrifuged

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M Linear All/Branched/Total PFHxS/PFOA/
Method: 537M PFAS
Method: 537M PFAS DOD (LOQ as mRL)

B7L0046

Chemist: HC

Prep Date/Time: 08-Dec-17 07:56 / 12.9.17 0820 HC

Prepared using: LCMS - SPE Extraction-LCMS

Date/Initals: 12/8/17 ST | BalanceID: HRMS-8

Cen	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g) 12/8/17 ST	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
☒	1701820-14 (A) (B)	6	2	0	2	26.1 77.05	26.19	~~0.05086~~ GRB 12/11/17 0.05086	HC HN 12.9.17	HC 12.9.17	HC HN 12.9.17
☐	1701820-15	6	2	0	2	82.00	26.32	~~0.05568~~ 0.05568			
☐	1701848-01	6	2	0	2	147.63	27.11	0.12052			
☐	1701848-02	6	2	0	2	149.75	27.01	0.12274			
☐	1701848-03	5	2	0	2	149.51	27.14	0.12137			
☐	1701855-01	6	2	0	2	289.72	27.11	0.26261			

IS: 171C0822, 10µl (V1)
IS SUP: NA
NS: 17J1820, 10µl (V2)
RS: 17K2502, 10µl (V4)

SPE Chem: Strata X-AW 33µm 200mg 6mL
Ele SOLV: 0.5% NH4OH in MeOH/MeOH
Final Volume(s): 1mL

Notes: (A) moved 50mL into 125mL HDPE bottles then filled with HPLC H_2O 12/8/17 ST
(B) SAMPLE AMOUNT REWRITTEN FROM ML TO L. GRB 12/11/17

Comments: Assume 1 g = 1 mL
Cen = Centrifuged

Batch: B7L0046

Matrix: Aqueous

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1701820-01	0.05044	NA	NA	1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-02	0.05172			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-03	0.05196			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-04	0.05339			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-05	0.05267			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-06	0.05416			1000	09-Dec-17 08:20	HAC			Aqueous	537M Linear All/Branched/
1701820-07	0.05183			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-08	0.0551			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-09	0.05332			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-10	0.05425			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-11	0.05036			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-12	0.05007			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-13	0.05117			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-14	0.05086			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701820-15	0.05568			1000	09-Dec-17 08:20	HAC			Drinking Water	537M Linear All/Branched/
1701848-01	0.12052			1000	09-Dec-17 08:20	HAC			Aqueous	537M PFAS
1701848-02	0.12274			1000	09-Dec-17 08:20	HAC			Aqueous	537M PFAS
1701848-03	0.12137			1000	09-Dec-17 08:20	HAC			Aqueous	537M PFAS
1701855-01	0.26261			1000	09-Dec-17 08:20	HAC			Aqueous	537M PFAS DOD (LOQ as
B7L0046-BLK1	0.25			1000	09-Dec-17 08:20	HAC				QC
B7L0046-BS1	0.25			1000	09-Dec-17 08:20	HAC	17J1820	10		QC
B7L0046-BSD1	0.25			1000	09-Dec-17 08:20	HAC	17J1820	10		QC

12.11.17

HC

SAMPLE DATA – MODIFIED EPA METHOD 537

Vista Analytical Laboratory

Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

Last Altered: Friday, December 15, 2017 08:26:49 Pacific Standard Time
Printed: Friday, December 15, 2017 09:33:57 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7		1.49e3	0.25000		2.70				
2	4	PFHxA	313.2 > 268.9		4.44e3	0.25000		3.18				
3	5	PFHpA	363.0 > 318.9		8.68e3	0.25000		3.80				
4	6	L-PFHxS	398.9 > 79.6		1.41e3	0.25000		4.00				
5	9	L-PFOA	413 > 368.7		1.20e4	0.25000		4.32				
6	12	PFNA	463.0 > 418.8		8.82e3	0.25000		4.78				
7	14	L-PFOS	499 > 79.9		3.53e3	0.25000		4.83				
8	16	PFDA	513 > 468.8		1.02e4	0.25000		5.12				
9	18	N-MeFOSAA	570.1 > 419		3.34e3	0.25000		5.25				
10	19	N-EtFOSAA	584.2 > 419		3.53e3	0.25000		5.45				
11	20	PFUdA	563.0 > 518.9		9.28e3	0.25000		5.44				
12	22	PFDoA	612.9 > 569.0		5.80e3	0.25000		5.75				

AC 12/15/17

Vista Analytical Laboratory

Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

Last Altered: Friday, December 15, 2017 08:26:49 Pacific Standard Time
Printed: Friday, December 15, 2017 09:34:08 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9		5.80e3	0.25000		5.97				
2	25	PFTeDA	712.9 > 668.8		5.99e3	0.25000		6.20				
3	33	13C3-PFBS	302. > 98.8	1.49e3	1.31e4	0.25000	0.117	2.70	2.69	1.41	48.359	96.7
4	34	13C2-PFHxA	315 > 269.8	4.44e3	1.31e4	0.25000	0.779	3.18	3.18	4.22	21.656	108.3
5	35	13C4-PFHpA	367.2 > 321.8	8.68e3	1.31e4	0.25000	0.640	3.80	3.80	8.26	51.606	103.2
6	36	18O2-PFHxS	403.0 > 102.6	1.41e3	2.62e3	0.25000	0.452	4.00	3.95	6.73	59.515	119.0
7	37	13C2-6:2 FTS	429.1 > 408.9	2.28e3	9.81e3	0.25000	0.245	4.26	4.26	2.91	47.532	95.1
8	38	13C2-PFOA	414.9 > 369.7	1.20e4	9.81e3	0.25000	1.218	4.32	4.31	15.3	50.089	100.2
9	39	13C5-PFNA	468.2 > 422.9	8.82e3	9.68e3	0.25000	1.017	4.78	4.75	11.4	44.752	89.5
10	40	13C8-PFOSA	506.1 > 77.7	2.12e3	8.63e3	0.25000	0.309	4.81	4.81	3.07	39.754	79.5
11	41	13C8-PFOS	507.0 > 79.9	3.53e3	3.27e3	0.25000	1.053	4.83	4.83	13.5	51.271	102.5
12	42	13C2-PFDA	515.1 > 469.9	1.02e4	8.85e3	0.25000	1.214	5.12	5.12	14.4	47.571	95.1
13	43	13C2-8:2 FTS	529.1 > 508.7	1.16e3	1.31e4	0.25000	0.103	5.09	5.09	1.10	42.832	85.7
14	44	d3-N-MeFOSAA	573.3 > 419	3.34e3	8.63e3	0.25000	0.329	5.25	5.27	4.85	58.951	117.9
15	45	d5-N-EtFOSAA	589.3 > 419	3.53e3	8.63e3	0.25000	0.394	5.45	5.42	5.11	51.881	103.8
16	46	13C2-PFUdA	565 > 519.8	9.28e3	8.63e3	0.25000	1.109	5.44	5.44	13.4	48.530	97.1
17	47	13C2-PFDoA	615.0 > 569.7	5.80e3	8.63e3	0.25000	0.851	5.75	5.72	8.40	39.473	78.9
18	49	13C2-PFTeDA	714.8 > 669.6	5.99e3	8.63e3	0.25000	0.643	6.20	6.18	8.67	53.979	108.0
19	55	13C5-PFHxA	318 > 272.9	1.31e4	1.31e4	0.25000	1.000	3.18	3.18	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.62e3	2.62e3	0.25000	1.000	4.00	3.95	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	9.81e3	9.81e3	0.25000	1.000	4.32	4.31	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	9.68e3	9.68e3	0.25000	1.000	4.78	4.75	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	3.27e3	3.27e3	0.25000	1.000	4.83	4.83	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	8.85e3	8.85e3	0.25000	1.000	5.12	5.12	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	8.63e3	8.63e3	0.25000	1.000	5.44	5.44	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	0.00e0	1.41e3	0.25000		4.00		0.000		
27	63	Total PFOA	413 > 368.7	0.00e0	1.20e4	0.25000		4.32		0.000		
28	64	Total PFOS	499 > 79.9	0.00e0	3.53e3	0.25000		4.83		0.000		
29	65	Total N-MeFOSAA	570.1 > 419	0.00e0	3.34e3	0.25000		5.25		0.000		
30	66	Total N-EtFOSAA	584.2 > 419	0.00e0	3.53e3	0.25000		5.45		0.000		
31	68	Total PFOA+PFOS	499 > 79.9,41...	0.00e0		0.25000		0.00		0.000		

AC 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

Last Altered: Friday, December 15, 2017 08:26:49 Pacific Standard Time
Printed: Friday, December 15, 2017 09:34:08 Pacific Standard Time

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Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7			11975.642		MM-I	
2	10	Br-PFOA	413 > 368.7			11975.642		MM-I	

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7			11975.642		MM-I	
2	10	Br-PFOA	413 > 368.7			11975.642		MM-I	

AC 12/15/17

Vista Analytical Laboratory

Rev'd: MM 12/15/17

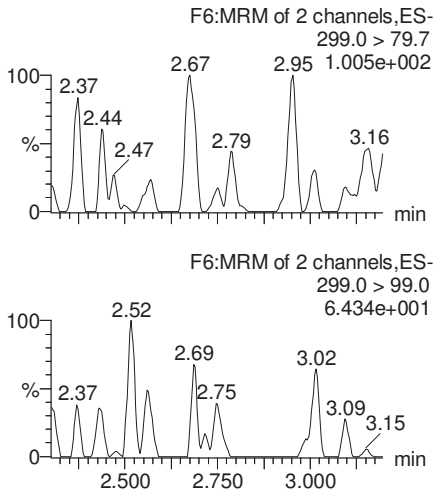
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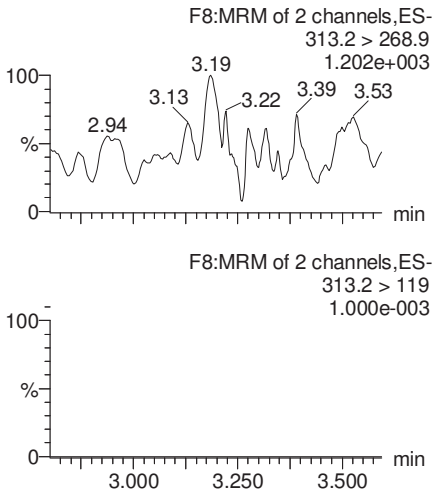
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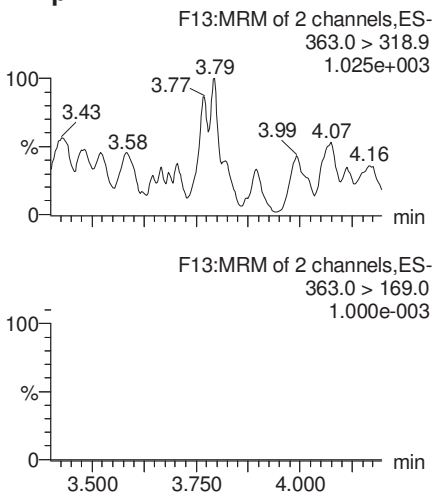
PFBS



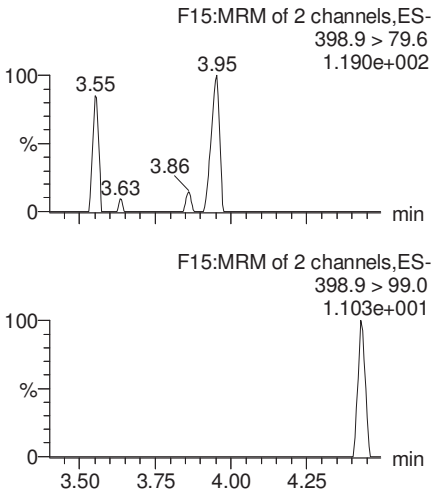
PFHxA



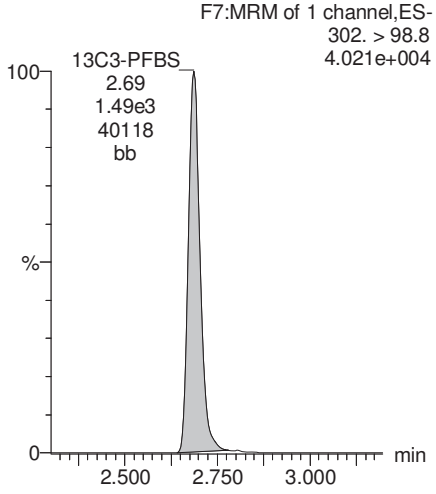
PFHpA



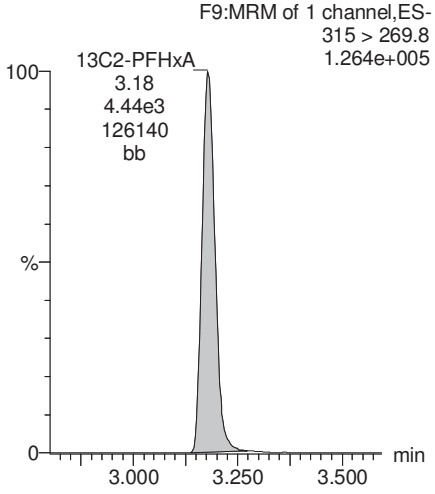
Total PFHxS



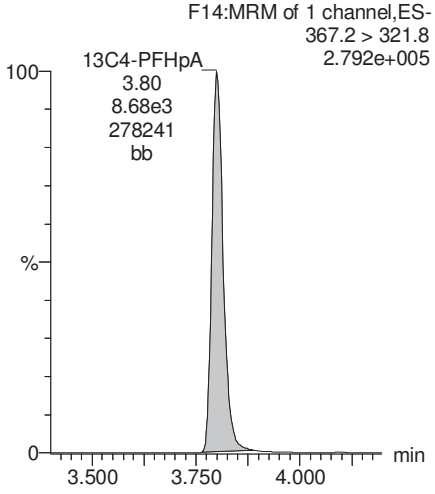
13C3-PFBS



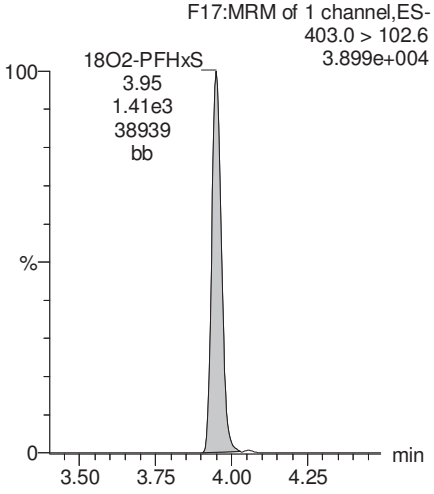
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



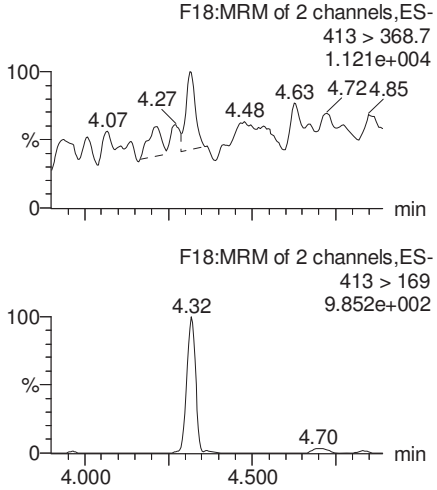
AC 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

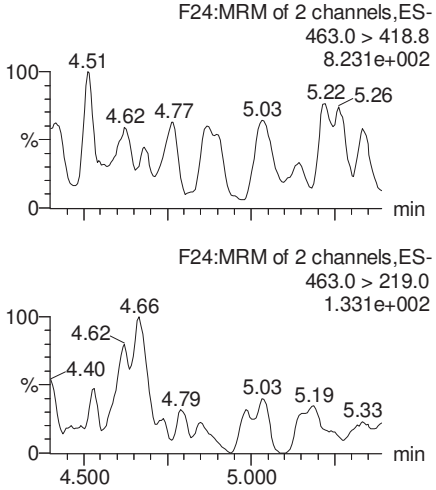
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Printed: Friday, December 15, 2017 09:34:08 Pacific Standard Time

Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

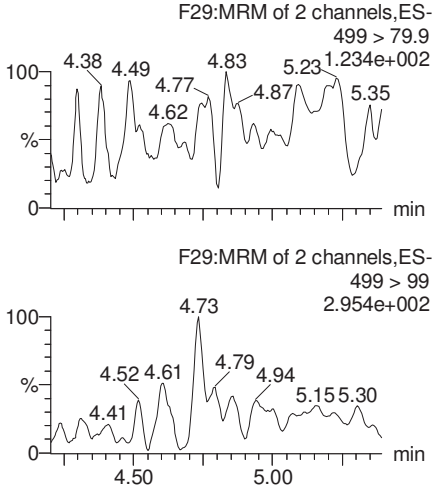
Total PFOA



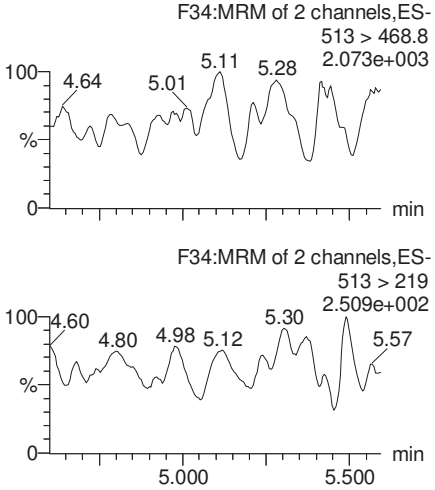
PFNA



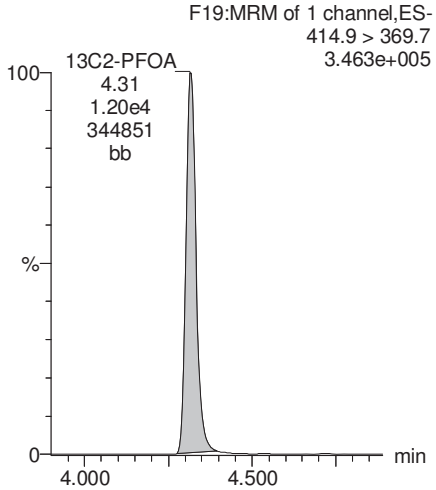
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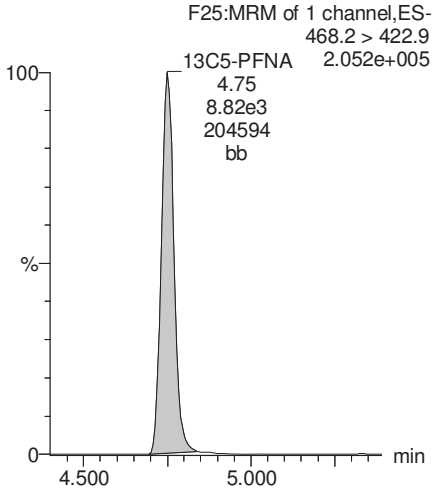
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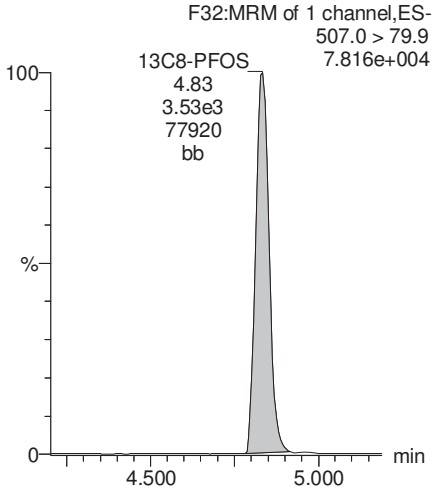
13C2-PFOA



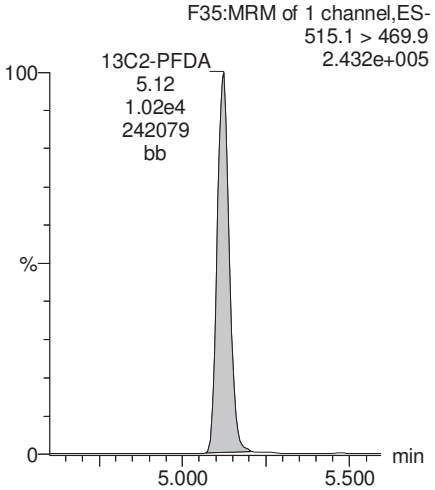
13C5-PFNA



13C8-PFOS



13C2-PFDA



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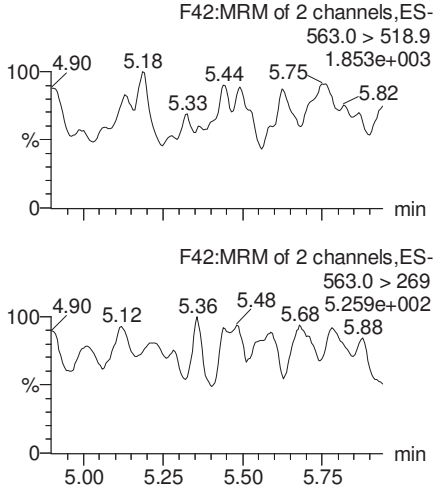
Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

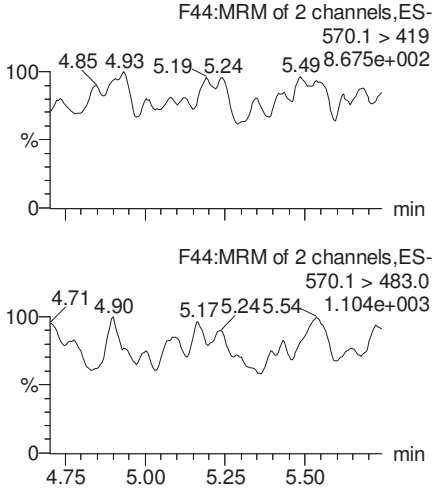
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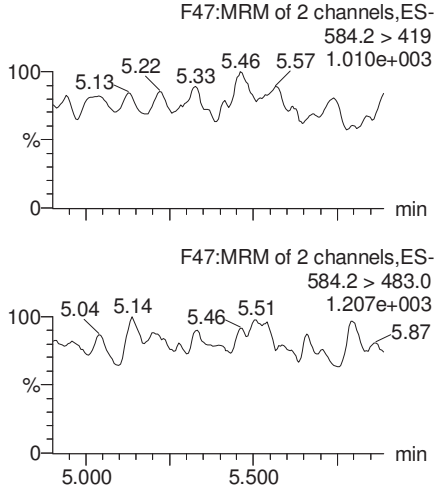
PFUdA



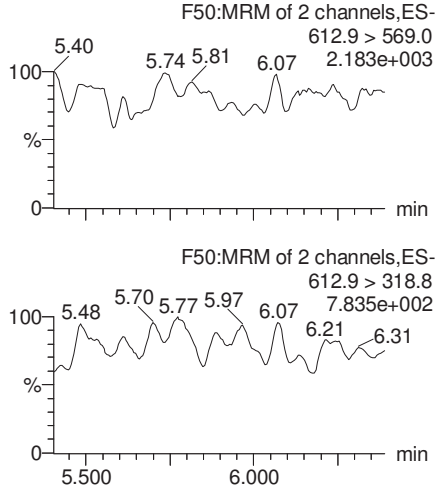
N-MeFOSAA



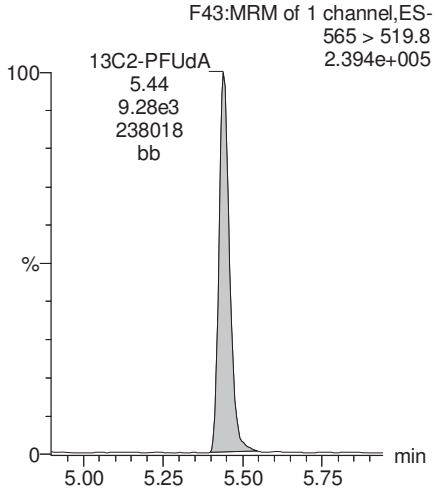
N-EtFOSAA



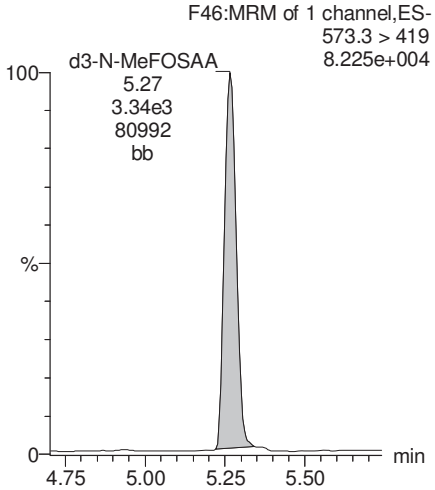
PFDoA



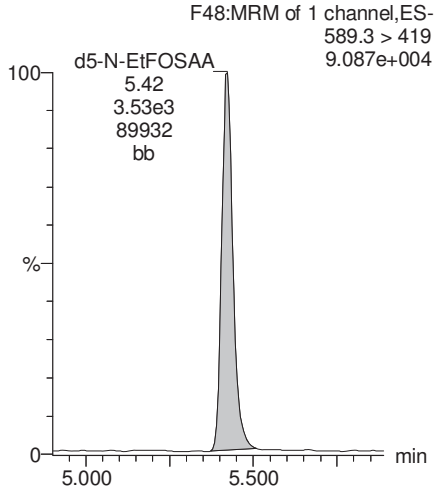
13C2-PFUdA



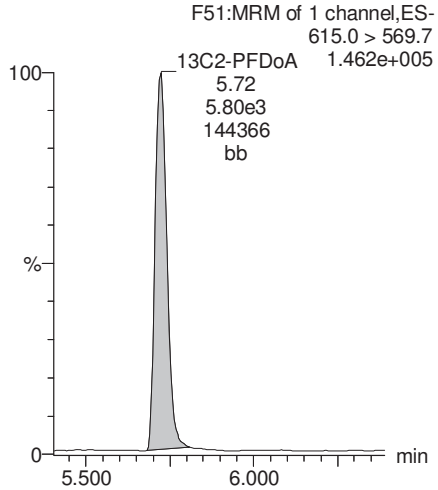
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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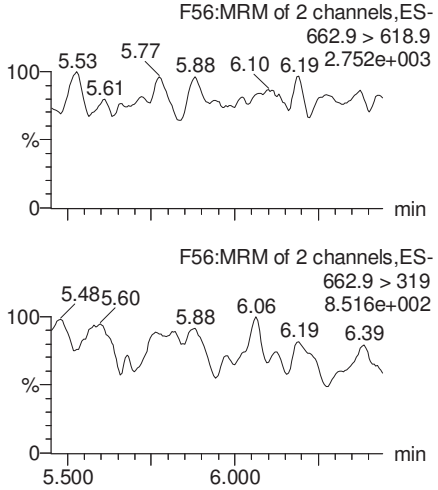
Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

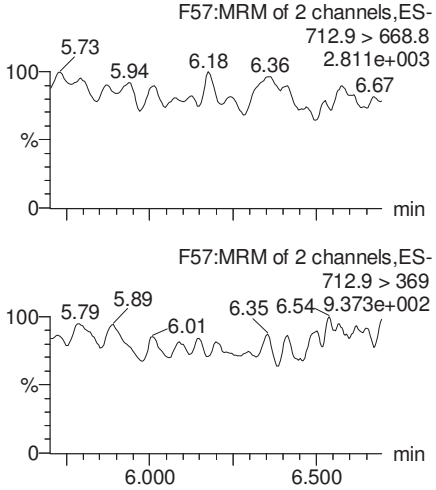
Last Altered: Friday, December 15, 2017 08:26:49 Pacific Standard Time
Printed: Friday, December 15, 2017 09:34:08 Pacific Standard Time

Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

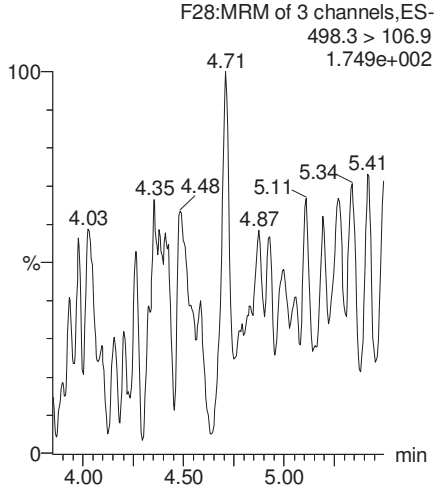
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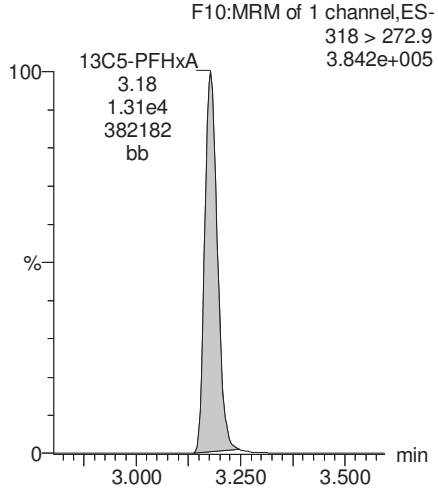
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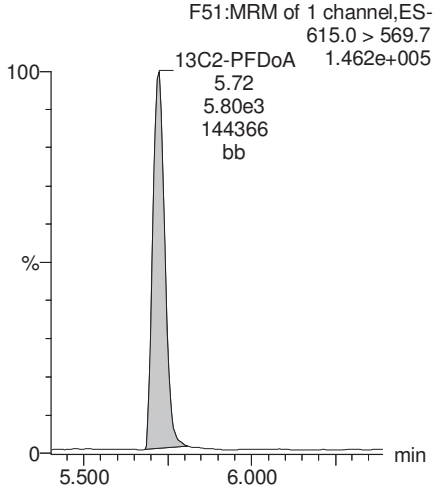
TCDA



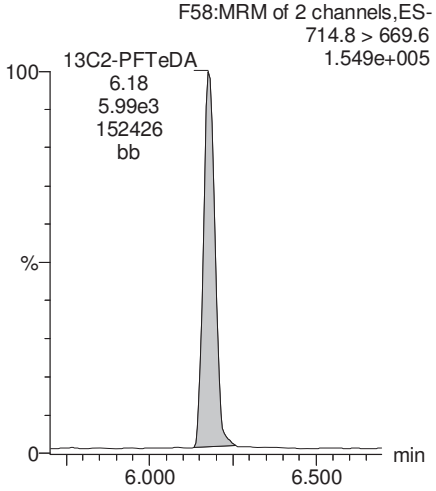
13C5-PFHxA



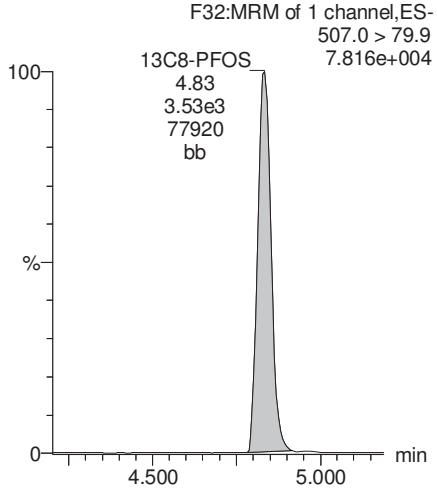
13C2-PFDoA



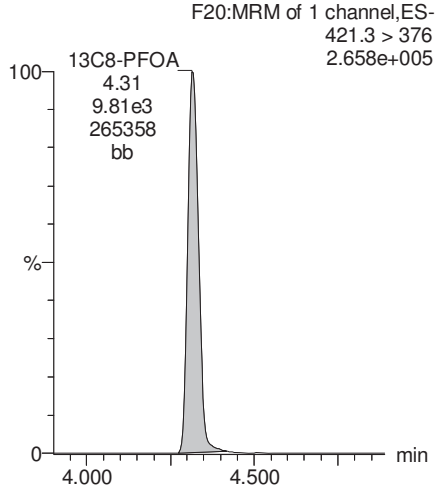
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



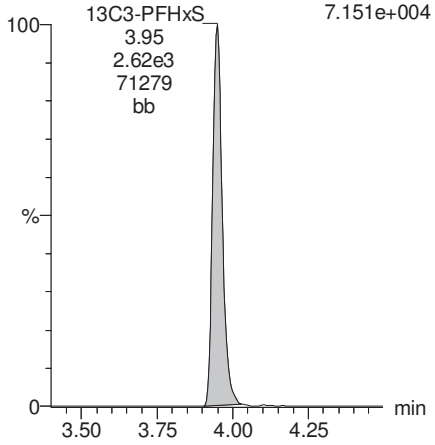
AC 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-20.qld

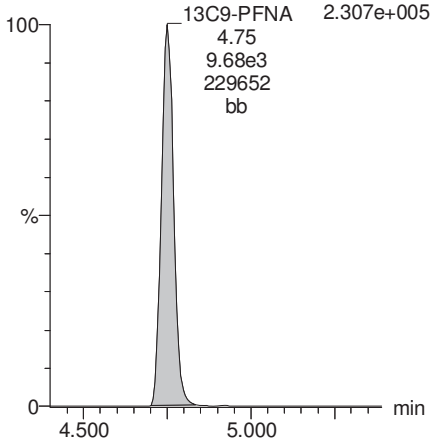
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Printed: Friday, December 15, 2017 09:34:08 Pacific Standard Time

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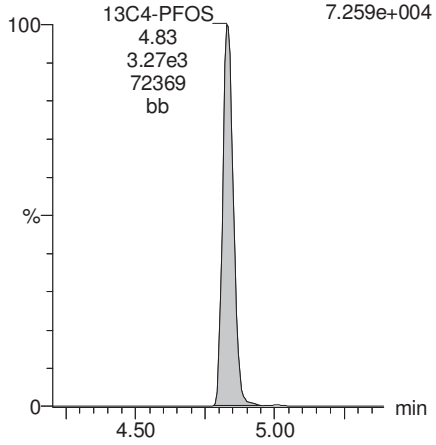
13C3-PFHxS



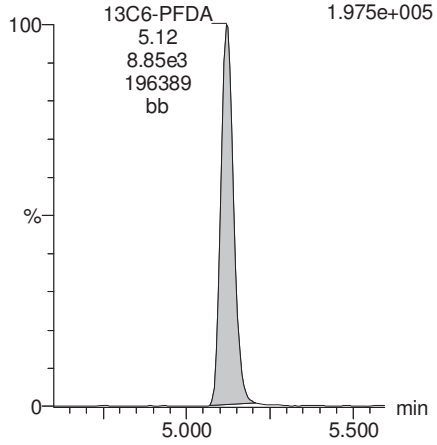
13C9-PFNA



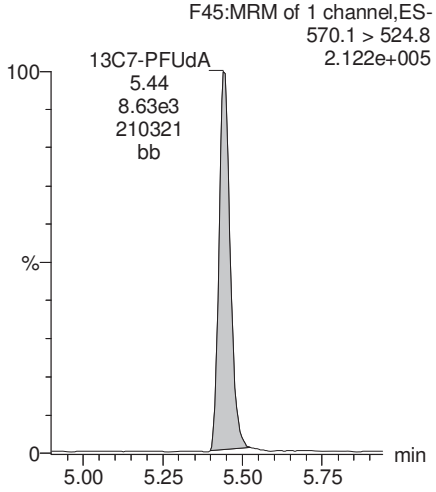
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-16.qld

Last Altered: Friday, December 15, 2017 08:17:55 Pacific Standard Time
Printed: Friday, December 15, 2017 08:18:27 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_16, Date: 13-Dec-2017, Time: 21:46:32, ID: B7L0046-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7	2.39e3	1.42e3	0.25000		2.70	2.69	21.1	39.880	99.7
2	4	PFHxA	313.2 > 268.9	1.08e4	3.58e3	0.25000		3.18	3.18	15.1	44.832	112.1
3	5	PFHpA	363.0 > 318.9	8.60e3	7.08e3	0.25000		3.80	3.80	15.2	41.252	103.1
4	6	L-PFHxS	398.9 > 79.6	1.96e3	9.99e2	0.25000		4.00	3.95	24.6	42.576	106.4
5	9	L-PFOA	413 > 368.7	8.92e3	9.81e3	0.25000		4.32	4.32	11.4	44.239	110.6
6	12	PFNA	463.0 > 418.8	8.39e3	9.97e3	0.25000		4.78	4.75	10.5	30.919	77.3
7	14	L-PFOS	499 > 79.9	2.47e3	3.07e3	0.25000		4.83	4.83	10.0	35.636	89.1
8	16	PFDA	513 > 468.8	9.16e3	9.55e3	0.25000		5.12	5.12	12.0	38.774	96.9
9	18	N-MeFOSAA	570.1 > 419	4.22e3	2.58e3	0.25000		5.25	5.27	20.4	41.793	104.5
10	19	N-EtFOSAA	584.2 > 419	2.98e3	3.48e3	0.25000		5.45	5.43	10.7	33.021	82.6
11	20	PFUdA	563.0 > 518.9	7.67e3	7.30e3	0.25000		5.44	5.44	13.1	41.680	104.2
12	22	PFDoA	612.9 > 569.0	7.78e3	5.72e3	0.25000		5.75	5.73	17.0	40.163	100.4

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Vista Analytical Laboratory

Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-16.qld

Last Altered: Friday, December 15, 2017 08:17:55 Pacific Standard Time
Printed: Friday, December 15, 2017 08:18:44 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_16, Date: 13-Dec-2017, Time: 21:46:32, ID: B7L0046-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9	8.19e3	5.72e3	0.25000		5.97	5.97	17.9	40.084	100.2
2	25	PFTeDA	712.9 > 668.8	7.60e3	6.28e3	0.25000		6.20	6.18	15.1	34.915	87.3
3	33	13C3-PFBS	302. > 98.8	1.42e3	1.13e4	0.25000	0.117	2.70	2.68	1.56	53.447	106.9
4	34	13C2-PFHxA	315 > 269.8	3.58e3	1.13e4	0.25000	0.779	3.18	3.18	3.95	20.273	101.4
5	35	13C4-PFHpA	367.2 > 321.8	7.08e3	1.13e4	0.25000	0.640	3.80	3.80	7.81	48.822	97.6
6	36	18O2-PFHxS	403.0 > 102.6	9.99e2	2.66e3	0.25000	0.452	4.00	3.94	4.70	41.586	83.2
7	37	13C2-6:2 FTS	429.1 > 408.9	1.92e3	9.67e3	0.25000	0.245	4.26	4.26	2.48	40.488	81.0
8	38	13C2-PFOA	414.9 > 369.7	9.81e3	9.67e3	0.25000	1.218	4.32	4.31	12.7	41.657	83.3
9	39	13C5-PFNA	468.2 > 422.9	9.97e3	8.82e3	0.25000	1.017	4.78	4.75	14.1	55.537	111.1
10	40	13C8-PFOSA	506.1 > 77.7	1.72e3	7.91e3	0.25000	0.309	4.81	4.81	2.71	35.111	70.2
11	41	13C8-PFOS	507.0 > 79.9	3.07e3	2.68e3	0.25000	1.053	4.83	4.83	14.3	54.346	108.7
12	42	13C2-PFDA	515.1 > 469.9	9.55e3	9.26e3	0.25000	1.214	5.12	5.12	12.9	42.482	85.0
13	43	13C2-8:2 FTS	529.1 > 508.7	1.53e3	1.13e4	0.25000	0.103	5.09	5.10	1.68	65.298	130.6
14	44	d3-N-MeFOSAA	573.3 > 419	2.58e3	7.91e3	0.25000	0.329	5.25	5.27	4.08	49.617	99.2
15	45	d5-N-EtFOSAA	589.3 > 419	3.48e3	7.91e3	0.25000	0.394	5.45	5.42	5.50	55.897	111.8
16	46	13C2-PFUdA	565 > 519.8	7.30e3	7.91e3	0.25000	1.109	5.44	5.44	11.5	41.591	83.2
17	47	13C2-PFDoA	615.0 > 569.7	5.72e3	7.91e3	0.25000	0.851	5.75	5.72	9.04	42.480	85.0
18	49	13C2-PFTeDA	714.8 > 669.6	6.28e3	7.91e3	0.25000	0.643	6.20	6.18	9.92	61.740	123.5
19	55	13C5-PFHxA	318 > 272.9	1.13e4	1.13e4	0.25000	1.000	3.18	3.18	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.66e3	2.66e3	0.25000	1.000	4.00	3.95	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	9.67e3	9.67e3	0.25000	1.000	4.32	4.32	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	8.82e3	8.82e3	0.25000	1.000	4.78	4.75	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	2.68e3	2.68e3	0.25000	1.000	4.83	4.83	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	9.26e3	9.26e3	0.25000	1.000	5.12	5.12	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	7.91e3	7.91e3	0.25000	1.000	5.44	5.44	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	1.96e3	9.99e2	0.25000		4.00		24.6	42.576	
27	63	Total PFOA	413 > 368.7	8.92e3	9.81e3	0.25000		4.32		11.4	44.239	
28	64	Total PFOS	499 > 79.9	2.47e3	3.07e3	0.25000		4.83		10.0	35.636	
29	65	Total N-MeFOSAA	570.1 > 419	4.22e3	2.58e3	0.25000		5.25		20.4	41.793	
30	66	Total N-EtFOSAA	584.2 > 419	2.98e3	3.48e3	0.25000		5.45		10.7	33.021	
31	68	Total PFOA+PFOS	499 > 79.9,41...	1.14e4		0.25000		0.00		21.4	79.875	

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Dataset: U:\Q4.PRO\results\171213M1\171213M1-16.qld

Last Altered: Friday, December 15, 2017 08:17:55 Pacific Standard Time
Printed: Friday, December 15, 2017 08:18:44 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_16, Date: 13-Dec-2017, Time: 21:46:32, ID: B7L0046-BS1 OPR 0.25, Description: OPR

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	6	L-PFHxS	398.9 > 79.6	3.95	1963.448	999.452	24.557	MM	42.6
2	7	Br-PFHxS	398.9 > 79.6			999.452		MM-	

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.32	8919.063	9813.903	11.360	bb	44.2

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	15	Br-PFOS	499 > 79.9			3072.107		MM-	
2	14	L-PFOS	499 > 79.9	4.83	2468.906	3072.107	10.046	MM	35.6

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	18	N-MeFOSAA	570.1 > 419	5.27	4216.784	2581.718	20.417	bb	41.8

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.43	2976.659	3484.054	10.680	bb	33.0

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.32	8919.063	9813.903	11.360	bb	44.2
2	15	Br-PFOS	499 > 79.9			3072.107		MM-	
3	14	L-PFOS	499 > 79.9	4.83	2468.906	3072.107	10.046	MM	35.6

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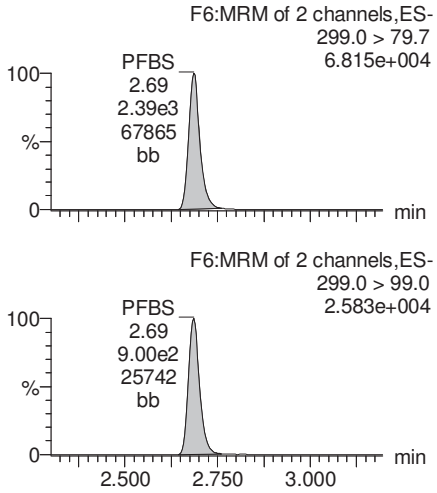
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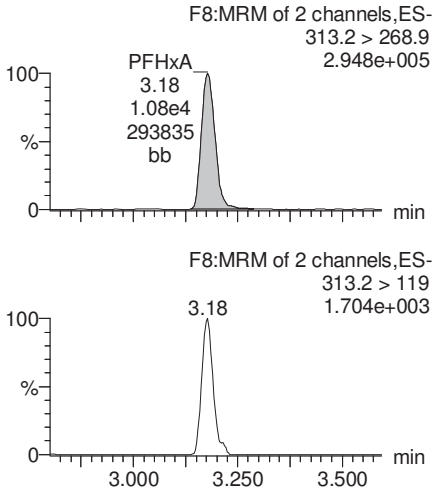
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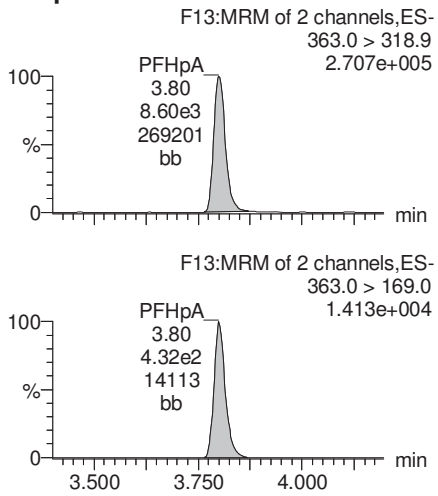
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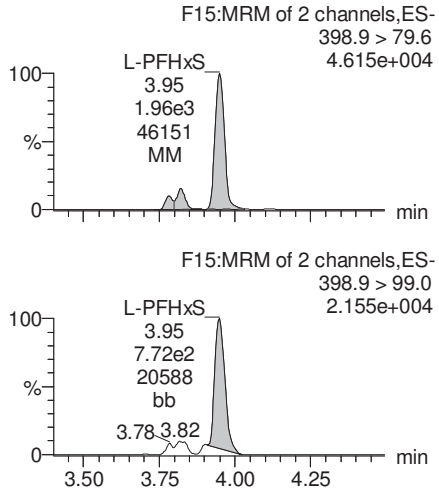
PFHxA



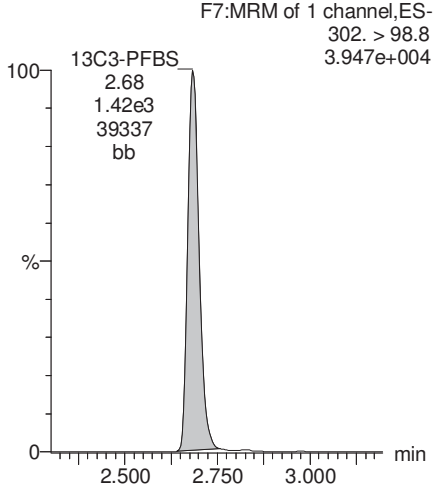
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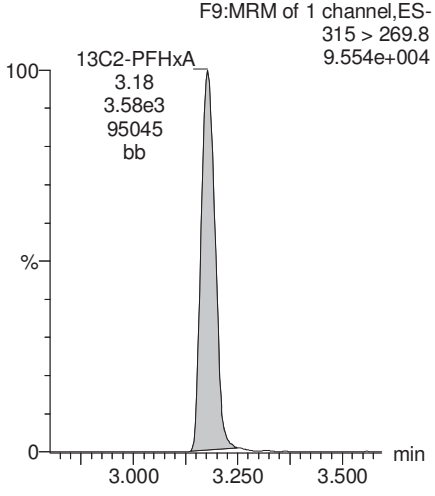
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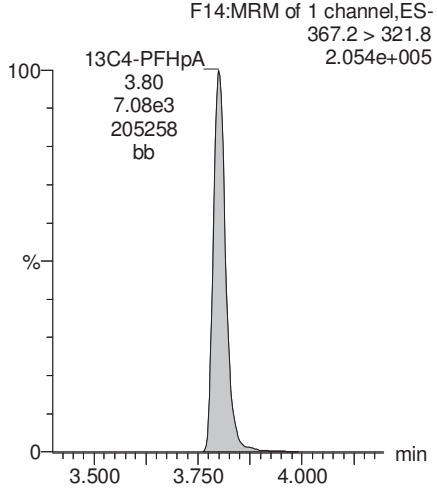
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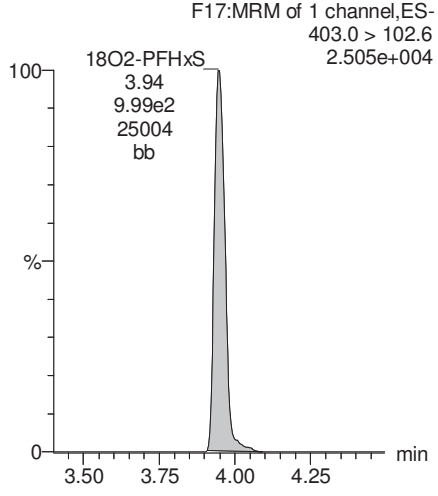
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13C4-PFHpA



18O2-PFHxS



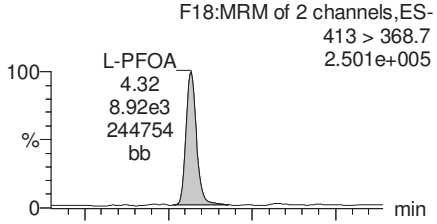
AC 12/15/17

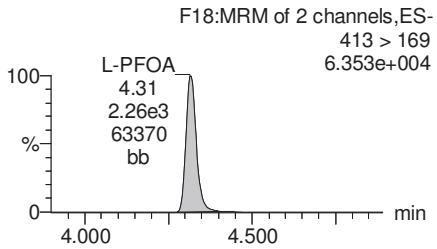
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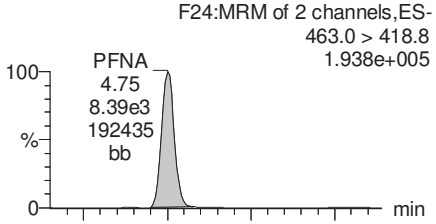
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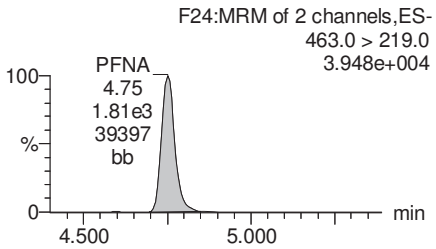
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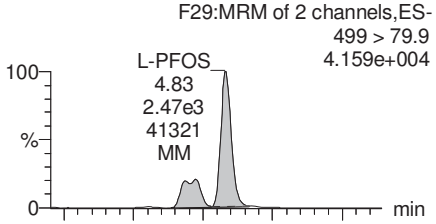


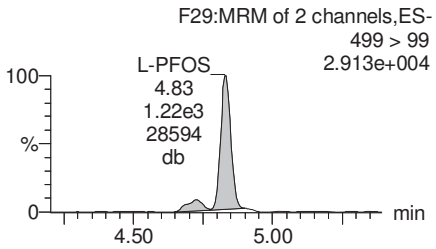
PFNA



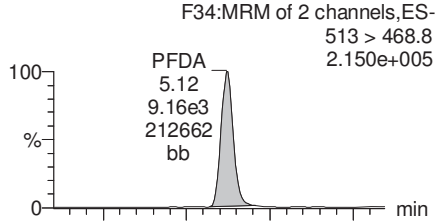


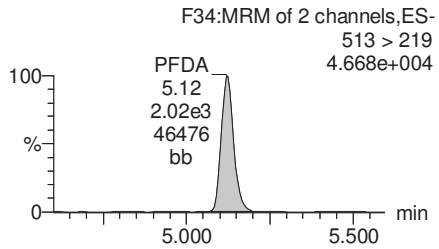
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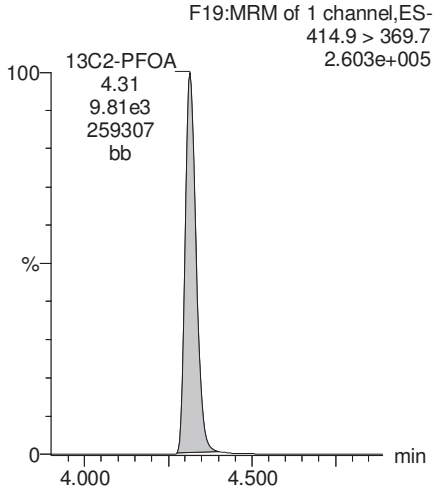


PFDA

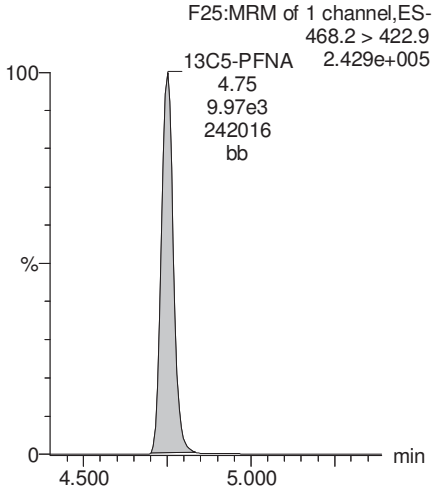




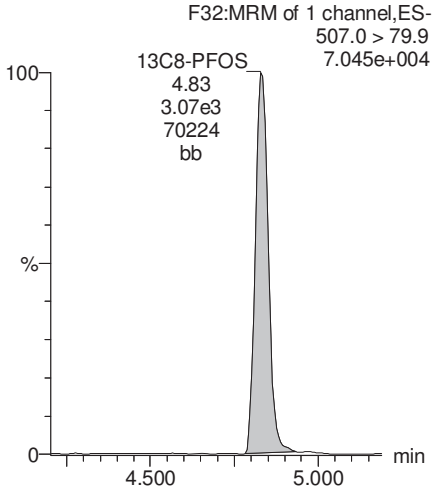
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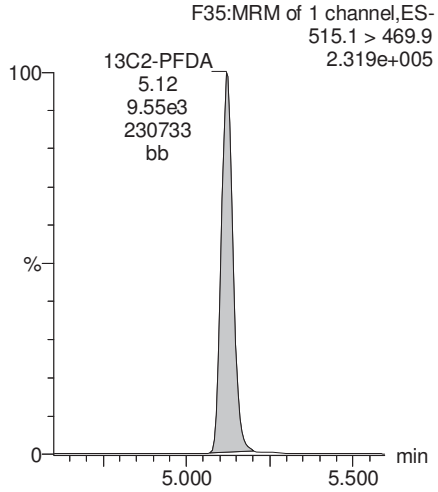
13C5-PFNA



13C8-PFOS



13C2-PFDA



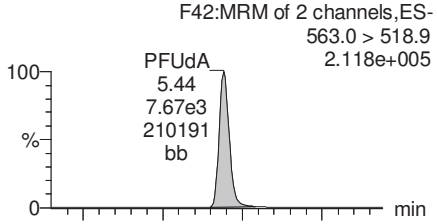
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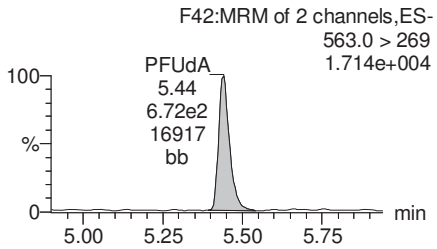
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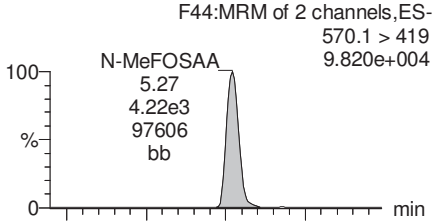
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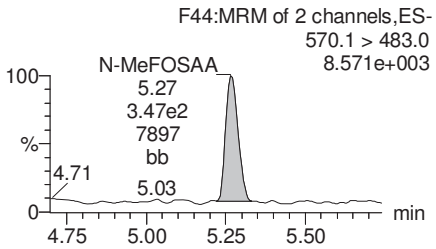
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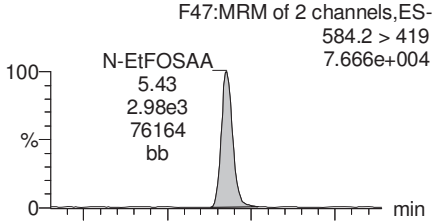


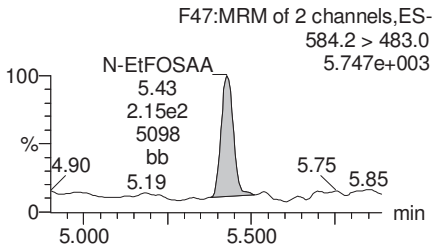
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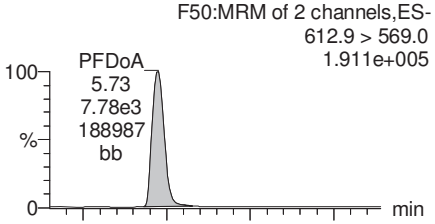


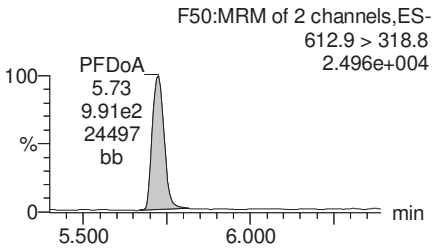
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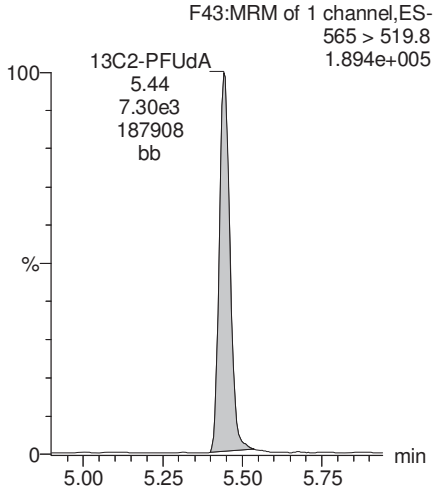


PFDoA

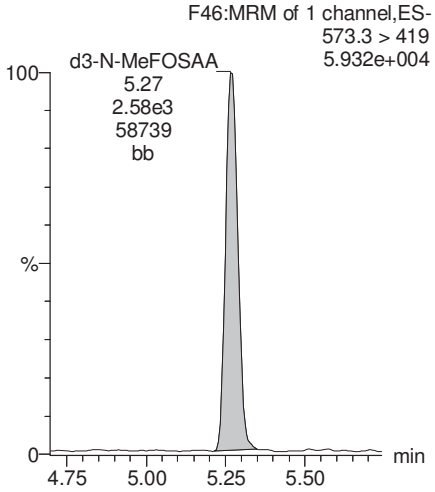




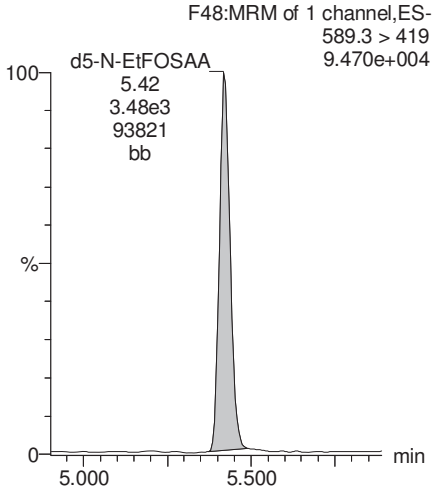
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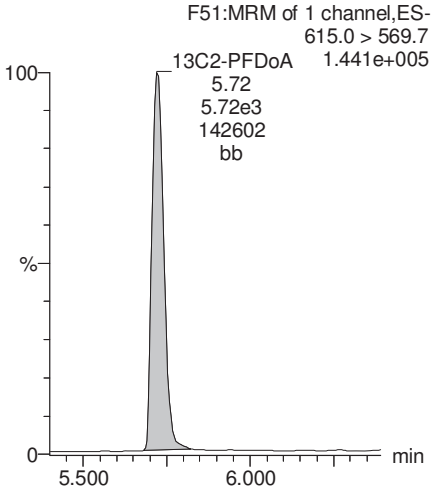
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d5-N-EtFOSAA



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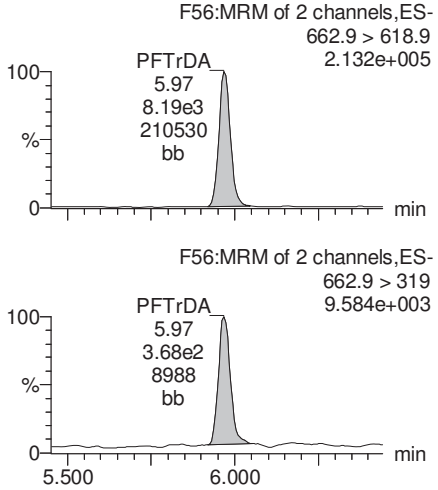
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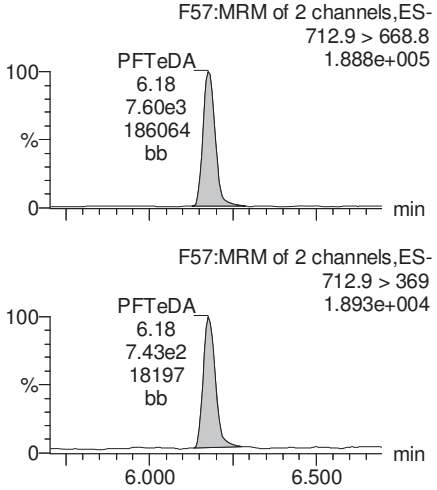
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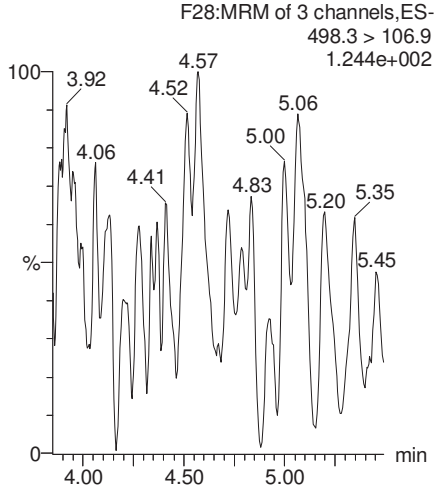
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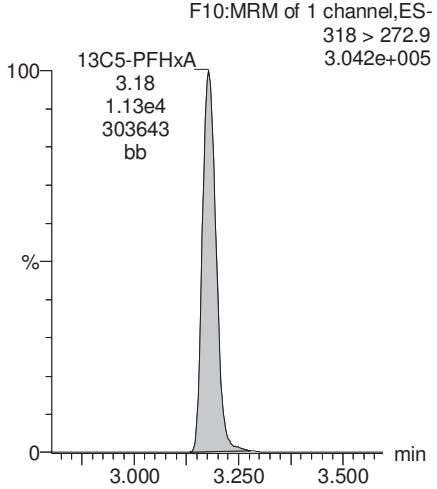
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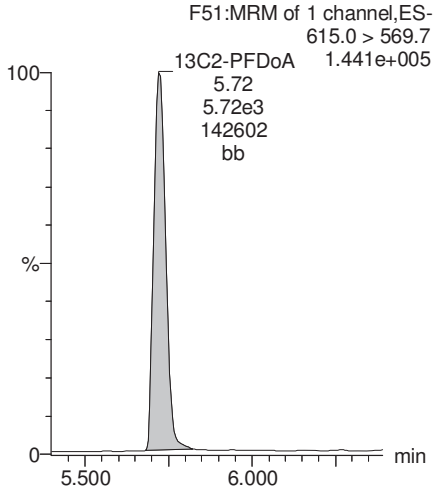
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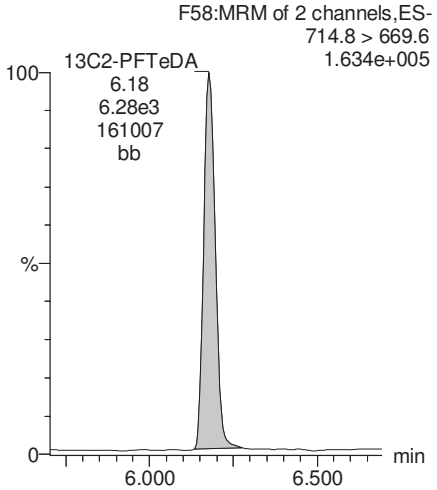
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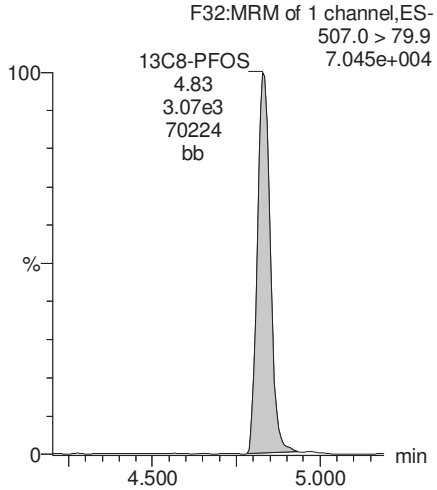
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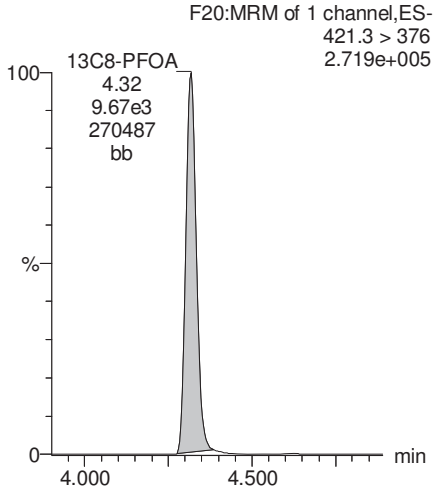
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



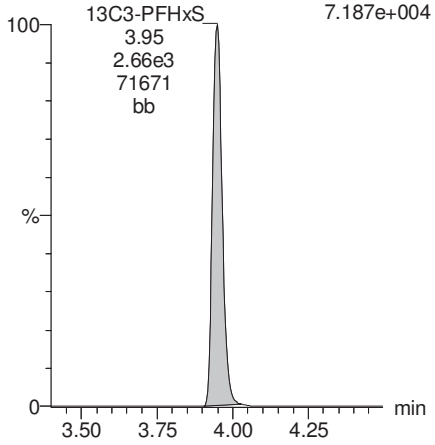
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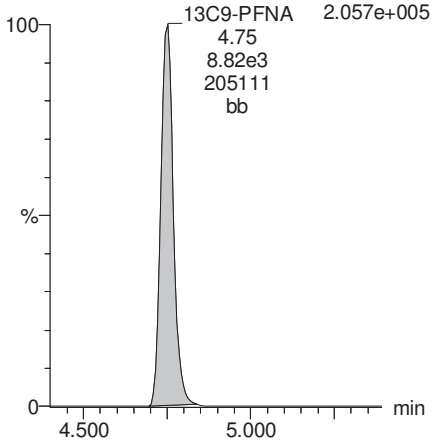
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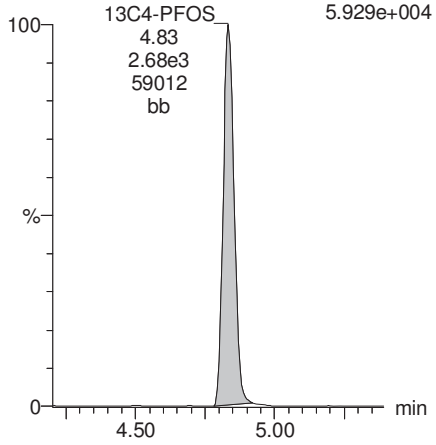
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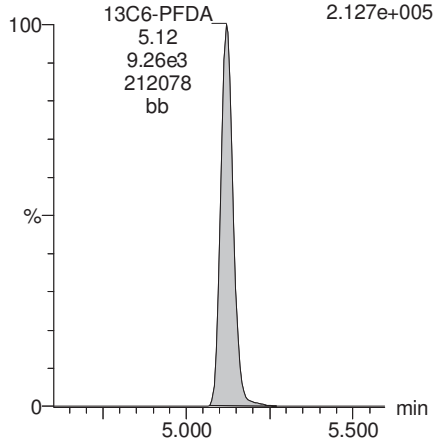
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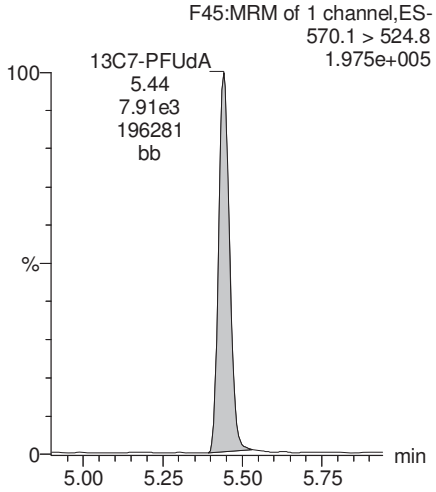
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: U:\Q4.PRO\results\171213M1\171213M1-17.qld

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Printed: Friday, December 15, 2017 08:22:05 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_17, Date: 13-Dec-2017, Time: 21:57:43, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

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1	3	PFBS	299.0 > 79.7	2.45e3	1.47e3	0.25000		2.70	2.69	20.8	39.279	98.2
2	4	PFHxA	313.2 > 268.9	9.55e3	3.77e3	0.25000		3.18	3.18	12.7	37.484	93.7
3	5	PFHpA	363.0 > 318.9	8.08e3	7.72e3	0.25000		3.80	3.80	13.1	35.548	88.9
4	6	L-PFHxS	398.9 > 79.6	1.90e3	1.29e3	0.25000		4.00	3.95	18.4	31.903	79.8
5	9	L-PFOA	413 > 368.7	8.64e3	1.09e4	0.25000		4.32	4.32	9.88	38.259	95.6
6	12	PFNA	463.0 > 418.8	7.97e3	8.22e3	0.25000		4.78	4.75	12.1	35.613	89.0
7	14	L-PFOS	499 > 79.9	2.77e3	3.07e3	0.25000		4.83	4.83	11.3	40.081	100.2
8	16	PFDA	513 > 468.8	8.94e3	8.48e3	0.25000		5.12	5.12	13.2	42.631	106.6
9	18	N-MeFOSAA	570.1 > 419	4.13e3	2.58e3	0.25000		5.25	5.27	20.0	40.946	102.4
10	19	N-EtFOSAA	584.2 > 419	3.03e3	3.40e3	0.25000		5.45	5.43	11.2	34.537	86.3
11	20	PFUdA	563.0 > 518.9	6.75e3	9.55e3	0.25000		5.44	5.44	8.83	27.995	70.0
12	22	PFDoA	612.9 > 569.0	6.96e3	5.13e3	0.25000		5.75	5.72	17.0	40.072	100.2

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Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-17.qld

Last Altered: Friday, December 15, 2017 08:21:44 Pacific Standard Time
Printed: Friday, December 15, 2017 08:22:20 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_17, Date: 13-Dec-2017, Time: 21:57:43, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9	9.46e3	5.13e3	0.25000		5.97	5.97	23.0	52.010	130.0
2	25	PFTeDA	712.9 > 668.8	7.83e3	6.47e3	0.25000		6.20	6.18	15.1	34.880	87.2
3	33	13C3-PFBS	302. > 98.8	1.47e3	1.17e4	0.25000	0.117	2.70	2.69	1.57	53.591	107.2
4	34	13C2-PFHxA	315 > 269.8	3.77e3	1.17e4	0.25000	0.779	3.18	3.18	4.02	20.632	103.2
5	35	13C4-PFHpA	367.2 > 321.8	7.72e3	1.17e4	0.25000	0.640	3.80	3.80	8.22	51.366	102.7
6	36	18O2-PFHxS	403.0 > 102.6	1.29e3	2.68e3	0.25000	0.452	4.00	3.95	6.02	53.285	106.6
7	37	13C2-6:2 FTS	429.1 > 408.9	2.06e3	9.07e3	0.25000	0.245	4.26	4.26	2.84	46.394	92.8
8	38	13C2-PFOA	414.9 > 369.7	1.09e4	9.07e3	0.25000	1.218	4.32	4.31	15.1	49.483	99.0
9	39	13C5-PFNA	468.2 > 422.9	8.22e3	7.14e3	0.25000	1.017	4.78	4.75	14.4	56.553	113.1
10	40	13C8-PFOSA	506.1 > 77.7	2.02e3	9.23e3	0.25000	0.309	4.81	4.81	2.73	35.429	70.9
11	41	13C8-PFOS	507.0 > 79.9	3.07e3	2.86e3	0.25000	1.053	4.83	4.83	13.4	50.975	101.9
12	42	13C2-PFDA	515.1 > 469.9	8.48e3	8.32e3	0.25000	1.214	5.12	5.12	12.7	41.995	84.0
13	43	13C2-8:2 FTS	529.1 > 508.7	1.63e3	1.17e4	0.25000	0.103	5.09	5.10	1.74	67.474	134.9
14	44	d3-N-MeFOSAA	573.3 > 419	2.58e3	9.23e3	0.25000	0.329	5.25	5.27	3.49	42.478	85.0
15	45	d5-N-EtFOSAA	589.3 > 419	3.40e3	9.23e3	0.25000	0.394	5.45	5.42	4.60	46.696	93.4
16	46	13C2-PFUdA	565 > 519.8	9.55e3	9.23e3	0.25000	1.109	5.44	5.44	12.9	46.674	93.3
17	47	13C2-PFDoA	615.0 > 569.7	5.13e3	9.23e3	0.25000	0.851	5.75	5.72	6.95	32.674	65.3
18	49	13C2-PFTeDA	714.8 > 669.6	6.47e3	9.23e3	0.25000	0.643	6.20	6.18	8.77	54.579	109.2
19	55	13C5-PFHxA	318 > 272.9	1.17e4	1.17e4	0.25000	1.000	3.18	3.18	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.68e3	2.68e3	0.25000	1.000	4.00	3.95	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	9.07e3	9.07e3	0.25000	1.000	4.32	4.31	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	7.14e3	7.14e3	0.25000	1.000	4.78	4.75	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	2.86e3	2.86e3	0.25000	1.000	4.83	4.83	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	8.32e3	8.32e3	0.25000	1.000	5.12	5.12	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	9.23e3	9.23e3	0.25000	1.000	5.44	5.44	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	1.90e3	1.29e3	0.25000		4.00		18.4	31.903	
27	63	Total PFOA	413 > 368.7	8.64e3	1.09e4	0.25000		4.32		9.88	38.259	
28	64	Total PFOS	499 > 79.9	2.77e3	3.07e3	0.25000		4.83		11.3	40.081	
29	65	Total N-MeFOSAA	570.1 > 419	4.13e3	2.58e3	0.25000		5.25		20.0	40.946	
30	66	Total N-EtFOSAA	584.2 > 419	3.03e3	3.40e3	0.25000		5.45		11.2	34.537	
31	68	Total PFOA+PFOS	499 > 79.9,41...	1.14e4		0.25000		0.00		21.2	78.340	

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Dataset: U:\Q4.PRO\results\171213M1\171213M1-17.qld

Last Altered: Friday, December 15, 2017 08:21:44 Pacific Standard Time
Printed: Friday, December 15, 2017 08:22:20 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_17, Date: 13-Dec-2017, Time: 21:57:43, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	6	L-PFHxS	398.9 > 79.6	3.95	1898.929	1292.896	18.359	MM	31.9
2	7	Br-PFHxS	398.9 > 79.6			1292.896		MM-	

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.32	8636.142	10931.081	9.876	bb	38.3

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	15	Br-PFOS	499 > 79.9			3067.173		MM-	
2	14	L-PFOS	499 > 79.9	4.83	2772.334	3067.173	11.298	MM	40.1

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	18	N-MeFOSAA	570.1 > 419	5.27	4131.258	2578.232	20.030	bb	40.9

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.43	3034.391	3395.101	11.172	bb	34.5

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.32	8636.142	10931.081	9.876	bb	38.3
2	15	Br-PFOS	499 > 79.9			3067.173		MM-	
3	14	L-PFOS	499 > 79.9	4.83	2772.334	3067.173	11.298	MM	40.1

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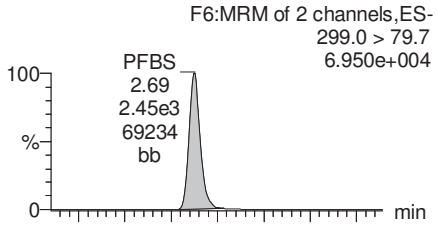
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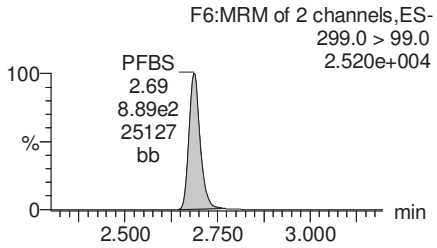
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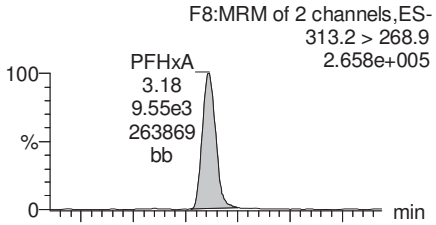
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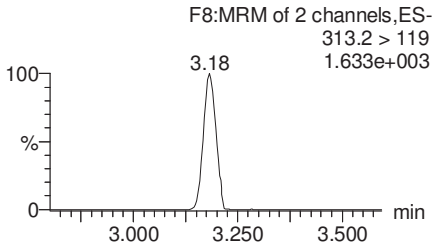
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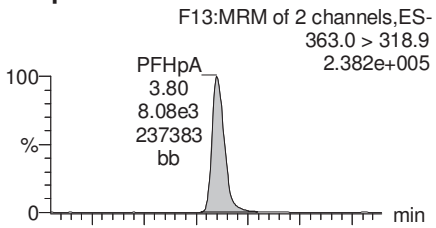


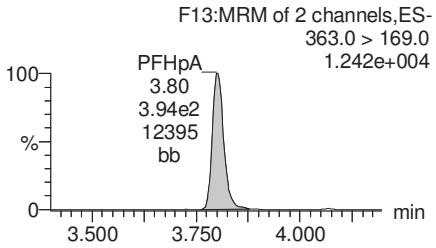
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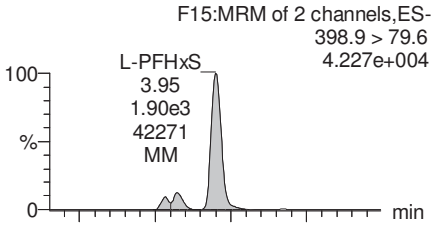


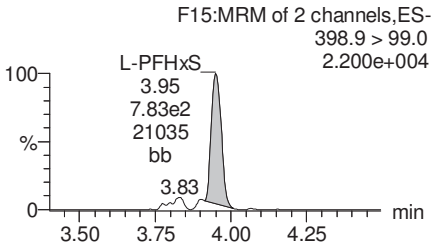
PFHpA



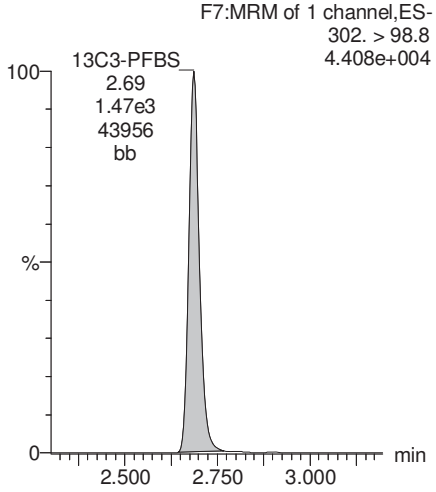


Total PFHxS

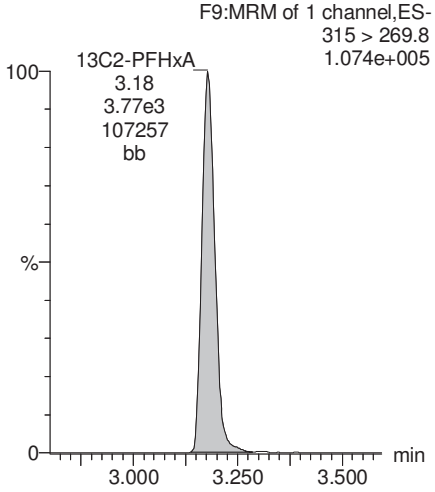




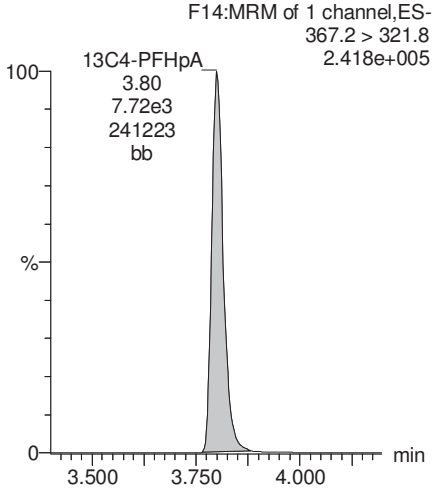
13C3-PFBS



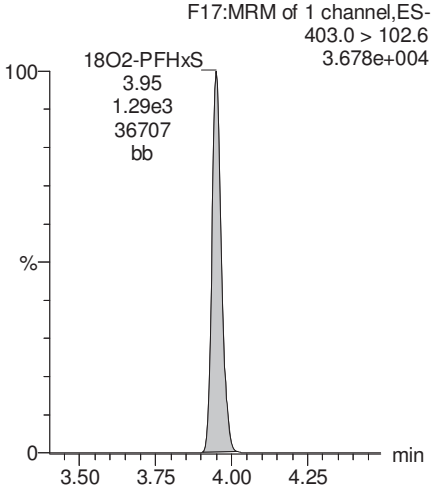
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



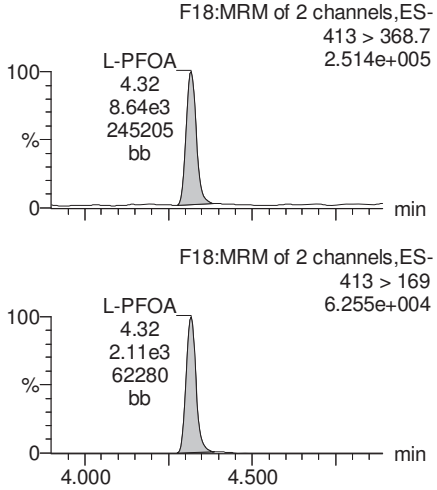
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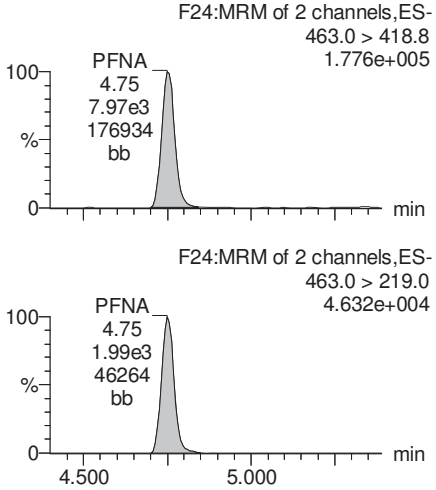
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Name: 171213M1_17, Date: 13-Dec-2017, Time: 21:57:43, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

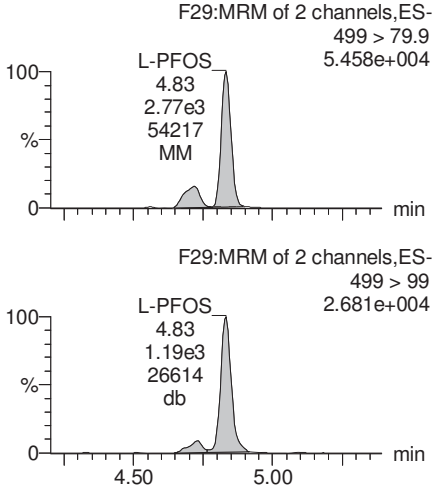
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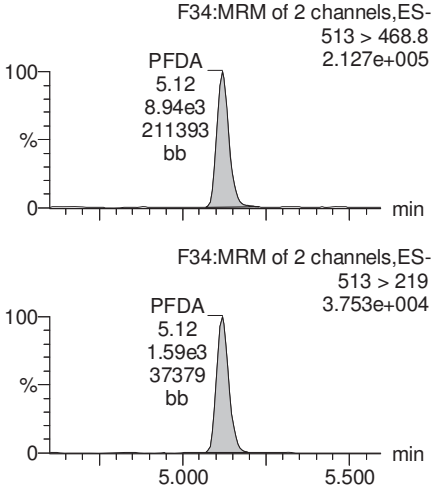
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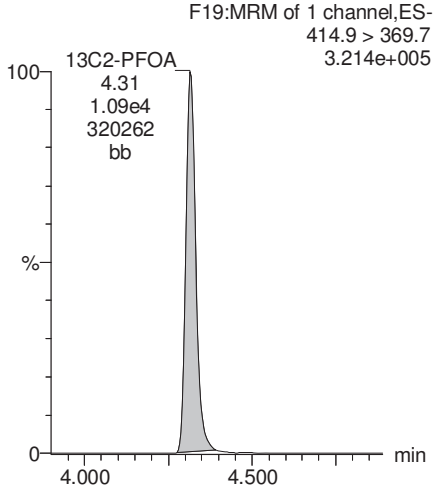
Total PFOS



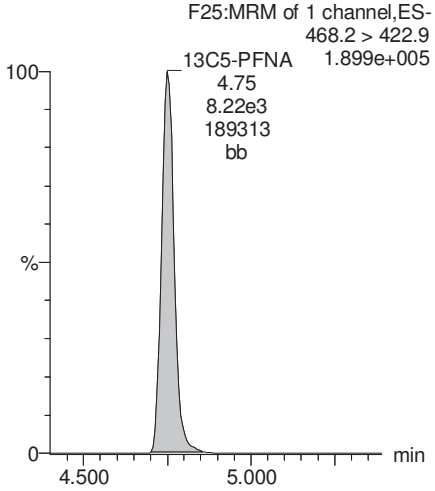
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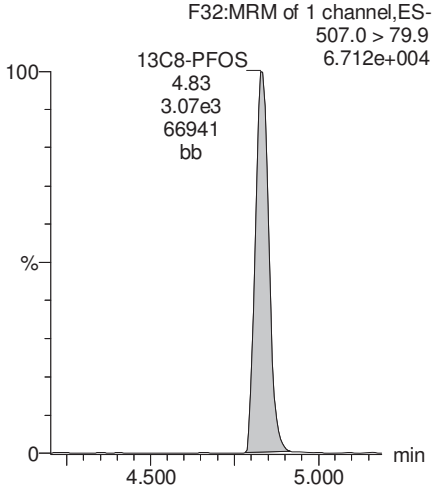
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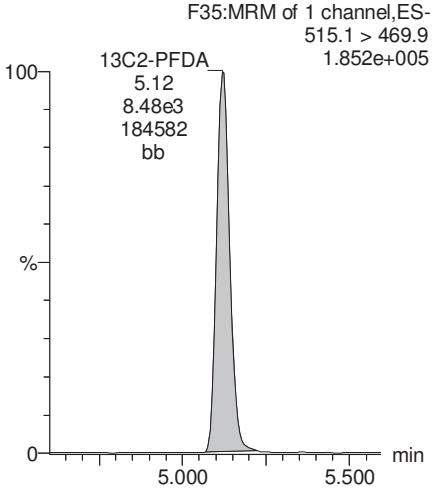
13C5-PFNA



13C8-PFOS



13C2-PFDA



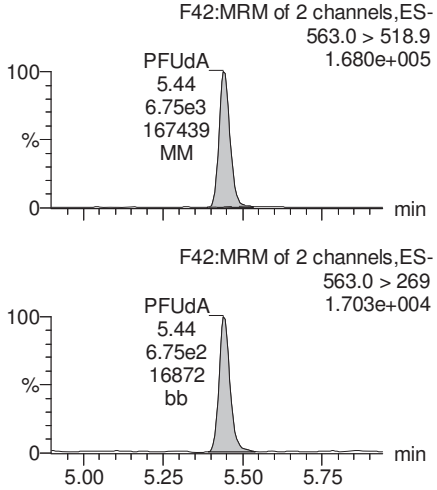
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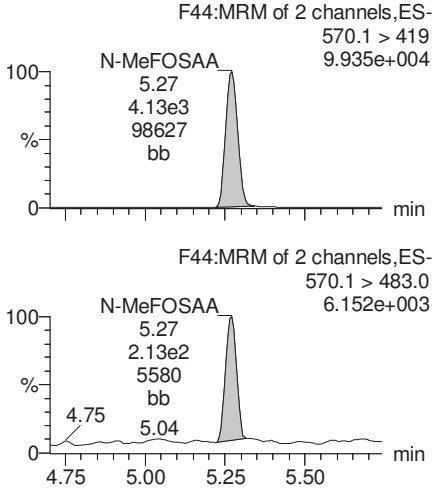
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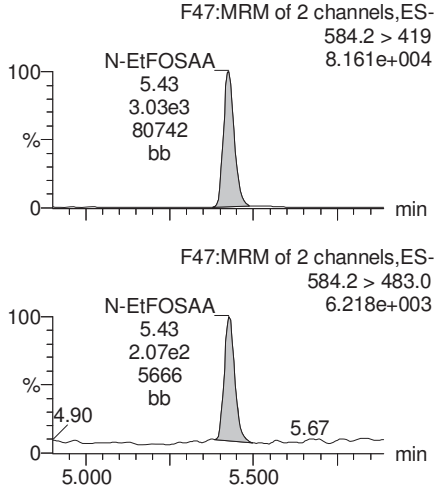
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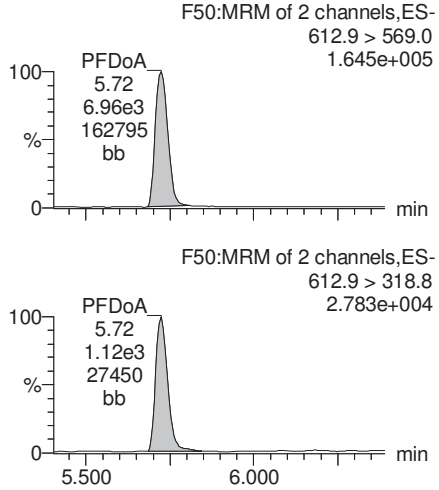
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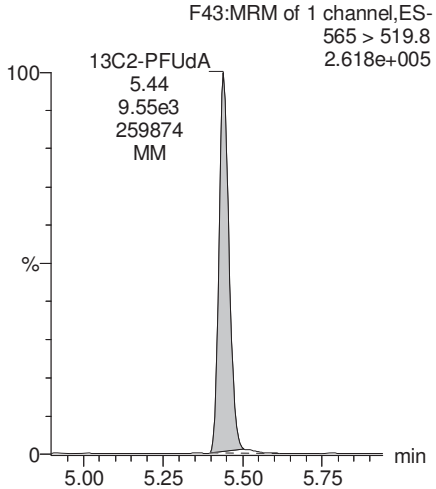
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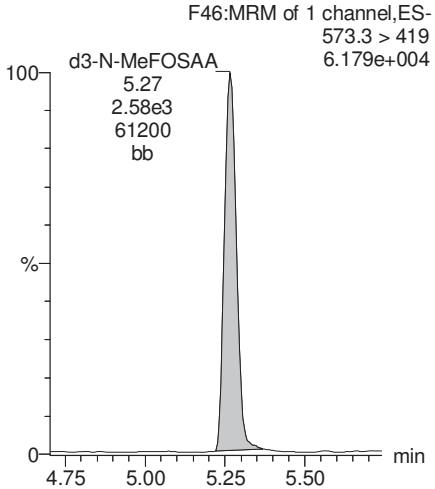
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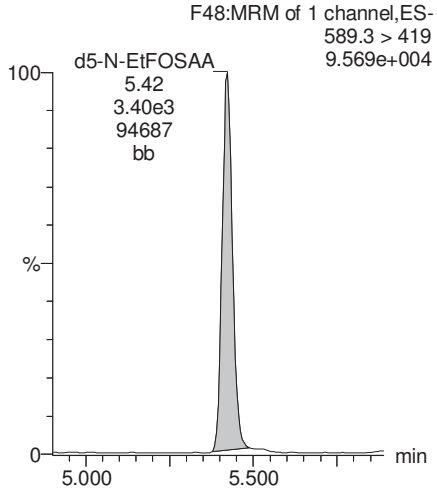
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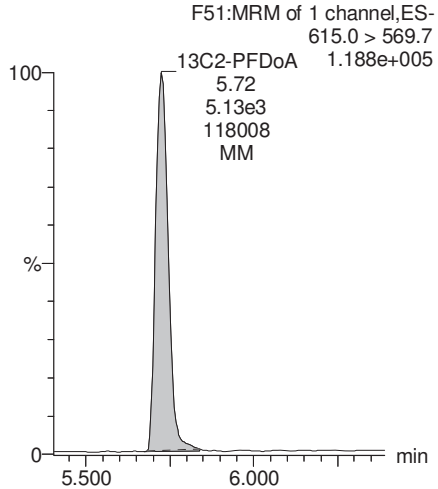
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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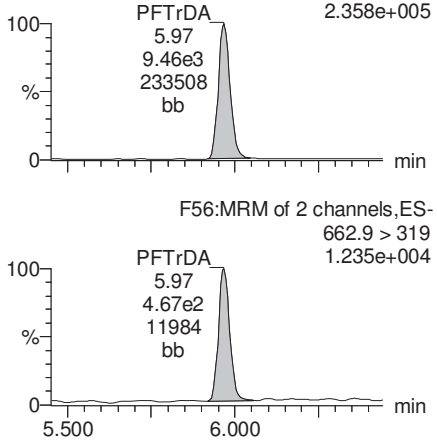
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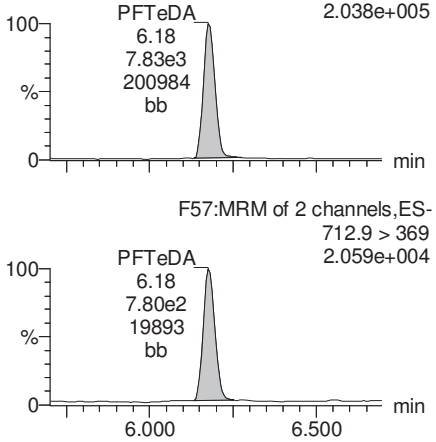
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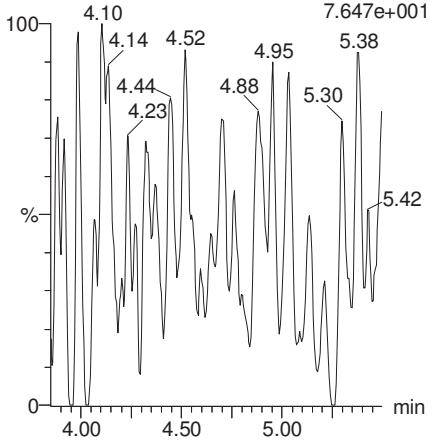
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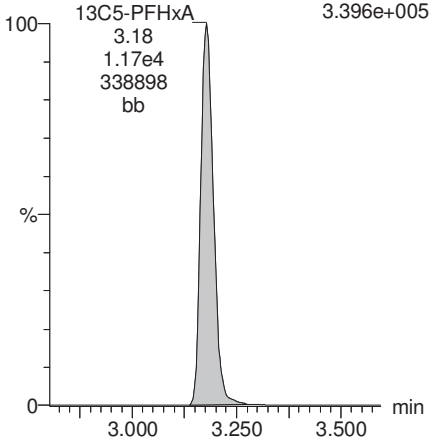
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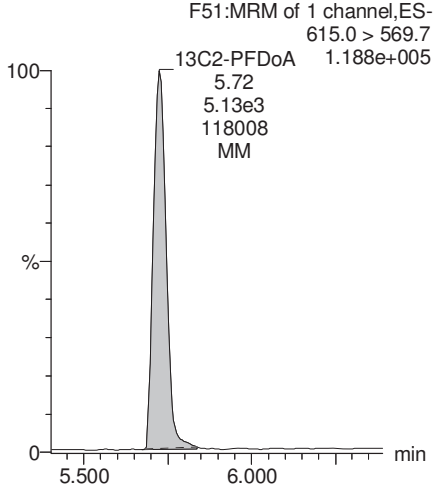
TCDA



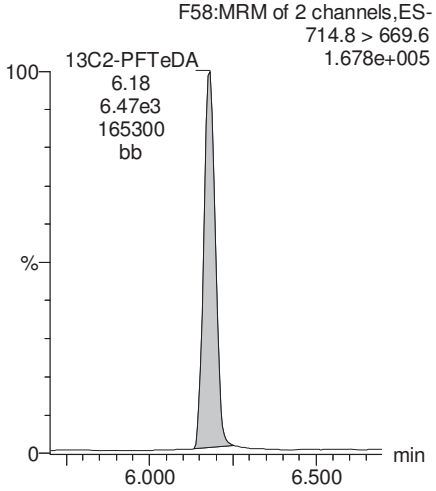
13C5-PFHxA



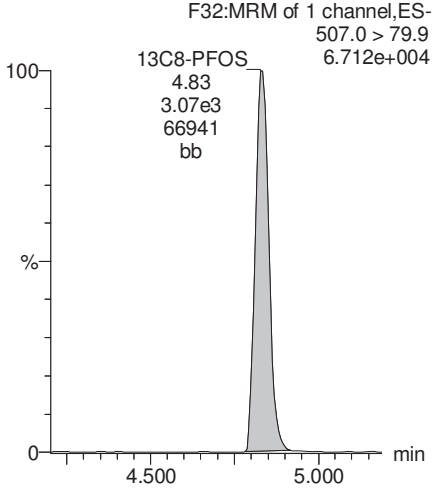
13C2-PFDoA



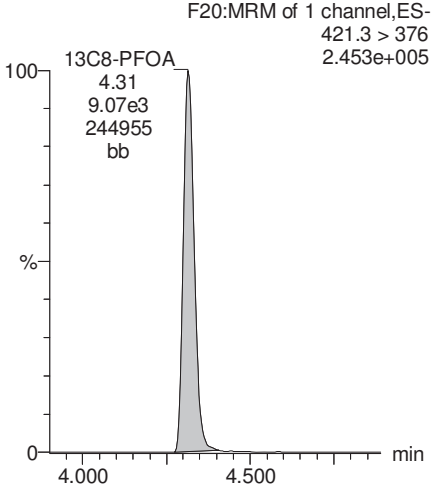
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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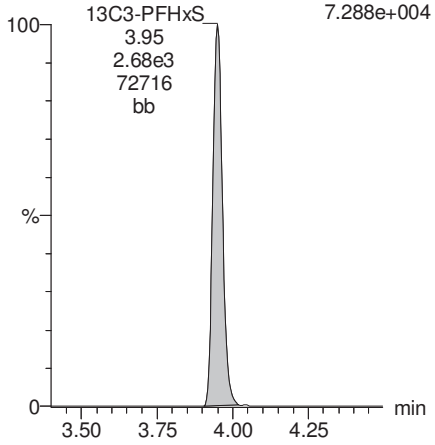
Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-17.qld

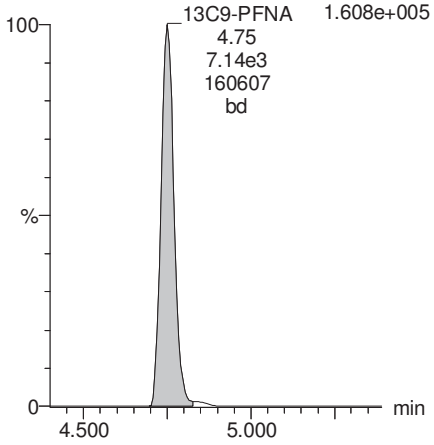
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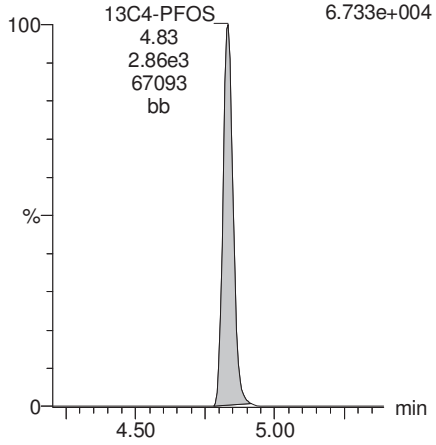
13C3-PFHxS



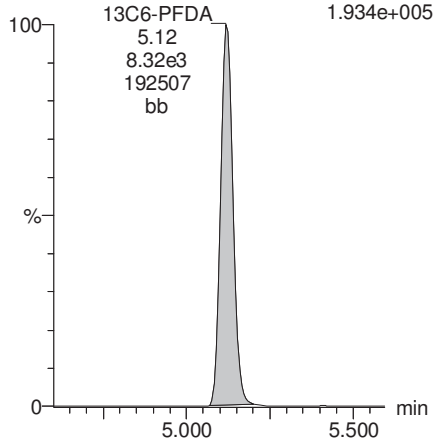
13C9-PFNA



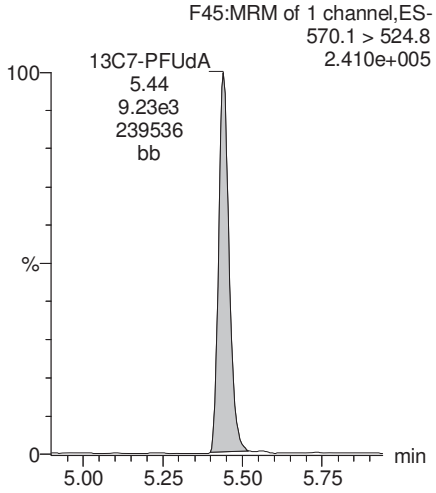
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: U:\Q4.PRO\results\171213M1\171213M1-23.qld

Last Altered: Friday, December 15, 2017 08:39:53 Pacific Standard Time
Printed: Friday, December 15, 2017 08:40:17 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_23, Date: 13-Dec-2017, Time: 23:04:47, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7		1.87e3	0.26261		2.70				
2	4	PFHxA	313.2 > 268.9		4.67e3	0.26261		3.18				
3	5	PFHpA	363.0 > 318.9		9.47e3	0.26261		3.80				
4	6	L-PFHxS	398.9 > 79.6	3.37e0	1.53e3	0.26261		4.00	3.96	0.0276	0.315	
5	9	L-PFOA	413 > 368.7		1.20e4	0.26261		4.32				
6	12	PFNA	463.0 > 418.8	1.61e2	9.88e3	0.26261		4.78	4.75	0.203	0.419	
7	14	L-PFOS	499 > 79.9		4.20e3	0.26261		4.83				
8	16	PFDA	513 > 468.8		1.11e4	0.26261		5.12				
9	18	N-MeFOSAA	570.1 > 419		3.53e3	0.26261		5.25				
10	19	N-EtFOSAA	584.2 > 419		4.66e3	0.26261		5.45				
11	20	PFUdA	563.0 > 518.9		1.11e4	0.26261		5.44				
12	22	PFDoA	612.9 > 569.0		8.37e3	0.26261		5.75				

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Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-23.qld

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Name: 171213M1_23, Date: 13-Dec-2017, Time: 23:04:47, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9		8.37e3	0.26261		5.97				
2	25	PFTeDA	712.9 > 668.8		8.98e3	0.26261		6.20				
3	33	13C3-PFBS	302. > 98.8	1.87e3	1.32e4	0.26261	0.117	2.70	2.69	1.78	57.933	121.7
4	34	13C2-PFHxA	315 > 269.8	4.67e3	1.32e4	0.26261	0.779	3.18	3.18	4.43	21.672	113.8
5	35	13C4-PFHpA	367.2 > 321.8	9.47e3	1.32e4	0.26261	0.640	3.80	3.80	8.98	53.468	112.3
6	36	18O2-PFHxS	403.0 > 102.6	1.53e3	3.07e3	0.26261	0.452	4.00	3.95	6.21	52.281	109.8
7	37	13C2-6:2 FTS	429.1 > 408.9	2.73e3	1.07e4	0.26261	0.245	4.26	4.26	3.18	49.505	104.0
8	38	13C2-PFOA	414.9 > 369.7	1.20e4	1.07e4	0.26261	1.218	4.32	4.32	14.0	43.801	92.0
9	39	13C5-PFNA	468.2 > 422.9	9.88e3	1.05e4	0.26261	1.017	4.78	4.75	11.8	44.034	92.5
10	40	13C8-PFOSA	506.1 > 77.7	2.69e3	9.89e3	0.26261	0.309	4.81	4.81	3.40	41.915	88.1
11	41	13C8-PFOS	507.0 > 79.9	4.20e3	2.96e3	0.26261	1.053	4.83	4.83	17.7	64.144	134.8
12	42	13C2-PFDA	515.1 > 469.9	1.11e4	8.11e3	0.26261	1.214	5.12	5.12	17.0	53.446	112.3
13	43	13C2-8:2 FTS	529.1 > 508.7	1.41e3	1.32e4	0.26261	0.103	5.09	5.09	1.34	49.325	103.6
14	44	d3-N-MeFOSAA	573.3 > 419	3.53e3	9.89e3	0.26261	0.329	5.25	5.27	4.45	51.587	108.4
15	45	d5-N-EtFOSAA	589.3 > 419	4.66e3	9.89e3	0.26261	0.394	5.45	5.42	5.88	56.859	119.5
16	46	13C2-PFUdA	565 > 519.8	1.11e4	9.89e3	0.26261	1.109	5.44	5.44	14.0	48.119	101.1
17	47	13C2-PFDoA	615.0 > 569.7	8.37e3	9.89e3	0.26261	0.851	5.75	5.73	10.6	47.321	99.4
18	49	13C2-PFTeDA	714.8 > 669.6	8.98e3	9.89e3	0.26261	0.643	6.20	6.18	11.4	67.255	141.3
19	55	13C5-PFHxA	318 > 272.9	1.32e4	1.32e4	0.26261	1.000	3.18	3.18	12.5	47.599	100.0
20	56	13C3-PFHxS	401.9 > 79.9	3.07e3	3.07e3	0.26261	1.000	4.00	3.95	12.5	47.599	100.0
21	57	13C8-PFOA	421.3 > 376	1.07e4	1.07e4	0.26261	1.000	4.32	4.32	12.5	47.599	100.0
22	58	13C9-PFNA	472.2 > 426.9	1.05e4	1.05e4	0.26261	1.000	4.78	4.75	12.5	47.599	100.0
23	59	13C4-PFOS	503 > 79.9	2.96e3	2.96e3	0.26261	1.000	4.83	4.83	12.5	47.599	100.0
24	60	13C6-PFDA	519.1 > 473.7	8.11e3	8.11e3	0.26261	1.000	5.12	5.12	12.5	47.599	100.0
25	61	13C7-PFUdA	570.1 > 524.8	9.89e3	9.89e3	0.26261	1.000	5.44	5.44	12.5	47.599	100.0
26	62	Total PFHxS	398.9 > 79.6	3.37e0	1.53e3	0.26261		4.00		0.0276	0.315	
27	63	Total PFOA	413 > 368.7	0.00e0	1.20e4	0.26261		4.32		0.000		
28	64	Total PFOS	499 > 79.9	0.00e0	4.20e3	0.26261		4.83		0.000		
29	65	Total N-MeFOSAA	570.1 > 419	0.00e0	3.53e3	0.26261		5.25		0.000		
30	66	Total N-EtFOSAA	584.2 > 419	0.00e0	4.66e3	0.26261		5.45		0.000		
31	68	Total PFOA+PFOS	499 > 79.9,41...	0.00e0		0.26261		0.00		0.000		

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Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-23.qld

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Name: 171213M1_23, Date: 13-Dec-2017, Time: 23:04:47, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

Total PFHxS

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Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7			12006.717		MM-I	

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
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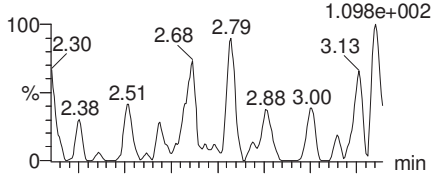
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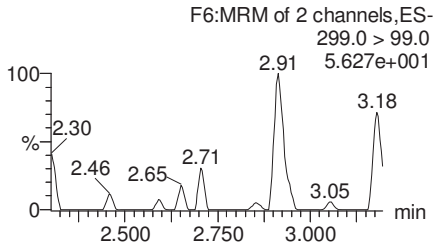
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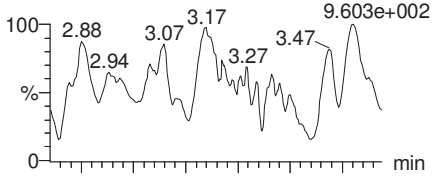
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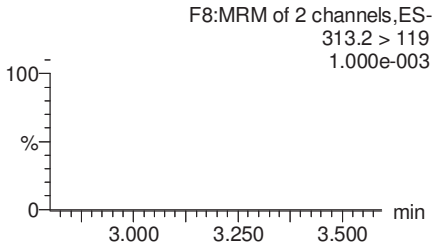
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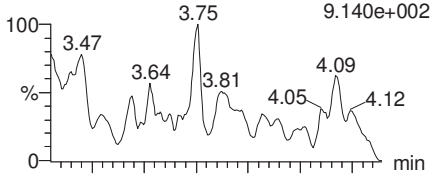


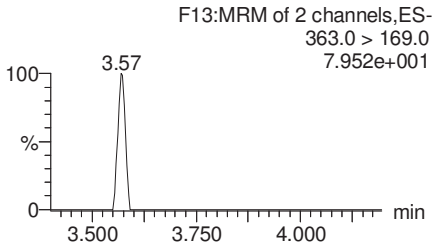
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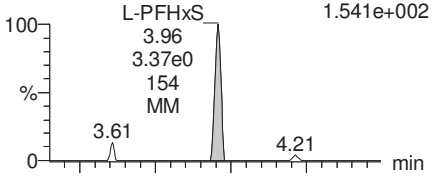


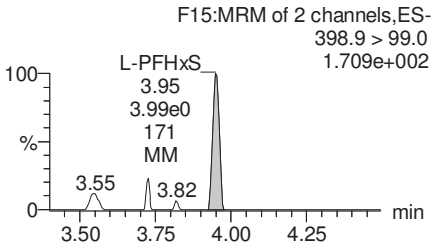
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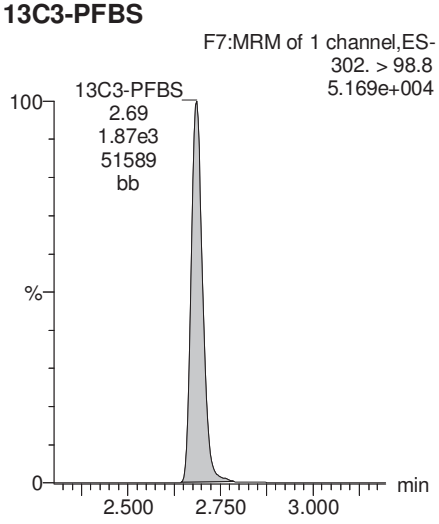


Total PFHxS

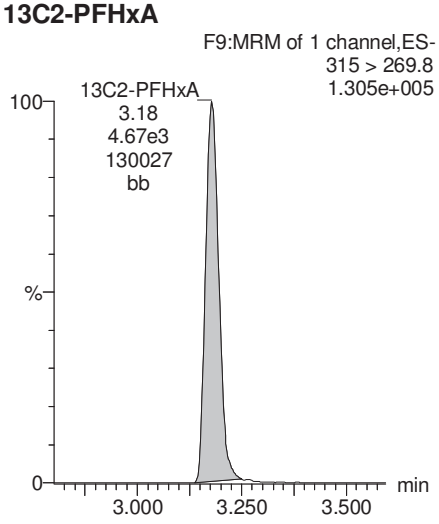




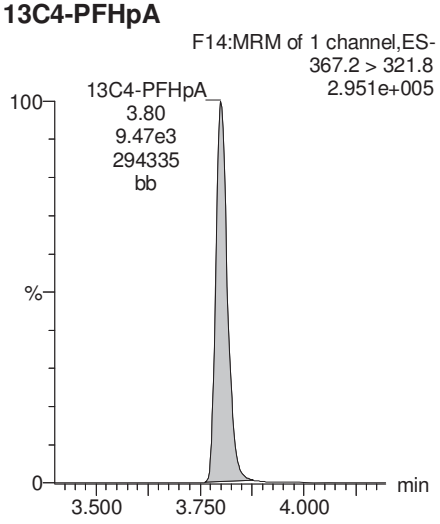
13C3-PFBS



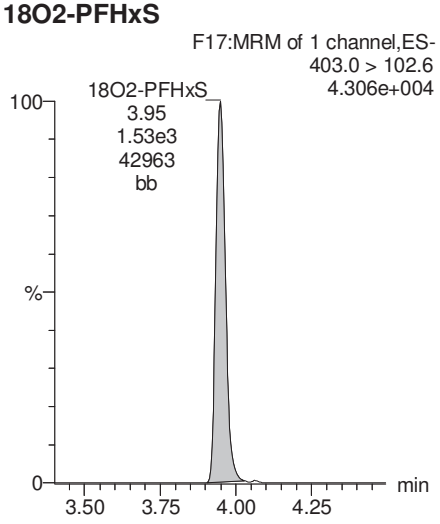
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13C4-PFHpA



18O2-PFHxS



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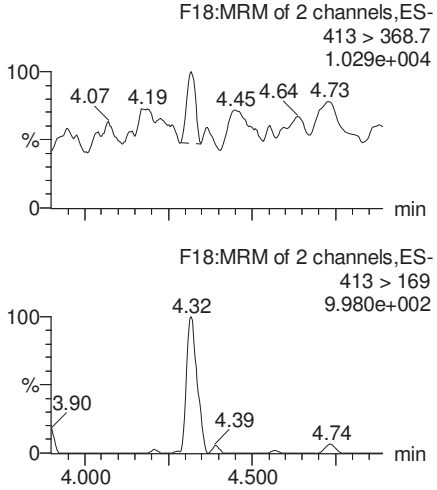
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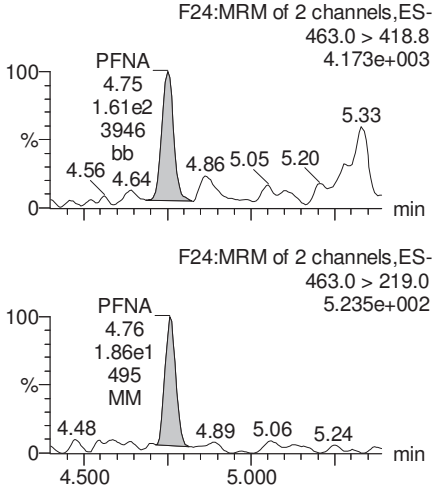
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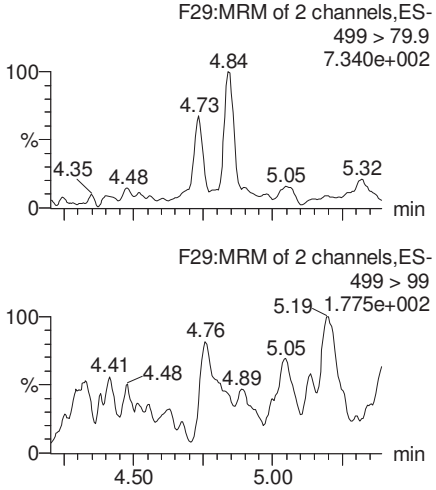
Total PFOA



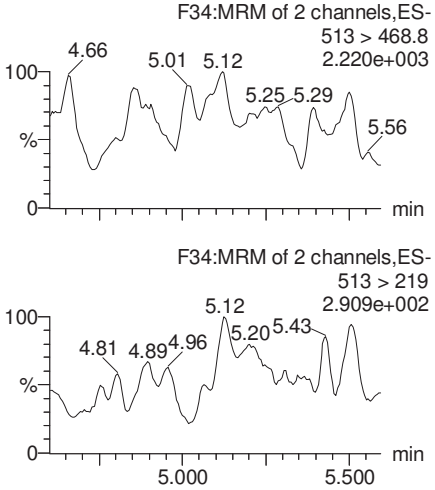
PFNA



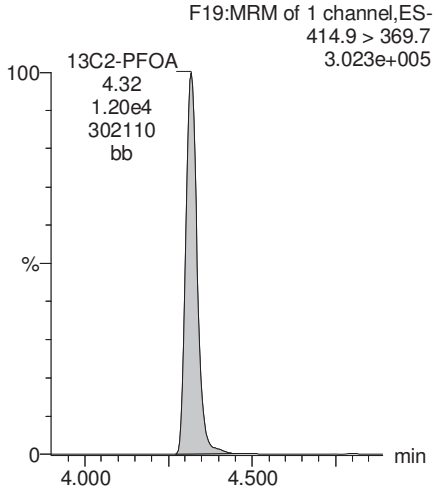
Total PFOS



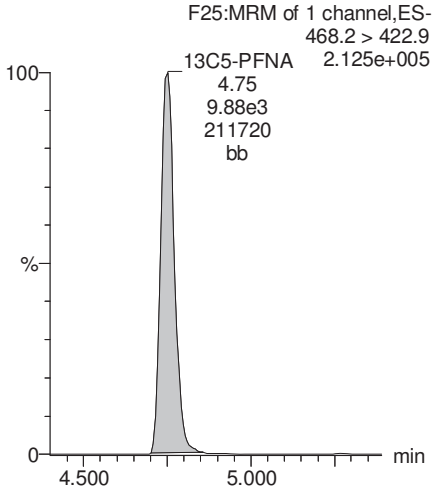
PFDA



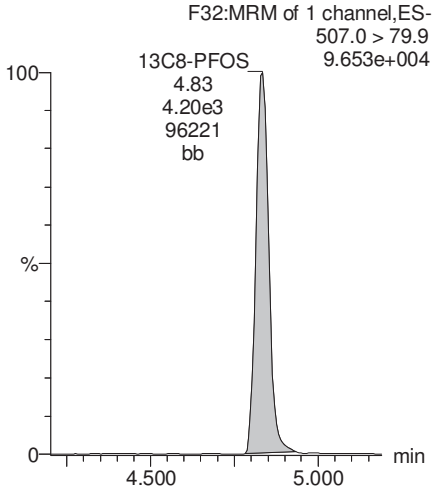
13C2-PFOA



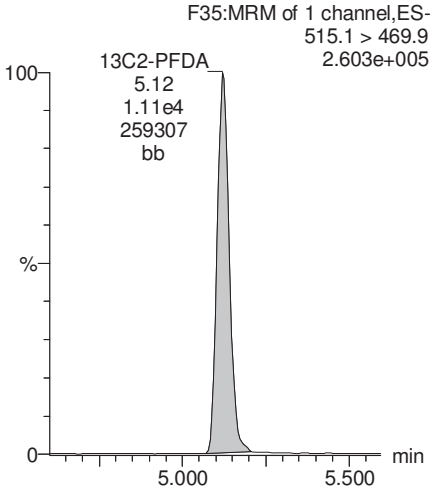
13C5-PFNA



13C8-PFOS



13C2-PFDA



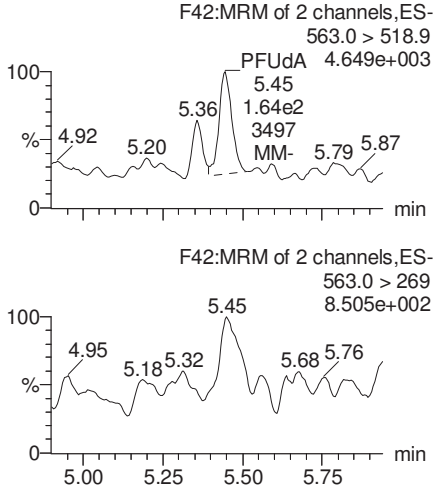
AC 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-23.qld

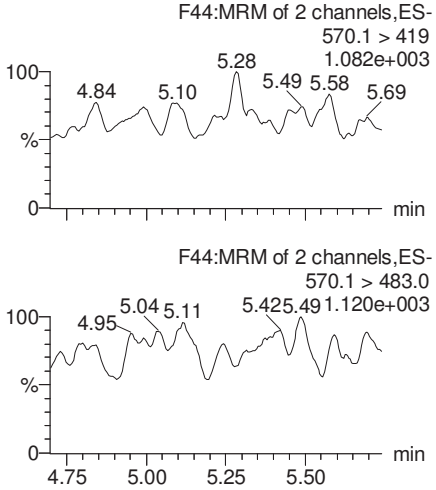
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Printed: Friday, December 15, 2017 08:40:30 Pacific Standard Time

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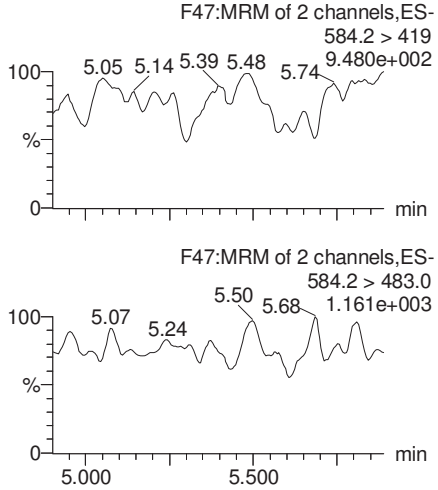
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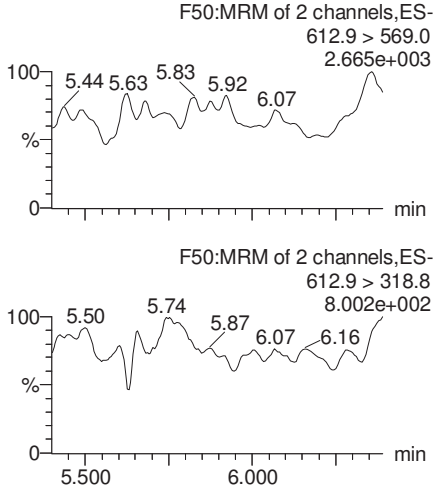
N-MeFOSAA



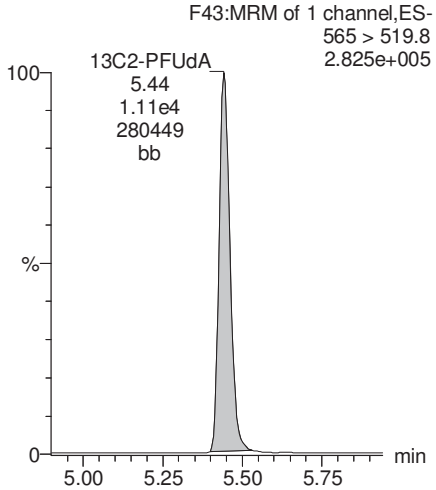
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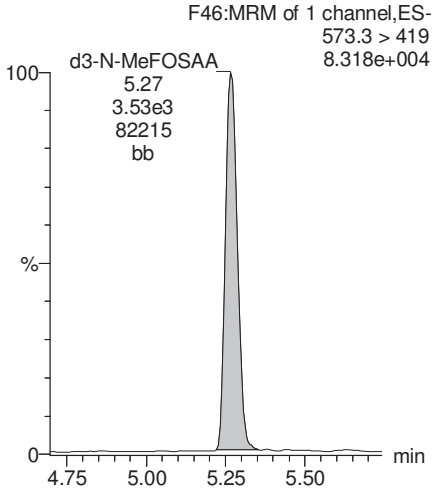
PFDoA



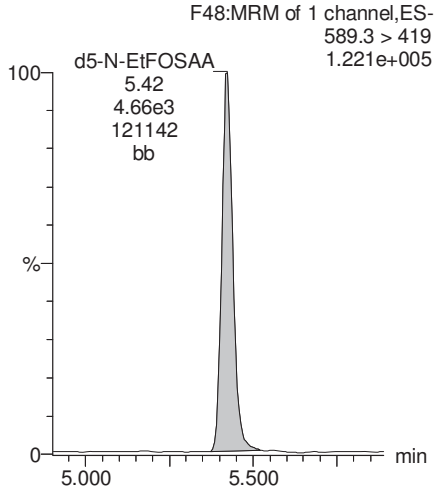
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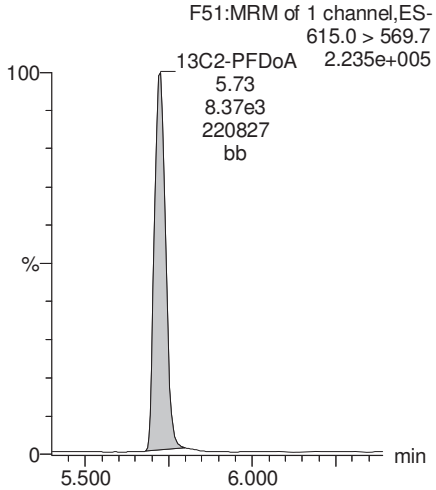
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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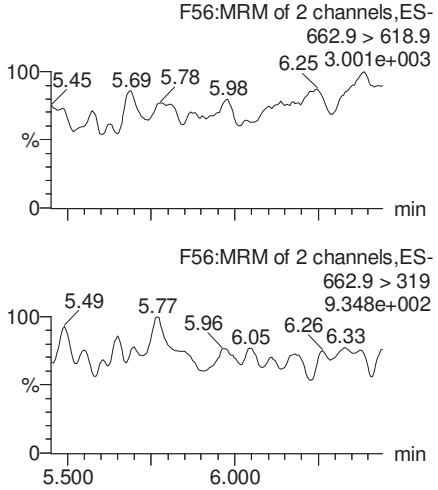
Rev'd: MM 12/15/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-23.qld

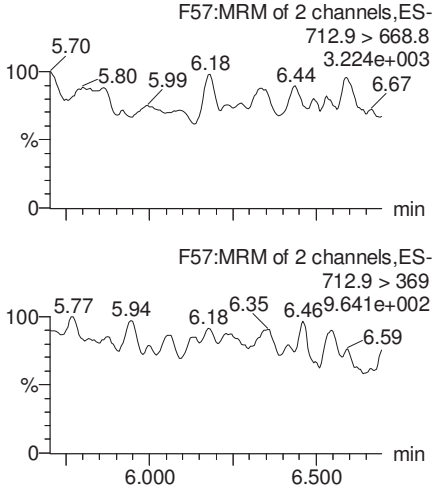
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Name: 171213M1_23, Date: 13-Dec-2017, Time: 23:04:47, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

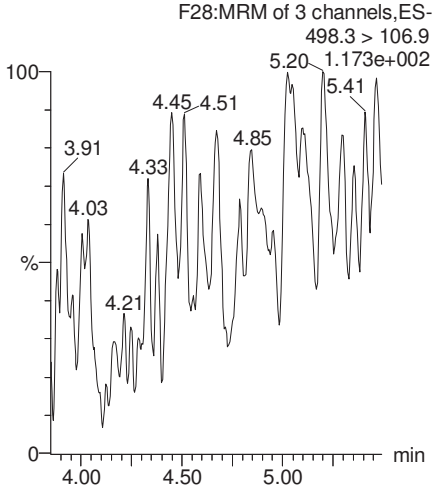
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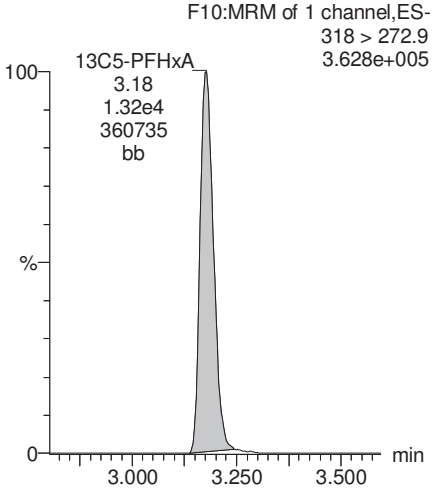
PFTeDA



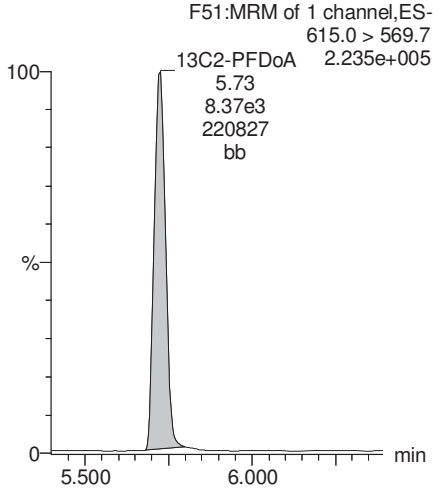
TCDA



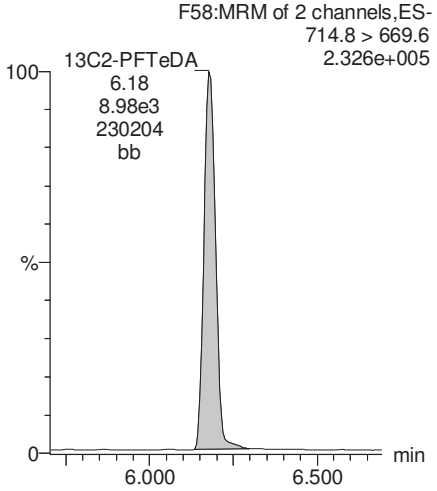
13C5-PFHxA



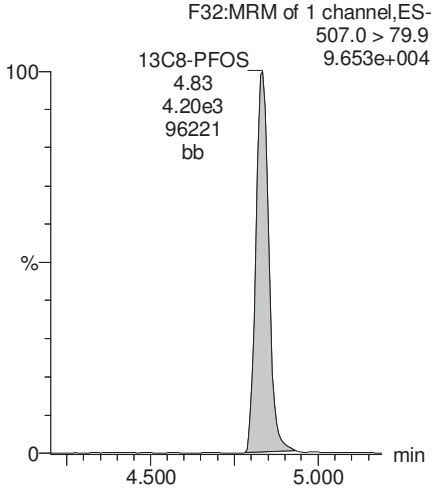
13C2-PFDoA



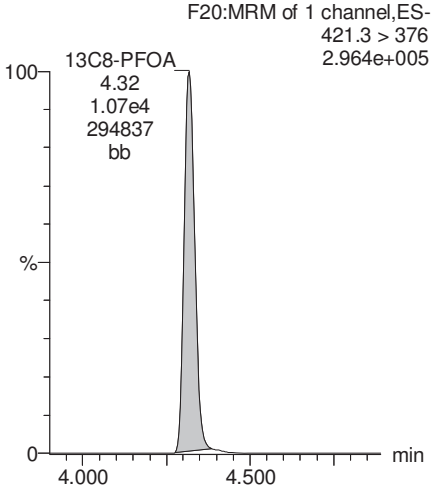
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



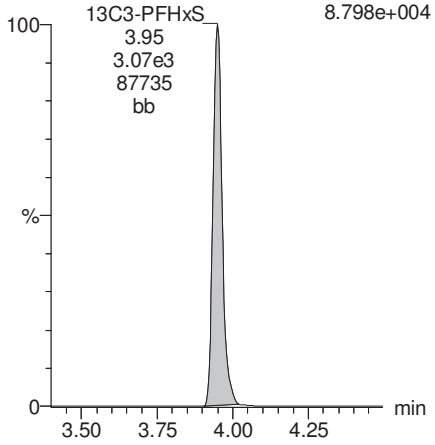
AC 12/15/17

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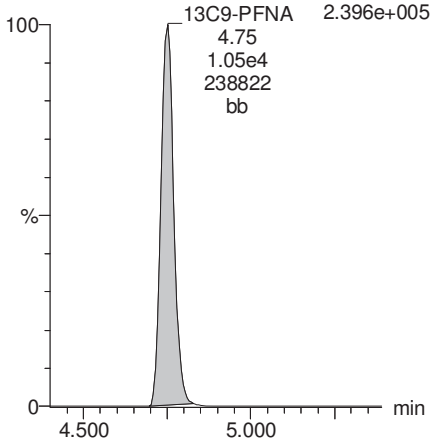
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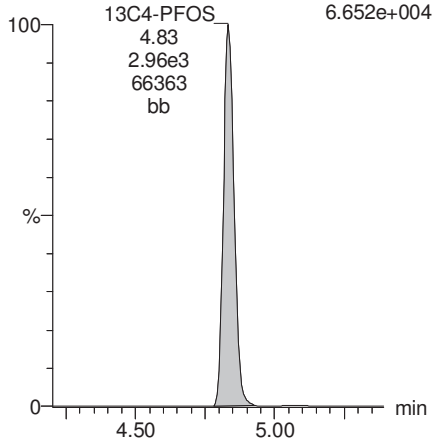
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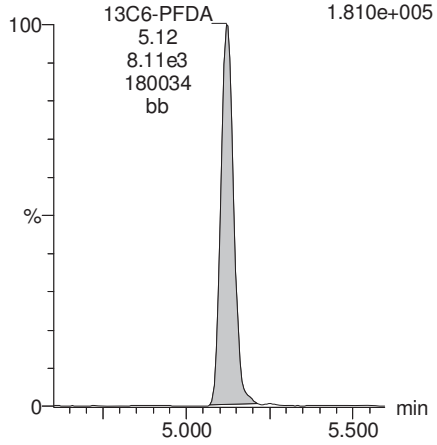
13C9-PFNA



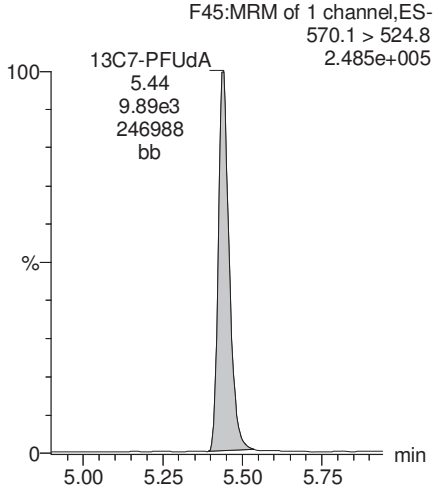
13C4-PFOS



13C6-PFDA



13C7-PFUdA



AC 12/15/17

UNREPORTED RUNS

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-32.qld

Last Altered: Friday, December 15, 2017 09:43:11 Pacific Standard Time
Printed: Friday, December 15, 2017 09:44:32 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_32, Date: 12-Dec-2017, Time: 23:47:09, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7		1.43e3	0.25000		2.84				
2	4	PFHxA	313.2 > 268.9		4.37e3	0.25000		3.34				
3	5	PFHpA	363.0 > 318.9		8.53e3	0.25000		3.97				
4	6	L-PFHxS	398.9 > 79.6		1.13e3	0.25000		4.12				
5	9	L-PFOA	413 > 368.7	1.45e2	9.89e3	0.25000		4.49	4.34	0.184		
6	12	PFNA	463.0 > 418.8		9.74e3	0.25000		4.92				
7	13	L-PFOS	499 > 79.9		2.78e3	0.25000		5.00				
8	16	PFDA	513 > 468.8		7.61e3	0.25000		5.29				
9	18	N-MeFOSAA	570.1 > 419	6.04e1	3.06e3	0.25000		5.44	5.53	0.247	0.767	
10	19	N-EtFOSAA	584.2 > 419	8.26e1	3.21e3	0.25000		5.59	5.63	0.321	1.540	
11	20	PFUdA	563.0 > 518.9		7.67e3	0.25000		5.61				
12	22	PFDoA	612.9 > 569.0	1.80e2	4.93e3	0.25000		5.89	5.90	0.457	0.880	

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-32.qld

Last Altered: Friday, December 15, 2017 09:43:11 Pacific Standard Time
Printed: Friday, December 15, 2017 09:44:46 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_32, Date: 12-Dec-2017, Time: 23:47:09, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9		4.93e3	0.25000		6.13				
2	25	PFTeDA	712.9 > 668.8	1.03e2	5.45e3	0.25000		6.33	6.62	0.236	0.823	
3	33	13C3-PFBS	302. > 98.8	1.43e3	1.26e4	0.25000	0.095	2.84	2.70	1.42	59.735	119.5
4	34	13C2-PFHxA	315 > 269.8	4.37e3	1.26e4	0.25000	0.770	3.34	3.20	4.34	22.574	112.9
5	35	13C4-PFHpA	367.2 > 321.8	8.53e3	1.26e4	0.25000	0.597	3.97	3.82	8.49	56.913	113.8
6	36	18O2-PFHxS	403.0 > 102.6	1.13e3	2.26e3	0.25000	0.435	4.12	3.97	6.24	57.346	114.7
7	37	13C2-6:2 FTS	429.1 > 408.9	2.20e3	8.29e3	0.25000	0.330	4.44	4.28	3.31	40.104	80.2
8	38	13C2-PFOA	414.9 > 369.7	9.89e3	8.29e3	0.25000	1.232	4.49	4.34	14.9	48.398	96.8
9	39	13C5-PFNA	468.2 > 422.9	9.74e3	1.18e4	0.25000	0.962	4.92	4.77	10.3	42.847	85.7
10	40	13C8-PFOSA	506.1 > 77.7	2.25e3	8.31e3	0.25000	0.409	4.97	4.83	3.38	33.090	66.2
11	41	13C8-PFOS	507.0 > 79.9	2.78e3	2.80e3	0.25000	1.050	5.00	4.86	12.4	47.230	94.5
12	42	13C2-PFDA	515.1 > 469.9	7.61e3	6.82e3	0.25000	1.475	5.29	5.15	14.0	37.857	75.7
13	43	13C2-8:2 FTS	529.1 > 508.7	1.24e3	1.26e4	0.25000	0.113	5.26	5.12	1.23	43.486	87.0
14	44	d3-N-MeFOSAA	573.3 > 419	3.06e3	8.31e3	0.25000	0.444	5.44	5.30	4.61	41.449	82.9
15	45	d5-N-EtFOSAA	589.3 > 419	3.21e3	8.31e3	0.25000	0.495	5.59	5.45	4.83	39.015	78.0
16	46	13C2-PFUdA	565 > 519.8	7.67e3	8.31e3	0.25000	1.084	5.61	5.47	11.5	42.541	85.1
17	47	13C2-PFDoA	615.0 > 569.7	4.93e3	8.31e3	0.25000	0.611	5.89	5.75	7.41	48.536	97.1
18	49	13C2-PFTeDA	714.8 > 669.6	5.45e3	8.31e3	0.25000	0.551	6.33	6.20	8.19	59.477	119.0
19	55	13C5-PFHxA	318 > 272.9	1.26e4	1.26e4	0.25000	1.000	3.04	3.20	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.26e3	2.26e3	0.25000	1.000	3.80	3.97	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	8.29e3	8.29e3	0.25000	1.000	4.20	4.34	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	1.18e4	1.18e4	0.25000	1.000	4.63	4.77	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	2.80e3	2.80e3	0.25000	1.000	4.69	4.86	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	6.82e3	6.82e3	0.25000	1.000	5.00	5.15	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	8.31e3	8.31e3	0.25000	1.000	5.31	5.47	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	0.00e0	1.13e3	0.25000		3.81		0.000		
27	63	Total PFOA	413 > 368.7	2.35e2	9.89e3	0.25000		4.20		0.000		
28	64	Total PFOS	499 > 79.9	0.00e0	2.78e3	0.25000		4.69		0.000		
29	65	Total N-MeFOSAA	570.1 > 419	6.04e1	3.06e3	0.25000		5.15		0.247	0.767	
30	66	Total N-EtFOSAA	584.2 > 419	1.48e2	3.21e3	0.25000		5.30		0.577	2.827	

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-32.qld

Last Altered: Friday, December 15, 2017 09:43:11 Pacific Standard Time
Printed: Friday, December 15, 2017 09:44:46 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_32, Date: 12-Dec-2017, Time: 23:47:09, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.57	89.976	9889.813	0.114	bbl	
2	9	L-PFOA	413 > 368.7	4.34	145.478	9889.813	0.184	bbl	

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	18	N-MeFOSAA	570.1 > 419	5.53	60.392	3062.137	0.247	bb	0.8

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.63	82.557	3211.831	0.321	db	1.5
2	66	Total N-EtFOSAA	584.2 > 419	5.56	65.782	3211.831	0.256	bd	1.3

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.57	89.976	9889.813	0.114	bbl	
2	9	L-PFOA	413 > 368.7	4.34	145.478	9889.813	0.184	bbl	

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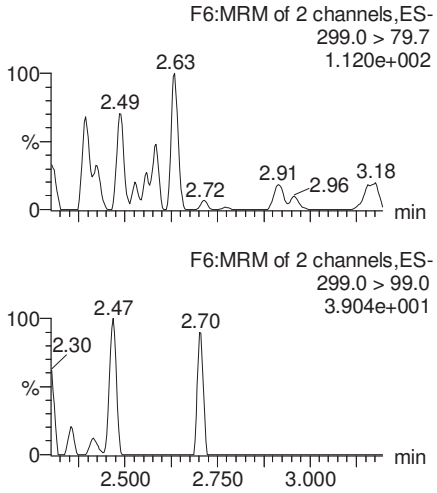
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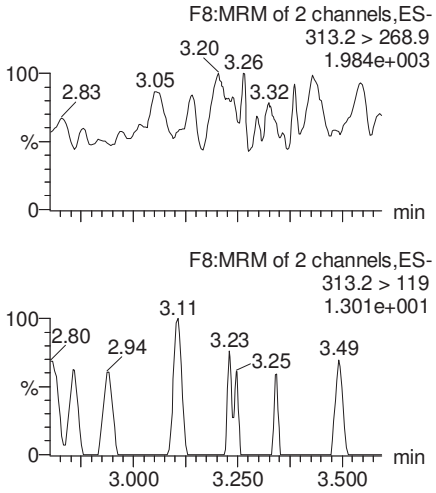
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Name: 171212M1_32, Date: 12-Dec-2017, Time: 23:47:09, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

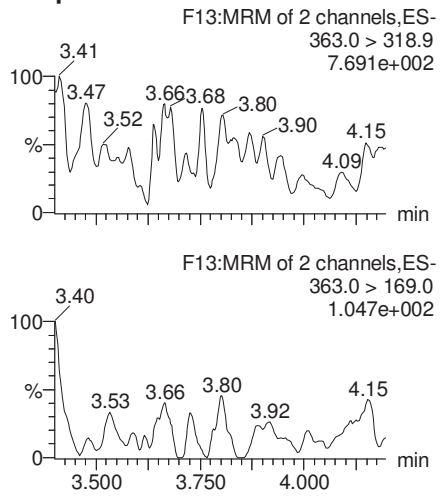
PFBS



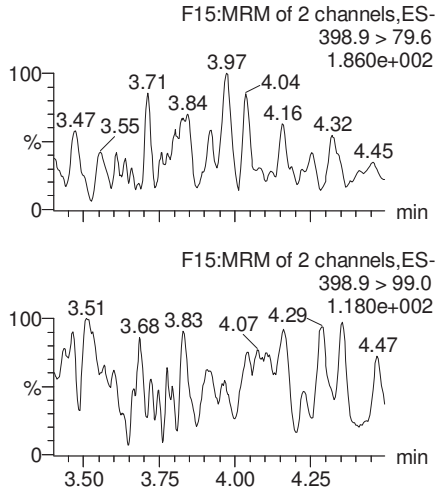
PFHxA



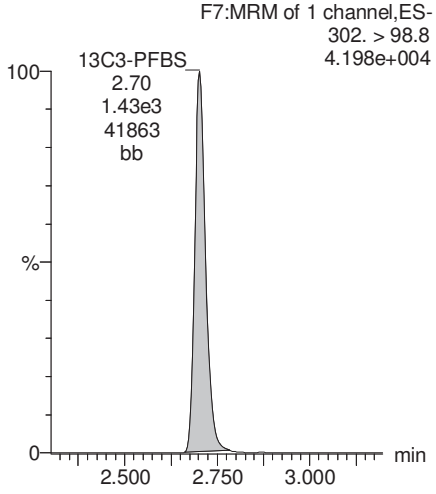
PFHpA



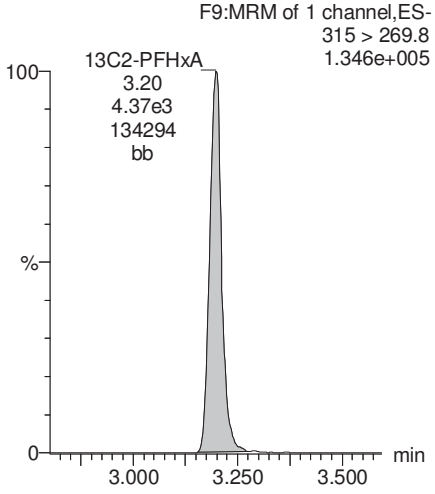
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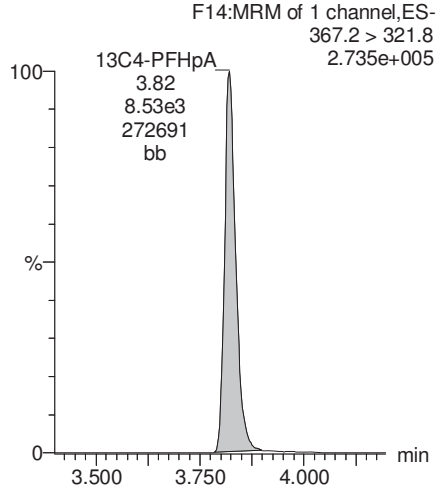
13C3-PFBS



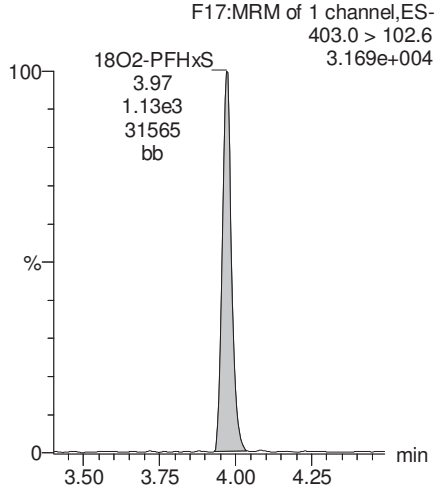
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS

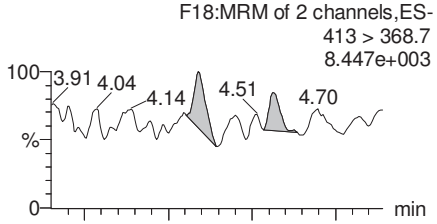


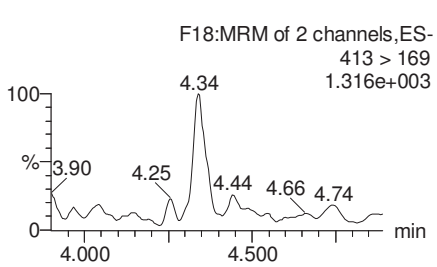
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Printed: Friday, December 15, 2017 09:44:46 Pacific Standard Time

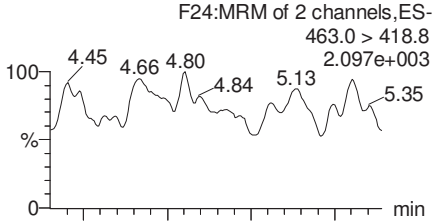
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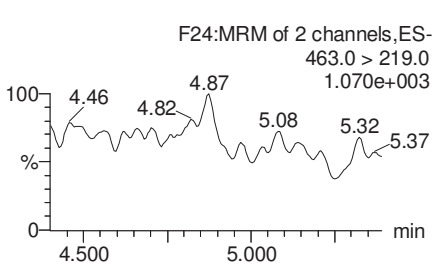
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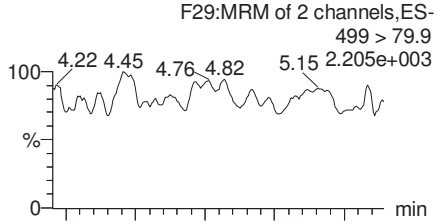


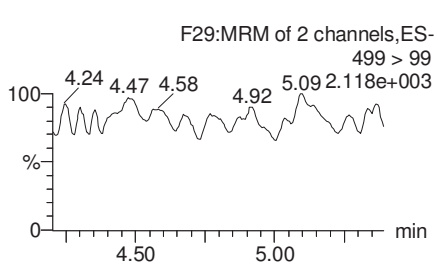
PFNA



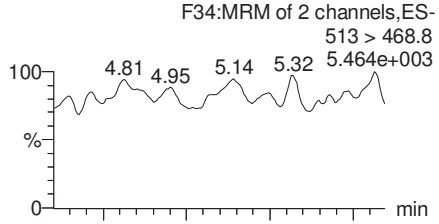


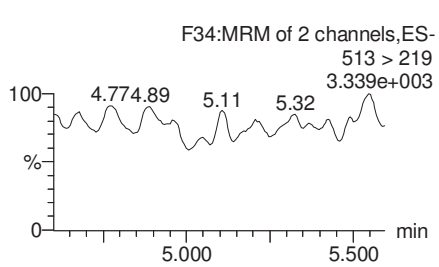
Total PFOS



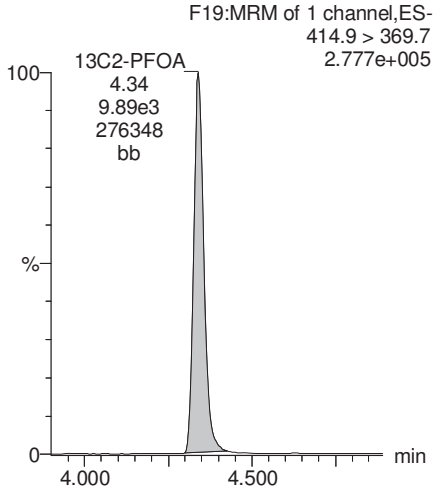


PFDA

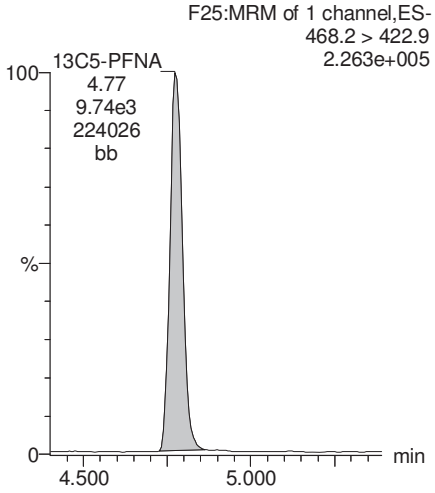




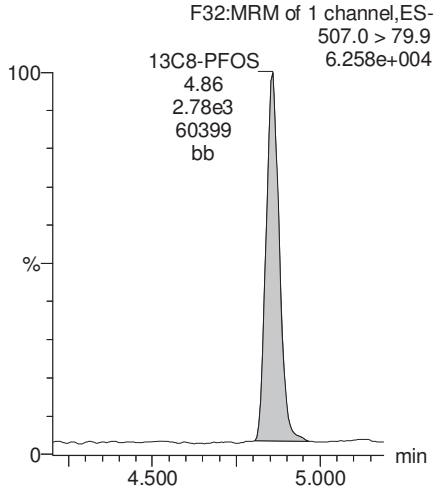
13C2-PFOA



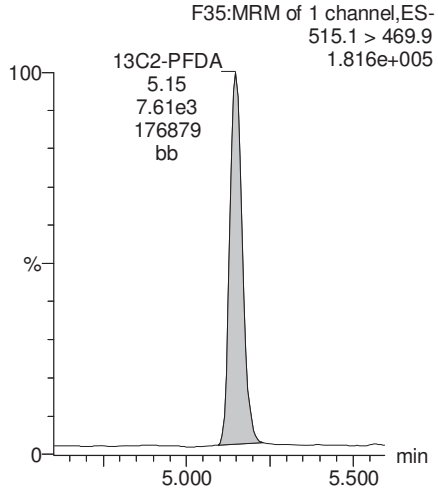
13C5-PFNA



13C8-PFOS



13C2-PFDA

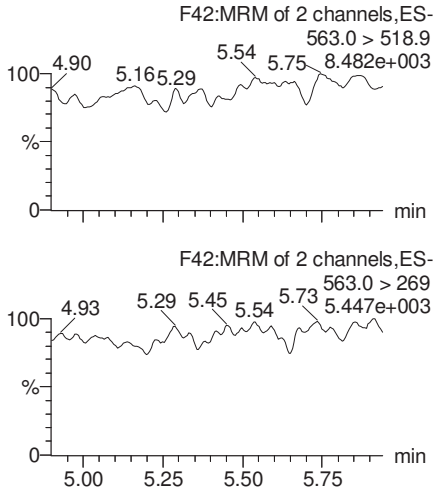


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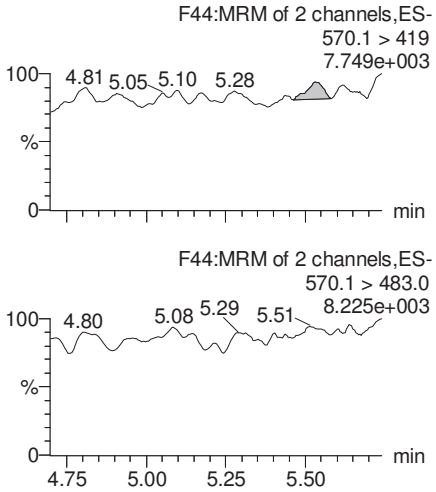
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Printed: Friday, December 15, 2017 09:44:46 Pacific Standard Time

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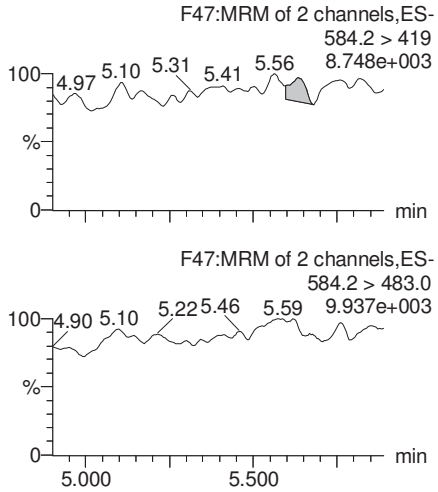
PFUdA



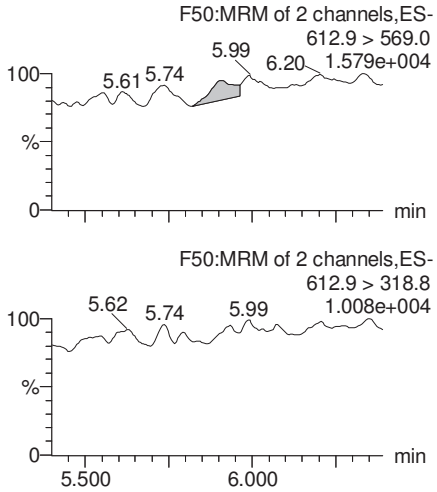
N-MeFOSAA



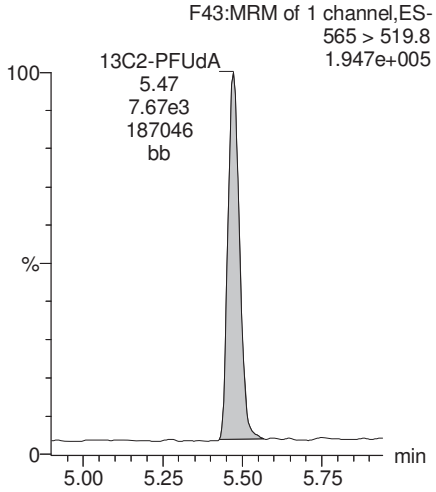
N-EtFOSAA



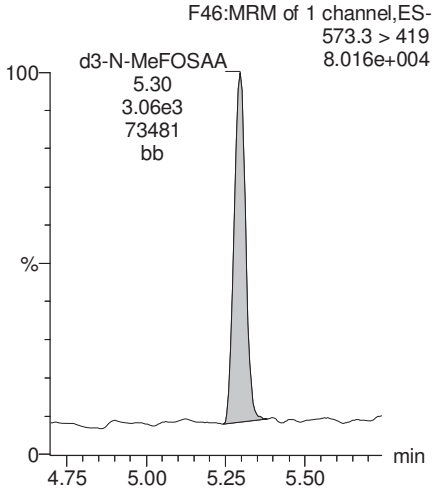
PFDoA



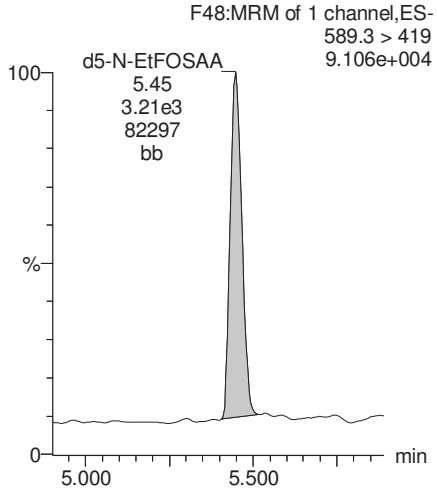
13C2-PFUdA



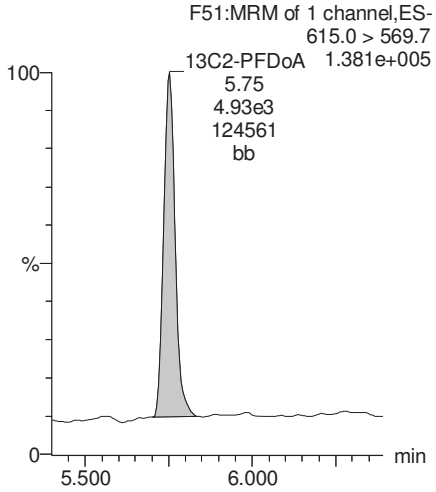
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA

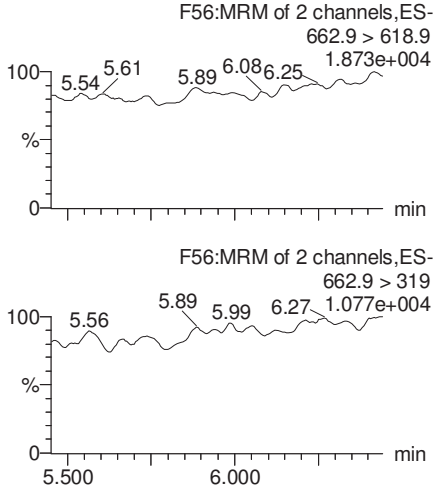


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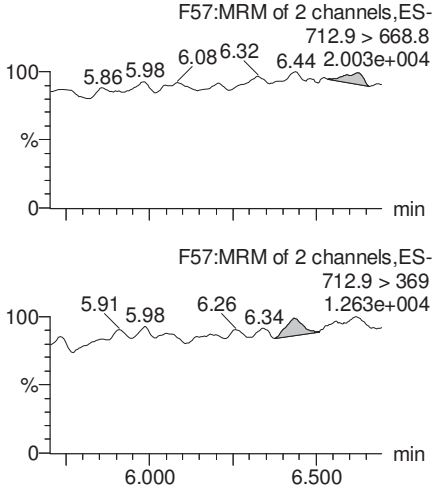
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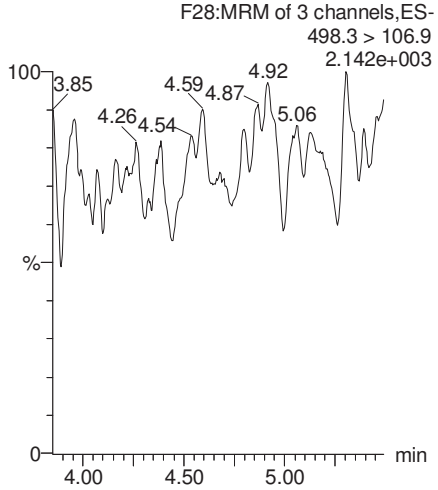
PFTrDA



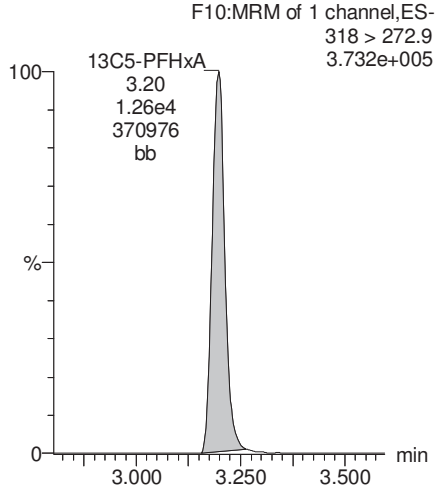
PFTeDA



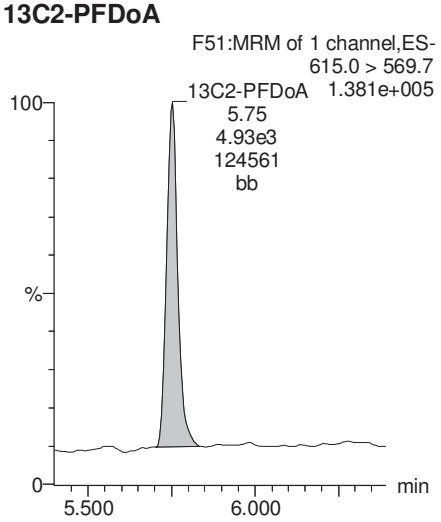
TCDA



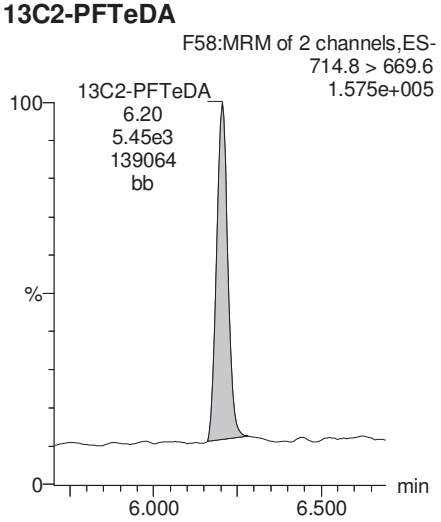
13C5-PFHxA



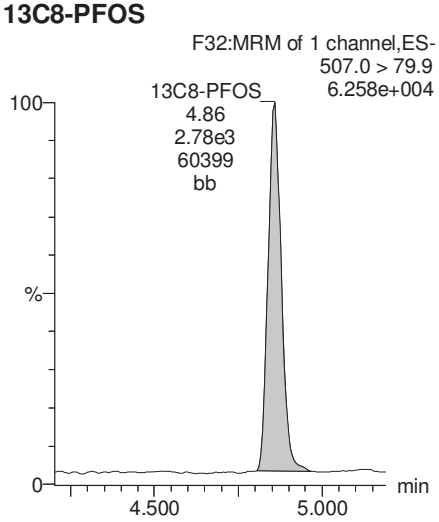
13C2-PFDoA



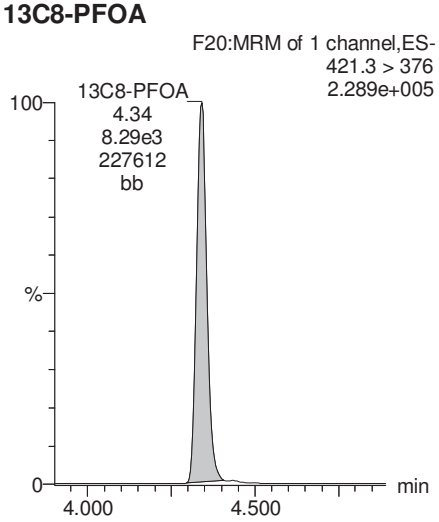
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

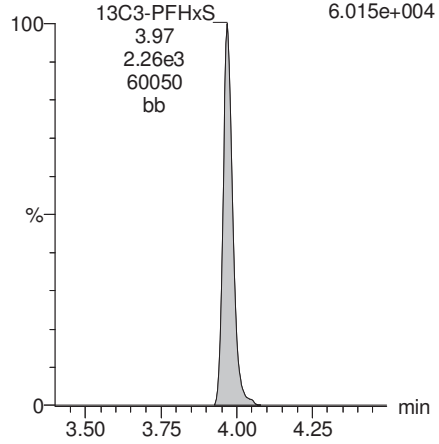


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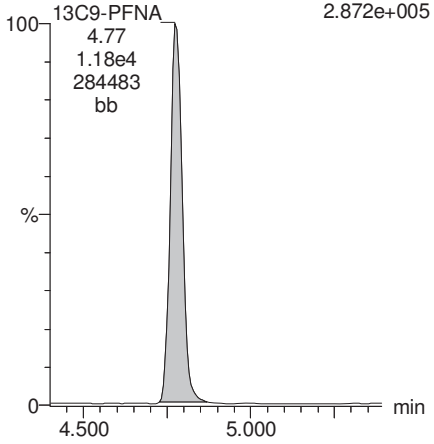
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Printed: Friday, December 15, 2017 09:44:46 Pacific Standard Time

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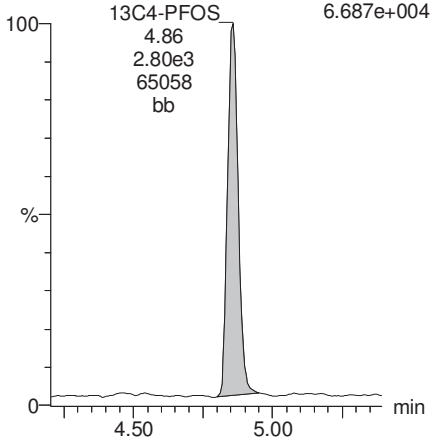
13C3-PFHxS



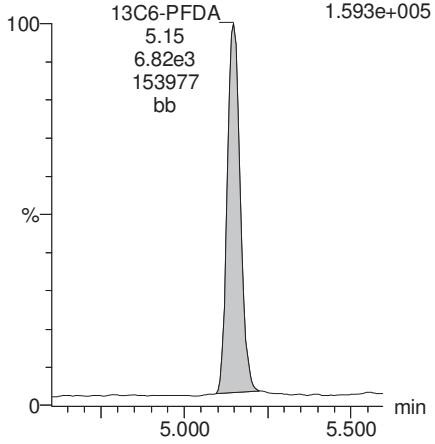
13C9-PFNA



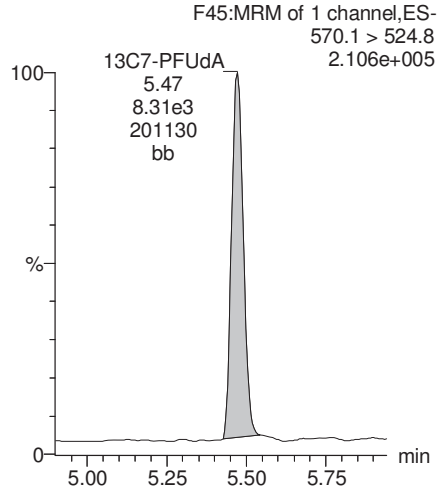
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Friday, December 15, 2017 09:35:45 Pacific Standard Time
Printed: Friday, December 15, 2017 09:37:17 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_28, Date: 12-Dec-2017, Time: 23:02:25, ID: B7L0046-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7	2.19e3	1.36e3	0.25000		2.84	2.71	20.0	36.152	90.4
2	4	PFHxA	313.2 > 268.9	1.10e4	3.63e3	0.25000		3.34	3.20	15.1	44.255	110.6
3	5	PFHpA	363.0 > 318.9	8.18e3	8.24e3	0.25000		3.97	3.82	12.4	34.611	86.5
4	6	L-PFHxS	398.9 > 79.6	1.45e3	1.11e3	0.25000		4.12	3.97	16.3	29.849	74.6
5	9	L-PFOA	413 > 368.7	8.72e3	1.03e4	0.25000		4.49	4.34	10.6	45.306	113.3
6	12	PFNA	463.0 > 418.8	8.37e3	7.87e3	0.25000		4.92	4.78	13.3	41.112	102.8
7	13	L-PFOS	499 > 79.9	1.90e3	3.04e3	0.25000		5.00	4.86	7.82	26.585	66.5
8	16	PFDA	513 > 468.8	7.34e3	9.21e3	0.25000		5.29	5.15	9.96	29.562	73.9
9	18	N-MeFOSAA	570.1 > 419	3.63e3	2.68e3	0.25000		5.44	5.31	16.9	37.454	93.6
10	19	N-EtFOSAA	584.2 > 419	2.68e3	3.28e3	0.25000		5.59	5.46	10.2	39.871	99.7
11	20	PFUdA	563.0 > 518.9	6.37e3	7.84e3	0.25000		5.61	5.48	10.2	37.380	93.4
12	22	PFDoA	612.9 > 569.0	1.06e4	6.89e3	0.25000		5.89	5.76	19.2	29.490	73.7

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Friday, December 15, 2017 09:35:45 Pacific Standard Time
Printed: Friday, December 15, 2017 09:37:40 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_28, Date: 12-Dec-2017, Time: 23:02:25, ID: B7L0046-BS1 OPR 0.25, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9	7.78e3	6.89e3	0.25000		6.13	6.00	14.1	26.926	67.3
2	25	PFTeDA	712.9 > 668.8	7.75e3	5.85e3	0.25000		6.33	6.21	16.6	45.279	113.2
3	33	13C3-PFBS	302. > 98.8	1.36e3	1.19e4	0.25000	0.095	2.84	2.70	1.44	60.419	120.8
4	34	13C2-PFHxA	315 > 269.8	3.63e3	1.19e4	0.25000	0.770	3.34	3.20	3.82	19.866	99.3
5	35	13C4-PFHpA	367.2 > 321.8	8.24e3	1.19e4	0.25000	0.597	3.97	3.82	8.68	58.207	116.4
6	36	18O2-PFHxS	403.0 > 102.6	1.11e3	1.98e3	0.25000	0.435	4.12	3.97	7.02	64.488	129.0
7	37	13C2-6:2 FTS	429.1 > 408.9	1.85e3	8.24e3	0.25000	0.330	4.44	4.29	2.81	34.032	68.1
8	38	13C2-PFOA	414.9 > 369.7	1.03e4	8.24e3	0.25000	1.232	4.49	4.34	15.6	50.645	101.3
9	39	13C5-PFNA	468.2 > 422.9	7.87e3	9.05e3	0.25000	0.962	4.92	4.78	10.9	45.188	90.4
10	40	13C8-PFOSA	506.1 > 77.7	1.78e3	1.05e4	0.25000	0.409	4.97	4.83	2.13	20.807	41.6
11	41	13C8-PFOS	507.0 > 79.9	3.04e3	2.72e3	0.25000	1.050	5.00	4.86	14.0	53.239	106.5
12	42	13C2-PFDA	515.1 > 469.9	9.21e3	6.28e3	0.25000	1.475	5.29	5.15	18.3	49.742	99.5
13	43	13C2-8:2 FTS	529.1 > 508.7	1.24e3	1.19e4	0.25000	0.113	5.26	5.13	1.31	46.292	92.6
14	44	d3-N-MeFOSAA	573.3 > 419	2.68e3	1.05e4	0.25000	0.444	5.44	5.30	3.20	28.759	57.5
15	45	d5-N-EtFOSAA	589.3 > 419	3.28e3	1.05e4	0.25000	0.495	5.59	5.45	3.92	31.619	63.2
16	46	13C2-PFUdA	565 > 519.8	7.84e3	1.05e4	0.25000	1.084	5.61	5.48	9.36	34.525	69.1
17	47	13C2-PFDoA	615.0 > 569.7	6.89e3	1.05e4	0.25000	0.611	5.89	5.76	8.23	53.878	107.8
18	49	13C2-PFTeDA	714.8 > 669.6	5.85e3	1.05e4	0.25000	0.551	6.33	6.21	6.98	50.660	101.3
19	55	13C5-PFHxA	318 > 272.9	1.19e4	1.19e4	0.25000	1.000	3.04	3.20	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	1.98e3	1.98e3	0.25000	1.000	3.80	3.98	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	8.24e3	8.24e3	0.25000	1.000	4.20	4.34	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	9.05e3	9.05e3	0.25000	1.000	4.63	4.78	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	2.72e3	2.72e3	0.25000	1.000	4.69	4.86	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	6.28e3	6.28e3	0.25000	1.000	5.00	5.15	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	1.05e4	1.05e4	0.25000	1.000	5.31	5.47	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	1.62e3	1.11e3	0.25000		3.81		18.3	33.235	
27	63	Total PFOA	413 > 368.7	8.79e3	1.03e4	0.25000		4.20		10.6	45.306	
28	64	Total PFOS	499 > 79.9	1.90e3	3.04e3	0.25000		4.69		7.82	26.585	
29	65	Total N-MeFOSAA	570.1 > 419	3.63e3	2.68e3	0.25000		5.15		16.9	37.454	
30	66	Total N-EtFOSAA	584.2 > 419	2.68e3	3.28e3	0.25000		5.30		10.2	39.871	

Vista Analytical Laboratory

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Last Altered: Friday, December 15, 2017 09:35:45 Pacific Standard Time
Printed: Friday, December 15, 2017 09:37:40 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_28, Date: 12-Dec-2017, Time: 23:02:25, ID: B7L0046-BS1 OPR 0.25, Description: OPR

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	6	L-PFHxS	398.9 > 79.6	3.97	1451.231	1109.752	16.346	bb	29.8
2	7	Br-PFHxS	398.9 > 79.6	3.84	171.743	1109.752	1.934	db	3.4

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.57	74.628	10285.802	0.091	bbl	
2	9	L-PFOA	413 > 368.7	4.34	8715.188	10285.802	10.591	bb	45.3

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	13	L-PFOS	499 > 79.9	4.86	1901.051	3039.669	7.818	bb	26.6

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	18	N-MeFOSAA	570.1 > 419	5.31	3630.971	2677.825	16.949	bb	37.5

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.46	2679.835	3280.726	10.211	bb	39.9

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.57	74.628	10285.802	0.091	bbl	
2	9	L-PFOA	413 > 368.7	4.34	8715.188	10285.802	10.591	bb	45.3
3	13	L-PFOS	499 > 79.9	4.86	1901.051	3039.669	7.818	bb	26.6

Vista Analytical Laboratory

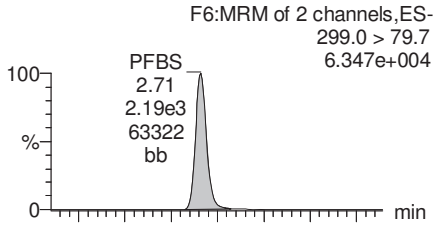
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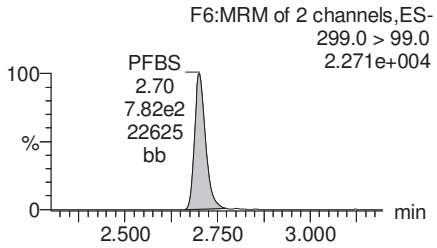
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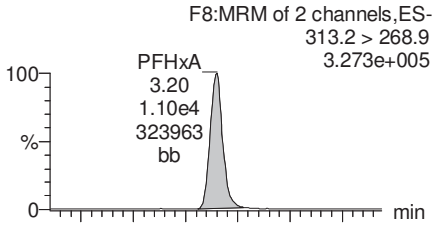
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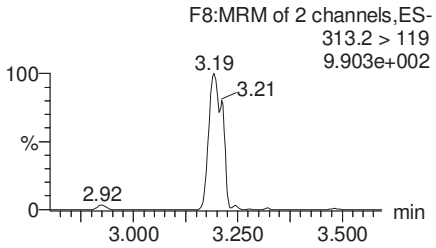
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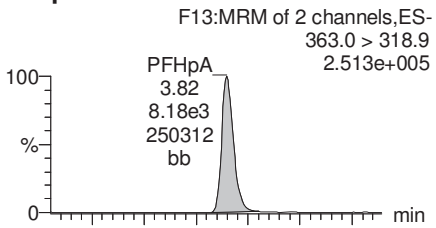


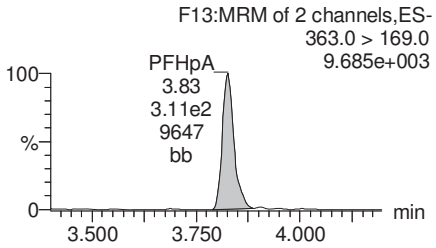
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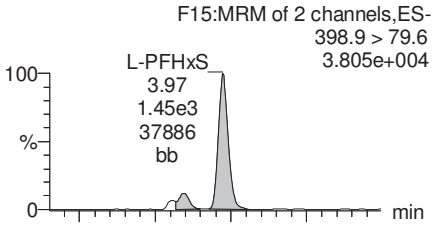


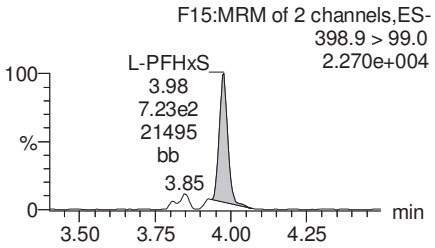
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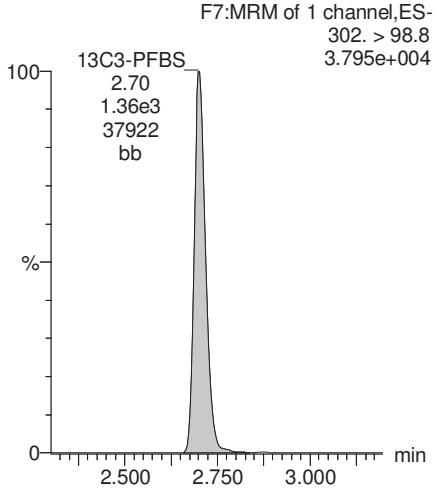


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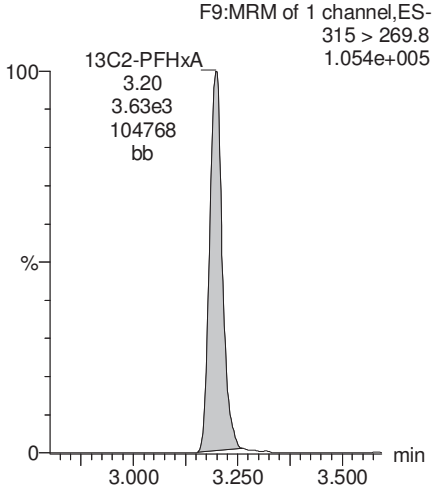




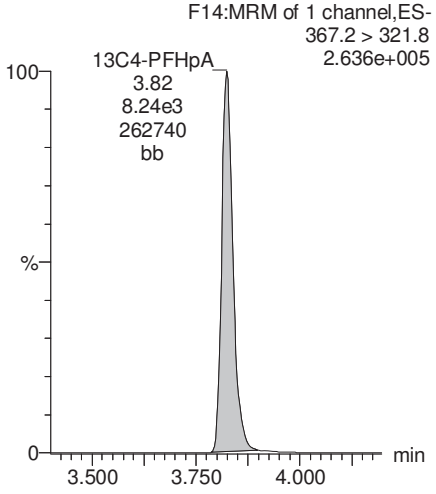
13C3-PFBS



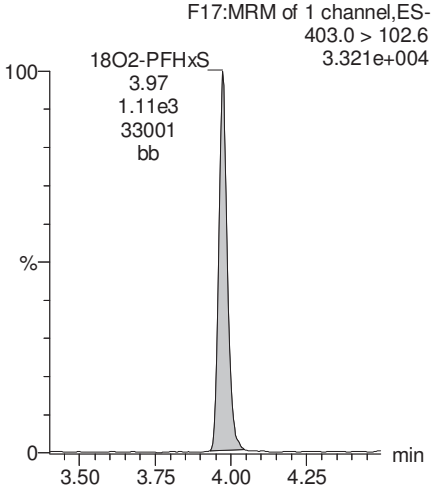
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13C4-PFHpA



18O2-PFHxS

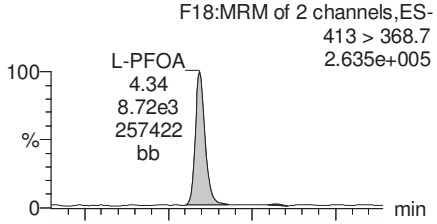


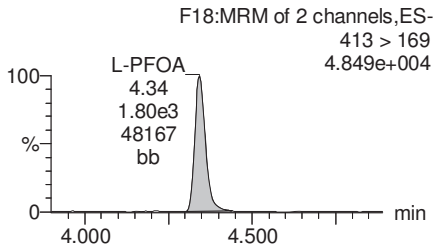
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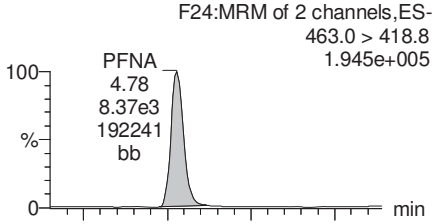
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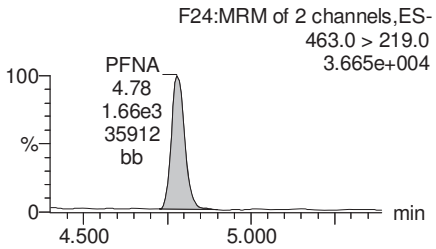
Total PFOA



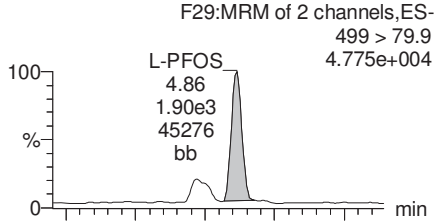


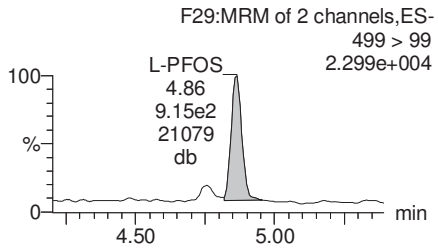
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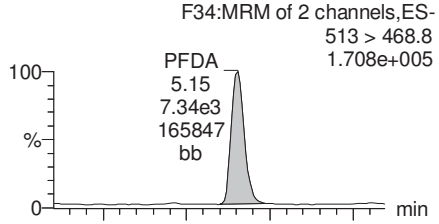


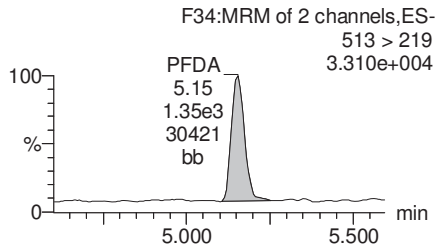
Total PFOS



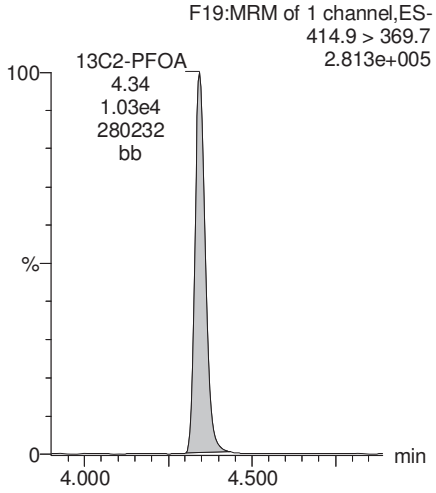


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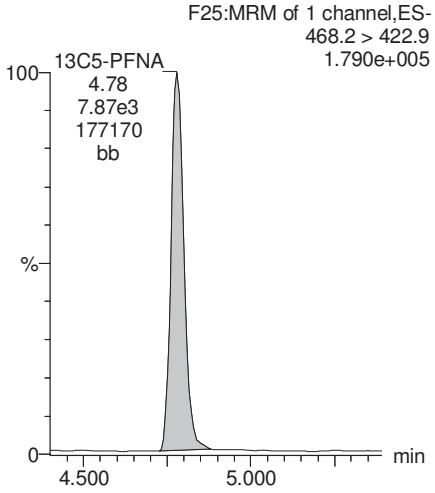




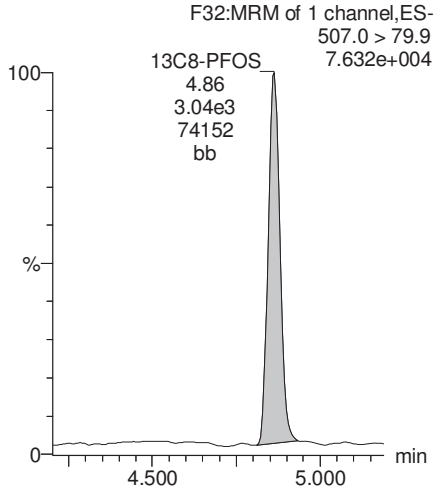
13C2-PFOA



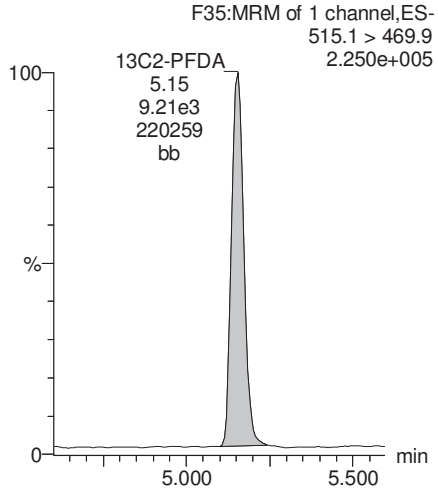
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13C8-PFOS



13C2-PFDA

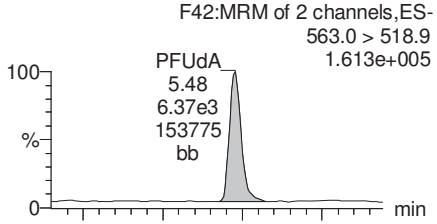


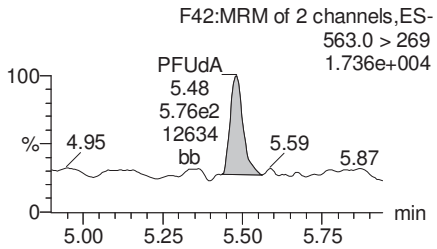
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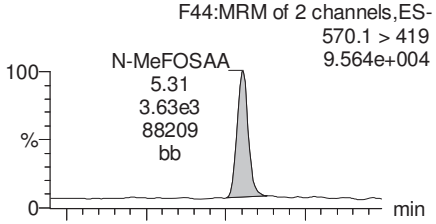
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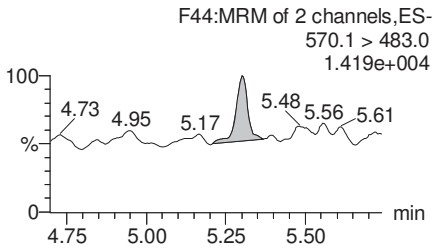
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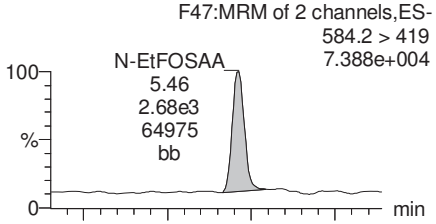


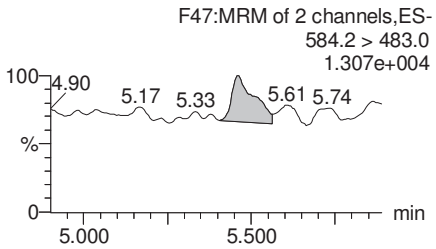
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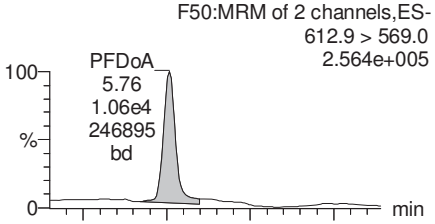


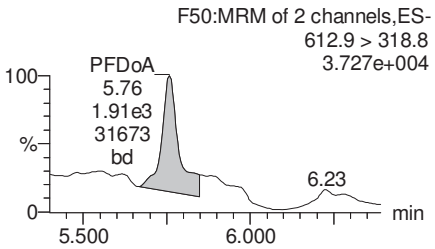
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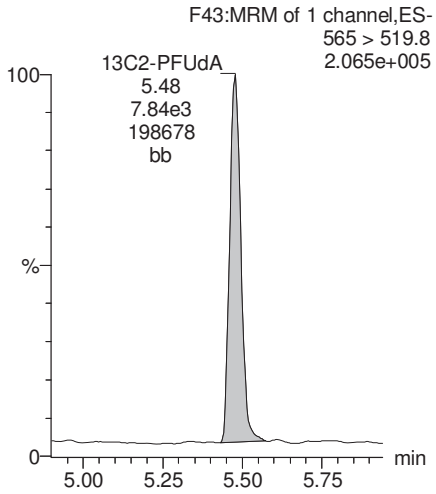


PFDoA

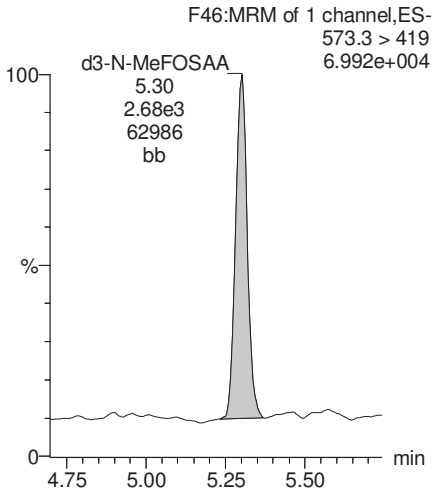




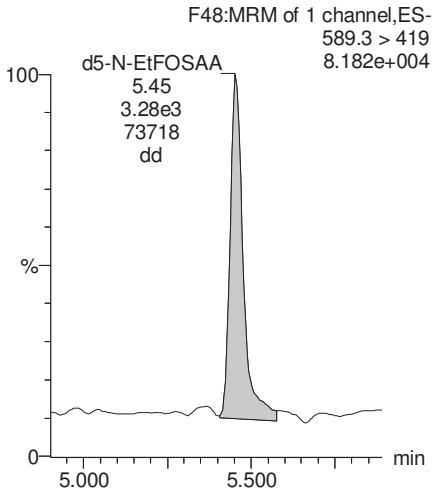
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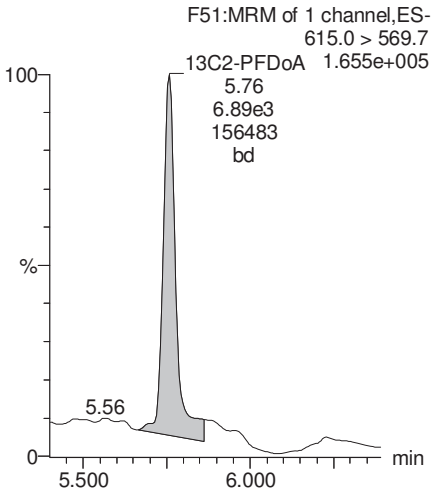
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d5-N-EtFOSAA



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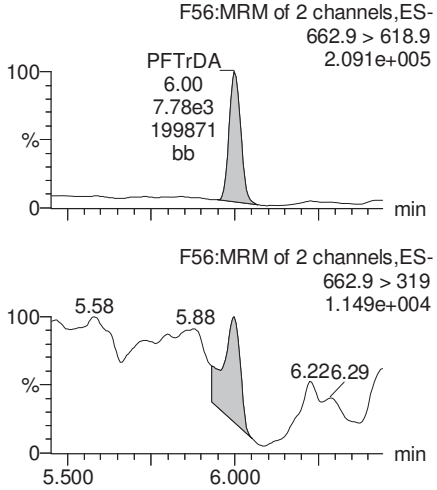
Vista Analytical Laboratory

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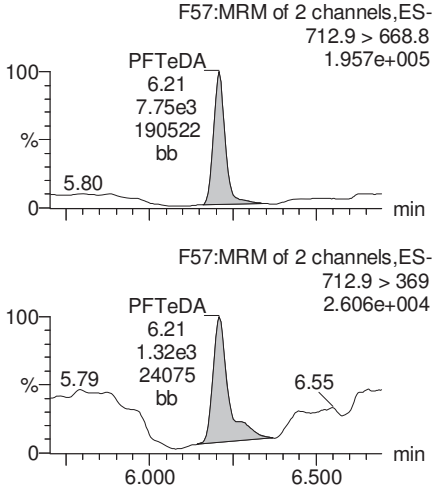
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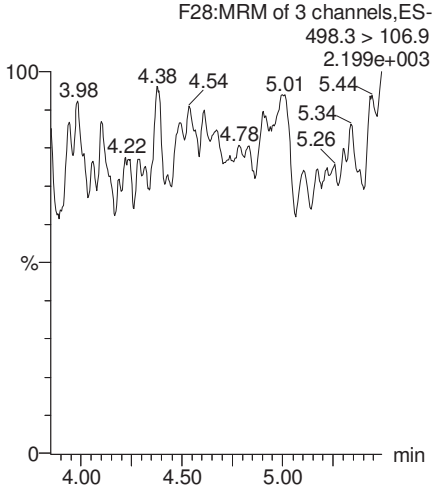
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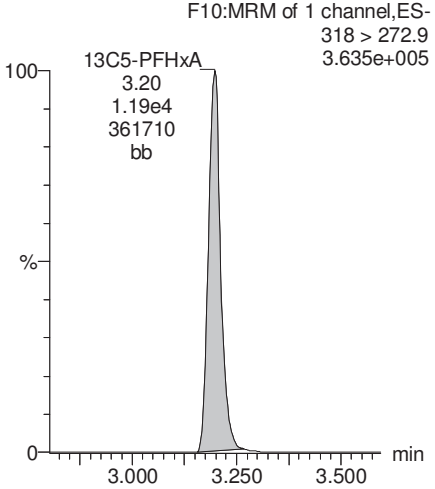
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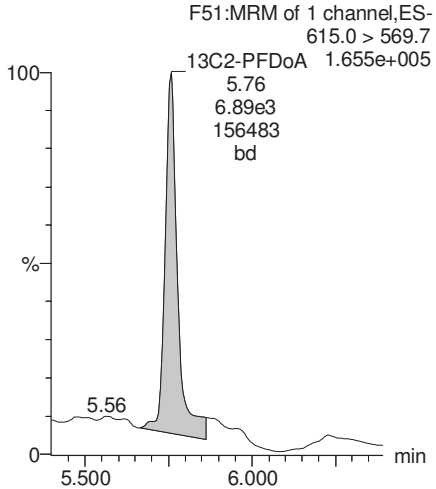
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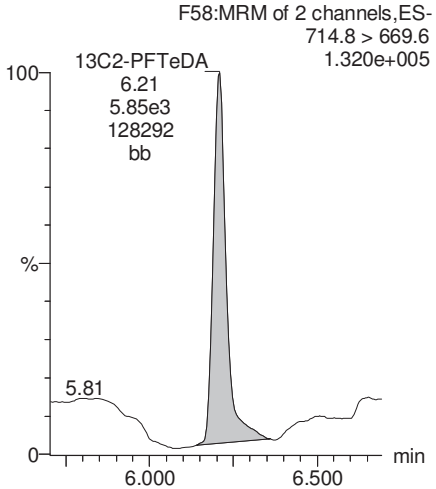
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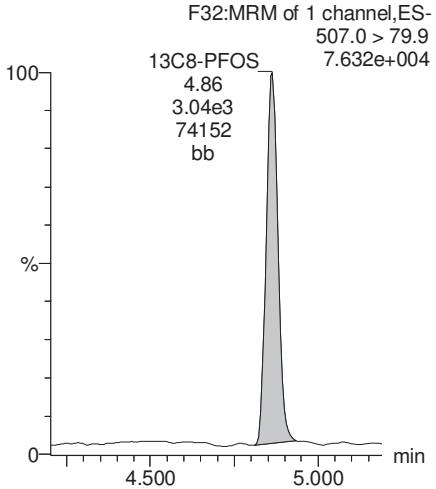
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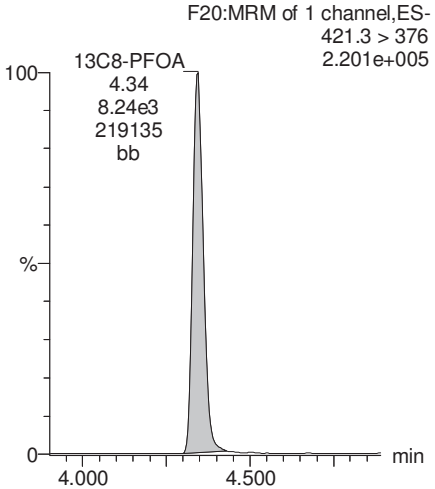
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



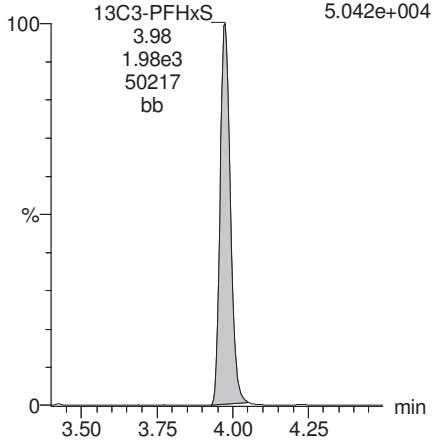
Vista Analytical Laboratory

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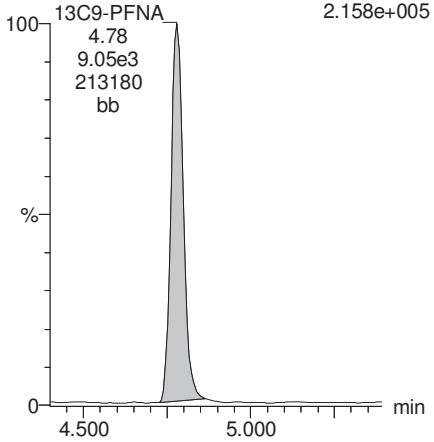
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Name: 171212M1_28, Date: 12-Dec-2017, Time: 23:02:25, ID: B7L0046-BS1 OPR 0.25, Description: OPR

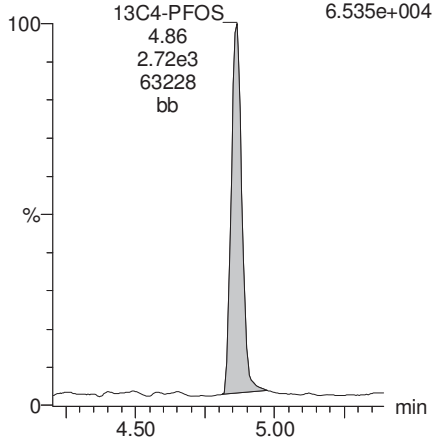
13C3-PFHxS



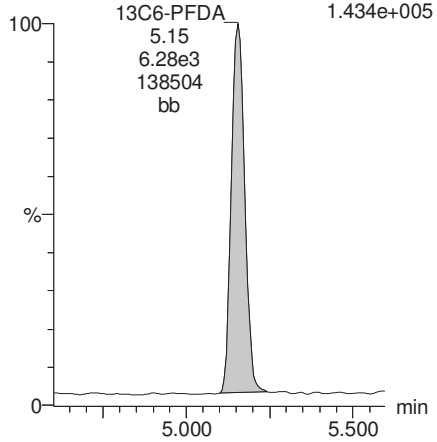
13C9-PFNA



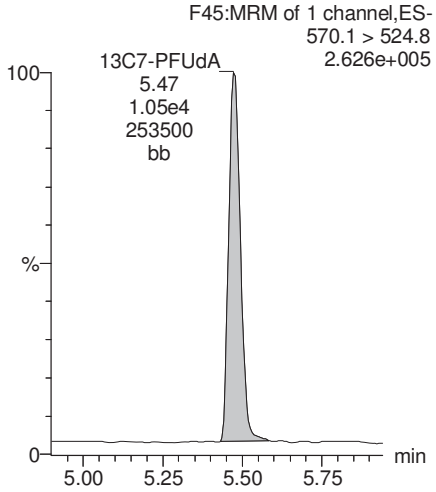
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-29.qld

Last Altered: Friday, December 15, 2017 09:42:05 Pacific Standard Time
Printed: Friday, December 15, 2017 09:42:23 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_29, Date: 12-Dec-2017, Time: 23:13:36, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7	2.24e3	1.38e3	0.25000		2.84	2.71	20.2	36.453	91.1
2	4	PFHxA	313.2 > 268.9	1.06e4	4.10e3	0.25000		3.34	3.20	12.9	37.743	94.4
3	5	PFHpA	363.0 > 318.9	9.20e3	8.08e3	0.25000		3.97	3.82	14.2	39.750	99.4
4	6	L-PFHxS	398.9 > 79.6	1.60e3	1.22e3	0.25000		4.12	3.97	16.4	29.890	74.7
5	9	L-PFOA	413 > 368.7	8.80e3	1.13e4	0.25000		4.49	4.34	9.76	41.634	104.1
6	12	PFNA	463.0 > 418.8	1.10e4	9.70e3	0.25000		4.92	4.77	14.2	43.916	109.8
7	13	L-PFOS	499 > 79.9	1.53e3	2.82e3	0.25000		5.00	4.86	6.76	23.058	57.6
8	16	PFDA	513 > 468.8	8.17e3	8.88e3	0.25000		5.29	5.15	11.5	34.157	85.4
9	18	N-MeFOSAA	570.1 > 419	3.47e3	3.30e3	0.25000		5.44	5.30	13.1	29.062	72.7
10	19	N-EtFOSAA	584.2 > 419	2.82e3	2.85e3	0.25000		5.59	5.46	12.4	48.298	120.7
11	20	PFUdA	563.0 > 518.9	8.27e3	1.05e4	0.25000		5.61	5.47	9.85	36.254	90.6
12	22	PFDoA	612.9 > 569.0	8.05e3	5.51e3	0.25000		5.89	5.75	18.3	27.989	70.0

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-29.qld

Last Altered: Friday, December 15, 2017 09:42:05 Pacific Standard Time
Printed: Friday, December 15, 2017 09:42:36 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_29, Date: 12-Dec-2017, Time: 23:13:36, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9	7.94e3	5.51e3	0.25000		6.13	6.00	18.0	34.344	85.9
2	25	PFTeDA	712.9 > 668.8	6.98e3	5.59e3	0.25000		6.33	6.21	15.6	42.620	106.6
3	33	13C3-PFBS	302. > 98.8	1.38e3	1.20e4	0.25000	0.095	2.84	2.70	1.44	60.633	121.3
4	34	13C2-PFHxA	315 > 269.8	4.10e3	1.20e4	0.25000	0.770	3.34	3.20	4.27	22.186	110.9
5	35	13C4-PFHpA	367.2 > 321.8	8.08e3	1.20e4	0.25000	0.597	3.97	3.82	8.42	56.439	112.9
6	36	18O2-PFHxS	403.0 > 102.6	1.22e3	2.30e3	0.25000	0.435	4.12	3.97	6.64	60.959	121.9
7	37	13C2-6:2 FTS	429.1 > 408.9	2.27e3	8.81e3	0.25000	0.330	4.44	4.29	3.22	39.002	78.0
8	38	13C2-PFOA	414.9 > 369.7	1.13e4	8.81e3	0.25000	1.232	4.49	4.34	16.0	51.884	103.8
9	39	13C5-PFNA	468.2 > 422.9	9.70e3	1.02e4	0.25000	0.962	4.92	4.77	11.9	49.493	99.0
10	40	13C8-PFOSA	506.1 > 77.7	2.08e3	8.42e3	0.25000	0.409	4.97	4.83	3.09	30.261	60.5
11	41	13C8-PFOS	507.0 > 79.9	2.82e3	2.74e3	0.25000	1.050	5.00	4.86	12.9	49.016	98.0
12	42	13C2-PFDA	515.1 > 469.9	8.88e3	9.18e3	0.25000	1.475	5.29	5.15	12.1	32.775	65.6
13	43	13C2-8:2 FTS	529.1 > 508.7	1.17e3	1.20e4	0.25000	0.113	5.26	5.12	1.22	43.134	86.3
14	44	d3-N-MeFOSAA	573.3 > 419	3.30e3	8.42e3	0.25000	0.444	5.44	5.30	4.90	44.096	88.2
15	45	d5-N-EtFOSAA	589.3 > 419	2.85e3	8.42e3	0.25000	0.495	5.59	5.45	4.23	34.194	68.4
16	46	13C2-PFUdA	565 > 519.8	1.05e4	8.42e3	0.25000	1.084	5.61	5.47	15.6	57.478	115.0
17	47	13C2-PFDoA	615.0 > 569.7	5.51e3	8.42e3	0.25000	0.611	5.89	5.75	8.18	53.587	107.2
18	49	13C2-PFTeDA	714.8 > 669.6	5.59e3	8.42e3	0.25000	0.551	6.33	6.21	8.29	60.230	120.5
19	55	13C5-PFHxA	318 > 272.9	1.20e4	1.20e4	0.25000	1.000	3.04	3.20	12.5	50.000	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.30e3	2.30e3	0.25000	1.000	3.80	3.97	12.5	50.000	100.0
21	57	13C8-PFOA	421.3 > 376	8.81e3	8.81e3	0.25000	1.000	4.20	4.34	12.5	50.000	100.0
22	58	13C9-PFNA	472.2 > 426.9	1.02e4	1.02e4	0.25000	1.000	4.63	4.77	12.5	50.000	100.0
23	59	13C4-PFOS	503 > 79.9	2.74e3	2.74e3	0.25000	1.000	4.69	4.86	12.5	50.000	100.0
24	60	13C6-PFDA	519.1 > 473.7	9.18e3	9.18e3	0.25000	1.000	5.00	5.15	12.5	50.000	100.0
25	61	13C7-PFUdA	570.1 > 524.8	8.42e3	8.42e3	0.25000	1.000	5.31	5.47	12.5	50.000	100.0
26	62	Total PFHxS	398.9 > 79.6	1.83e3	1.22e3	0.25000		3.81		18.8	34.183	
27	63	Total PFOA	413 > 368.7	8.80e3	1.13e4	0.25000		4.20		9.76	41.634	
28	64	Total PFOS	499 > 79.9	1.78e3	2.82e3	0.25000		4.69		7.87	27.396	
29	65	Total N-MeFOSAA	570.1 > 419	3.47e3	3.30e3	0.25000		5.15		13.1	29.062	
30	66	Total N-EtFOSAA	584.2 > 419	2.82e3	2.85e3	0.25000		5.30		12.4	48.298	

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Dataset: U:\Q4.PRO\results\171212M1\171212M1-29.qld

Last Altered: Friday, December 15, 2017 09:42:05 Pacific Standard Time
Printed: Friday, December 15, 2017 09:42:36 Pacific Standard Time

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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_29, Date: 12-Dec-2017, Time: 23:13:36, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	6	L-PFHxS	398.9 > 79.6	3.97	1597.494	1219.917	16.369	bb	29.9
2	7	Br-PFHxS	398.9 > 79.6	3.84	236.982	1219.917	2.428	db	4.3

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.34	8796.819	11262.977	9.763	bb	41.6

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	13	L-PFOS	499 > 79.9	4.86	1525.850	2821.996	6.759	db	23.1
2	15	Br-PFOS	499 > 79.9	4.75	251.668	2821.996	1.115	dd	4.3

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	18	N-MeFOSAA	570.1 > 419	5.30	3471.342	3300.505	13.147	bb	29.1

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.46	2824.966	2851.947	12.382	bb	48.3

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	9	L-PFOA	413 > 368.7	4.34	8796.819	11262.977	9.763	bb	41.6
2	13	L-PFOS	499 > 79.9	4.86	1525.850	2821.996	6.759	db	23.1
3	15	Br-PFOS	499 > 79.9	4.75	251.668	2821.996	1.115	dd	4.3

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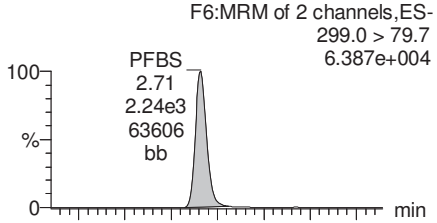
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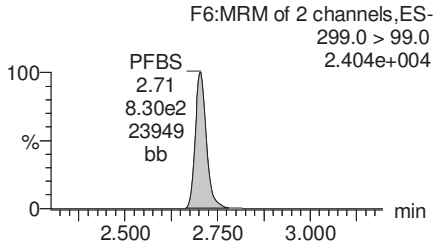
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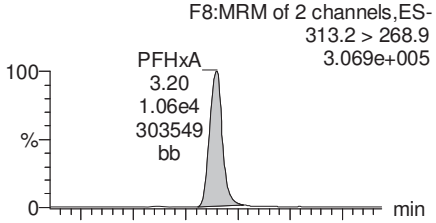
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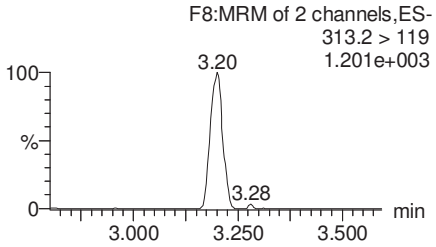
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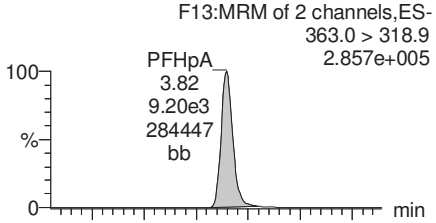


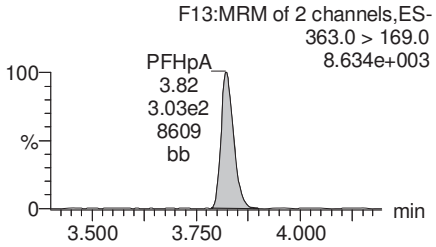
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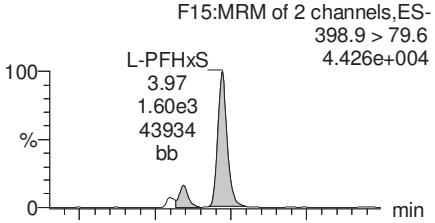


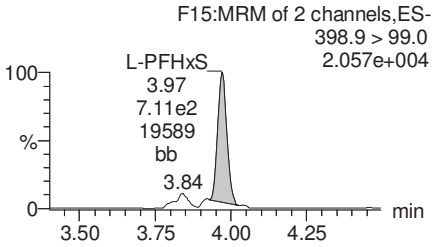
PFHpA



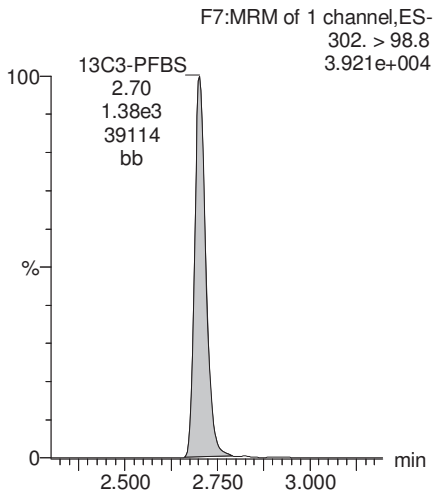


Total PFHxS

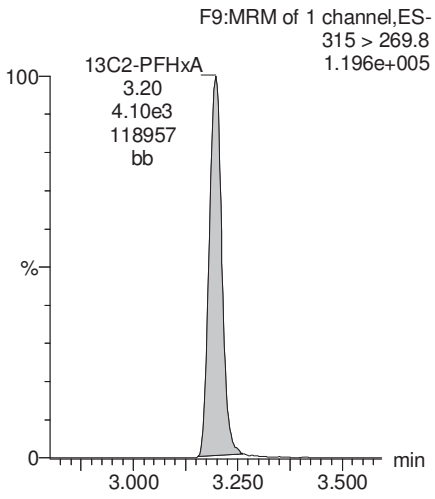




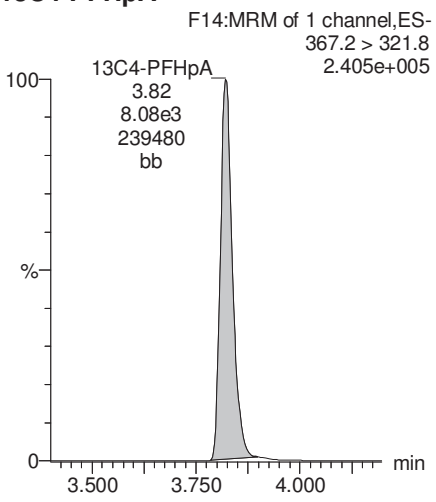
13C3-PFBS



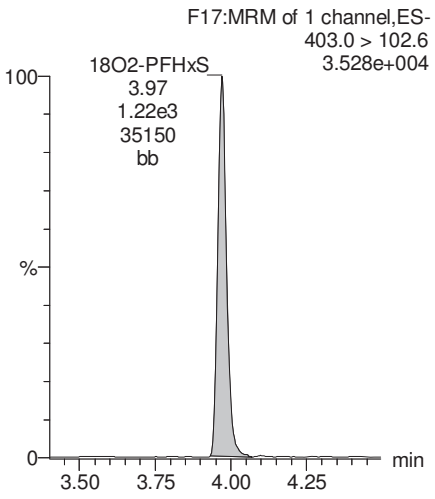
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS

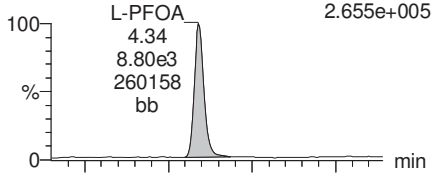


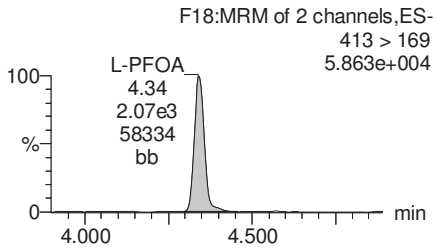
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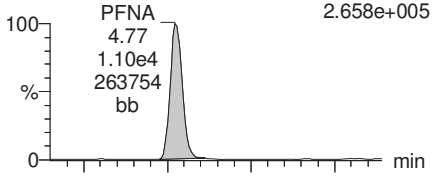
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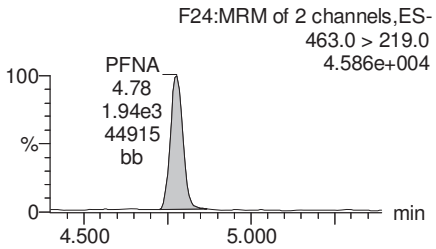
Total PFOA



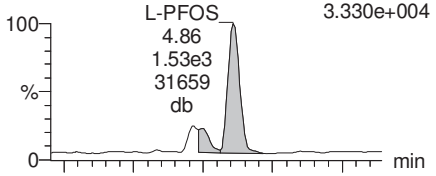


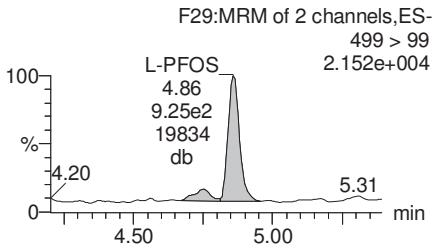
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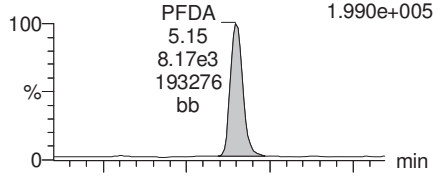


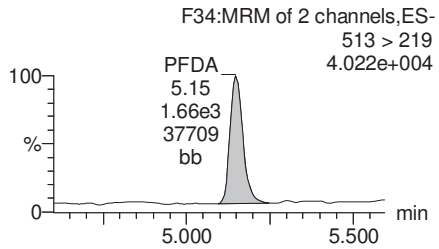
Total PFOS



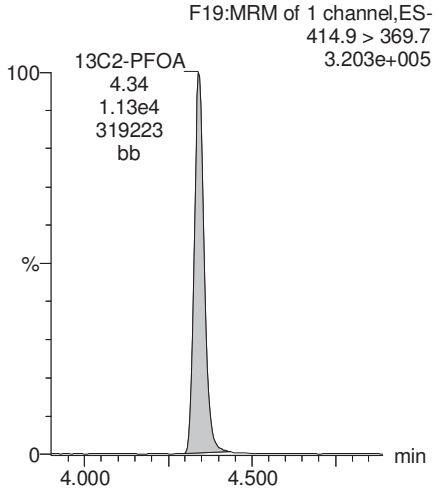


PFDA

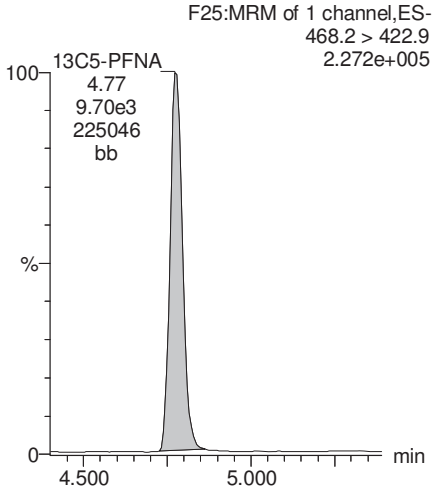




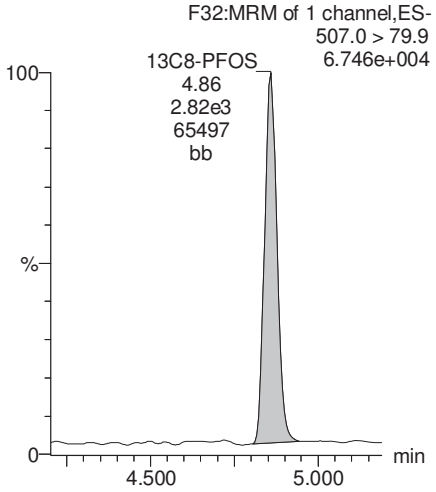
13C2-PFOA



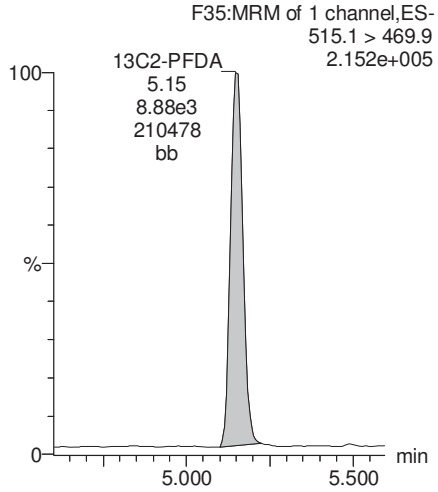
13C5-PFNA



13C8-PFOS



13C2-PFDA

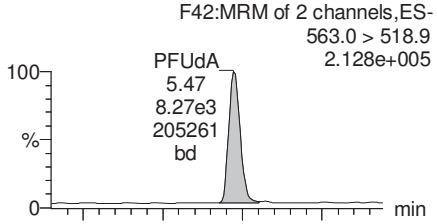


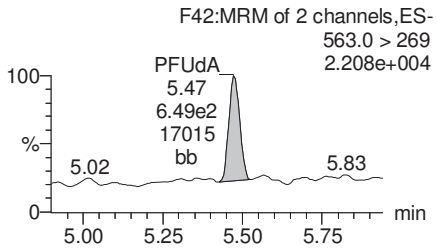
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Last Altered: Friday, December 15, 2017 09:42:05 Pacific Standard Time
Printed: Friday, December 15, 2017 09:42:36 Pacific Standard Time

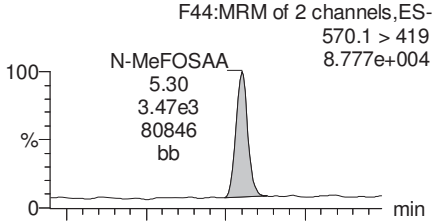
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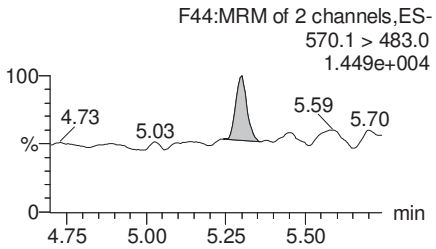
PFUdA



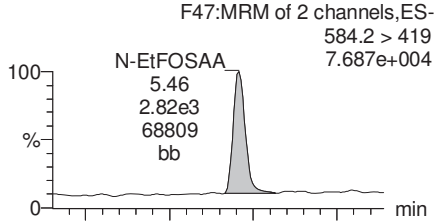


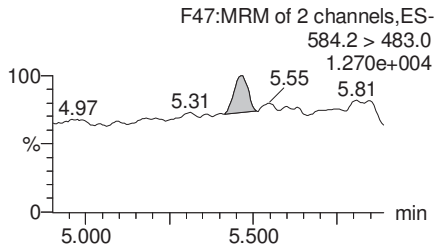
N-MeFOSAA



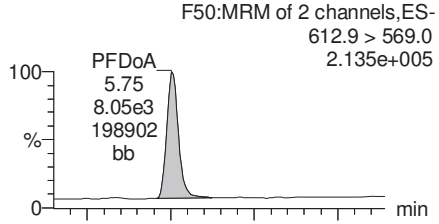


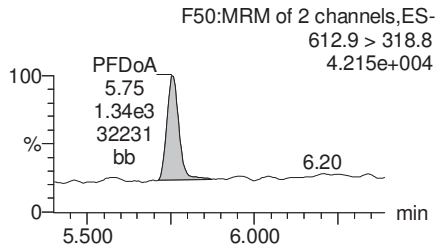
N-EtFOSAA



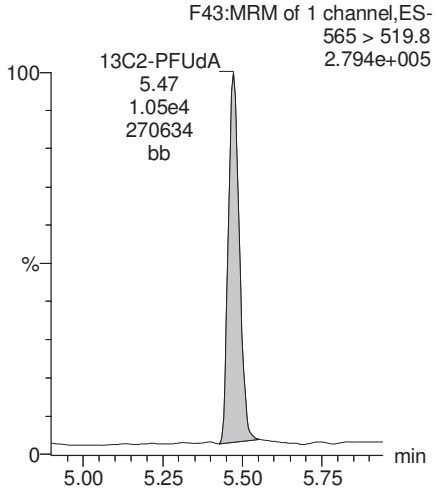


PFDoA

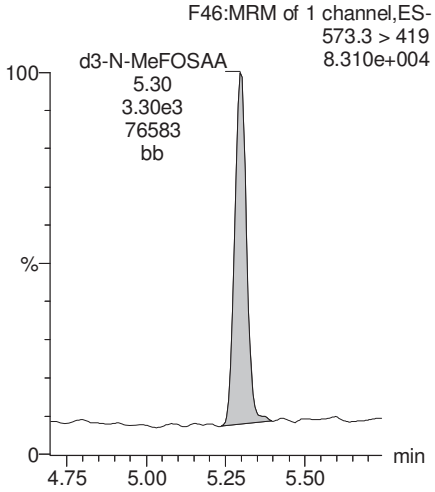




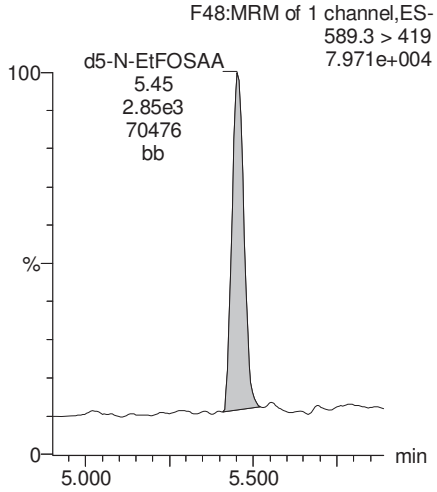
13C2-PFUdA



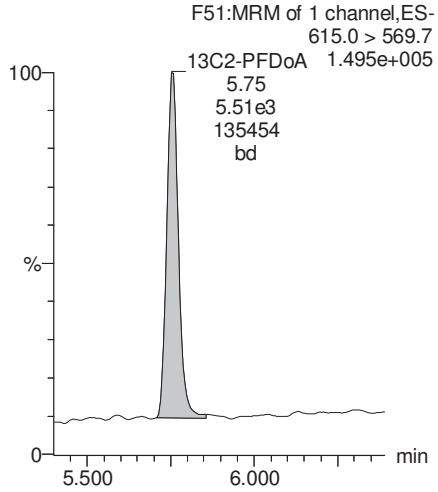
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA

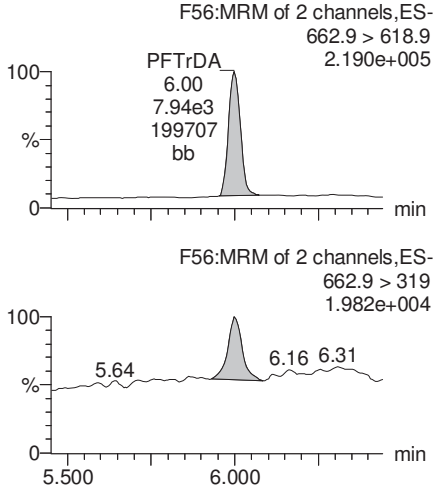


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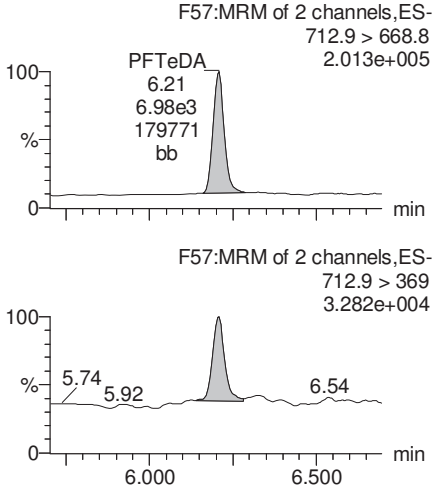
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Printed: Friday, December 15, 2017 09:42:36 Pacific Standard Time

Name: 171212M1_29, Date: 12-Dec-2017, Time: 23:13:36, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

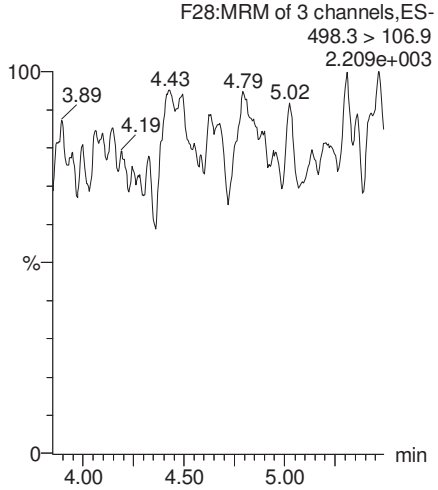
PFTrDA



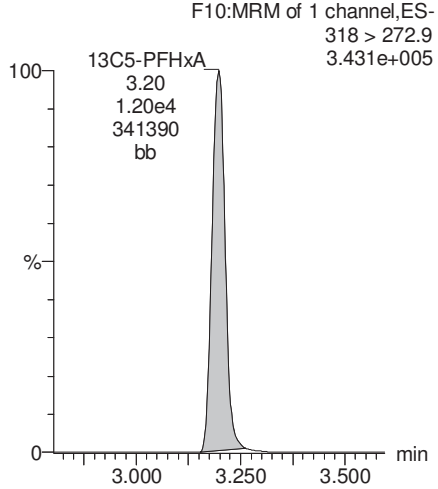
PFTeDA



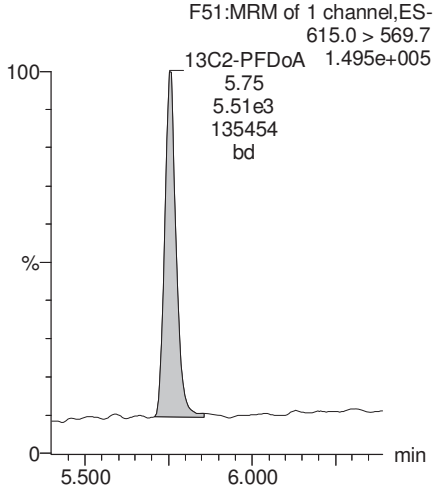
TCDA



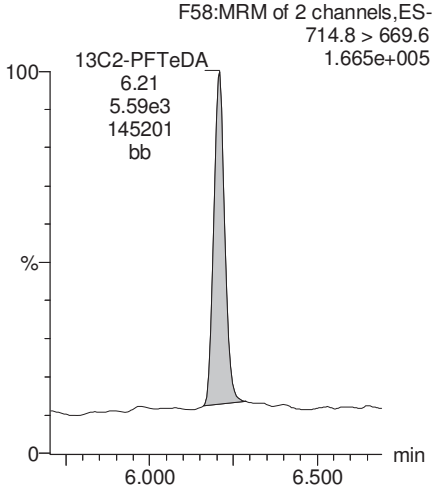
13C5-PFHxA



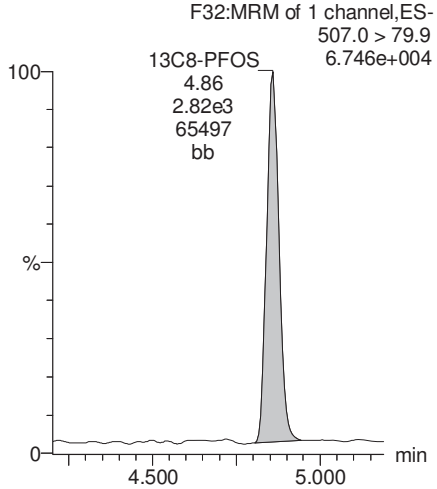
13C2-PFDoA



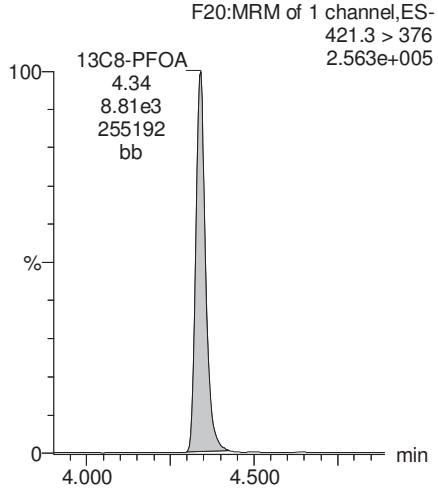
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

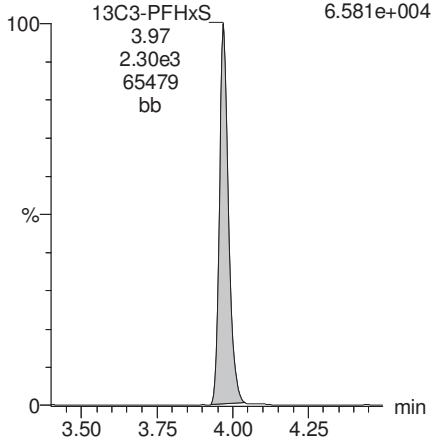


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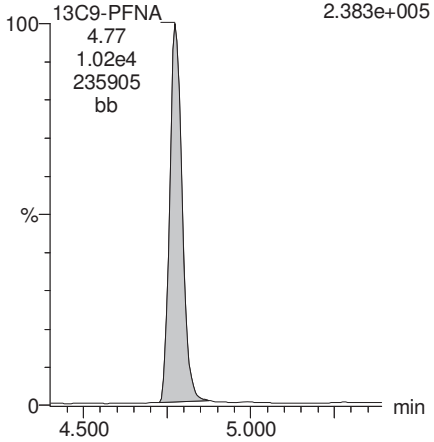
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Printed: Friday, December 15, 2017 09:42:36 Pacific Standard Time

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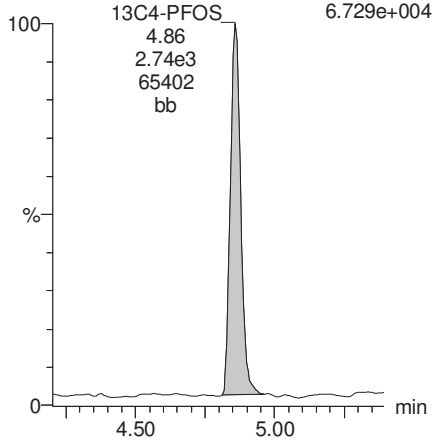
13C3-PFHxS



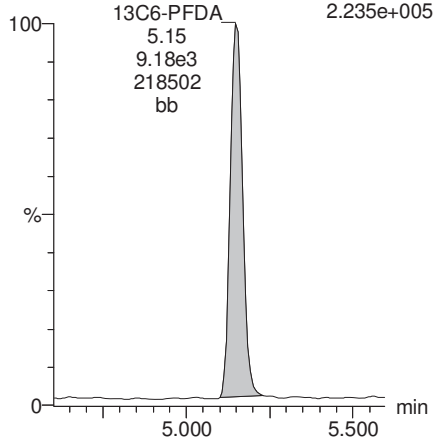
13C9-PFNA



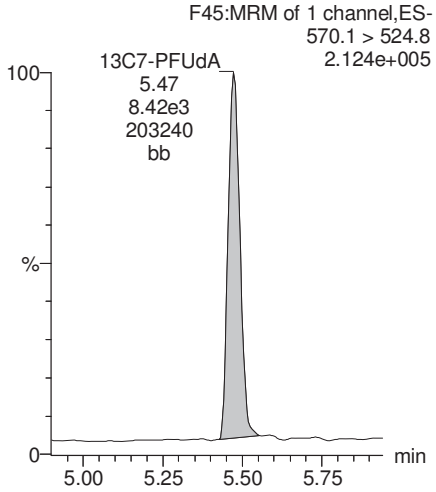
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: U:\Q4.PRO\results\171212M1\171212M1-85.qld

Last Altered: Friday, December 15, 2017 09:45:47 Pacific Standard Time
Printed: Friday, December 15, 2017 09:46:17 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_85, Date: 13-Dec-2017, Time: 09:40:49, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	3	PFBS	299.0 > 79.7		1.46e3	0.26261		2.84				
2	4	PFHxA	313.2 > 268.9		4.08e3	0.26261		3.34				
3	5	PFHpA	363.0 > 318.9		8.75e3	0.26261		3.97				
4	6	L-PFHxS	398.9 > 79.6		1.31e3	0.26261		4.12				
5	9	L-PFOA	413 > 368.7		1.24e4	0.26261		4.49				
6	12	PFNA	463.0 > 418.8	7.23e1	9.17e3	0.26261		4.92	4.77	0.0985	0.078	
7	13	L-PFOS	499 > 79.9		3.10e3	0.26261		5.00				
8	16	PFDA	513 > 468.8		8.42e3	0.26261		5.29				
9	18	N-MeFOSAA	570.1 > 419		3.05e3	0.26261		5.44				
10	19	N-EtFOSAA	584.2 > 419	9.02e1	3.59e3	0.26261		5.59	5.53	0.314	1.438	
11	20	PFUdA	563.0 > 518.9	8.36e1	8.58e3	0.26261		5.61	5.37	0.122		
12	22	PFDoA	612.9 > 569.0	1.29e2	5.31e3	0.26261		5.89	5.57	0.305	0.618	

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171212M1\171212M1-85.qld

Last Altered: Friday, December 15, 2017 09:45:47 Pacific Standard Time
Printed: Friday, December 15, 2017 09:46:30 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_85, Date: 13-Dec-2017, Time: 09:40:49, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	24	PFTrDA	662.9 > 618.9		5.31e3	0.26261		6.13				
2	25	PFTeDA	712.9 > 668.8		5.88e3	0.26261		6.33				
3	33	13C3-PFBS	302. > 98.8	1.46e3	1.21e4	0.26261	0.095	2.84	2.69	1.50	60.182	126.4
4	34	13C2-PFHxA	315 > 269.8	4.08e3	1.21e4	0.26261	0.770	3.34	3.18	4.22	20.863	109.6
5	35	13C4-PFHpA	367.2 > 321.8	8.75e3	1.21e4	0.26261	0.597	3.97	3.81	9.05	57.764	121.4
6	36	18O2-PFHxS	403.0 > 102.6	1.31e3	2.52e3	0.26261	0.435	4.12	3.96	6.51	56.933	119.6
7	37	13C2-6:2 FTS	429.1 > 408.9	2.24e3	7.96e3	0.26261	0.330	4.44	4.27	3.52	40.562	85.2
8	38	13C2-PFOA	414.9 > 369.7	1.24e4	7.96e3	0.26261	1.232	4.49	4.33	19.4	59.948	125.9
9	39	13C5-PFNA	468.2 > 422.9	9.17e3	9.70e3	0.26261	0.962	4.92	4.76	11.8	46.786	98.3
10	40	13C8-PFOSA	506.1 > 77.7	2.40e3	9.43e3	0.26261	0.409	4.97	4.82	3.18	29.663	62.3
11	41	13C8-PFOS	507.0 > 79.9	3.10e3	2.84e3	0.26261	1.050	5.00	4.85	13.7	49.550	104.1
12	42	13C2-PFDA	515.1 > 469.9	8.42e3	6.57e3	0.26261	1.475	5.29	5.14	16.0	41.347	86.9
13	43	13C2-8:2 FTS	529.1 > 508.7	1.19e3	1.21e4	0.26261	0.113	5.26	5.11	1.23	41.452	87.1
14	44	d3-N-MeFOSAA	573.3 > 419	3.05e3	9.43e3	0.26261	0.444	5.44	5.28	4.05	34.689	72.9
15	45	d5-N-EtFOSAA	589.3 > 419	3.59e3	9.43e3	0.26261	0.495	5.59	5.44	4.76	36.598	76.9
16	46	13C2-PFUdA	565 > 519.8	8.58e3	9.43e3	0.26261	1.084	5.61	5.46	11.4	39.930	83.9
17	47	13C2-PFDoA	615.0 > 569.7	5.31e3	9.43e3	0.26261	0.611	5.89	5.74	7.04	43.861	92.1
18	49	13C2-PFTeDA	714.8 > 669.6	5.88e3	9.43e3	0.26261	0.551	6.33	6.19	7.80	53.935	113.3
19	55	13C5-PFHxA	318 > 272.9	1.21e4	1.21e4	0.26261	1.000	3.04	3.18	12.5	47.599	100.0
20	56	13C3-PFHxS	401.9 > 79.9	2.52e3	2.52e3	0.26261	1.000	3.80	3.96	12.5	47.599	100.0
21	57	13C8-PFOA	421.3 > 376	7.96e3	7.96e3	0.26261	1.000	4.20	4.33	12.5	47.599	100.0
22	58	13C9-PFNA	472.2 > 426.9	9.70e3	9.70e3	0.26261	1.000	4.63	4.76	12.5	47.599	100.0
23	59	13C4-PFOS	503 > 79.9	2.84e3	2.84e3	0.26261	1.000	4.69	4.85	12.5	47.599	100.0
24	60	13C6-PFDA	519.1 > 473.7	6.57e3	6.57e3	0.26261	1.000	5.00	5.14	12.5	47.599	100.0
25	61	13C7-PFUdA	570.1 > 524.8	9.43e3	9.43e3	0.26261	1.000	5.31	5.46	12.5	47.599	100.0
26	62	Total PFHxS	398.9 > 79.6	0.00e0	1.31e3	0.26261		3.81		0.000		
27	63	Total PFOA	413 > 368.7	1.84e2	1.24e4	0.26261		4.20		0.000		
28	64	Total PFOS	499 > 79.9	0.00e0	3.10e3	0.26261		4.69		0.000		
29	65	Total N-MeFOSAA	570.1 > 419	1.60e2	3.05e3	0.26261		5.15		0.654	1.794	
30	66	Total N-EtFOSAA	584.2 > 419	1.80e2	3.59e3	0.26261		5.30		0.627	2.875	

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Dataset: U:\Q4.PRO\results\171212M1\171212M1-85.qld

Last Altered: Friday, December 15, 2017 09:45:47 Pacific Standard Time
Printed: Friday, December 15, 2017 09:46:30 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121117B.mdb 12 Dec 2017 20:09:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-10-17_NEWRS.cdb 12 Dec 2017 10:33:15

Name: 171212M1_85, Date: 13-Dec-2017, Time: 09:40:49, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

Total PFHxS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total PFOA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.33	183.808	12353.898	0.186	bbl	

Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1									

Total N-Me-FOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	65	Total N-MeFOSAA	570.1 > 419	4.95	86.651	3054.070	0.355	bb	1.0
2	65	Total N-MeFOSAA	570.1 > 419	4.82	73.033	3054.070	0.299	bb	0.8

Total N-EtFOSAA

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	19	N-EtFOSAA	584.2 > 419	5.53	90.154	3590.481	0.314	db	1.4
2	66	Total N-EtFOSAA	584.2 > 419	5.45	90.005	3590.481	0.313	bd	1.4

Total PFOA+PFOS,Total PFOA,Total PFOS

	#	Name	Trace	RT	Area	IS Area	Response	Primary Flags	Conc.
1	10	Br-PFOA	413 > 368.7	4.33	183.808	12353.898	0.186	bbl	

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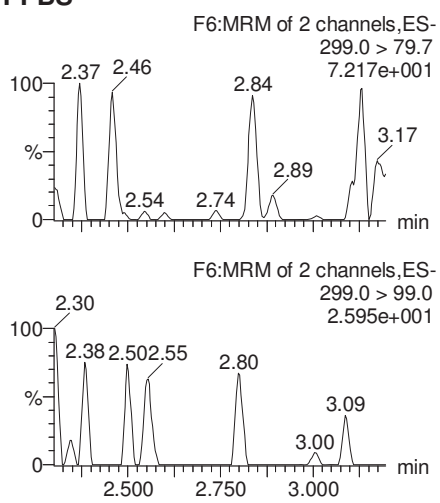
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Printed: Friday, December 15, 2017 09:46:30 Pacific Standard Time

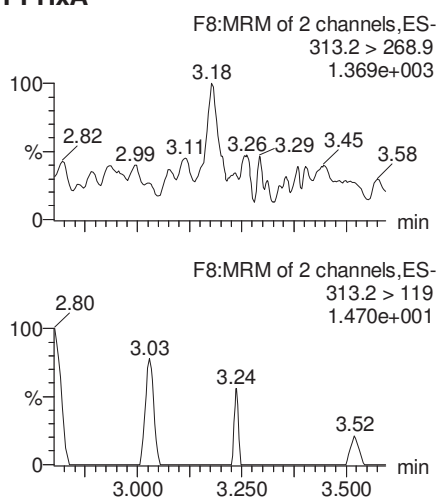
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Name: 171212M1_85, Date: 13-Dec-2017, Time: 09:40:49, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

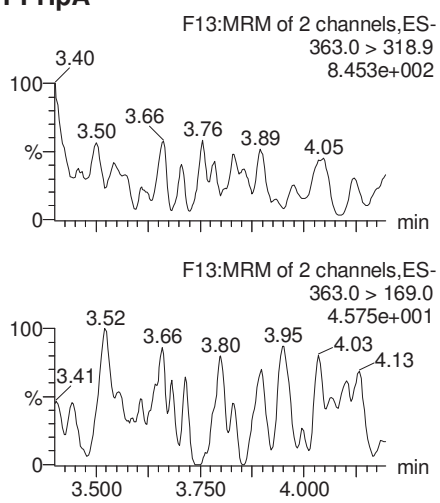
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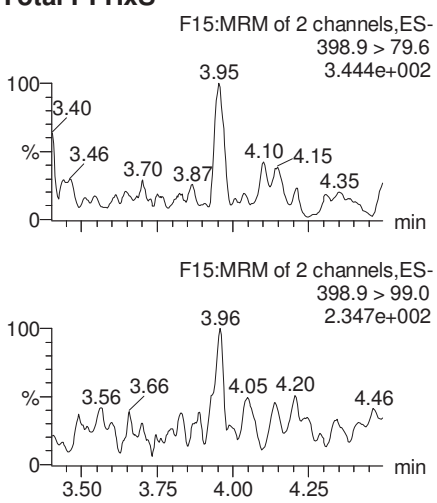
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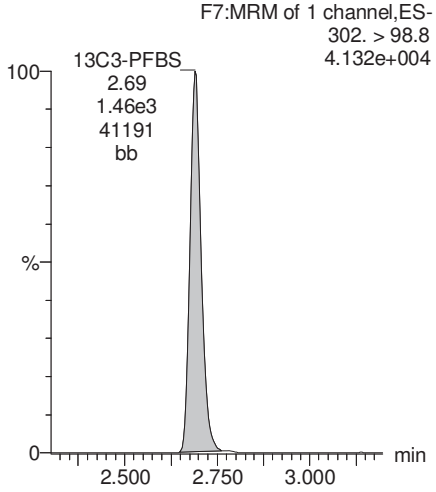
PFHpA



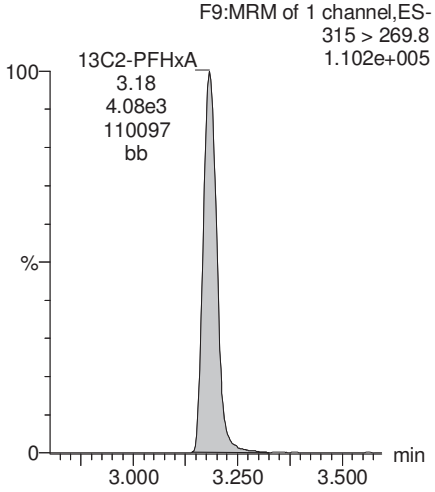
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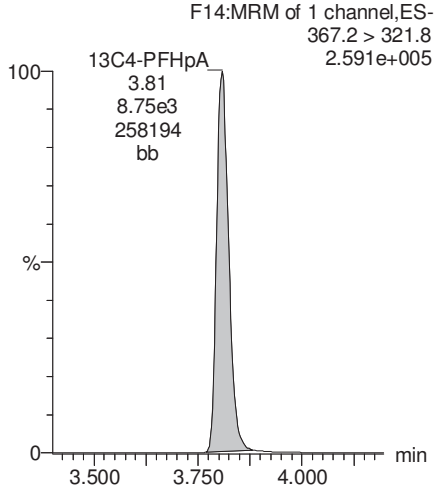
13C3-PFBS



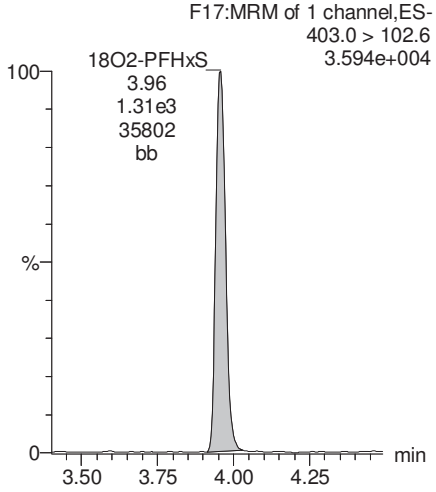
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS

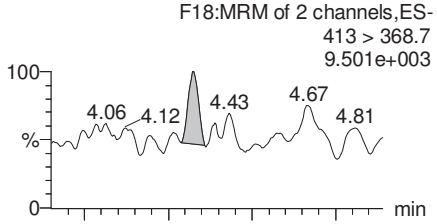


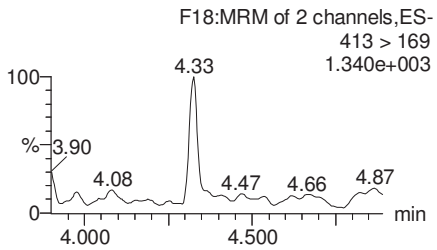
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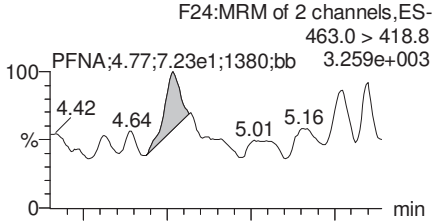
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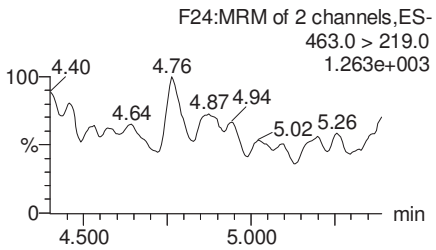
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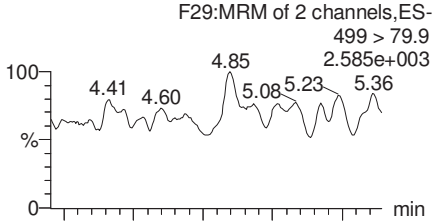


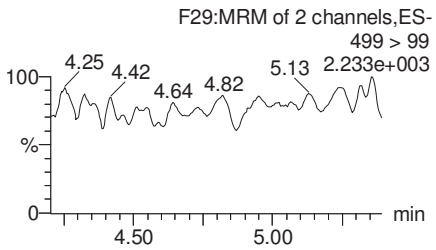
PFNA



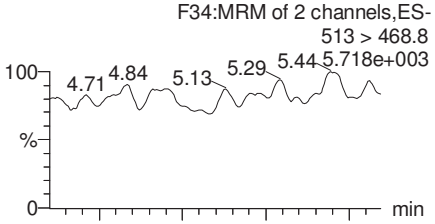


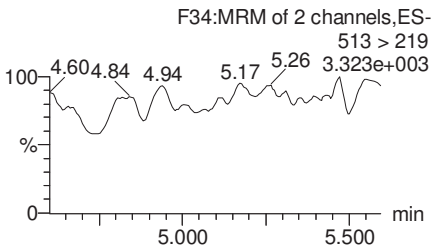
Total PFOS



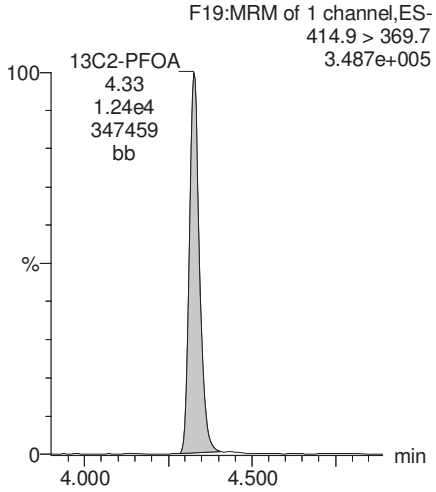


PFDA

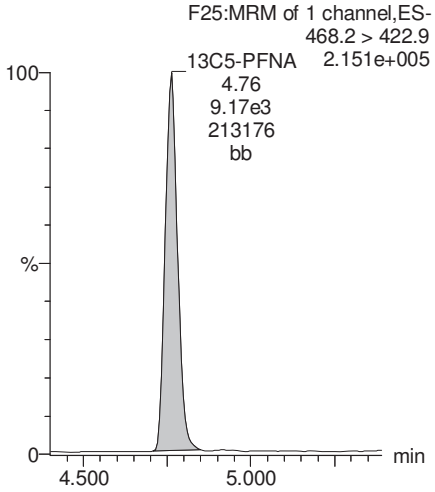




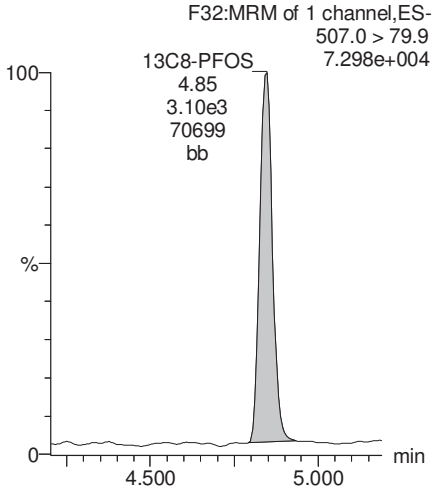
13C2-PFOA



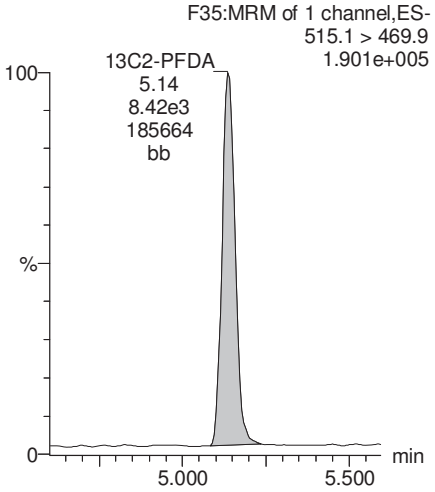
13C5-PFNA



13C8-PFOS



13C2-PFDA

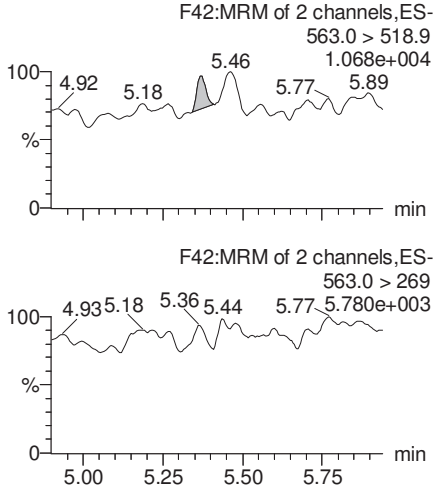


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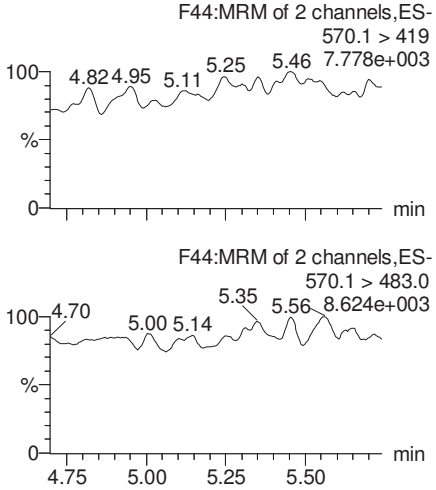
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Name: 171212M1_85, Date: 13-Dec-2017, Time: 09:40:49, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

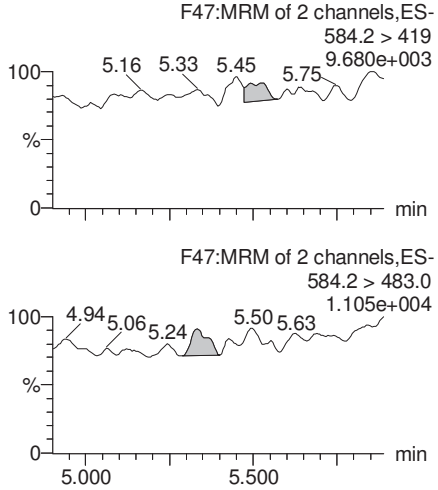
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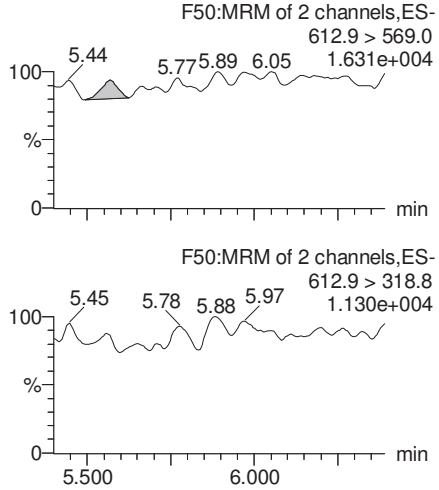
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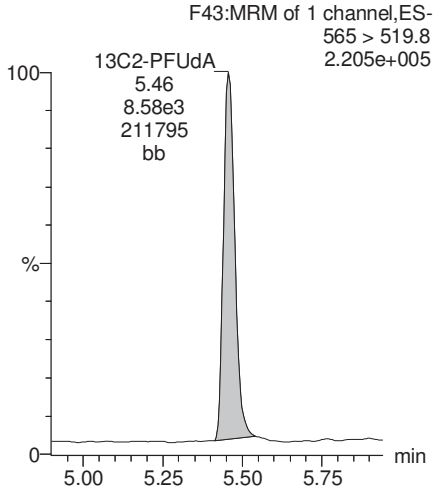
N-EtFOSAA



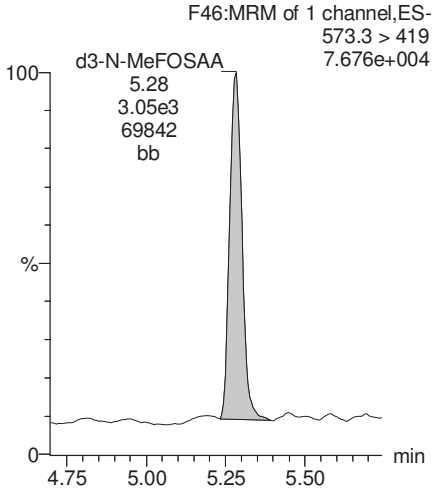
PFDoA



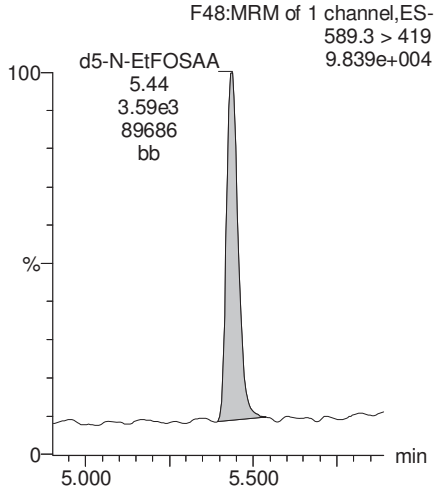
13C2-PFUdA



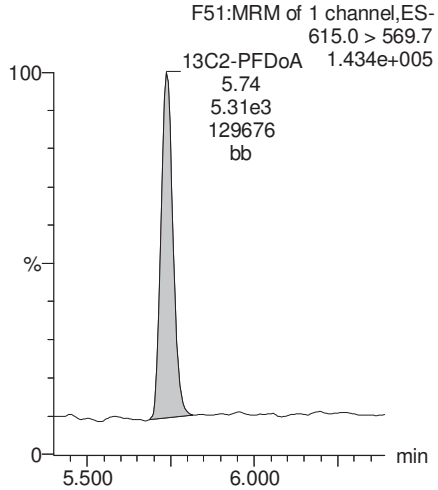
d3-N-MeFOSAA



d5-N-EtFOSAA



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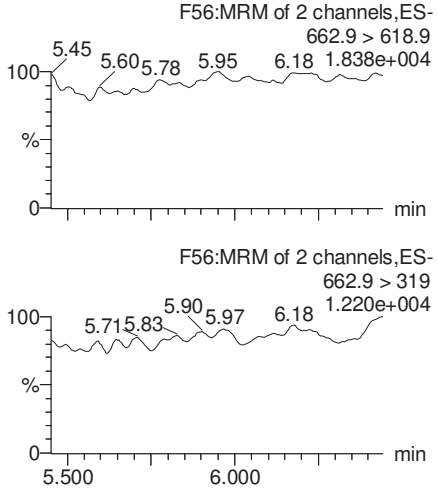


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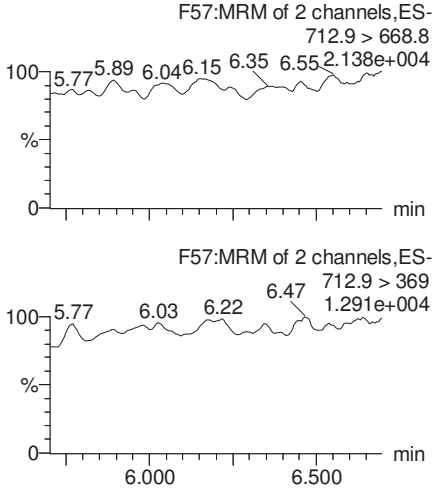
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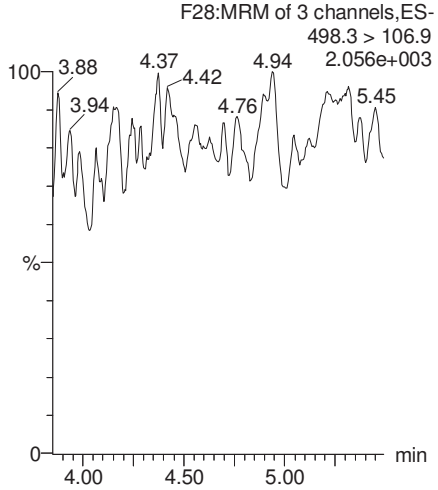
PFTrDA



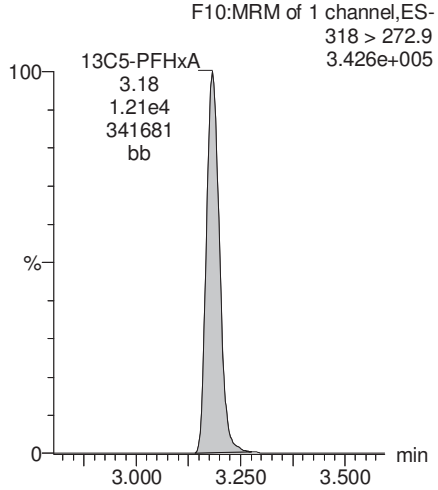
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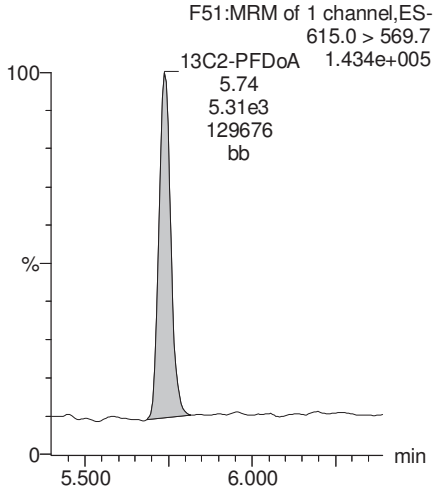
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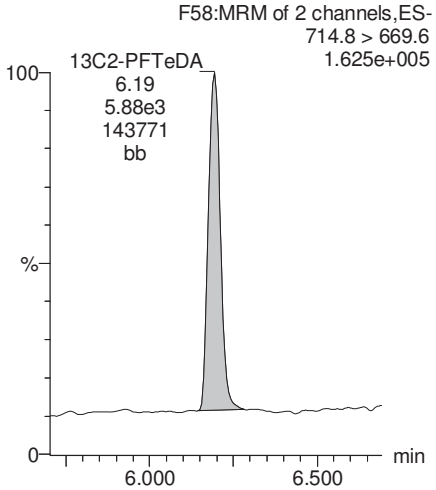
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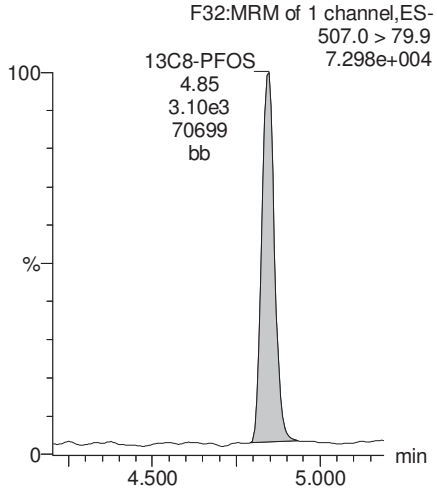
13C2-PFDoA



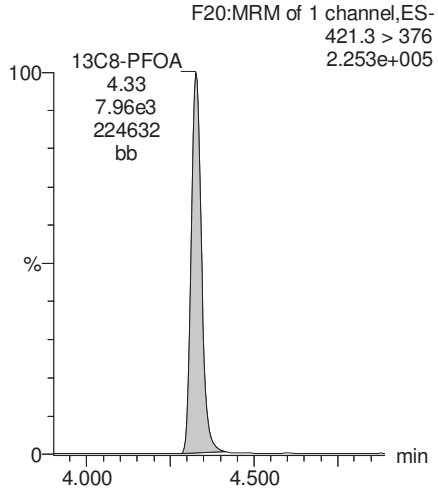
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

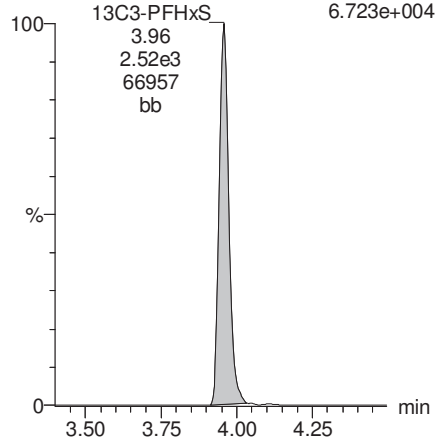


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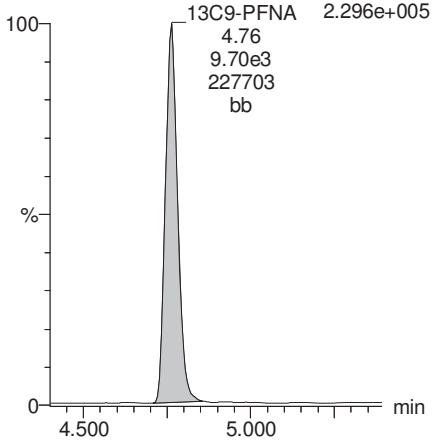
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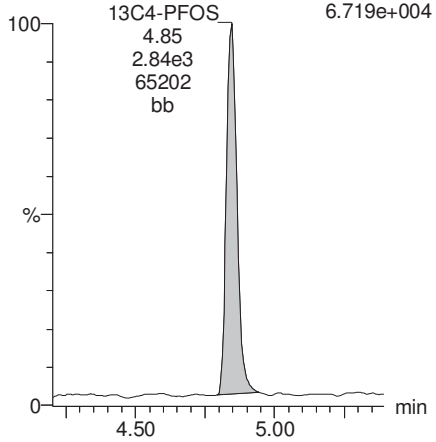
13C3-PFHxS



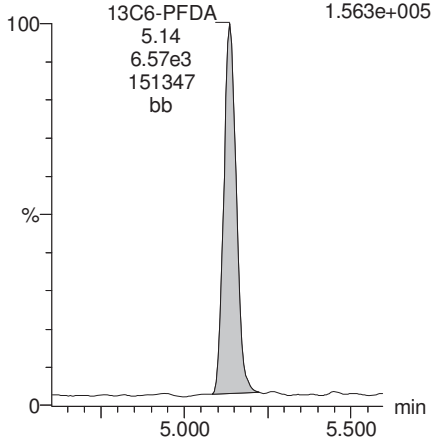
13C9-PFNA



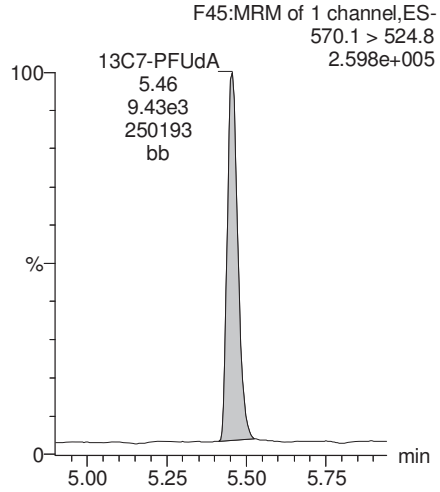
13C4-PFOS



13C6-PFDA



13C7-PFUdA



INJECTION INTERNAL STANDARD (IIS) AREAS,

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171213M1\171213M1-IIS AREAS.qld

Last Altered: Thursday, December 14, 2017 14:35:34 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:46:08 Pacific Standard Time

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Calibration: 14 Dec 2017 14:35:34

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1	1 13C4-PFBA	ST171213M1-6 PFC CS3 17L0509	1.06e4	100.0	NO
2	2 13C5-PFHxA	ST171213M1-6 PFC CS3 17L0509	1.48e4	100.0	NO
3	3 13C3-PFHxS	ST171213M1-6 PFC CS3 17L0509	3.08e3	100.0	NO
4	4 13C8-PFOA	ST171213M1-6 PFC CS3 17L0509	1.01e4	100.0	NO
5	5 13C9-PFNA	ST171213M1-6 PFC CS3 17L0509	9.63e3	100.0	NO
6	6 13C4-PFOS	ST171213M1-6 PFC CS3 17L0509	3.41e3	100.0	NO
7	7 13C6-PFDA	ST171213M1-6 PFC CS3 17L0509	9.87e3	100.0	NO
8	8 13C7-PFUdA	ST171213M1-6 PFC CS3 17L0509	1.21e4	100.0	NO

Name: 171213M1_8, Date: 13-Dec-2017, Time: 20:17:07, ID: ST171213M1-7 PFC CS4 17L0510, Description: PFC CS4 17L0510

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	ST171213M1-7 PFC CS4 17L0510	1.06e4	100.7	NO
2	2 13C5-PFHxA	ST171213M1-7 PFC CS4 17L0510	1.57e4	106.1	NO
3	3 13C3-PFHxS	ST171213M1-7 PFC CS4 17L0510	3.25e3	105.8	NO
4	4 13C8-PFOA	ST171213M1-7 PFC CS4 17L0510	1.28e4	126.0	NO
5	5 13C9-PFNA	ST171213M1-7 PFC CS4 17L0510	1.16e4	120.9	NO
6	6 13C4-PFOS	ST171213M1-7 PFC CS4 17L0510	3.74e3	109.6	NO
7	7 13C6-PFDA	ST171213M1-7 PFC CS4 17L0510	1.26e4	127.3	NO
8	8 13C7-PFUdA	ST171213M1-7 PFC CS4 17L0510	1.17e4	96.4	NO

Name: 171213M1_9, Date: 13-Dec-2017, Time: 20:28:17, ID: ST171213M1-8 PFC CS5 17L0511, Description: PFC CS5 17L0511

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	ST171213M1-8 PFC CS5 17L0511	1.07e4	101.6	NO
2	2 13C5-PFHxA	ST171213M1-8 PFC CS5 17L0511	1.38e4	93.4	NO
3	3 13C3-PFHxS	ST171213M1-8 PFC CS5 17L0511	2.84e3	92.5	NO
4	4 13C8-PFOA	ST171213M1-8 PFC CS5 17L0511	1.09e4	107.3	NO
5	5 13C9-PFNA	ST171213M1-8 PFC CS5 17L0511	1.02e4	106.3	NO
6	6 13C4-PFOS	ST171213M1-8 PFC CS5 17L0511	3.51e3	102.7	NO
7	7 13C6-PFDA	ST171213M1-8 PFC CS5 17L0511	9.77e3	99.0	NO
8	8 13C7-PFUdA	ST171213M1-8 PFC CS5 17L0511	1.18e4	97.5	NO

Name: 171213M1_10, Date: 13-Dec-2017, Time: 20:39:28, ID: ST171213M1-9 PFC CS6 17L0512, Description: PFC CS6 17L0512

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	ST171213M1-9 PFC CS6 17L0512	1.08e4	102.2	NO
2	2 13C5-PFHxA	ST171213M1-9 PFC CS6 17L0512	1.49e4	101.0	NO
3	3 13C3-PFHxS	ST171213M1-9 PFC CS6 17L0512	2.94e3	95.6	NO
4	4 13C8-PFOA	ST171213M1-9 PFC CS6 17L0512	1.13e4	111.3	NO
5	5 13C9-PFNA	ST171213M1-9 PFC CS6 17L0512	1.01e4	104.4	NO
6	6 13C4-PFOS	ST171213M1-9 PFC CS6 17L0512	3.59e3	105.1	NO
7	7 13C6-PFDA	ST171213M1-9 PFC CS6 17L0512	9.72e3	98.5	NO
8	8 13C7-PFUdA	ST171213M1-9 PFC CS6 17L0512	9.25e3	76.6	NO

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Name: 171213M1_11, Date: 13-Dec-2017, Time: 20:50:39, ID: ST171213M1-10 PFC CS7 17L0513, Description: PFC CS7 17L0513

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST171213M1-10 PFC CS7 17L0513	1.08e4	102.1	NO
2	2	13C5-PFHxA	ST171213M1-10 PFC CS7 17L0513	1.40e4	94.8	NO
3	3	13C3-PFHxS	ST171213M1-10 PFC CS7 17L0513	3.19e3	103.7	NO
4	4	13C8-PFOA	ST171213M1-10 PFC CS7 17L0513	1.14e4	112.9	NO
5	5	13C9-PFNA	ST171213M1-10 PFC CS7 17L0513	1.14e4	118.1	NO
6	6	13C4-PFOS	ST171213M1-10 PFC CS7 17L0513	3.36e3	98.4	NO
7	7	13C6-PFDA	ST171213M1-10 PFC CS7 17L0513	8.72e3	88.3	NO
8	8	13C7-PFUdA	ST171213M1-10 PFC CS7 17L0513	1.05e4	86.9	NO

Name: 171213M1_12, Date: 13-Dec-2017, Time: 21:01:50, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA	6.55e0	0.1	NO
6	6	13C4-PFOS	IPA	5.73e0	0.2	NO
7	7	13C6-PFDA	IPA	6.35e0	0.1	NO
8	8	13C7-PFUdA	IPA	2.16e1	0.2	NO

Name: 171213M1_13, Date: 13-Dec-2017, Time: 21:13:00, ID: ICV171213M1-1 PFC ICV 17L0503, Description: PFC ICV 17L0503

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ICV171213M1-1 PFC ICV 17L0503	1.04e4	98.3	NO
2	2	13C5-PFHxA	ICV171213M1-1 PFC ICV 17L0503	1.49e4	101.0	NO
3	3	13C3-PFHxS	ICV171213M1-1 PFC ICV 17L0503	3.47e3	112.7	NO
4	4	13C8-PFOA	ICV171213M1-1 PFC ICV 17L0503	1.15e4	113.7	NO
5	5	13C9-PFNA	ICV171213M1-1 PFC ICV 17L0503	1.12e4	116.0	NO
6	6	13C4-PFOS	ICV171213M1-1 PFC ICV 17L0503	3.16e3	92.6	NO
7	7	13C6-PFDA	ICV171213M1-1 PFC ICV 17L0503	8.77e3	88.9	NO
8	8	13C7-PFUdA	ICV171213M1-1 PFC ICV 17L0503	1.15e4	95.1	NO

Name: 171213M1_14, Date: 13-Dec-2017, Time: 21:24:11, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA	1.07e1	0.1	YES

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Name: 171213M1_15, Date: 13-Dec-2017, Time: 21:35:21, ID: B7L0038-BS1 OPR 1, Description: OPR

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	B7L0038-BS1 OPR 1	8.07e3	76.4	NO
2	2 13C5-PFHxA	B7L0038-BS1 OPR 1	1.13e4	76.3	NO
3	3 13C3-PFHxS	B7L0038-BS1 OPR 1	2.80e3	91.1	NO
4	4 13C8-PFOA	B7L0038-BS1 OPR 1	9.53e3	94.0	NO
5	5 13C9-PFNA	B7L0038-BS1 OPR 1	7.98e3	82.9	NO
6	6 13C4-PFOS	B7L0038-BS1 OPR 1	2.62e3	76.9	NO
7	7 13C6-PFDA	B7L0038-BS1 OPR 1	6.67e3	67.6	NO
8	8 13C7-PFUdA	B7L0038-BS1 OPR 1	5.71e3	47.2	YES

Name: 171213M1_16, Date: 13-Dec-2017, Time: 21:46:32, ID: B7L0046-BS1 OPR 0.25, Description: OPR

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	B7L0046-BS1 OPR 0.25	8.17e3	77.4	NO
2	2 13C5-PFHxA	B7L0046-BS1 OPR 0.25	1.10e4	74.5	NO
3	3 13C3-PFHxS	B7L0046-BS1 OPR 0.25	2.66e3	86.4	NO
4	4 13C8-PFOA	B7L0046-BS1 OPR 0.25	9.67e3	95.4	NO
5	5 13C9-PFNA	B7L0046-BS1 OPR 0.25	8.82e3	91.6	NO
6	6 13C4-PFOS	B7L0046-BS1 OPR 0.25	2.68e3	78.6	NO
7	7 13C6-PFDA	B7L0046-BS1 OPR 0.25	9.26e3	93.8	NO
8	8 13C7-PFUdA	B7L0046-BS1 OPR 0.25	7.91e3	65.5	NO

Name: 171213M1_17, Date: 13-Dec-2017, Time: 21:57:43, ID: B7L0046-BSD1 LCSD 0.25, Description: LCSD

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	B7L0046-BSD1 LCSD 0.25	8.16e3	77.2	NO
2	2 13C5-PFHxA	B7L0046-BSD1 LCSD 0.25	1.18e4	79.9	NO
3	3 13C3-PFHxS	B7L0046-BSD1 LCSD 0.25	2.68e3	87.2	NO
4	4 13C8-PFOA	B7L0046-BSD1 LCSD 0.25	9.03e3	89.2	NO
5	5 13C9-PFNA	B7L0046-BSD1 LCSD 0.25	7.15e3	74.3	NO
6	6 13C4-PFOS	B7L0046-BSD1 LCSD 0.25	2.86e3	83.7	NO
7	7 13C6-PFDA	B7L0046-BSD1 LCSD 0.25	8.32e3	84.3	NO
8	8 13C7-PFUdA	B7L0046-BSD1 LCSD 0.25	9.23e3	76.4	NO

Name: 171213M1_18, Date: 13-Dec-2017, Time: 22:08:54, ID: IPA, Description: IPA

	# Name	ID	Area	%Rec	Area Out
1	1 13C4-PFBA	IPA			NO
2	2 13C5-PFHxA	IPA			NO
3	3 13C3-PFHxS	IPA			NO
4	4 13C8-PFOA	IPA			NO
5	5 13C9-PFNA	IPA			NO
6	6 13C4-PFOS	IPA			NO
7	7 13C6-PFDA	IPA	1.56e1	0.2	YES
8	8 13C7-PFUdA	IPA	1.61e1	0.1	YES

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Name: 171213M1_19, Date: 13-Dec-2017, Time: 22:20:04, ID: B7L0038-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0038-BLK1 Method Blank 1	8.75e3	82.8	NO
2	2	13C5-PFHxA	B7L0038-BLK1 Method Blank 1	1.26e4	85.0	NO
3	3	13C3-PFHxS	B7L0038-BLK1 Method Blank 1	2.70e3	87.9	NO
4	4	13C8-PFOA	B7L0038-BLK1 Method Blank 1	1.03e4	101.7	NO
5	5	13C9-PFNA	B7L0038-BLK1 Method Blank 1	8.60e3	89.3	NO
6	6	13C4-PFOS	B7L0038-BLK1 Method Blank 1	2.28e3	66.9	NO
7	7	13C6-PFDA	B7L0038-BLK1 Method Blank 1	6.60e3	66.9	NO
8	8	13C7-PFUdA	B7L0038-BLK1 Method Blank 1	4.43e3	36.7	YES

Name: 171213M1_20, Date: 13-Dec-2017, Time: 22:31:15, ID: B7L0046-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0046-BLK1 Method Blank 0.25	8.81e3	83.4	NO
2	2	13C5-PFHxA	B7L0046-BLK1 Method Blank 0.25	1.31e4	88.9	NO
3	3	13C3-PFHxS	B7L0046-BLK1 Method Blank 0.25	2.62e3	85.1	NO
4	4	13C8-PFOA	B7L0046-BLK1 Method Blank 0.25	9.79e3	96.6	NO
5	5	13C9-PFNA	B7L0046-BLK1 Method Blank 0.25	9.68e3	100.6	NO
6	6	13C4-PFOS	B7L0046-BLK1 Method Blank 0.25	3.21e3	94.1	NO
7	7	13C6-PFDA	B7L0046-BLK1 Method Blank 0.25	8.85e3	89.7	NO
8	8	13C7-PFUdA	B7L0046-BLK1 Method Blank 0.25	8.63e3	71.4	NO

Name: 171213M1_21, Date: 13-Dec-2017, Time: 22:42:26, ID: B7L0038-MS1 Matrix Spike 1.22, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0038-MS1 Matrix Spike 1.22	7.49e3	70.9	NO
2	2	13C5-PFHxA	B7L0038-MS1 Matrix Spike 1.22	1.07e4	72.5	NO
3	3	13C3-PFHxS	B7L0038-MS1 Matrix Spike 1.22	2.26e3	73.5	NO
4	4	13C8-PFOA	B7L0038-MS1 Matrix Spike 1.22	7.57e3	74.7	NO
5	5	13C9-PFNA	B7L0038-MS1 Matrix Spike 1.22	7.00e3	72.7	NO
6	6	13C4-PFOS	B7L0038-MS1 Matrix Spike 1.22	1.77e3	51.7	NO
7	7	13C6-PFDA	B7L0038-MS1 Matrix Spike 1.22	4.66e3	47.2	YES
8	8	13C7-PFUdA	B7L0038-MS1 Matrix Spike 1.22	4.07e3	33.7	YES

Name: 171213M1_22, Date: 13-Dec-2017, Time: 22:53:37, ID: B7L0038-MSD1 Matrix Spike Dup 1.19, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0038-MSD1 Matrix Spike Dup 1.19	8.88e3	84.1	NO
2	2	13C5-PFHxA	B7L0038-MSD1 Matrix Spike Dup 1.19	1.21e4	82.1	NO
3	3	13C3-PFHxS	B7L0038-MSD1 Matrix Spike Dup 1.19	2.90e3	94.4	NO
4	4	13C8-PFOA	B7L0038-MSD1 Matrix Spike Dup 1.19	1.10e4	108.1	NO
5	5	13C9-PFNA	B7L0038-MSD1 Matrix Spike Dup 1.19	8.89e3	92.4	NO
6	6	13C4-PFOS	B7L0038-MSD1 Matrix Spike Dup 1.19	2.70e3	79.1	NO
7	7	13C6-PFDA	B7L0038-MSD1 Matrix Spike Dup 1.19	8.91e3	90.2	NO
8	8	13C7-PFUdA	B7L0038-MSD1 Matrix Spike Dup 1.19	5.81e3	48.1	YES

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Name: 171213M1_23, Date: 13-Dec-2017, Time: 23:04:47, ID: 1701855-01 CA-AQIDW01-20171205 0.26261, Description: CA-AQIDW01-20171205

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701855-01 CA-AQIDW01-20171205 0....	9.39e3	88.9	NO
2	2	13C5-PFHxA	1701855-01 CA-AQIDW01-20171205 0....	1.32e4	89.1	NO
3	3	13C3-PFHxS	1701855-01 CA-AQIDW01-20171205 0....	3.07e3	100.0	NO
4	4	13C8-PFOA	1701855-01 CA-AQIDW01-20171205 0....	1.07e4	105.7	NO
5	5	13C9-PFNA	1701855-01 CA-AQIDW01-20171205 0....	1.05e4	109.1	NO
6	6	13C4-PFOS	1701855-01 CA-AQIDW01-20171205 0....	2.96e3	86.6	NO
7	7	13C6-PFDA	1701855-01 CA-AQIDW01-20171205 0....	8.11e3	82.2	NO
8	8	13C7-PFUdA	1701855-01 CA-AQIDW01-20171205 0....	9.89e3	81.9	NO

Name: 171213M1_24, Date: 13-Dec-2017, Time: 23:15:58, ID: 1701721-13@5X GENBM-03-SB03-1-2-111417 1.14, Description: GENBM-03-SB03-1-2-111417

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701721-13@5X GENBM-03-SB03-1-2...	1.64e3	15.5	YES
2	2	13C5-PFHxA	1701721-13@5X GENBM-03-SB03-1-2...	2.08e3	14.0	YES
3	3	13C3-PFHxS	1701721-13@5X GENBM-03-SB03-1-2...	3.83e2	12.5	YES
4	4	13C8-PFOA	1701721-13@5X GENBM-03-SB03-1-2...	1.70e3	16.8	YES
5	5	13C9-PFNA	1701721-13@5X GENBM-03-SB03-1-2...	1.27e3	13.2	YES
6	6	13C4-PFOS	1701721-13@5X GENBM-03-SB03-1-2...	5.00e2	14.7	YES
7	7	13C6-PFDA	1701721-13@5X GENBM-03-SB03-1-2...	8.84e2	9.0	YES
8	8	13C7-PFUdA	1701721-13@5X GENBM-03-SB03-1-2...	6.90e2	5.7	YES

Name: 171213M1_25, Date: 13-Dec-2017, Time: 23:27:08, ID: 1701723-01 GENBM-11-SB01-3-3.5-111517 1.25, Description: GENBM-11-SB01-3-3.5-111517

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-01 GENBM-11-SB01-3-3.5-11...	8.00e3	75.7	NO
2	2	13C5-PFHxA	1701723-01 GENBM-11-SB01-3-3.5-11...	1.21e4	81.9	NO
3	3	13C3-PFHxS	1701723-01 GENBM-11-SB01-3-3.5-11...	2.19e3	71.1	NO
4	4	13C8-PFOA	1701723-01 GENBM-11-SB01-3-3.5-11...	9.16e3	90.4	NO
5	5	13C9-PFNA	1701723-01 GENBM-11-SB01-3-3.5-11...	8.00e3	83.1	NO
6	6	13C4-PFOS	1701723-01 GENBM-11-SB01-3-3.5-11...	2.68e3	78.6	NO
7	7	13C6-PFDA	1701723-01 GENBM-11-SB01-3-3.5-11...	6.54e3	66.2	NO
8	8	13C7-PFUdA	1701723-01 GENBM-11-SB01-3-3.5-11...	8.20e3	67.9	NO

Name: 171213M1_26, Date: 13-Dec-2017, Time: 23:38:20, ID: 1701723-02 GENBM-09-SB03-1-2-111517 1.33, Description: GENBM-09-SB03-1-2-111517

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-02 GENBM-09-SB03-1-2-1115...	8.83e3	83.6	NO
2	2	13C5-PFHxA	1701723-02 GENBM-09-SB03-1-2-1115...	1.24e4	84.0	NO
3	3	13C3-PFHxS	1701723-02 GENBM-09-SB03-1-2-1115...	2.61e3	85.0	NO
4	4	13C8-PFOA	1701723-02 GENBM-09-SB03-1-2-1115...	9.30e3	91.8	NO
5	5	13C9-PFNA	1701723-02 GENBM-09-SB03-1-2-1115...	7.69e3	79.9	NO
6	6	13C4-PFOS	1701723-02 GENBM-09-SB03-1-2-1115...	2.68e3	78.6	NO
7	7	13C6-PFDA	1701723-02 GENBM-09-SB03-1-2-1115...	6.74e3	68.3	NO
8	8	13C7-PFUdA	1701723-02 GENBM-09-SB03-1-2-1115...	5.57e3	46.1	YES

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Name: 171213M1_27, Date: 13-Dec-2017, Time: 23:49:30, ID: 1701723-03 GENBM-09-SB03-3-3.5-111517 1.31, Description: GENBM-09-SB03-3-3.5-111517

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-03 GENBM-09-SB03-3-3.5-11...	8.29e3	78.5	NO
2	2	13C5-PFHxA	1701723-03 GENBM-09-SB03-3-3.5-11...	1.24e4	83.6	NO
3	3	13C3-PFHxS	1701723-03 GENBM-09-SB03-3-3.5-11...	2.44e3	79.2	NO
4	4	13C8-PFOA	1701723-03 GENBM-09-SB03-3-3.5-11...	8.66e3	85.5	NO
5	5	13C9-PFNA	1701723-03 GENBM-09-SB03-3-3.5-11...	7.56e3	78.5	NO
6	6	13C4-PFOS	1701723-03 GENBM-09-SB03-3-3.5-11...	2.92e3	85.5	NO
7	7	13C6-PFDA	1701723-03 GENBM-09-SB03-3-3.5-11...	5.26e3	53.3	NO
8	8	13C7-PFUdA	1701723-03 GENBM-09-SB03-3-3.5-11...	6.96e3	57.6	NO

Name: 171213M1_28, Date: 14-Dec-2017, Time: 00:00:41, ID: 1701723-04 GENBM-SO-Duplicate-06-111617 1.3, Description: GENBM-SO-Duplicate-06-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-04 GENBM-SO-Duplicate-06-1...	8.48e3	80.2	NO
2	2	13C5-PFHxA	1701723-04 GENBM-SO-Duplicate-06-1...	1.21e4	81.7	NO
3	3	13C3-PFHxS	1701723-04 GENBM-SO-Duplicate-06-1...	2.84e3	92.5	NO
4	4	13C8-PFOA	1701723-04 GENBM-SO-Duplicate-06-1...	1.09e4	107.3	NO
5	5	13C9-PFNA	1701723-04 GENBM-SO-Duplicate-06-1...	8.91e3	92.6	NO
6	6	13C4-PFOS	1701723-04 GENBM-SO-Duplicate-06-1...	3.14e3	91.9	NO
7	7	13C6-PFDA	1701723-04 GENBM-SO-Duplicate-06-1...	7.96e3	80.7	NO
8	8	13C7-PFUdA	1701723-04 GENBM-SO-Duplicate-06-1...	6.56e3	54.3	NO

Name: 171213M1_29, Date: 14-Dec-2017, Time: 00:11:52, ID: 1701723-05 GENBM-SO-Duplicate-07-111617 1.62, Description: GENBM-SO-Duplicate-07-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-05 GENBM-SO-Duplicate-07-1...	9.17e3	86.8	NO
2	2	13C5-PFHxA	1701723-05 GENBM-SO-Duplicate-07-1...	1.26e4	85.2	NO
3	3	13C3-PFHxS	1701723-05 GENBM-SO-Duplicate-07-1...	2.42e3	78.9	NO
4	4	13C8-PFOA	1701723-05 GENBM-SO-Duplicate-07-1...	9.75e3	96.2	NO
5	5	13C9-PFNA	1701723-05 GENBM-SO-Duplicate-07-1...	8.72e3	90.6	NO
6	6	13C4-PFOS	1701723-05 GENBM-SO-Duplicate-07-1...	2.39e3	70.1	NO
7	7	13C6-PFDA	1701723-05 GENBM-SO-Duplicate-07-1...	6.83e3	69.2	NO
8	8	13C7-PFUdA	1701723-05 GENBM-SO-Duplicate-07-1...	7.72e3	63.9	NO

Name: 171213M1_30, Date: 14-Dec-2017, Time: 00:23:02, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA	1.11e1	0.3	YES
7	7	13C6-PFDA	IPA	1.43e1	0.1	YES
8	8	13C7-PFUdA	IPA	1.75e1	0.1	YES

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Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST171213M1-11 PFC CS3 17L0509	1.08e4	102.2	NO
2	2	13C5-PFHxA	ST171213M1-11 PFC CS3 17L0509	1.47e4	99.6	NO
3	3	13C3-PFHxS	ST171213M1-11 PFC CS3 17L0509	3.34e3	108.6	NO
4	4	13C8-PFOA	ST171213M1-11 PFC CS3 17L0509	1.18e4	116.0	NO
5	5	13C9-PFNA	ST171213M1-11 PFC CS3 17L0509	1.21e4	125.4	NO
6	6	13C4-PFOS	ST171213M1-11 PFC CS3 17L0509	3.98e3	116.7	NO
7	7	13C6-PFDA	ST171213M1-11 PFC CS3 17L0509	9.84e3	99.7	NO
8	8	13C7-PFUdA	ST171213M1-11 PFC CS3 17L0509	1.30e4	107.2	NO

Name: 171213M1_32, Date: 14-Dec-2017, Time: 00:45:24, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA	1.10e1	0.3	YES
7	7	13C6-PFDA	IPA	9.19e0	0.1	YES
8	8	13C7-PFUdA	IPA	4.02e1	0.3	YES

Name: 171213M1_33, Date: 14-Dec-2017, Time: 00:56:35, ID: 1701723-06 GENBM-SO-Duplicate-08-111617 1.27, Description: GENBM-SO-Duplicate-08-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-06 GENBM-SO-Duplicate-08-1...	8.18e3	77.5	NO
2	2	13C5-PFHxA	1701723-06 GENBM-SO-Duplicate-08-1...	1.19e4	80.5	NO
3	3	13C3-PFHxS	1701723-06 GENBM-SO-Duplicate-08-1...	2.76e3	89.9	NO
4	4	13C8-PFOA	1701723-06 GENBM-SO-Duplicate-08-1...	1.00e4	99.1	NO
5	5	13C9-PFNA	1701723-06 GENBM-SO-Duplicate-08-1...	8.12e3	84.4	NO
6	6	13C4-PFOS	1701723-06 GENBM-SO-Duplicate-08-1...	1.95e3	57.2	NO
7	7	13C6-PFDA	1701723-06 GENBM-SO-Duplicate-08-1...	7.99e3	81.0	NO
8	8	13C7-PFUdA	1701723-06 GENBM-SO-Duplicate-08-1...	4.64e3	38.4	YES

Name: 171213M1_34, Date: 14-Dec-2017, Time: 01:07:45, ID: 1701723-07 GENBM-06-SB03-0.5-1-111617 1.22, Description: GENBM-06-SB03-0.5-1-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-07 GENBM-06-SB03-0.5-1-11...	8.72e3	82.6	NO
2	2	13C5-PFHxA	1701723-07 GENBM-06-SB03-0.5-1-11...	1.20e4	80.9	NO
3	3	13C3-PFHxS	1701723-07 GENBM-06-SB03-0.5-1-11...	2.79e3	90.8	NO
4	4	13C8-PFOA	1701723-07 GENBM-06-SB03-0.5-1-11...	9.60e3	94.7	NO
5	5	13C9-PFNA	1701723-07 GENBM-06-SB03-0.5-1-11...	8.16e3	84.8	NO
6	6	13C4-PFOS	1701723-07 GENBM-06-SB03-0.5-1-11...	2.86e3	83.7	NO
7	7	13C6-PFDA	1701723-07 GENBM-06-SB03-0.5-1-11...	6.85e3	69.4	NO
8	8	13C7-PFUdA	1701723-07 GENBM-06-SB03-0.5-1-11...	7.30e3	60.4	NO

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Name: 171213M1_35, Date: 14-Dec-2017, Time: 01:18:56, ID: 1701723-08 GENBM-06-SB03-3-3.5-111617 1.31, Description: GENBM-06-SB03-3-3.5-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-08 GENBM-06-SB03-3-3.5-11...	8.94e3	84.6	NO
2	2	13C5-PFHxA	1701723-08 GENBM-06-SB03-3-3.5-11...	1.29e4	87.4	NO
3	3	13C3-PFHxS	1701723-08 GENBM-06-SB03-3-3.5-11...	2.26e3	73.6	NO
4	4	13C8-PFOA	1701723-08 GENBM-06-SB03-3-3.5-11...	1.04e4	102.8	NO
5	5	13C9-PFNA	1701723-08 GENBM-06-SB03-3-3.5-11...	8.87e3	92.2	NO
6	6	13C4-PFOS	1701723-08 GENBM-06-SB03-3-3.5-11...	3.05e3	89.3	NO
7	7	13C6-PFDA	1701723-08 GENBM-06-SB03-3-3.5-11...	8.84e3	89.6	NO
8	8	13C7-PFUdA	1701723-08 GENBM-06-SB03-3-3.5-11...	6.41e3	53.1	NO

Name: 171213M1_36, Date: 14-Dec-2017, Time: 01:30:06, ID: 1701723-09 GENBM-06-SB04-2-3-111617 1.19, Description: GENBM-06-SB04-2-3-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-09 GENBM-06-SB04-2-3-1116...	8.07e3	76.4	NO
2	2	13C5-PFHxA	1701723-09 GENBM-06-SB04-2-3-1116...	1.19e4	80.3	NO
3	3	13C3-PFHxS	1701723-09 GENBM-06-SB04-2-3-1116...	2.77e3	90.1	NO
4	4	13C8-PFOA	1701723-09 GENBM-06-SB04-2-3-1116...	9.68e3	95.5	NO
5	5	13C9-PFNA	1701723-09 GENBM-06-SB04-2-3-1116...	9.13e3	94.9	NO
6	6	13C4-PFOS	1701723-09 GENBM-06-SB04-2-3-1116...	2.63e3	77.0	NO
7	7	13C6-PFDA	1701723-09 GENBM-06-SB04-2-3-1116...	7.58e3	76.8	NO
8	8	13C7-PFUdA	1701723-09 GENBM-06-SB04-2-3-1116...	6.31e3	52.2	NO

Name: 171213M1_37, Date: 14-Dec-2017, Time: 01:41:17, ID: 1701723-10 GENBM-06-SB04-6-6.5-111617 1.38, Description: GENBM-06-SB04-6-6.5-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-10 GENBM-06-SB04-6-6.5-11...	7.83e3	74.2	NO
2	2	13C5-PFHxA	1701723-10 GENBM-06-SB04-6-6.5-11...	1.07e4	72.3	NO
3	3	13C3-PFHxS	1701723-10 GENBM-06-SB04-6-6.5-11...	2.44e3	79.4	NO
4	4	13C8-PFOA	1701723-10 GENBM-06-SB04-6-6.5-11...	1.04e4	102.6	NO
5	5	13C9-PFNA	1701723-10 GENBM-06-SB04-6-6.5-11...	8.82e3	91.7	NO
6	6	13C4-PFOS	1701723-10 GENBM-06-SB04-6-6.5-11...	2.47e3	72.2	NO
7	7	13C6-PFDA	1701723-10 GENBM-06-SB04-6-6.5-11...	6.94e3	70.4	NO
8	8	13C7-PFUdA	1701723-10 GENBM-06-SB04-6-6.5-11...	4.12e3	34.1	YES

Name: 171213M1_38, Date: 14-Dec-2017, Time: 01:52:28, ID: 1701723-11 GENBM-06-SB05-0.5-1-111617 1.24, Description: GENBM-06-SB05-0.5-1-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-11 GENBM-06-SB05-0.5-1-11...	8.12e3	76.9	NO
2	2	13C5-PFHxA	1701723-11 GENBM-06-SB05-0.5-1-11...	1.09e4	73.8	NO
3	3	13C3-PFHxS	1701723-11 GENBM-06-SB05-0.5-1-11...	2.62e3	85.3	NO
4	4	13C8-PFOA	1701723-11 GENBM-06-SB05-0.5-1-11...	9.70e3	95.7	NO
5	5	13C9-PFNA	1701723-11 GENBM-06-SB05-0.5-1-11...	8.28e3	86.1	NO
6	6	13C4-PFOS	1701723-11 GENBM-06-SB05-0.5-1-11...	2.51e3	73.5	NO
7	7	13C6-PFDA	1701723-11 GENBM-06-SB05-0.5-1-11...	7.53e3	76.3	NO
8	8	13C7-PFUdA	1701723-11 GENBM-06-SB05-0.5-1-11...	8.39e3	69.4	NO

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Name: 171213M1_39, Date: 14-Dec-2017, Time: 02:03:39, ID: 1701723-12 GENBM-06-SB05-5-5.5-111617 1.27, Description: GENBM-06-SB05-5-5.5-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-12 GENBM-06-SB05-5-5.5-11...	9.19e3	87.0	NO
2	2	13C5-PFHxA	1701723-12 GENBM-06-SB05-5-5.5-11...	1.29e4	87.1	NO
3	3	13C3-PFHxS	1701723-12 GENBM-06-SB05-5-5.5-11...	3.11e3	101.0	NO
4	4	13C8-PFOA	1701723-12 GENBM-06-SB05-5-5.5-11...	9.55e3	94.2	NO
5	5	13C9-PFNA	1701723-12 GENBM-06-SB05-5-5.5-11...	9.60e3	99.7	NO
6	6	13C4-PFOS	1701723-12 GENBM-06-SB05-5-5.5-11...	2.88e3	84.4	NO
7	7	13C6-PFDA	1701723-12 GENBM-06-SB05-5-5.5-11...	6.40e3	64.9	NO
8	8	13C7-PFUdA	1701723-12 GENBM-06-SB05-5-5.5-11...	5.31e3	43.9	YES

Name: 171213M1_40, Date: 14-Dec-2017, Time: 02:14:49, ID: 1701723-13 GENBM-10-SB02-0.5-1-111617 1.96, Description: GENBM-10-SB02-0.5-1-111617

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701723-13 GENBM-10-SB02-0.5-1-11...	8.67e3	82.0	NO
2	2	13C5-PFHxA	1701723-13 GENBM-10-SB02-0.5-1-11...	1.33e4	89.9	NO
3	3	13C3-PFHxS	1701723-13 GENBM-10-SB02-0.5-1-11...	3.27e3	106.3	NO
4	4	13C8-PFOA	1701723-13 GENBM-10-SB02-0.5-1-11...	9.34e3	92.2	NO
5	5	13C9-PFNA	1701723-13 GENBM-10-SB02-0.5-1-11...	1.09e4	113.7	NO
6	6	13C4-PFOS	1701723-13 GENBM-10-SB02-0.5-1-11...	2.75e3	80.6	NO
7	7	13C6-PFDA	1701723-13 GENBM-10-SB02-0.5-1-11...	6.45e3	65.4	NO
8	8	13C7-PFUdA	1701723-13 GENBM-10-SB02-0.5-1-11...	5.52e3	45.7	YES

Name: 171213M1_41, Date: 14-Dec-2017, Time: 02:26:00, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA	7.33e0	0.2	YES
7	7	13C6-PFDA	IPA	1.06e1	0.1	YES
8	8	13C7-PFUdA	IPA	5.72e1	0.5	YES

Name: 171213M1_42, Date: 14-Dec-2017, Time: 02:37:11, ID: ST171213M1-12 PFC CS0 17L0506, Description: PFC CS0 17L0506

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST171213M1-12 PFC CS0 17L0506	1.16e4	109.4	NO
2	2	13C5-PFHxA	ST171213M1-12 PFC CS0 17L0506	1.76e4	119.0	NO
3	3	13C3-PFHxS	ST171213M1-12 PFC CS0 17L0506	3.41e3	110.8	NO
4	4	13C8-PFOA	ST171213M1-12 PFC CS0 17L0506	1.29e4	127.1	NO
5	5	13C9-PFNA	ST171213M1-12 PFC CS0 17L0506	1.31e4	136.1	NO
6	6	13C4-PFOS	ST171213M1-12 PFC CS0 17L0506	4.30e3	126.0	NO
7	7	13C6-PFDA	ST171213M1-12 PFC CS0 17L0506	1.12e4	113.3	NO
8	8	13C7-PFUdA	ST171213M1-12 PFC CS0 17L0506	1.18e4	97.5	NO

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Name: 171213M1_43, Date: 14-Dec-2017, Time: 02:48:22, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	7.75e0	0.1	YES
8	8	13C7-PFUdA	IPA	1.71e1	0.1	YES

Name: 171213M1_44, Date: 14-Dec-2017, Time: 02:59:32, ID: B7L0036-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0036-BS1 OPR 0.125	9.59e3	90.7	NO
2	2	13C5-PFHxA	B7L0036-BS1 OPR 0.125	1.22e4	82.3	NO
3	3	13C3-PFHxS	B7L0036-BS1 OPR 0.125	2.68e3	87.2	NO
4	4	13C8-PFOA	B7L0036-BS1 OPR 0.125	8.49e3	83.8	NO
5	5	13C9-PFNA	B7L0036-BS1 OPR 0.125	9.29e3	96.5	NO
6	6	13C4-PFOS	B7L0036-BS1 OPR 0.125	3.21e3	94.0	NO
7	7	13C6-PFDA	B7L0036-BS1 OPR 0.125	5.73e3	58.0	NO
8	8	13C7-PFUdA	B7L0036-BS1 OPR 0.125	5.00e3	41.4	YES

Name: 171213M1_45, Date: 14-Dec-2017, Time: 03:10:43, ID: B7L0036-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0036-BSD1 LCSD 0.125	9.29e3	87.9	NO
2	2	13C5-PFHxA	B7L0036-BSD1 LCSD 0.125	1.21e4	81.6	NO
3	3	13C3-PFHxS	B7L0036-BSD1 LCSD 0.125	2.94e3	95.7	NO
4	4	13C8-PFOA	B7L0036-BSD1 LCSD 0.125	8.72e3	86.0	NO
5	5	13C9-PFNA	B7L0036-BSD1 LCSD 0.125	6.96e3	72.3	NO
6	6	13C4-PFOS	B7L0036-BSD1 LCSD 0.125	3.22e3	94.4	NO
7	7	13C6-PFDA	B7L0036-BSD1 LCSD 0.125	7.25e3	73.4	NO
8	8	13C7-PFUdA	B7L0036-BSD1 LCSD 0.125	6.89e3	57.0	NO

Name: 171213M1_46, Date: 14-Dec-2017, Time: 03:21:53, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	1.47e1	0.1	YES
8	8	13C7-PFUdA	IPA	1.33e1	0.1	YES

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Name: 171213M1_47, Date: 14-Dec-2017, Time: 03:33:04, ID: B7L0036-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0036-BLK1 Method Blank 0.125	9.21e3	87.2	NO
2	2	13C5-PFHxA	B7L0036-BLK1 Method Blank 0.125	1.31e4	88.7	NO
3	3	13C3-PFHxS	B7L0036-BLK1 Method Blank 0.125	2.82e3	91.8	NO
4	4	13C8-PFOA	B7L0036-BLK1 Method Blank 0.125	1.04e4	102.7	NO
5	5	13C9-PFNA	B7L0036-BLK1 Method Blank 0.125	8.69e3	90.3	NO
6	6	13C4-PFOS	B7L0036-BLK1 Method Blank 0.125	1.46e3	42.6	YES
7	7	13C6-PFDA	B7L0036-BLK1 Method Blank 0.125	4.90e3	49.6	YES
8	8	13C7-PFUdA	B7L0036-BLK1 Method Blank 0.125	2.27e3	18.8	YES

Name: 171213M1_48, Date: 14-Dec-2017, Time: 03:44:15, ID: 1701801-01RE1 REEPDW001 0.12158, Description: REEPDW001

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-01RE1 REEPDW001 0.12158	9.39e3	88.9	NO
2	2	13C5-PFHxA	1701801-01RE1 REEPDW001 0.12158	9.11e3	61.7	NO
3	3	13C3-PFHxS	1701801-01RE1 REEPDW001 0.12158	3.07e3	99.8	NO
4	4	13C8-PFOA	1701801-01RE1 REEPDW001 0.12158	6.01e3	59.3	NO
5	5	13C9-PFNA	1701801-01RE1 REEPDW001 0.12158	5.15e3	53.5	NO
6	6	13C4-PFOS	1701801-01RE1 REEPDW001 0.12158	3.21e3	94.1	NO
7	7	13C6-PFDA	1701801-01RE1 REEPDW001 0.12158	3.61e3	36.6	YES
8	8	13C7-PFUdA	1701801-01RE1 REEPDW001 0.12158	3.53e3	29.2	YES

Name: 171213M1_49, Date: 14-Dec-2017, Time: 03:55:26, ID: 1701801-02RE1 REEPDW001FRB 0.1121, Description: REEPDW001FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-02RE1 REEPDW001FRB 0.1...	8.95e3	84.7	NO
2	2	13C5-PFHxA	1701801-02RE1 REEPDW001FRB 0.1...	1.11e4	75.1	NO
3	3	13C3-PFHxS	1701801-02RE1 REEPDW001FRB 0.1...	3.18e3	103.4	NO
4	4	13C8-PFOA	1701801-02RE1 REEPDW001FRB 0.1...	7.57e3	74.7	NO
5	5	13C9-PFNA	1701801-02RE1 REEPDW001FRB 0.1...	7.05e3	73.3	NO
6	6	13C4-PFOS	1701801-02RE1 REEPDW001FRB 0.1...	2.48e3	72.7	NO
7	7	13C6-PFDA	1701801-02RE1 REEPDW001FRB 0.1...	5.15e3	52.2	NO
8	8	13C7-PFUdA	1701801-02RE1 REEPDW001FRB 0.1...	4.04e3	33.5	YES

Name: 171213M1_50, Date: 14-Dec-2017, Time: 04:06:39, ID: 1701801-03RE1 REEPDW002 0.11884, Description: REEPDW002

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-03RE1 REEPDW002 0.11884	8.30e3	78.5	NO
2	2	13C5-PFHxA	1701801-03RE1 REEPDW002 0.11884	1.01e4	68.6	NO
3	3	13C3-PFHxS	1701801-03RE1 REEPDW002 0.11884	2.93e3	95.4	NO
4	4	13C8-PFOA	1701801-03RE1 REEPDW002 0.11884	6.23e3	61.5	NO
5	5	13C9-PFNA	1701801-03RE1 REEPDW002 0.11884	6.30e3	65.5	NO
6	6	13C4-PFOS	1701801-03RE1 REEPDW002 0.11884	2.47e3	72.4	NO
7	7	13C6-PFDA	1701801-03RE1 REEPDW002 0.11884	4.48e3	45.4	YES
8	8	13C7-PFUdA	1701801-03RE1 REEPDW002 0.11884	3.87e3	32.0	YES

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Name: 171213M1_51, Date: 14-Dec-2017, Time: 04:17:49, ID: 1701801-04RE1 REEPDW002FRB 0.11801, Description: REEPDW002FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-04RE1 REEPDW002FRB 0.1...	9.53e3	90.2	NO
2	2	13C5-PFHxA	1701801-04RE1 REEPDW002FRB 0.1...	1.16e4	78.8	NO
3	3	13C3-PFHxS	1701801-04RE1 REEPDW002FRB 0.1...	2.69e3	87.4	NO
4	4	13C8-PFOA	1701801-04RE1 REEPDW002FRB 0.1...	7.42e3	73.3	NO
5	5	13C9-PFNA	1701801-04RE1 REEPDW002FRB 0.1...	6.41e3	66.6	NO
6	6	13C4-PFOS	1701801-04RE1 REEPDW002FRB 0.1...	2.84e3	83.2	NO
7	7	13C6-PFDA	1701801-04RE1 REEPDW002FRB 0.1...	6.41e3	64.9	NO
8	8	13C7-PFUdA	1701801-04RE1 REEPDW002FRB 0.1...	5.65e3	46.7	YES

Name: 171213M1_52, Date: 14-Dec-2017, Time: 04:29:00, ID: 1701801-05RE1 REEPDW003 0.11809, Description: REEPDW003

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-05RE1 REEPDW003 0.11809	8.65e3	81.9	NO
2	2	13C5-PFHxA	1701801-05RE1 REEPDW003 0.11809	1.02e4	69.3	NO
3	3	13C3-PFHxS	1701801-05RE1 REEPDW003 0.11809	2.93e3	95.2	NO
4	4	13C8-PFOA	1701801-05RE1 REEPDW003 0.11809	7.34e3	72.5	NO
5	5	13C9-PFNA	1701801-05RE1 REEPDW003 0.11809	6.84e3	71.0	NO
6	6	13C4-PFOS	1701801-05RE1 REEPDW003 0.11809	2.86e3	83.7	NO
7	7	13C6-PFDA	1701801-05RE1 REEPDW003 0.11809	4.13e3	41.9	YES
8	8	13C7-PFUdA	1701801-05RE1 REEPDW003 0.11809	3.65e3	30.2	YES

Name: 171213M1_53, Date: 14-Dec-2017, Time: 04:40:11, ID: 1701801-06RE1 REEPDW003FRB 0.12138, Description: REEPDW003FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-06RE1 REEPDW003FRB 0.1...	9.94e3	94.1	NO
2	2	13C5-PFHxA	1701801-06RE1 REEPDW003FRB 0.1...	1.27e4	85.7	NO
3	3	13C3-PFHxS	1701801-06RE1 REEPDW003FRB 0.1...	2.97e3	96.4	NO
4	4	13C8-PFOA	1701801-06RE1 REEPDW003FRB 0.1...	8.69e3	85.8	NO
5	5	13C9-PFNA	1701801-06RE1 REEPDW003FRB 0.1...	7.30e3	75.9	NO
6	6	13C4-PFOS	1701801-06RE1 REEPDW003FRB 0.1...	3.61e3	105.7	NO
7	7	13C6-PFDA	1701801-06RE1 REEPDW003FRB 0.1...	7.89e3	80.0	NO
8	8	13C7-PFUdA	1701801-06RE1 REEPDW003FRB 0.1...	7.87e3	65.1	NO

Name: 171213M1_54, Date: 14-Dec-2017, Time: 04:51:22, ID: 1701801-07RE1 REEPDW004 0.12019, Description: REEPDW004

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-07RE1 REEPDW004 0.12019	8.38e3	79.3	NO
2	2	13C5-PFHxA	1701801-07RE1 REEPDW004 0.12019	9.12e3	61.7	NO
3	3	13C3-PFHxS	1701801-07RE1 REEPDW004 0.12019	3.40e3	110.7	NO
4	4	13C8-PFOA	1701801-07RE1 REEPDW004 0.12019	7.04e3	69.4	NO
5	5	13C9-PFNA	1701801-07RE1 REEPDW004 0.12019	5.94e3	61.7	NO
6	6	13C4-PFOS	1701801-07RE1 REEPDW004 0.12019	2.98e3	87.3	NO
7	7	13C6-PFDA	1701801-07RE1 REEPDW004 0.12019	4.96e3	50.2	NO
8	8	13C7-PFUdA	1701801-07RE1 REEPDW004 0.12019	4.76e3	39.3	YES

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Name: 171213M1_55, Date: 14-Dec-2017, Time: 05:02:32, ID: 1701801-08RE1 REEPDW004FRB 0.11763, Description: REEPDW004FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-08RE1 REEPDW004FRB 0.1...	9.38e3	88.8	NO
2	2	13C5-PFHxA	1701801-08RE1 REEPDW004FRB 0.1...	1.17e4	78.9	NO
3	3	13C3-PFHxS	1701801-08RE1 REEPDW004FRB 0.1...	3.11e3	101.1	NO
4	4	13C8-PFOA	1701801-08RE1 REEPDW004FRB 0.1...	8.84e3	87.2	NO
5	5	13C9-PFNA	1701801-08RE1 REEPDW004FRB 0.1...	7.67e3	79.6	NO
6	6	13C4-PFOS	1701801-08RE1 REEPDW004FRB 0.1...	2.78e3	81.6	NO
7	7	13C6-PFDA	1701801-08RE1 REEPDW004FRB 0.1...	5.57e3	56.5	NO
8	8	13C7-PFUdA	1701801-08RE1 REEPDW004FRB 0.1...	4.73e3	39.2	YES

Name: 171213M1_56, Date: 14-Dec-2017, Time: 05:13:43, ID: 1701801-09RE1 REEPDW005 0.1169, Description: REEPDW005

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-09RE1 REEPDW005 0.1169	9.35e3	88.5	NO
2	2	13C5-PFHxA	1701801-09RE1 REEPDW005 0.1169	1.35e4	91.1	NO
3	3	13C3-PFHxS	1701801-09RE1 REEPDW005 0.1169	3.02e3	98.2	NO
4	4	13C8-PFOA	1701801-09RE1 REEPDW005 0.1169	1.02e4	101.0	NO
5	5	13C9-PFNA	1701801-09RE1 REEPDW005 0.1169	9.21e3	95.7	NO
6	6	13C4-PFOS	1701801-09RE1 REEPDW005 0.1169	2.59e3	76.0	NO
7	7	13C6-PFDA	1701801-09RE1 REEPDW005 0.1169	6.35e3	64.3	NO
8	8	13C7-PFUdA	1701801-09RE1 REEPDW005 0.1169	3.14e3	26.0	YES

Name: 171213M1_57, Date: 14-Dec-2017, Time: 05:24:54, ID: 1701801-10RE1 REEPDW005FRB 0.11621, Description: REEPDW005FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701801-10RE1 REEPDW005FRB 0.1...	9.32e3	88.2	NO
2	2	13C5-PFHxA	1701801-10RE1 REEPDW005FRB 0.1...	1.31e4	88.8	NO
3	3	13C3-PFHxS	1701801-10RE1 REEPDW005FRB 0.1...	2.89e3	93.9	NO
4	4	13C8-PFOA	1701801-10RE1 REEPDW005FRB 0.1...	9.04e3	89.2	NO
5	5	13C9-PFNA	1701801-10RE1 REEPDW005FRB 0.1...	8.71e3	90.5	NO
6	6	13C4-PFOS	1701801-10RE1 REEPDW005FRB 0.1...	2.68e3	78.5	NO
7	7	13C6-PFDA	1701801-10RE1 REEPDW005FRB 0.1...	6.98e3	70.7	NO
8	8	13C7-PFUdA	1701801-10RE1 REEPDW005FRB 0.1...	3.95e3	32.7	YES

Name: 171213M1_58, Date: 14-Dec-2017, Time: 05:36:05, ID: 1701819-01 REEPDW013 0.11892, Description: REEPDW013

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-01 REEPDW013 0.11892	8.77e3	83.1	NO
2	2	13C5-PFHxA	1701819-01 REEPDW013 0.11892	9.07e3	61.3	NO
3	3	13C3-PFHxS	1701819-01 REEPDW013 0.11892	2.76e3	89.8	NO
4	4	13C8-PFOA	1701819-01 REEPDW013 0.11892	6.37e3	62.9	NO
5	5	13C9-PFNA	1701819-01 REEPDW013 0.11892	6.07e3	63.1	NO
6	6	13C4-PFOS	1701819-01 REEPDW013 0.11892	2.91e3	85.2	NO
7	7	13C6-PFDA	1701819-01 REEPDW013 0.11892	3.96e3	40.2	YES
8	8	13C7-PFUdA	1701819-01 REEPDW013 0.11892	2.76e3	22.8	YES

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Name: 171213M1_59, Date: 14-Dec-2017, Time: 05:47:15, ID: 1701819-02 REEPDW013FRB 0.11964, Description: REEPDW013FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-02 REEPDW013FRB 0.11964	9.44e3	89.4	NO
2	2	13C5-PFHxA	1701819-02 REEPDW013FRB 0.11964	1.25e4	84.8	NO
3	3	13C3-PFHxS	1701819-02 REEPDW013FRB 0.11964	3.18e3	103.4	NO
4	4	13C8-PFOA	1701819-02 REEPDW013FRB 0.11964	9.94e3	98.1	NO
5	5	13C9-PFNA	1701819-02 REEPDW013FRB 0.11964	8.58e3	89.2	NO
6	6	13C4-PFOS	1701819-02 REEPDW013FRB 0.11964	2.86e3	83.9	NO
7	7	13C6-PFDA	1701819-02 REEPDW013FRB 0.11964	7.05e3	71.4	NO
8	8	13C7-PFUdA	1701819-02 REEPDW013FRB 0.11964	4.68e3	38.8	YES

Name: 171213M1_60, Date: 14-Dec-2017, Time: 05:58:26, ID: 1701819-03 REEPDW014 0.11704, Description: REEPDW014

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-03 REEPDW014 0.11704	7.63e3	72.2	NO
2	2	13C5-PFHxA	1701819-03 REEPDW014 0.11704	7.84e3	53.1	NO
3	3	13C3-PFHxS	1701819-03 REEPDW014 0.11704	2.98e3	97.0	NO
4	4	13C8-PFOA	1701819-03 REEPDW014 0.11704	5.84e3	57.6	NO
5	5	13C9-PFNA	1701819-03 REEPDW014 0.11704	5.41e3	56.2	NO
6	6	13C4-PFOS	1701819-03 REEPDW014 0.11704	3.20e3	93.8	NO
7	7	13C6-PFDA	1701819-03 REEPDW014 0.11704	3.97e3	40.2	YES
8	8	13C7-PFUdA	1701819-03 REEPDW014 0.11704	2.93e3	24.2	YES

Name: 171213M1_61, Date: 14-Dec-2017, Time: 06:09:37, ID: 1701819-04 REEPDW014FRB 0.11939, Description: REEPDW014FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-04 REEPDW014FRB 0.11939	9.31e3	88.1	NO
2	2	13C5-PFHxA	1701819-04 REEPDW014FRB 0.11939	1.17e4	79.1	NO
3	3	13C3-PFHxS	1701819-04 REEPDW014FRB 0.11939	2.54e3	82.5	NO
4	4	13C8-PFOA	1701819-04 REEPDW014FRB 0.11939	8.05e3	79.5	NO
5	5	13C9-PFNA	1701819-04 REEPDW014FRB 0.11939	7.13e3	74.1	NO
6	6	13C4-PFOS	1701819-04 REEPDW014FRB 0.11939	2.63e3	77.1	NO
7	7	13C6-PFDA	1701819-04 REEPDW014FRB 0.11939	5.30e3	53.7	NO
8	8	13C7-PFUdA	1701819-04 REEPDW014FRB 0.11939	4.73e3	39.2	YES

Name: 171213M1_62, Date: 14-Dec-2017, Time: 06:20:47, ID: 1701819-05 REEPDW015 0.11892, Description: REEPDW015

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-05 REEPDW015 0.11892	8.31e3	78.6	NO
2	2	13C5-PFHxA	1701819-05 REEPDW015 0.11892	8.89e3	60.1	NO
3	3	13C3-PFHxS	1701819-05 REEPDW015 0.11892	3.17e3	102.9	NO
4	4	13C8-PFOA	1701819-05 REEPDW015 0.11892	6.01e3	59.3	NO
5	5	13C9-PFNA	1701819-05 REEPDW015 0.11892	6.43e3	66.8	NO
6	6	13C4-PFOS	1701819-05 REEPDW015 0.11892	3.46e3	101.4	NO
7	7	13C6-PFDA	1701819-05 REEPDW015 0.11892	4.34e3	44.0	YES
8	8	13C7-PFUdA	1701819-05 REEPDW015 0.11892	4.71e3	39.0	YES

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Name: 171213M1_63, Date: 14-Dec-2017, Time: 06:31:58, ID: 1701819-06 REEPDW015FRB 0.11896, Description: REEPDW015FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-06 REEPDW015FRB 0.11896	7.07e3	66.9	NO
2	2	13C5-PFHxA	1701819-06 REEPDW015FRB 0.11896	1.01e4	68.5	NO
3	3	13C3-PFHxS	1701819-06 REEPDW015FRB 0.11896	2.88e3	93.7	NO
4	4	13C8-PFOA	1701819-06 REEPDW015FRB 0.11896	8.74e3	86.2	NO
5	5	13C9-PFNA	1701819-06 REEPDW015FRB 0.11896	7.28e3	75.6	NO
6	6	13C4-PFOS	1701819-06 REEPDW015FRB 0.11896	2.85e3	83.4	NO
7	7	13C6-PFDA	1701819-06 REEPDW015FRB 0.11896	5.35e3	54.2	NO
8	8	13C7-PFUdA	1701819-06 REEPDW015FRB 0.11896	4.70e3	38.9	YES

Name: 171213M1_64, Date: 14-Dec-2017, Time: 06:43:09, ID: 1701819-07 REEPDW016 0.11777, Description: REEPDW016

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-07 REEPDW016 0.11777	8.39e3	79.4	NO
2	2	13C5-PFHxA	1701819-07 REEPDW016 0.11777	7.41e3	50.2	NO
3	3	13C3-PFHxS	1701819-07 REEPDW016 0.11777	3.60e3	117.1	NO
4	4	13C8-PFOA	1701819-07 REEPDW016 0.11777	4.50e3	44.4	YES
5	5	13C9-PFNA	1701819-07 REEPDW016 0.11777	4.88e3	50.7	NO
6	6	13C4-PFOS	1701819-07 REEPDW016 0.11777	3.13e3	91.7	NO
7	7	13C6-PFDA	1701819-07 REEPDW016 0.11777	3.28e3	33.2	YES
8	8	13C7-PFUdA	1701819-07 REEPDW016 0.11777	2.49e3	20.6	YES

Name: 171213M1_65, Date: 14-Dec-2017, Time: 06:54:19, ID: 1701819-08 REEPDW016FRB 0.11958, Description: REEPDW016FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-08 REEPDW016FRB 0.11958	9.57e3	90.6	NO
2	2	13C5-PFHxA	1701819-08 REEPDW016FRB 0.11958	1.29e4	87.6	NO
3	3	13C3-PFHxS	1701819-08 REEPDW016FRB 0.11958	2.82e3	91.7	NO
4	4	13C8-PFOA	1701819-08 REEPDW016FRB 0.11958	7.94e3	78.4	NO
5	5	13C9-PFNA	1701819-08 REEPDW016FRB 0.11958	8.66e3	90.0	NO
6	6	13C4-PFOS	1701819-08 REEPDW016FRB 0.11958	2.54e3	74.3	NO
7	7	13C6-PFDA	1701819-08 REEPDW016FRB 0.11958	5.07e3	51.4	NO
8	8	13C7-PFUdA	1701819-08 REEPDW016FRB 0.11958	4.33e3	35.8	YES

Name: 171213M1_66, Date: 14-Dec-2017, Time: 07:05:30, ID: 1701819-09 REEPDW017 0.11912, Description: REEPDW017

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-09 REEPDW017 0.11912	8.43e3	79.8	NO
2	2	13C5-PFHxA	1701819-09 REEPDW017 0.11912	9.24e3	62.5	NO
3	3	13C3-PFHxS	1701819-09 REEPDW017 0.11912	2.63e3	85.5	NO
4	4	13C8-PFOA	1701819-09 REEPDW017 0.11912	6.28e3	62.0	NO
5	5	13C9-PFNA	1701819-09 REEPDW017 0.11912	5.90e3	61.3	NO
6	6	13C4-PFOS	1701819-09 REEPDW017 0.11912	2.72e3	79.8	NO
7	7	13C6-PFDA	1701819-09 REEPDW017 0.11912	4.04e3	40.9	YES
8	8	13C7-PFUdA	1701819-09 REEPDW017 0.11912	3.99e3	33.0	YES

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Name: 171213M1_67, Date: 14-Dec-2017, Time: 07:16:41, ID: 1701819-10 REEPDW017FRB 0.11315, Description: REEPDW017FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701819-10 REEPDW017FRB 0.11315	8.97e3	84.9	NO
2	2	13C5-PFHxA	1701819-10 REEPDW017FRB 0.11315	1.23e4	83.0	NO
3	3	13C3-PFHxS	1701819-10 REEPDW017FRB 0.11315	2.62e3	85.3	NO
4	4	13C8-PFOA	1701819-10 REEPDW017FRB 0.11315	8.12e3	80.1	NO
5	5	13C9-PFNA	1701819-10 REEPDW017FRB 0.11315	7.32e3	76.0	NO
6	6	13C4-PFOS	1701819-10 REEPDW017FRB 0.11315	2.62e3	76.8	NO
7	7	13C6-PFDA	1701819-10 REEPDW017FRB 0.11315	5.28e3	53.5	NO
8	8	13C7-PFUdA	1701819-10 REEPDW017FRB 0.11315	3.00e3	24.8	YES

Name: 171213M1_68, Date: 14-Dec-2017, Time: 07:27:52, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA	6.67e0	0.2	YES
7	7	13C6-PFDA	IPA	9.59e0	0.1	YES
8	8	13C7-PFUdA	IPA	2.37e1	0.2	YES

Name: 171213M1_69, Date: 14-Dec-2017, Time: 07:39:02, ID: ST171213M1-13 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST171213M1-13 PFC CS3 17L0509	1.12e4	105.9	NO
2	2	13C5-PFHxA	ST171213M1-13 PFC CS3 17L0509	1.54e4	104.5	NO
3	3	13C3-PFHxS	ST171213M1-13 PFC CS3 17L0509	3.39e3	110.4	NO
4	4	13C8-PFOA	ST171213M1-13 PFC CS3 17L0509	1.14e4	112.9	NO
5	5	13C9-PFNA	ST171213M1-13 PFC CS3 17L0509	1.61e4	167.7	YES
6	6	13C4-PFOS	ST171213M1-13 PFC CS3 17L0509	3.50e3	102.6	NO
7	7	13C6-PFDA	ST171213M1-13 PFC CS3 17L0509	1.07e4	108.9	NO
8	8	13C7-PFUdA	ST171213M1-13 PFC CS3 17L0509	1.17e4	96.5	NO

Name: 171213M1_70, Date: 14-Dec-2017, Time: 07:50:13, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA	8.12e0	0.1	YES
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	7.02e0	0.1	YES
8	8	13C7-PFUdA	IPA			NO

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Name: 171213M1_71, Date: 14-Dec-2017, Time: 08:01:26, ID: B7L0001-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0001-BS1 OPR 0.25	7.46e3	70.6	NO
2	2	13C5-PFHxA	B7L0001-BS1 OPR 0.25	1.16e4	78.6	NO
3	3	13C3-PFHxS	B7L0001-BS1 OPR 0.25	2.71e3	88.1	NO
4	4	13C8-PFOA	B7L0001-BS1 OPR 0.25	8.81e3	87.0	NO
5	5	13C9-PFNA	B7L0001-BS1 OPR 0.25	8.71e3	90.5	NO
6	6	13C4-PFOS	B7L0001-BS1 OPR 0.25	2.53e3	74.2	NO
7	7	13C6-PFDA	B7L0001-BS1 OPR 0.25	8.39e3	85.0	NO
8	8	13C7-PFUdA	B7L0001-BS1 OPR 0.25	9.42e3	78.0	NO

Name: 171213M1_72, Date: 14-Dec-2017, Time: 08:12:39, ID: B7L0001-BSD1 LCSD 0.25, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0001-BSD1 LCSD 0.25	6.04e3	57.2	NO
2	2	13C5-PFHxA	B7L0001-BSD1 LCSD 0.25	8.80e3	59.5	NO
3	3	13C3-PFHxS	B7L0001-BSD1 LCSD 0.25	1.67e3	54.4	NO
4	4	13C8-PFOA	B7L0001-BSD1 LCSD 0.25	6.42e3	63.4	NO
5	5	13C9-PFNA	B7L0001-BSD1 LCSD 0.25	6.34e3	65.9	NO
6	6	13C4-PFOS	B7L0001-BSD1 LCSD 0.25	2.03e3	59.4	NO
7	7	13C6-PFDA	B7L0001-BSD1 LCSD 0.25	6.63e3	67.1	NO
8	8	13C7-PFUdA	B7L0001-BSD1 LCSD 0.25	8.55e3	70.8	NO

Name: 171213M1_73, Date: 14-Dec-2017, Time: 08:23:48, ID: B7L0024-BS1 OPR 1, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0024-BS1 OPR 1	7.81e3	73.9	NO
2	2	13C5-PFHxA	B7L0024-BS1 OPR 1	1.06e4	71.9	NO
3	3	13C3-PFHxS	B7L0024-BS1 OPR 1	2.36e3	76.7	NO
4	4	13C8-PFOA	B7L0024-BS1 OPR 1	8.00e3	79.0	NO
5	5	13C9-PFNA	B7L0024-BS1 OPR 1	6.91e3	71.8	NO
6	6	13C4-PFOS	B7L0024-BS1 OPR 1	3.10e3	90.7	NO
7	7	13C6-PFDA	B7L0024-BS1 OPR 1	7.53e3	76.3	NO
8	8	13C7-PFUdA	B7L0024-BS1 OPR 1	8.99e3	74.4	NO

Name: 171213M1_74, Date: 14-Dec-2017, Time: 08:34:58, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA	5.58e0	0.1	YES
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	8.12e0	0.1	YES
8	8	13C7-PFUdA	IPA	2.49e1	0.2	YES

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Name: 171213M1_75, Date: 14-Dec-2017, Time: 08:46:09, ID: B7L0001-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0001-BLK1 Method Blank 0.25	7.06e3	66.9	NO
2	2	13C5-PFHxA	B7L0001-BLK1 Method Blank 0.25	1.07e4	72.4	NO
3	3	13C3-PFHxS	B7L0001-BLK1 Method Blank 0.25	2.25e3	73.2	NO
4	4	13C8-PFOA	B7L0001-BLK1 Method Blank 0.25	7.73e3	76.3	NO
5	5	13C9-PFNA	B7L0001-BLK1 Method Blank 0.25	8.57e3	89.0	NO
6	6	13C4-PFOS	B7L0001-BLK1 Method Blank 0.25	2.57e3	75.3	NO
7	7	13C6-PFDA	B7L0001-BLK1 Method Blank 0.25	6.70e3	67.9	NO
8	8	13C7-PFUdA	B7L0001-BLK1 Method Blank 0.25	7.85e3	65.0	NO

Name: 171213M1_76, Date: 14-Dec-2017, Time: 08:57:20, ID: B7L0024-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B7L0024-BLK1 Method Blank 1	7.16e3	67.8	NO
2	2	13C5-PFHxA	B7L0024-BLK1 Method Blank 1	9.94e3	67.3	NO
3	3	13C3-PFHxS	B7L0024-BLK1 Method Blank 1	2.24e3	72.7	NO
4	4	13C8-PFOA	B7L0024-BLK1 Method Blank 1	7.49e3	73.9	NO
5	5	13C9-PFNA	B7L0024-BLK1 Method Blank 1	8.33e3	86.6	NO
6	6	13C4-PFOS	B7L0024-BLK1 Method Blank 1	2.88e3	84.5	NO
7	7	13C6-PFDA	B7L0024-BLK1 Method Blank 1	6.26e3	63.5	NO
8	8	13C7-PFUdA	B7L0024-BLK1 Method Blank 1	9.95e3	82.3	NO

Name: 171213M1_77, Date: 14-Dec-2017, Time: 09:08:31, ID: 1701783-01 DPH-EX4 0.11888, Description: DPH-EX4

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-01 DPH-EX4 0.11888	7.06e3	66.9	NO
2	2	13C5-PFHxA	1701783-01 DPH-EX4 0.11888	1.07e4	72.4	NO
3	3	13C3-PFHxS	1701783-01 DPH-EX4 0.11888	2.36e3	76.6	NO
4	4	13C8-PFOA	1701783-01 DPH-EX4 0.11888	8.49e3	83.8	NO
5	5	13C9-PFNA	1701783-01 DPH-EX4 0.11888	7.67e3	79.7	NO
6	6	13C4-PFOS	1701783-01 DPH-EX4 0.11888	3.16e3	92.6	NO
7	7	13C6-PFDA	1701783-01 DPH-EX4 0.11888	7.31e3	74.1	NO
8	8	13C7-PFUdA	1701783-01 DPH-EX4 0.11888	7.51e3	62.1	NO

Name: 171213M1_78, Date: 14-Dec-2017, Time: 09:19:42, ID: 1701783-02 DPH-B7 0.12021, Description: DPH-B7

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-02 DPH-B7 0.12021	6.54e3	61.9	NO
2	2	13C5-PFHxA	1701783-02 DPH-B7 0.12021	1.06e4	72.0	NO
3	3	13C3-PFHxS	1701783-02 DPH-B7 0.12021	2.22e3	72.1	NO
4	4	13C8-PFOA	1701783-02 DPH-B7 0.12021	7.56e3	74.6	NO
5	5	13C9-PFNA	1701783-02 DPH-B7 0.12021	7.48e3	77.7	NO
6	6	13C4-PFOS	1701783-02 DPH-B7 0.12021	2.80e3	81.9	NO
7	7	13C6-PFDA	1701783-02 DPH-B7 0.12021	6.94e3	70.3	NO
8	8	13C7-PFUdA	1701783-02 DPH-B7 0.12021	8.17e3	67.6	NO

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Name: 171213M1_79, Date: 14-Dec-2017, Time: 09:30:52, ID: 1701783-03 DPH-MW1-17 0.11836, Description: DPH-MW1-17

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-03 DPH-MW1-17 0.11836	7.18e3	67.9	NO
2	2	13C5-PFHxA	1701783-03 DPH-MW1-17 0.11836	1.10e4	74.1	NO
3	3	13C3-PFHxS	1701783-03 DPH-MW1-17 0.11836	2.61e3	84.8	NO
4	4	13C8-PFOA	1701783-03 DPH-MW1-17 0.11836	8.05e3	79.4	NO
5	5	13C9-PFNA	1701783-03 DPH-MW1-17 0.11836	8.43e3	87.6	NO
6	6	13C4-PFOS	1701783-03 DPH-MW1-17 0.11836	2.97e3	87.1	NO
7	7	13C6-PFDA	1701783-03 DPH-MW1-17 0.11836	9.00e3	91.2	NO
8	8	13C7-PFUdA	1701783-03 DPH-MW1-17 0.11836	9.80e3	81.1	NO

Name: 171213M1_80, Date: 14-Dec-2017, Time: 09:42:03, ID: 1701783-04 DPH-MW1 0.11784, Description: DPH-MW1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-04 DPH-MW1 0.11784	8.28e3	78.3	NO
2	2	13C5-PFHxA	1701783-04 DPH-MW1 0.11784	1.20e4	80.9	NO
3	3	13C3-PFHxS	1701783-04 DPH-MW1 0.11784	2.79e3	90.7	NO
4	4	13C8-PFOA	1701783-04 DPH-MW1 0.11784	8.74e3	86.3	NO
5	5	13C9-PFNA	1701783-04 DPH-MW1 0.11784	9.96e3	103.4	NO
6	6	13C4-PFOS	1701783-04 DPH-MW1 0.11784	3.41e3	99.9	NO
7	7	13C6-PFDA	1701783-04 DPH-MW1 0.11784	1.03e4	103.9	NO
8	8	13C7-PFUdA	1701783-04 DPH-MW1 0.11784	9.94e3	82.3	NO

Name: 171213M1_81, Date: 14-Dec-2017, Time: 09:53:14, ID: 1701783-05 DPH-MW3-17 0.11648, Description: DPH-MW3-17

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-05 DPH-MW3-17 0.11648	6.41e3	60.7	NO
2	2	13C5-PFHxA	1701783-05 DPH-MW3-17 0.11648	9.64e3	65.2	NO
3	3	13C3-PFHxS	1701783-05 DPH-MW3-17 0.11648	2.36e3	76.6	NO
4	4	13C8-PFOA	1701783-05 DPH-MW3-17 0.11648	7.04e3	69.4	NO
5	5	13C9-PFNA	1701783-05 DPH-MW3-17 0.11648	7.58e3	78.8	NO
6	6	13C4-PFOS	1701783-05 DPH-MW3-17 0.11648	2.67e3	78.3	NO
7	7	13C6-PFDA	1701783-05 DPH-MW3-17 0.11648	6.58e3	66.6	NO
8	8	13C7-PFUdA	1701783-05 DPH-MW3-17 0.11648	1.02e4	84.1	NO

Name: 171213M1_82, Date: 14-Dec-2017, Time: 10:07:54, ID: 1701783-06 DPH-#105 0.1146, Description: DPH-#105

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-06 DPH-#105 0.1146	6.55e3	62.0	NO
2	2	13C5-PFHxA	1701783-06 DPH-#105 0.1146	1.00e4	68.0	NO
3	3	13C3-PFHxS	1701783-06 DPH-#105 0.1146	2.40e3	78.0	NO
4	4	13C8-PFOA	1701783-06 DPH-#105 0.1146	8.10e3	79.9	NO
5	5	13C9-PFNA	1701783-06 DPH-#105 0.1146	7.35e3	76.3	NO
6	6	13C4-PFOS	1701783-06 DPH-#105 0.1146	2.22e3	65.2	NO
7	7	13C6-PFDA	1701783-06 DPH-#105 0.1146	7.11e3	72.0	NO
8	8	13C7-PFUdA	1701783-06 DPH-#105 0.1146	9.39e3	77.7	NO

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Name: 171213M1_83, Date: 14-Dec-2017, Time: 10:19:05, ID: 1701783-07 DPH-IRELAND 0.11589, Description: DPH-IRELAND

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-07 DPH-IRELAND 0.11589	7.60e3	72.0	NO
2	2	13C5-PFHxA	1701783-07 DPH-IRELAND 0.11589	1.14e4	77.1	NO
3	3	13C3-PFHxS	1701783-07 DPH-IRELAND 0.11589	2.74e3	89.2	NO
4	4	13C8-PFOA	1701783-07 DPH-IRELAND 0.11589	8.72e3	86.0	NO
5	5	13C9-PFNA	1701783-07 DPH-IRELAND 0.11589	1.08e4	112.3	NO
6	6	13C4-PFOS	1701783-07 DPH-IRELAND 0.11589	2.95e3	86.5	NO
7	7	13C6-PFDA	1701783-07 DPH-IRELAND 0.11589	8.31e3	84.2	NO
8	8	13C7-PFUdA	1701783-07 DPH-IRELAND 0.11589	9.84e3	81.4	NO

Name: 171213M1_84, Date: 14-Dec-2017, Time: 10:30:16, ID: 1701783-08 DPH-7 0.11584, Description: DPH-7

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701783-08 DPH-7 0.11584	6.60e3	62.5	NO
2	2	13C5-PFHxA	1701783-08 DPH-7 0.11584	1.03e4	69.9	NO
3	3	13C3-PFHxS	1701783-08 DPH-7 0.11584	2.65e3	86.2	NO
4	4	13C8-PFOA	1701783-08 DPH-7 0.11584	7.49e3	73.9	NO
5	5	13C9-PFNA	1701783-08 DPH-7 0.11584	7.97e3	82.8	NO
6	6	13C4-PFOS	1701783-08 DPH-7 0.11584	2.59e3	75.8	NO
7	7	13C6-PFDA	1701783-08 DPH-7 0.11584	6.25e3	63.3	NO
8	8	13C7-PFUdA	1701783-08 DPH-7 0.11584	6.75e3	55.8	NO

Name: 171213M1_85, Date: 14-Dec-2017, Time: 10:41:27, ID: 1701796-01 GW0307171122RAP 0.25477, Description: GW0307171122RAP

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701796-01 GW0307171122RAP 0.254...	7.45e3	70.6	NO
2	2	13C5-PFHxA	1701796-01 GW0307171122RAP 0.254...	1.10e4	74.6	NO
3	3	13C3-PFHxS	1701796-01 GW0307171122RAP 0.254...	2.39e3	77.6	NO
4	4	13C8-PFOA	1701796-01 GW0307171122RAP 0.254...	7.15e3	70.6	NO
5	5	13C9-PFNA	1701796-01 GW0307171122RAP 0.254...	7.72e3	80.2	NO
6	6	13C4-PFOS	1701796-01 GW0307171122RAP 0.254...	2.63e3	76.9	NO
7	7	13C6-PFDA	1701796-01 GW0307171122RAP 0.254...	7.59e3	76.9	NO
8	8	13C7-PFUdA	1701796-01 GW0307171122RAP 0.254...	8.45e3	69.9	NO

Name: 171213M1_86, Date: 14-Dec-2017, Time: 10:52:37, ID: 1701796-02 GW1317171122RAP 0.25681, Description: GW1317171122RAP

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1701796-02 GW1317171122RAP 0.256...	7.40e3	70.0	NO
2	2	13C5-PFHxA	1701796-02 GW1317171122RAP 0.256...	1.14e4	77.0	NO
3	3	13C3-PFHxS	1701796-02 GW1317171122RAP 0.256...	2.46e3	80.0	NO
4	4	13C8-PFOA	1701796-02 GW1317171122RAP 0.256...	8.89e3	87.7	NO
5	5	13C9-PFNA	1701796-02 GW1317171122RAP 0.256...	8.86e3	92.0	NO
6	6	13C4-PFOS	1701796-02 GW1317171122RAP 0.256...	3.31e3	97.1	NO
7	7	13C6-PFDA	1701796-02 GW1317171122RAP 0.256...	7.96e3	80.7	NO
8	8	13C7-PFUdA	1701796-02 GW1317171122RAP 0.256...	9.85e3	81.5	NO

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Name: 171213M1_87, Date: 14-Dec-2017, Time: 11:03:48, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	1.11e1	0.1	YES
8	8	13C7-PFUdA	IPA	1.36e1	0.1	YES

Name: 171213M1_88, Date: 14-Dec-2017, Time: 11:14:59, ID: ST171213M1-14 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST171213M1-14 PFC CS3 17L0509	1.17e4	110.8	NO
2	2	13C5-PFHxA	ST171213M1-14 PFC CS3 17L0509	1.58e4	107.1	NO
3	3	13C3-PFHxS	ST171213M1-14 PFC CS3 17L0509	3.29e3	106.8	NO
4	4	13C8-PFOA	ST171213M1-14 PFC CS3 17L0509	1.33e4	130.9	NO
5	5	13C9-PFNA	ST171213M1-14 PFC CS3 17L0509	1.16e4	120.7	NO
6	6	13C4-PFOS	ST171213M1-14 PFC CS3 17L0509	3.73e3	109.4	NO
7	7	13C6-PFDA	ST171213M1-14 PFC CS3 17L0509	1.07e4	108.9	NO
8	8	13C7-PFUdA	ST171213M1-14 PFC CS3 17L0509	1.35e4	111.4	NO

Name: 171213M1_89, Date: 14-Dec-2017, Time: 11:26:09, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA	5.21e0	0.1	YES
6	6	13C4-PFOS	IPA	5.69e0	0.2	YES
7	7	13C6-PFDA	IPA	1.30e1	0.1	YES
8	8	13C7-PFUdA	IPA	2.49e1	0.2	YES

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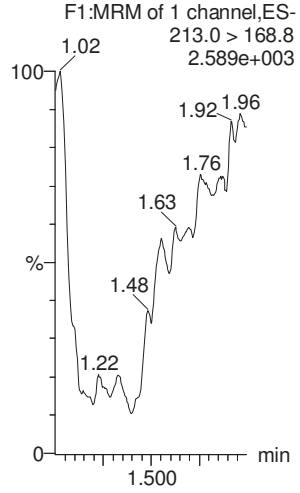
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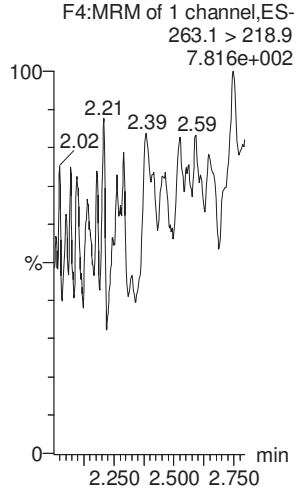
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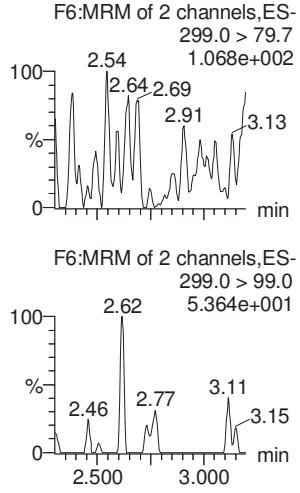
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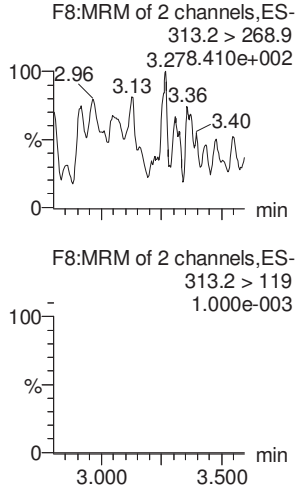
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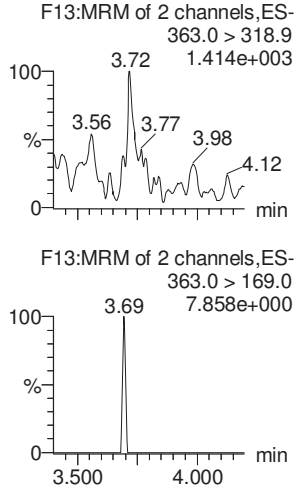
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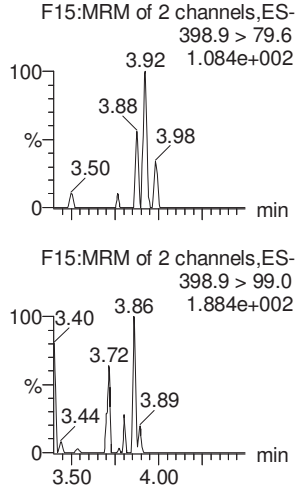
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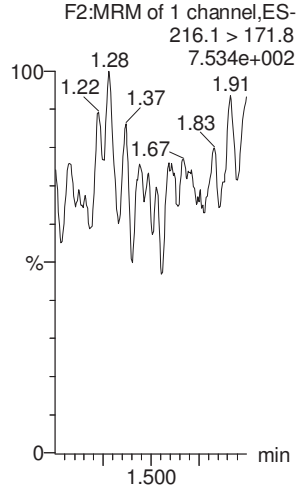
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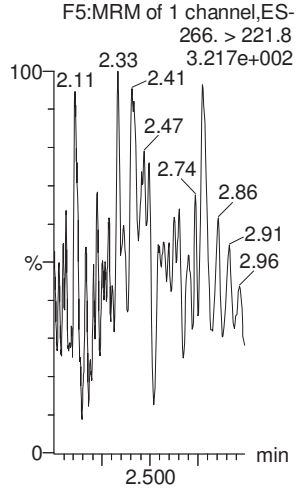
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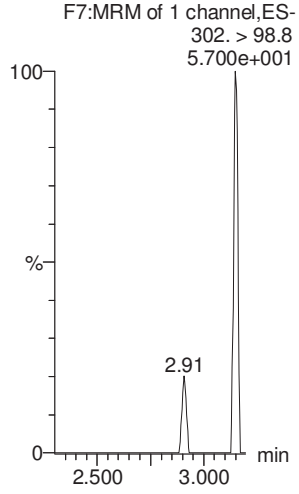
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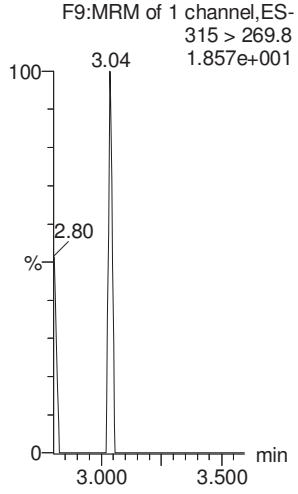
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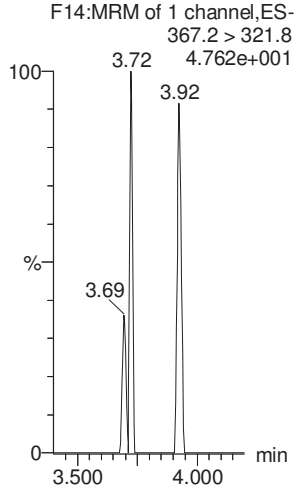
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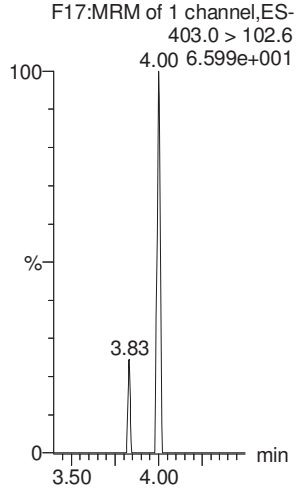
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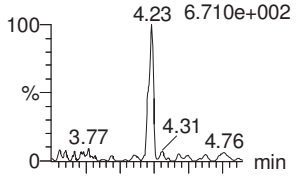
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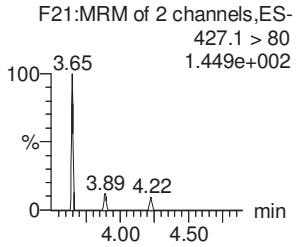
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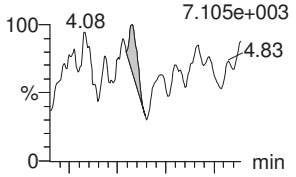
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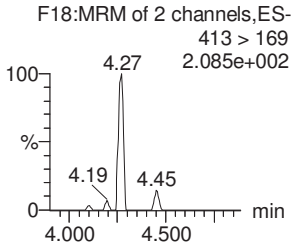
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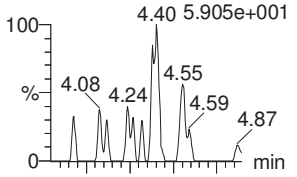


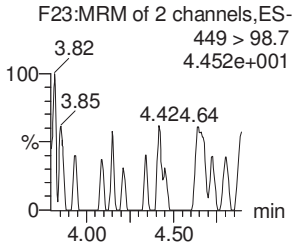
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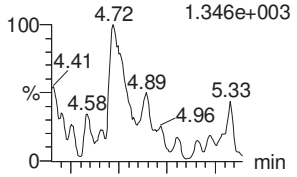


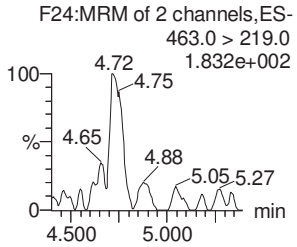
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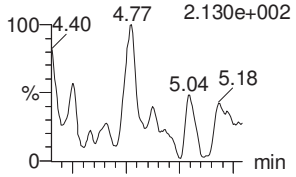


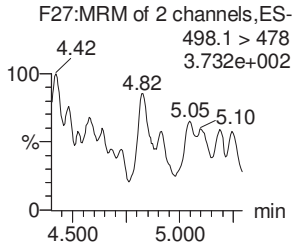
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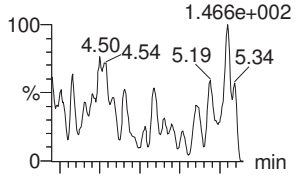


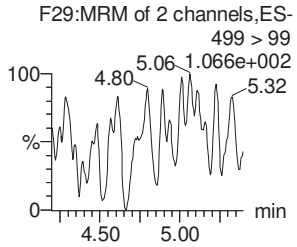
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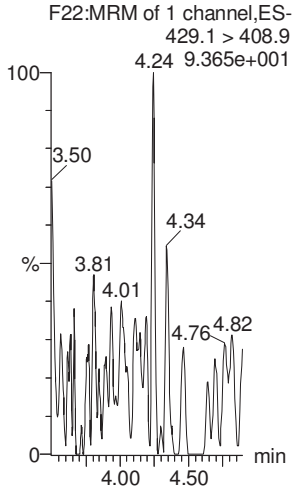


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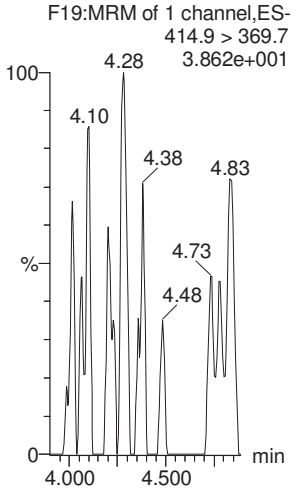




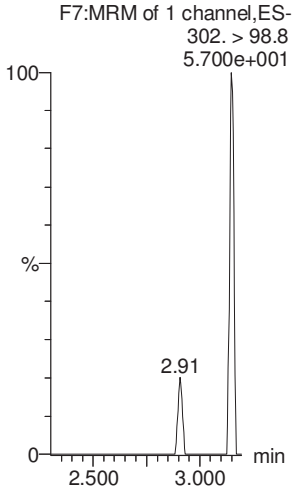
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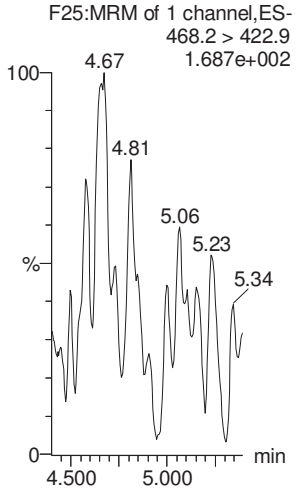
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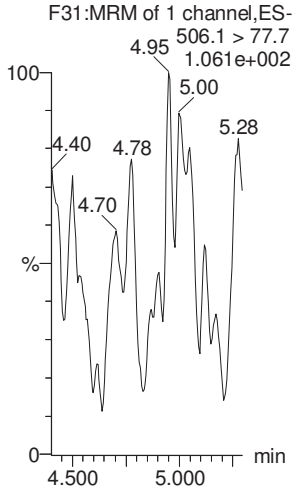
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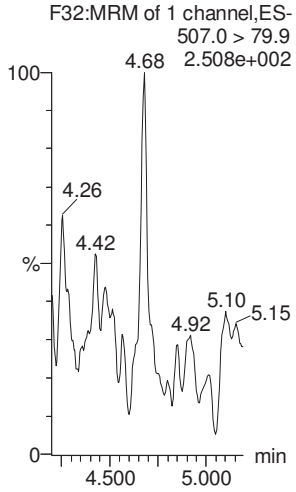
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13C8-PFOSA



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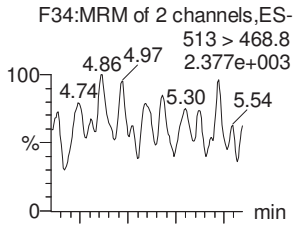
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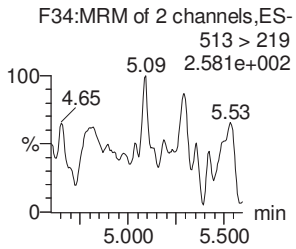
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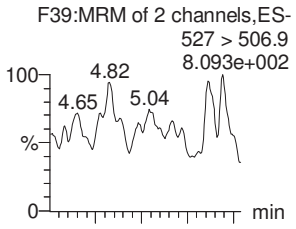
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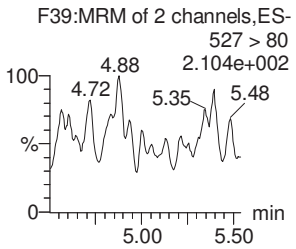
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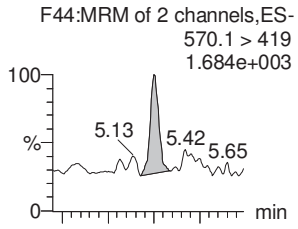


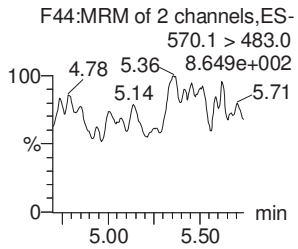
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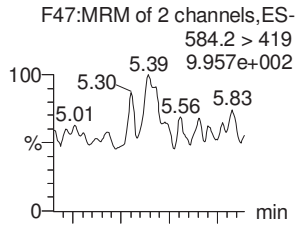


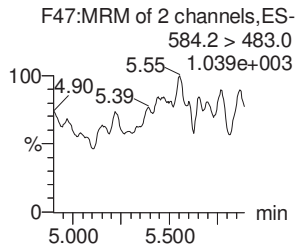
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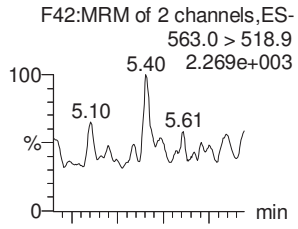


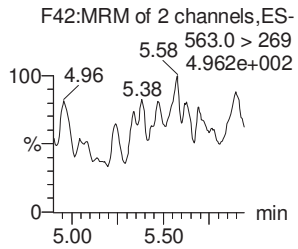
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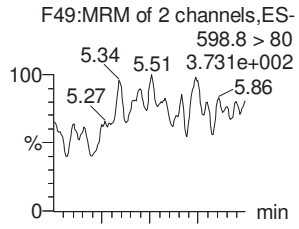


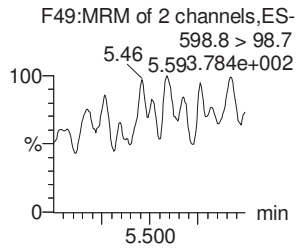
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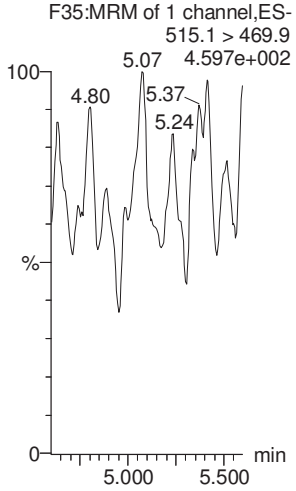


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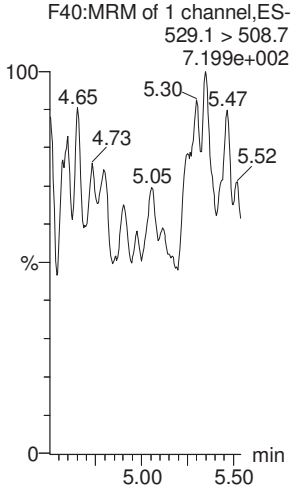




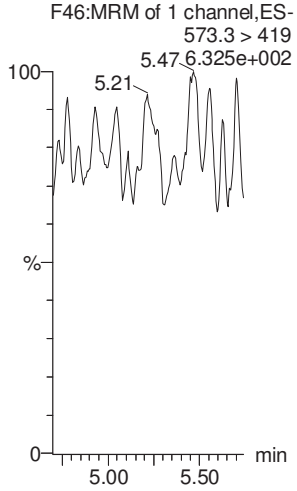
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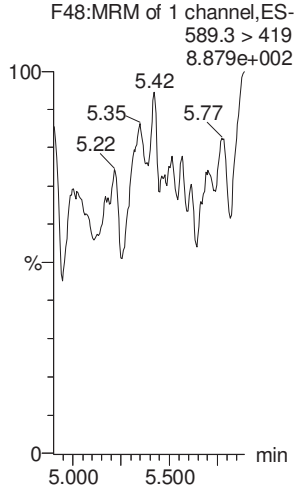
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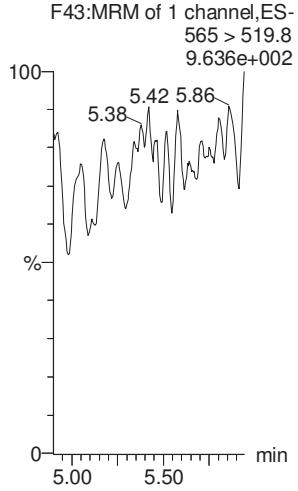
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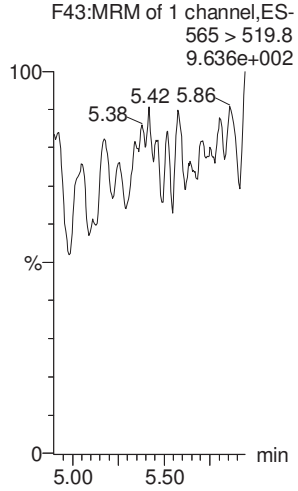
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13C2-PFUdA



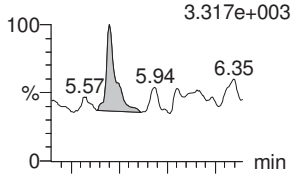
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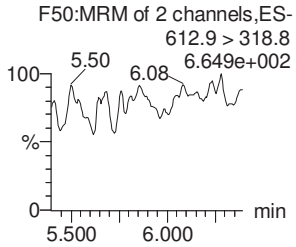
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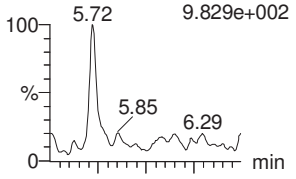
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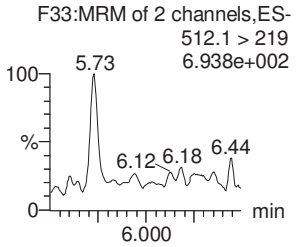
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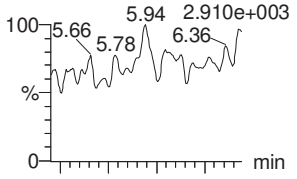


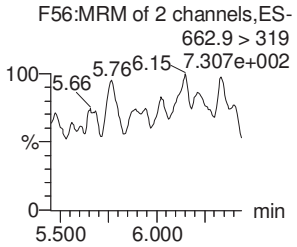
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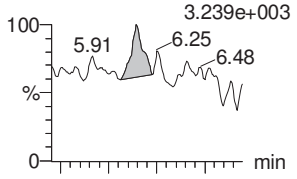


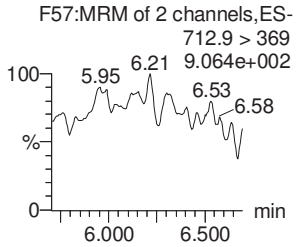
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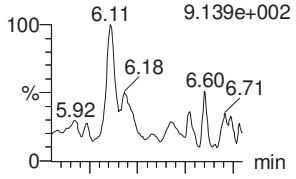


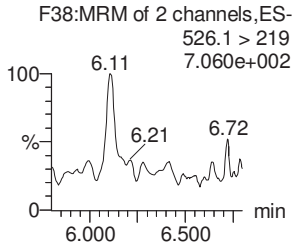
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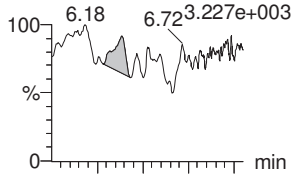


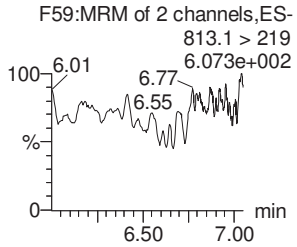
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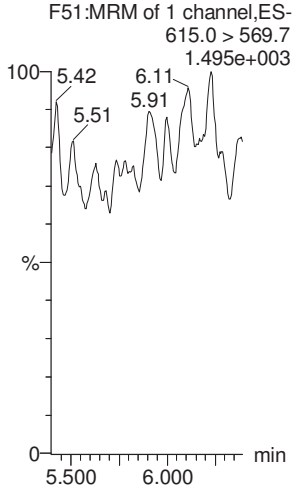


PFHxDA

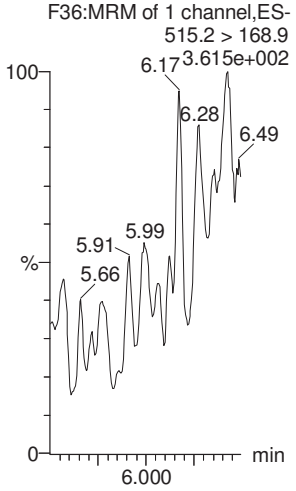




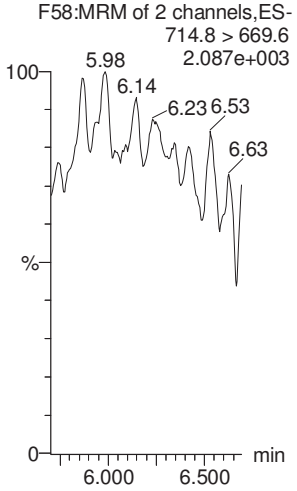
13C2-PFDoA



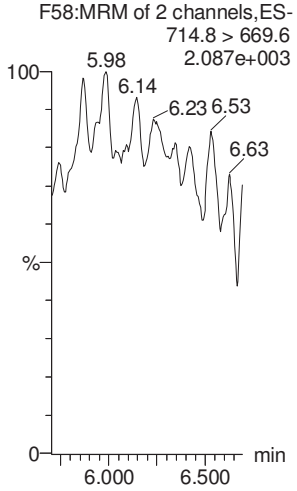
d3-N-MeFOSA



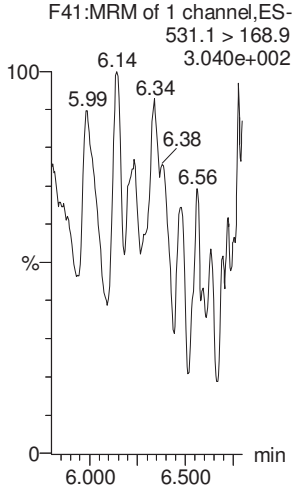
13C2-PFTeDA



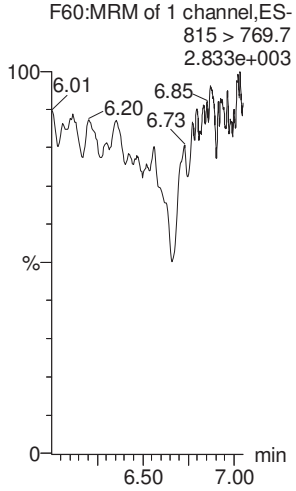
13C2-PFTeDA



d5-N-ETFOSA



13C2-PFHxDA



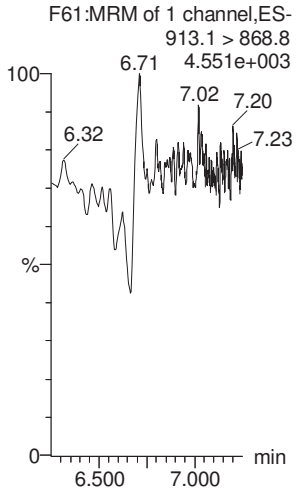
AC 12/14/17

Dataset: U:\Q4.PRO\results\171213M1\171213M1-12.qld

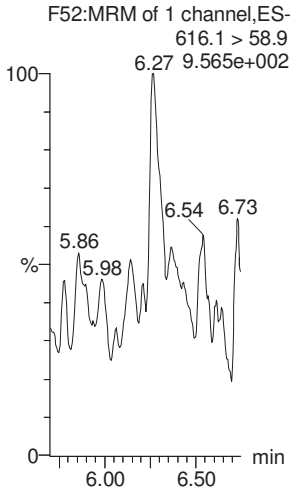
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Printed: Thursday, December 14, 2017 11:32:05 Pacific Standard Time

Name: 171213M1_12, Date: 13-Dec-2017, Time: 21:01:50, ID: IPA, Description: IPA

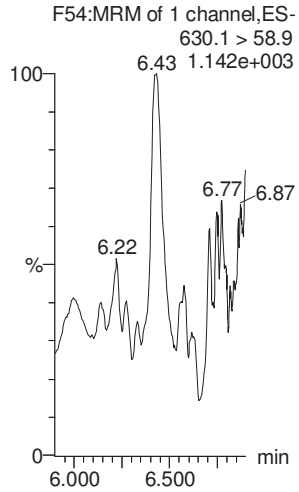
PFODA



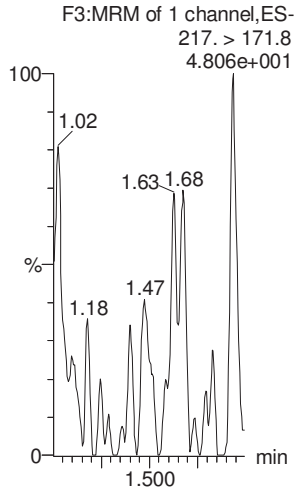
N-MeFOSE



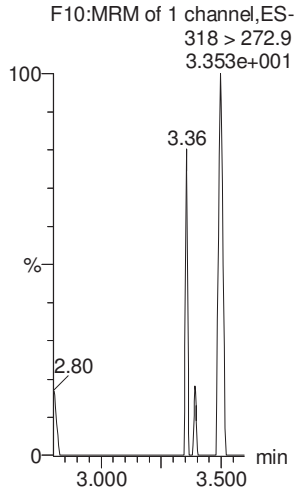
N-EtFOSE



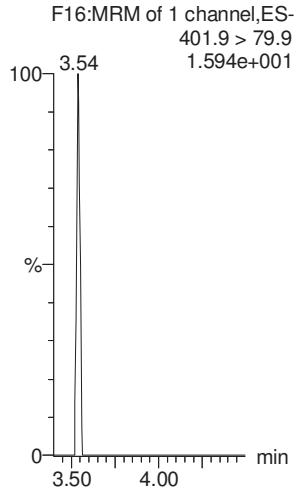
13C4-PFBA



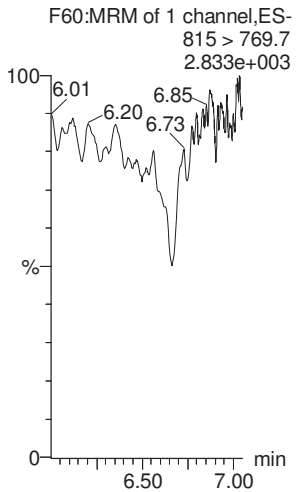
13C5-PFHxA



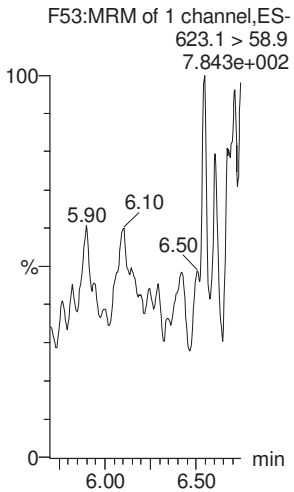
13C3-PFHxS



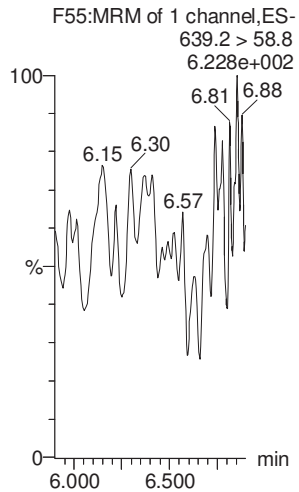
13C2-PFHxDA



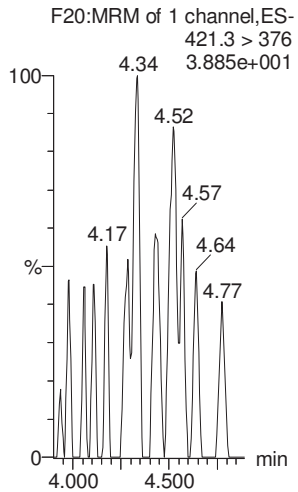
d7-N-MeFOSE



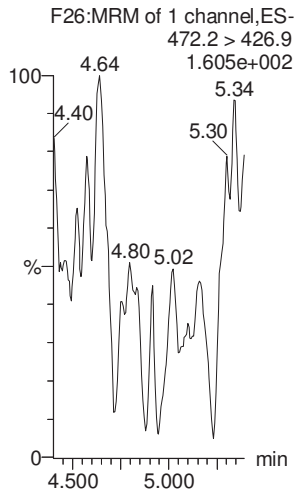
d9-N-EtFOSE



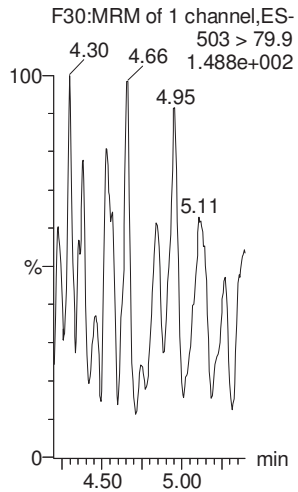
13C8-PFOA



13C9-PFNA



13C4-PFOS



AC 12/14/17

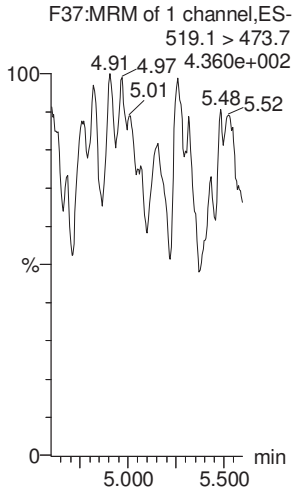
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Dataset: U:\Q4.PRO\results\171213M1\171213M1-12.qld

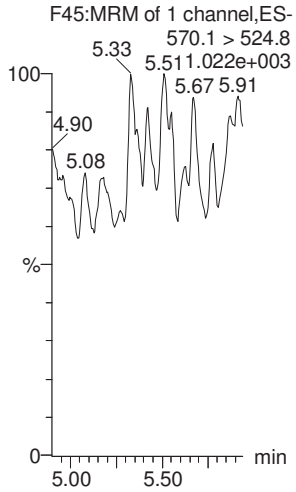
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Printed: Thursday, December 14, 2017 11:32:05 Pacific Standard Time

Name: 171213M1_12, Date: 13-Dec-2017, Time: 21:01:50, ID: IPA, Description: IPA

13C6-PFDA



13C7-PFUdA



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Dataset: U:\Q4.PRO\results\171213M1\171213M1-31.qld

Last Altered: Thursday, December 14, 2017 10:46:23 Pacific Standard Time
Printed: Thursday, December 14, 2017 10:48:51 Pacific Standard Time

AC 12/14/17

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	Trace	Area	IS Area	wt/vol	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBA	213.0 > 168.8	9.53e3	1.00e4	1.0000		1.46	1.46	11.9	10.051	100.5
2	2	PFPeA	263.1 > 218.9	1.16e4	1.39e4	1.0000		2.41	2.41	10.5	10.347	103.5
3	3	PFBS	299.0 > 79.7	3.13e3	1.78e3	1.0000		2.70	2.68	22.0	10.410	104.1
4	4	PFHxA	313.2 > 268.9	1.39e4	4.97e3	1.0000		3.18	3.18	14.0	10.355	103.5
5	5	PFHpA	363.0 > 318.9	1.06e4	8.72e3	1.0000		3.80	3.80	15.2	10.356	103.6
6	6	L-PFHxS	398.9 > 79.6	2.35e3	1.41e3	1.0000		4.00	3.95	20.9	9.048	90.5
7	8	6:2 FTS	427.1 > 407	2.15e3	2.81e3	1.0000		4.26	4.27	9.58	10.435	104.3
8	9	L-PFOA	413 > 368.7	1.18e4	1.31e4	1.0000		4.32	4.32	11.3	11.020	110.2
9	11	PFHpS	449 > 80.0	2.90e3	1.31e4	1.0000		4.43	4.43	2.77	11.481	114.8
10	12	PFNA	463.0 > 418.8	1.36e4	1.24e4	1.0000		4.78	4.75	13.8	10.141	101.4
11	13	PFOSA	498.1 > 77.8	2.96e3	3.91e3	1.0000		4.81	4.81	9.48	9.716	97.2
12	14	L-PFOS	499 > 79.9	3.26e3	3.97e3	1.0000		4.83	4.83	10.3	9.096	91.0
13	16	PFDA	513 > 468.8	1.18e4	1.13e4	1.0000		5.12	5.12	13.0	10.543	105.4
14	17	8:2 FTS	527 > 506.9	2.05e3	1.43e3	1.0000		5.09	5.10	18.0	8.674	86.7
15	18	N-MeFOSAA	570.1 > 419	6.37e3	4.73e3	1.0000		5.25	5.27	16.8	8.515	85.1
16	19	N-EtFOSAA	584.2 > 419	5.38e3	5.68e3	1.0000		5.45	5.42	11.8	9.148	91.5
17	20	PFUdA	563.0 > 518.9	1.30e4	1.64e4	1.0000		5.44	5.44	9.90	7.840	78.4
18	21	PFDS	598.8 > 80	3.56e3	1.64e4	1.0000		5.49	5.49	2.72	9.766	97.7
19	22	PFDoA	612.9 > 569.0	1.30e4	8.57e3	1.0000		5.75	5.72	18.9	11.202	112.0
20	24	PFTrDA	662.9 > 618.9	1.37e4	8.57e3	1.0000		5.97	5.96	20.0	11.246	112.5
21	25	PFTeDA	712.9 > 668.8	1.11e4	9.70e3	1.0000		6.20	6.18	14.3	8.266	82.7

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Dataset: U:\Q4.PRO\results\171213M1\171213M1-31.qld

Last Altered: Thursday, December 14, 2017 10:46:23 Pacific Standard Time
Printed: Thursday, December 14, 2017 10:49:12 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	Trace	Area	IS Area	wt/vol	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	27	PFHxDA	813.1 > 768.6	4.99e3	4.67e3	1.0000		6.50	6.49	5.34	9.363	93.6
2	28	PFODA	913.1 > 868.8	6.88e3	4.67e3	1.0000		6.75	6.71	7.37	8.984	89.8
3	31	13C3-PFBA	216.1 > 171.8	1.00e4	1.08e4	1.0000	0.947	1.46	1.46	11.6	12.220	97.8
4	32	13C3-PFPeA	266. > 221.8	1.39e4	1.47e4	1.0000	0.849	2.41	2.41	11.8	13.914	111.3
5	33	13C3-PFBS	302. > 98.8	1.78e3	1.47e4	1.0000	0.117	2.70	2.68	1.51	12.915	103.3
6	34	13C2-PFHxA	315 > 269.8	4.97e3	1.47e4	1.0000	0.779	3.18	3.18	4.22	5.416	108.3
7	35	13C4-PFHpA	367.2 > 321.8	8.72e3	1.47e4	1.0000	0.640	3.80	3.80	7.41	11.575	92.6
8	36	18O2-PFHxS	403.0 > 102.6	1.41e3	3.34e3	1.0000	0.452	4.00	3.95	5.28	11.686	93.5
9	37	13C2-6:2 FTS	429.1 > 408.9	2.81e3	1.18e4	1.0000	0.245	4.26	4.26	2.98	12.190	97.5
10	38	13C2-PFOA	414.9 > 369.7	1.31e4	1.18e4	1.0000	1.218	4.32	4.32	13.9	11.397	91.2
11	39	13C5-PFNA	468.2 > 422.9	1.24e4	1.21e4	1.0000	1.017	4.78	4.75	12.8	12.590	100.7
12	40	13C8-PFOSA	506.1 > 77.7	3.91e3	1.30e4	1.0000	0.309	4.81	4.81	3.77	12.209	97.7
13	41	13C8-PFOS	507.0 > 79.9	3.97e3	3.98e3	1.0000	1.053	4.83	4.83	12.5	11.847	94.8
14	42	13C2-PFDA	515.1 > 469.9	1.13e4	9.84e3	1.0000	1.214	5.12	5.12	14.4	11.851	94.8
15	43	13C2-8:2 FTS	529.1 > 508.7	1.43e3	1.47e4	1.0000	0.103	5.09	5.09	1.21	11.756	94.1
16	44	d3-N-MeFOSAA	573.3 > 419	4.73e3	1.30e4	1.0000	0.329	5.25	5.27	4.57	13.886	111.1
17	45	d5-N-EtFOSAA	589.3 > 419	5.68e3	1.30e4	1.0000	0.394	5.45	5.42	5.48	13.920	111.4
18	46	13C2-PFUdA	565 > 519.8	1.64e4	1.30e4	1.0000	1.109	5.44	5.44	15.8	14.258	114.1
19	47	13C2-PFDoA	615.0 > 569.7	8.57e3	1.30e4	1.0000	0.851	5.75	5.72	8.27	9.711	77.7
20	48	d3-N-MeFOSA	515.2 > 168.9		1.30e4	1.0000	0.002	5.80				
21	49	13C2-PFTeDA	714.8 > 669.6	9.70e3	1.30e4	1.0000	0.643	6.20	6.18	9.36	14.563	116.5
22	50	d5-N-ETFOSA	531.1 > 168.9		1.30e4	1.0000		6.16				
23	51	13C2-PFHxDA	815 > 769.7	4.67e3	1.30e4	1.0000	0.919	6.50	6.49	4.50	4.902	98.0
24	52	d7-N-MeFOSE	623.1 > 58.9		1.30e4	1.0000		6.30				
25	53	d9-N-EtFOSE	639.2 > 58.8		1.30e4	1.0000		6.42				
26	54	13C4-PFBA	217. > 171.8	1.08e4	1.08e4	1.0000	1.000	1.46	1.46	12.5	12.500	100.0
27	55	13C5-PFHxA	318 > 272.9	1.47e4	1.47e4	1.0000	1.000	3.18	3.18	12.5	12.500	100.0
28	56	13C3-PFHxS	401.9 > 79.9	3.34e3	3.34e3	1.0000	1.000	4.00	3.95	12.5	12.500	100.0
29	57	13C8-PFOA	421.3 > 376	1.18e4	1.18e4	1.0000	1.000	4.32	4.32	12.5	12.500	100.0
30	58	13C9-PFNA	472.2 > 426.9	1.21e4	1.21e4	1.0000	1.000	4.78	4.75	12.5	12.500	100.0
31	59	13C4-PFOS	503 > 79.9	3.98e3	3.98e3	1.0000	1.000	4.83	4.83	12.5	12.500	100.0

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50-150

Dataset: U:\Q4.PRO\results\171213M1\171213M1-31.qld

Last Altered: Thursday, December 14, 2017 10:46:23 Pacific Standard Time
Printed: Thursday, December 14, 2017 10:49:12 Pacific Standard Time

Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

	#	Name	Trace	Area	IS Area	wt/vol	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
32	60	13C6-PFDA	519.1 > 473.7	9.84e3	9.84e3	1.0000	1.000	5.12	5.12	12.5	12.500	100.0
33	61	13C7-PFUdA	570.1 > 524.8	1.30e4	1.30e4	1.0000	1.000	5.44	5.44	12.5	12.500	100.0

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Dataset: Untitled

Last Altered: Friday, December 15, 2017 10:31:10 Pacific Standard Time
Printed: Friday, December 15, 2017 10:31:27 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	171213M1_1	IPA	13-Dec-17	18:58:54
2	171213M1_2	ST171213M1-1 PFC CS-2 17L0504	13-Dec-17	19:10:03
3	171213M1_3	ST171213M1-2 PFC CS-1 17L0505	13-Dec-17	19:21:14
4	171213M1_4	ST171213M1-3 PFC CS0 17L0506	13-Dec-17	19:32:25
5	171213M1_5	ST171213M1-4 PFC CS1 17L0507	13-Dec-17	19:43:35
6	171213M1_6	ST171213M1-5 PFC CS2 17L0508	13-Dec-17	19:54:46
7	171213M1_7	ST171213M1-6 PFC CS3 17L0509	13-Dec-17	20:05:56
8	171213M1_8	ST171213M1-7 PFC CS4 17L0510	13-Dec-17	20:17:07
9	171213M1_9	ST171213M1-8 PFC CS5 17L0511	13-Dec-17	20:28:17
10	171213M1_10	ST171213M1-9 PFC CS6 17L0512	13-Dec-17	20:39:28
11	171213M1_11	ST171213M1-10 PFC CS7 17L0513	13-Dec-17	20:50:39
12	171213M1_12	IPA	13-Dec-17	21:01:50
13	171213M1_13	ICV171213M1-1 PFC ICV 17L0503	13-Dec-17	21:13:00
14	171213M1_14	IPA	13-Dec-17	21:24:11
15	171213M1_15	B7L0038-BS1 OPR 1	13-Dec-17	21:35:21
16	171213M1_16	B7L0046-BS1 OPR 0.25	13-Dec-17	21:46:32
17	171213M1_17	B7L0046-BSD1 LCSD 0.25	13-Dec-17	21:57:43
18	171213M1_18	IPA	13-Dec-17	22:08:54
19	171213M1_19	B7L0038-BLK1 Method Blank 1	13-Dec-17	22:20:04
20	171213M1_20	B7L0046-BLK1 Method Blank 0.25	13-Dec-17	22:31:15
21	171213M1_21	B7L0038-MS1 Matrix Spike 1.22	13-Dec-17	22:42:26
22	171213M1_22	B7L0038-MSD1 Matrix Spike Dup 1.19	13-Dec-17	22:53:37
23	171213M1_23	1701855-01 CA-AQIDW01-20171205 0.26261	13-Dec-17	23:04:47
24	171213M1_24	1701721-13@5X GENBM-03-SB03-1-2-11141...	13-Dec-17	23:15:58
25	171213M1_25	1701723-01 GENBM-11-SB01-3-3.5-111517 1...	13-Dec-17	23:27:08
26	171213M1_26	1701723-02 GENBM-09-SB03-1-2-111517 1.33	13-Dec-17	23:38:20
27	171213M1_27	1701723-03 GENBM-09-SB03-3-3.5-111517 1...	13-Dec-17	23:49:30
28	171213M1_28	1701723-04 GENBM-SO-Duplicate-06-111617...	14-Dec-17	00:00:41
29	171213M1_29	1701723-05 GENBM-SO-Duplicate-07-111617...	14-Dec-17	00:11:52
30	171213M1_30	IPA	14-Dec-17	00:23:02
31	171213M1_31	ST171213M1-11 PFC CS3 17L0509	14-Dec-17	00:34:13

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Dataset: Untitled

Last Altered: Friday, December 15, 2017 10:31:10 Pacific Standard Time
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Compound name: PFBA

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32	171213M1_32	IPA	14-Dec-17	00:45:24
33	171213M1_33	1701723-06 GENBM-SO-Duplicate-08-111617...	14-Dec-17	00:56:35
34	171213M1_34	1701723-07 GENBM-06-SB03-0.5-1-111617 1...	14-Dec-17	01:07:45
35	171213M1_35	1701723-08 GENBM-06-SB03-3-3.5-111617 1...	14-Dec-17	01:18:56
36	171213M1_36	1701723-09 GENBM-06-SB04-2-3-111617 1.19	14-Dec-17	01:30:06
37	171213M1_37	1701723-10 GENBM-06-SB04-6-6.5-111617 1...	14-Dec-17	01:41:17
38	171213M1_38	1701723-11 GENBM-06-SB05-0.5-1-111617 1...	14-Dec-17	01:52:28
39	171213M1_39	1701723-12 GENBM-06-SB05-5-5.5-111617 1...	14-Dec-17	02:03:39
40	171213M1_40	1701723-13 GENBM-10-SB02-0.5-1-111617 1...	14-Dec-17	02:14:49
41	171213M1_41	IPA	14-Dec-17	02:26:00
42	171213M1_42	ST171213M1-12 PFC CS0 17L0506	14-Dec-17	02:37:11
43	171213M1_43	IPA	14-Dec-17	02:48:22
44	171213M1_44	B7L0036-BS1 OPR 0.125	14-Dec-17	02:59:32
45	171213M1_45	B7L0036-BSD1 LCSD 0.125	14-Dec-17	03:10:43
46	171213M1_46	IPA	14-Dec-17	03:21:53
47	171213M1_47	B7L0036-BLK1 Method Blank 0.125	14-Dec-17	03:33:04
48	171213M1_48	1701801-01RE1 REEPDW001 0.12158	14-Dec-17	03:44:15
49	171213M1_49	1701801-02RE1 REEPDW001FRB 0.1121	14-Dec-17	03:55:26
50	171213M1_50	1701801-03RE1 REEPDW002 0.11884	14-Dec-17	04:06:39
51	171213M1_51	1701801-04RE1 REEPDW002FRB 0.11801	14-Dec-17	04:17:49
52	171213M1_52	1701801-05RE1 REEPDW003 0.11809	14-Dec-17	04:29:00
53	171213M1_53	1701801-06RE1 REEPDW003FRB 0.12138	14-Dec-17	04:40:11
54	171213M1_54	1701801-07RE1 REEPDW004 0.12019	14-Dec-17	04:51:22
55	171213M1_55	1701801-08RE1 REEPDW004FRB 0.11763	14-Dec-17	05:02:32
56	171213M1_56	1701801-09RE1 REEPDW005 0.1169	14-Dec-17	05:13:43
57	171213M1_57	1701801-10RE1 REEPDW005FRB 0.11621	14-Dec-17	05:24:54
58	171213M1_58	1701819-01 REEPDW013 0.11892	14-Dec-17	05:36:05
59	171213M1_59	1701819-02 REEPDW013FRB 0.11964	14-Dec-17	05:47:15
60	171213M1_60	1701819-03 REEPDW014 0.11704	14-Dec-17	05:58:26
61	171213M1_61	1701819-04 REEPDW014FRB 0.11939	14-Dec-17	06:09:37
62	171213M1_62	1701819-05 REEPDW015 0.11892	14-Dec-17	06:20:47
63	171213M1_63	1701819-06 REEPDW015FRB 0.11896	14-Dec-17	06:31:58
64	171213M1_64	1701819-07 REEPDW016 0.11777	14-Dec-17	06:43:09
65	171213M1_65	1701819-08 REEPDW016FRB 0.11958	14-Dec-17	06:54:19

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Compound name: PFBA

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66	171213M1_66	1701819-09 REEPDW017 0.11912	14-Dec-17	07:05:30
67	171213M1_67	1701819-10 REEPDW017FRB 0.11315	14-Dec-17	07:16:41
68	171213M1_68	IPA	14-Dec-17	07:27:52
69	171213M1_69	ST171213M1-13 PFC CS3 17L0509	14-Dec-17	07:39:02
70	171213M1_70	IPA	14-Dec-17	07:50:13
71	171213M1_71	B7L0001-BS1 OPR 0.25	14-Dec-17	08:01:26
72	171213M1_72	B7L0001-BSD1 LCSD 0.25	14-Dec-17	08:12:39
73	171213M1_73	B7L0024-BS1 OPR 1	14-Dec-17	08:23:48
74	171213M1_74	IPA	14-Dec-17	08:34:58
75	171213M1_75	B7L0001-BLK1 Method Blank 0.25	14-Dec-17	08:46:09
76	171213M1_76	B7L0024-BLK1 Method Blank 1	14-Dec-17	08:57:20
77	171213M1_77	1701783-01 DPH-EX4 0.11888	14-Dec-17	09:08:31
78	171213M1_78	1701783-02 DPH-B7 0.12021	14-Dec-17	09:19:42
79	171213M1_79	1701783-03 DPH-MW1-17 0.11836	14-Dec-17	09:30:52
80	171213M1_80	1701783-04 DPH-MW1 0.11784	14-Dec-17	09:42:03
81	171213M1_81	1701783-05 DPH-MW3-17 0.11648	14-Dec-17	09:53:14
82	171213M1_82	1701783-06 DPH-#105 0.1146	14-Dec-17	10:07:54
83	171213M1_83	1701783-07 DPH-IRELAND 0.11589	14-Dec-17	10:19:05
84	171213M1_84	1701783-08 DPH-7 0.11584	14-Dec-17	10:30:16
85	171213M1_85	1701796-01 GW0307171122RAP 0.25477	14-Dec-17	10:41:27
86	171213M1_86	1701796-02 GW1317171122RAP 0.25681	14-Dec-17	10:52:37
87	171213M1_87	IPA	14-Dec-17	11:03:48
88	171213M1_88	ST171213M1-14 PFC CS3 17L0509	14-Dec-17	11:14:59
89	171213M1_89	IPA	14-Dec-17	11:26:09
90	171213M1_90	1701803-01 MBS-EFF-004 0.11577	14-Dec-17	11:37:20
91	171213M1_91	1701803-02 MBS-EFF-005 0.11755	14-Dec-17	11:48:31
92	171213M1_92	1701803-03 MBS-IN-006 0.1166	14-Dec-17	11:59:41
93	171213M1_93	1701728-01 Soil-S111 1.17	14-Dec-17	12:10:52
94	171213M1_94	1701728-02 Soil-B103 1.2	14-Dec-17	12:22:03
95	171213M1_95	1701756-01 Soil-S117 1.14	14-Dec-17	12:33:14
96	171213M1_96	1701757-01 Soil-S140 1.19	14-Dec-17	12:44:25
97	171213M1_97	1701757-02 Soil-B110 1.18	14-Dec-17	12:55:35
98	171213M1_98	1701771-01 Soil-S105A1 1.17	14-Dec-17	13:06:46
99	171213M1_99	1701771-02 Soil-B104A 1.27	14-Dec-17	13:17:57

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Last Altered: Friday, December 15, 2017 10:31:10 Pacific Standard Time
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Compound name: PFBA

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102	171213M1_102	IPA	14-Dec-17	13:51:29
103	171213M1_103	1701833-01 Soil-S118 1.16	14-Dec-17	14:02:39
104	171213M1_104	1701833-02 Soil-B106 1.17	14-Dec-17	14:13:51
105	171213M1_105	1701758-16 IR54-FB-111917 0.11819	14-Dec-17	14:25:01
106	171213M1_106	IPA	14-Dec-17	14:36:12
107	171213M1_107	ST171213M1-16 PFC CS3 17L0509	14-Dec-17	14:47:22
108	171213M1_108	IPA	14-Dec-17	14:58:33

LC Calibration Standards Review Checklist Q4

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID:	ST171213M1-11	L (M) H	☑ N/A	☑	☑	☑	☑	☑	☐
Calibration ID:	-12	(L) M H	☐	☑	☑	☑	☑	☑	☐
Calibration ID:	-13	L (M) H	☐	☑ (A)	☑	☑	☑	☑	☐
Calibration ID:	-14	L (M) H	☐	☑ (B)	☑	☑	☑	☑	☐
Calibration ID:	-15	L (M) H	☐	☑ (C)	☑	☑	☑	☑	☐
Calibration ID:	-16	L (M) H	☑	☑ (D)	☑	☑	☑	☑	☑
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 11/14/17

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Reviewed By: JA, 12/15/2017
Initials/Date

Comments:
(A) 8:2 FTS > 130%
(B) 6:2 FTS > 130%.
(C) PFDOA, PFTrDA > 130%
(D) PFDOA > 130%.
8:2 FTS < 70%, not used.

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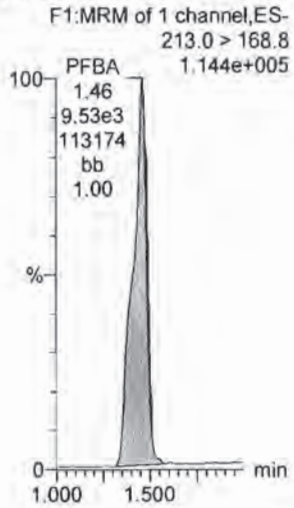
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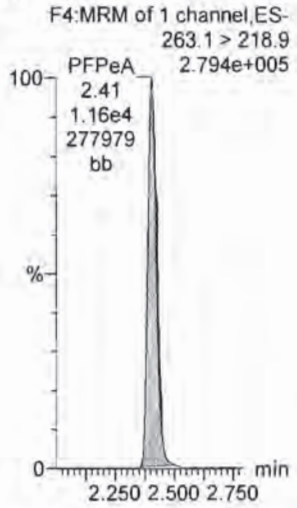
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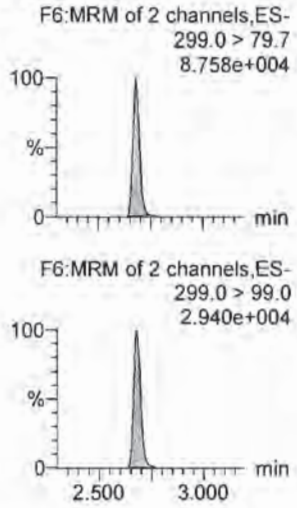
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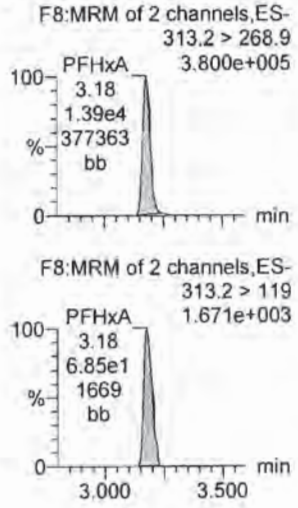
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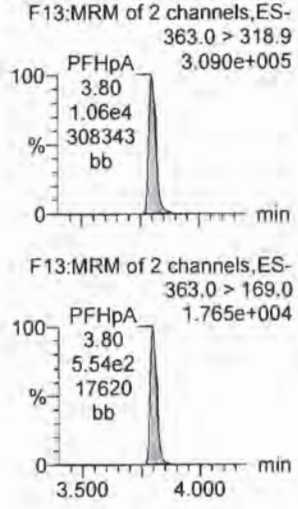
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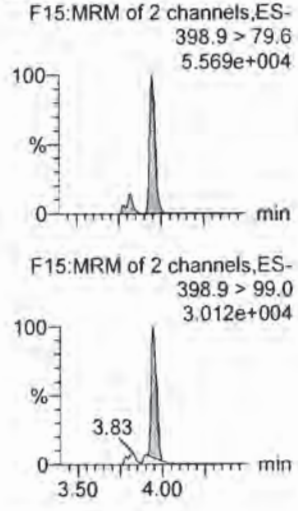
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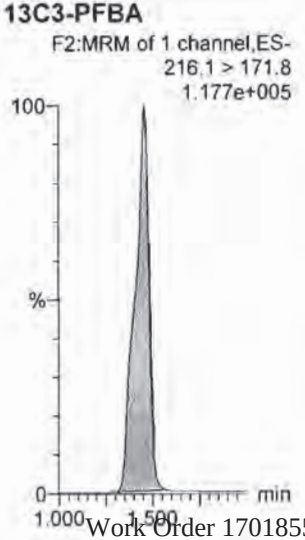
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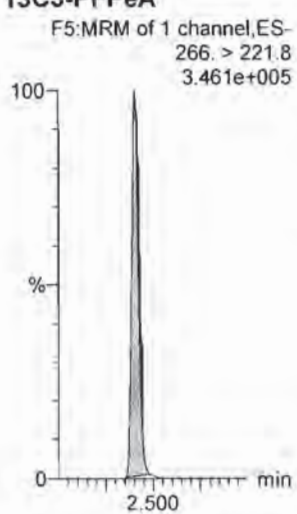
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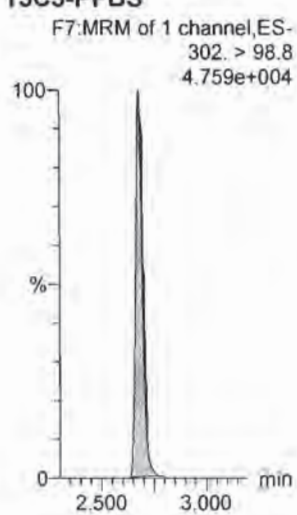
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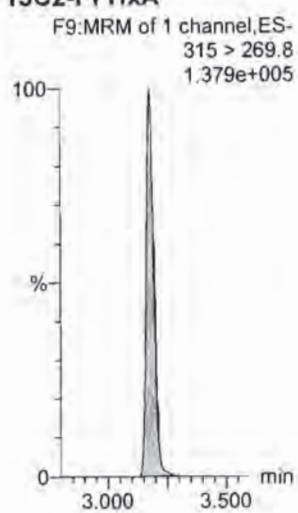
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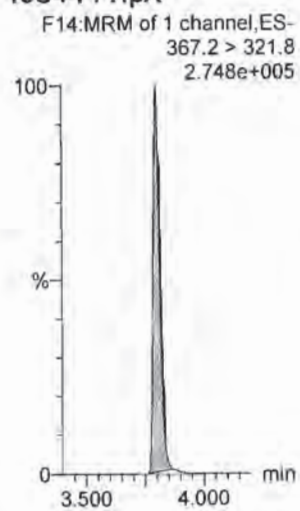
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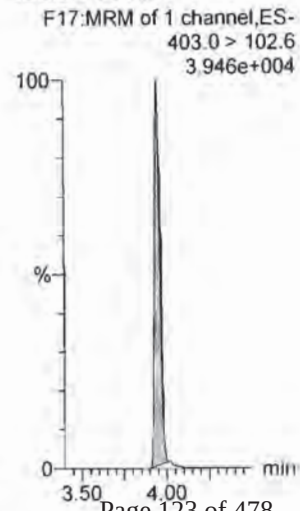
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13C4-PFHpA



18O2-PFHxS

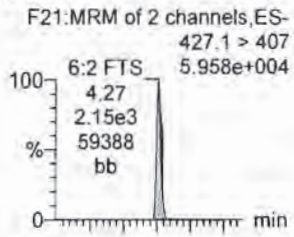


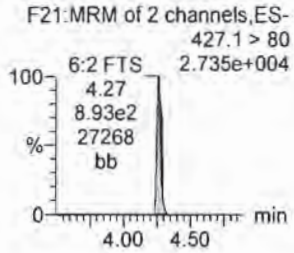
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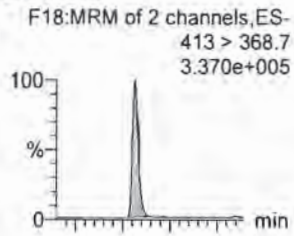
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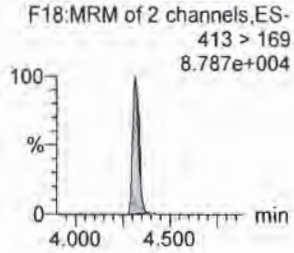
6:2 FTS



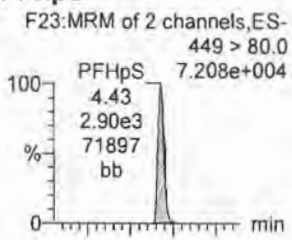


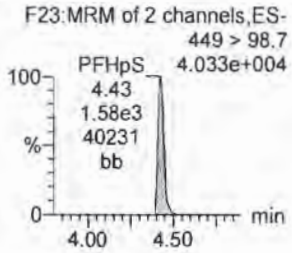
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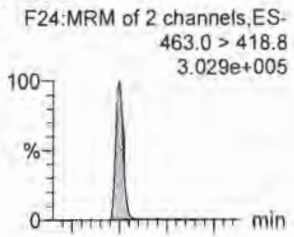


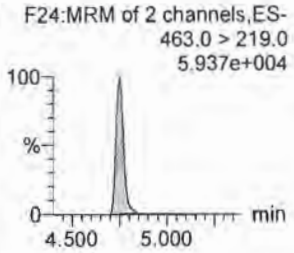
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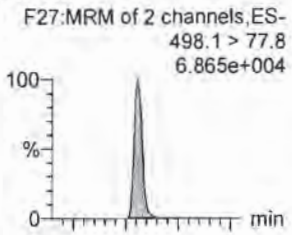


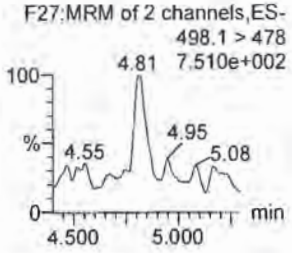
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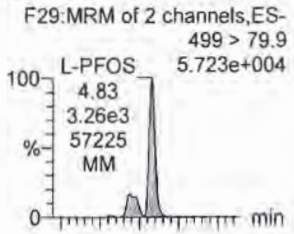


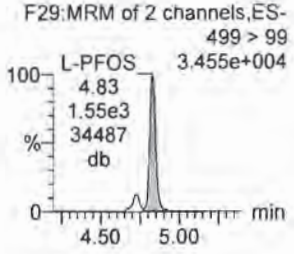
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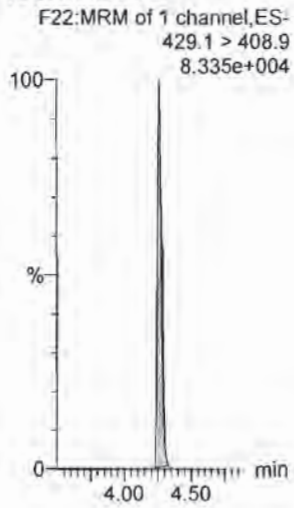


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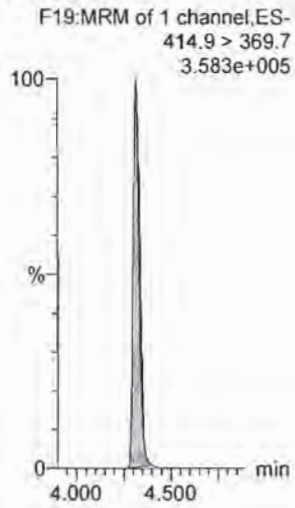




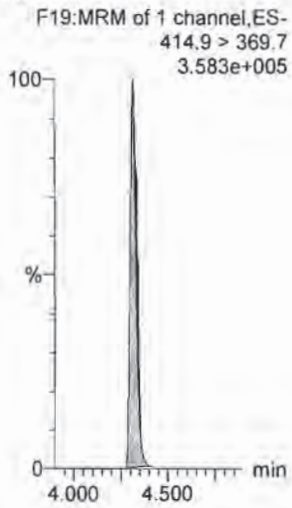
13C2-6:2 FTS



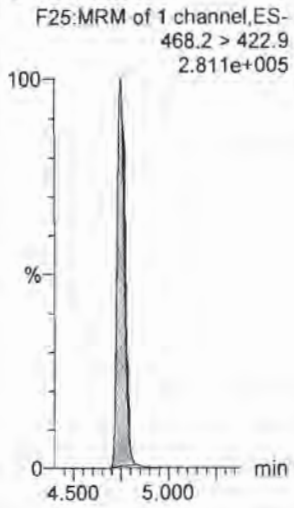
13C2-PFOA



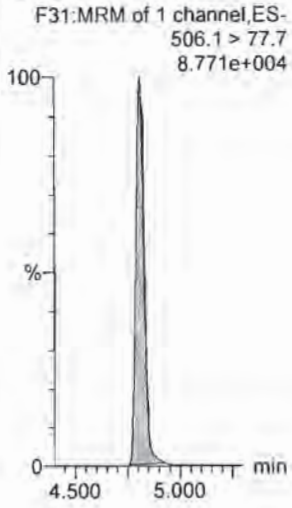
13C2-PFOA



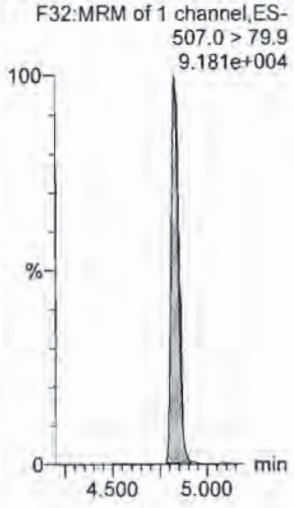
13C5-PFNA



13C8-PFOSA



13C8-PFOS

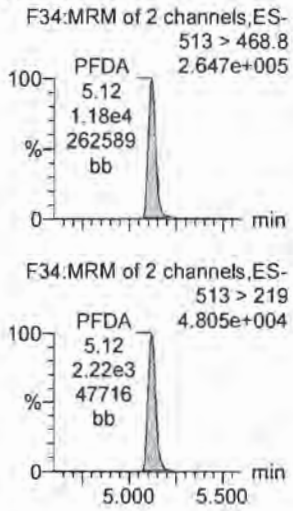


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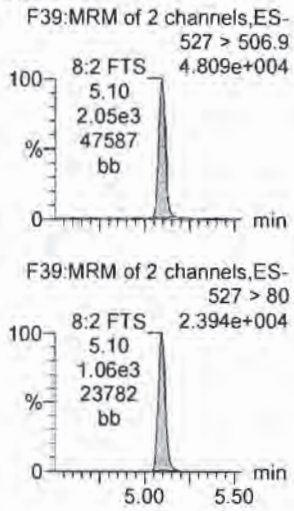
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Printed: Thursday, December 14, 2017 10:48:51 Pacific Standard Time

Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

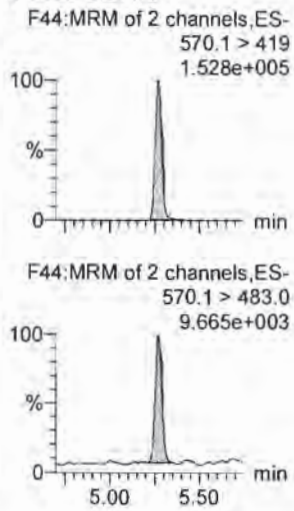
PFDA



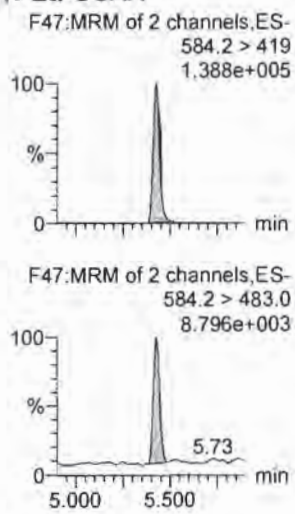
8:2 FTS



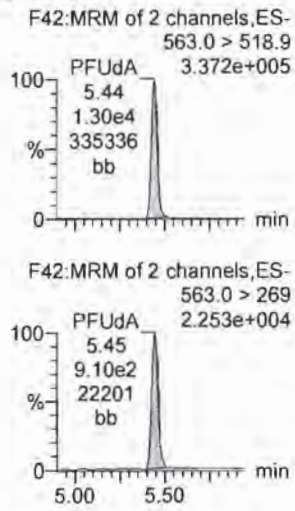
N-MeFOSAA



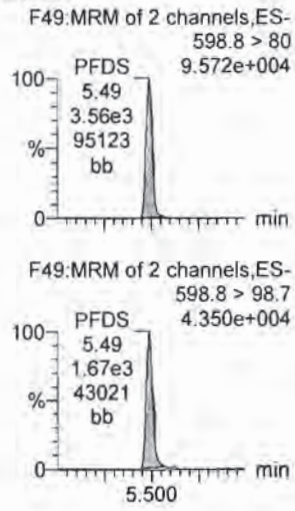
N-EtFOSAA



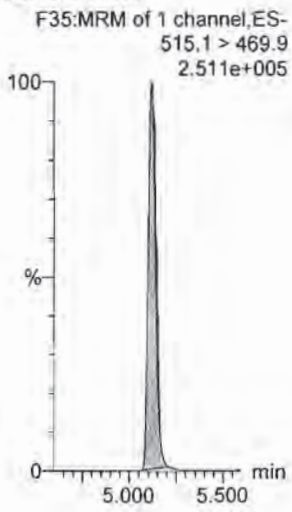
PFUdA



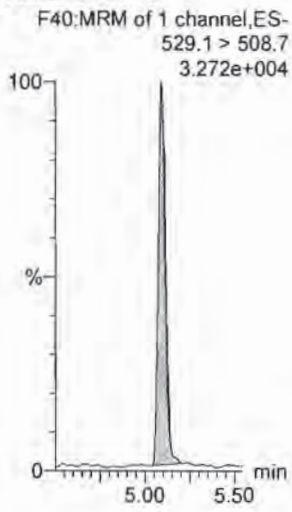
PFDS



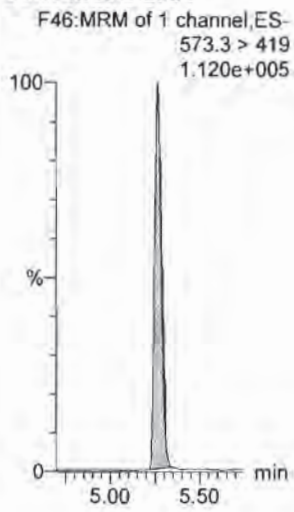
13C2-PFDA



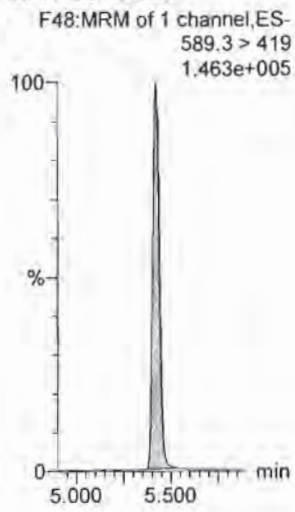
13C2-8:2 FTS



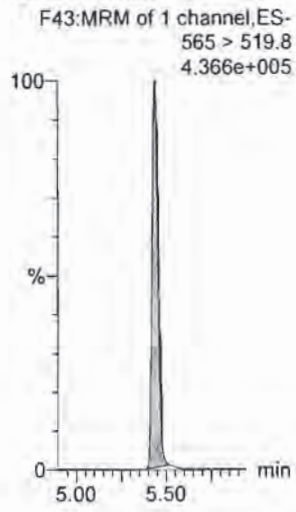
d3-N-MeFOSAA



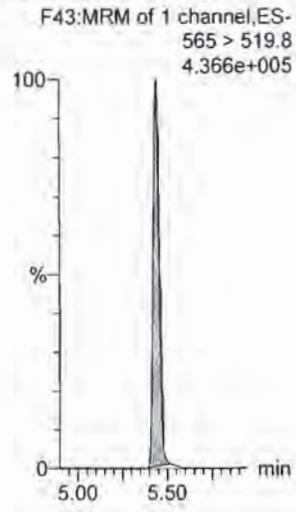
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

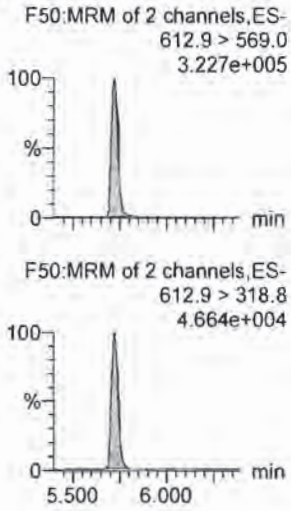


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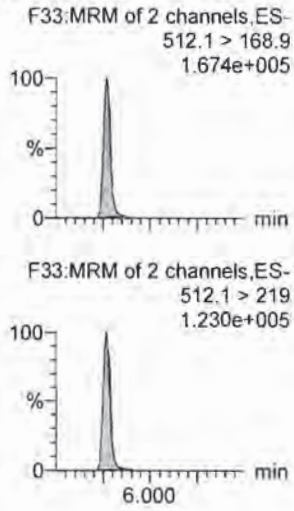
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Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

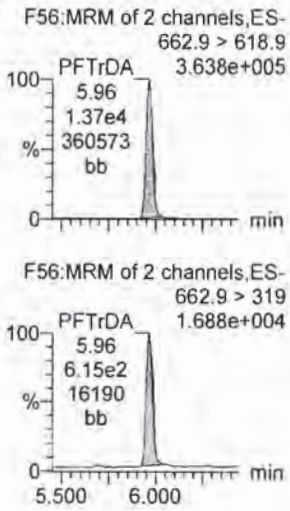
PFDoA



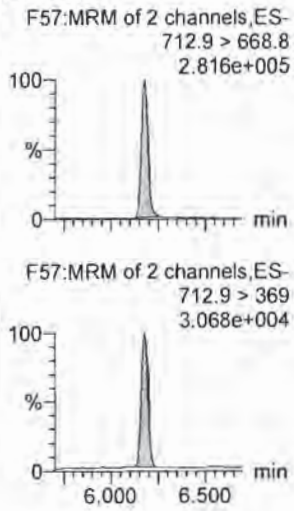
N-MeFOSA



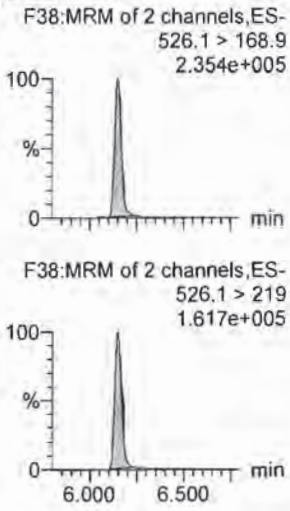
PFTrDA



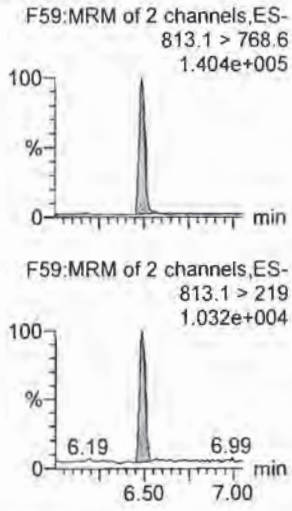
PFTeDA



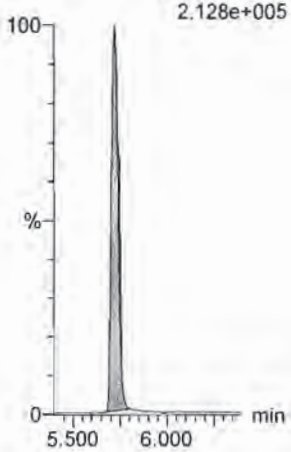
N-EtFOSA



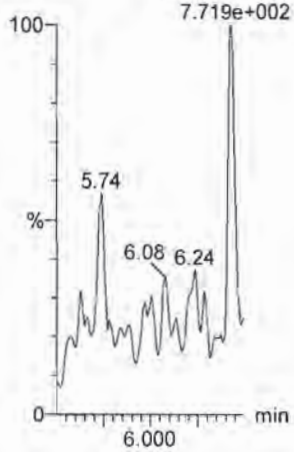
PFHxDA



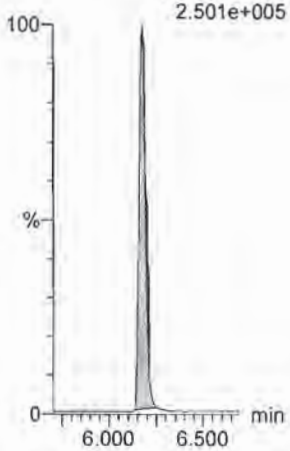
13C2-PFDoA



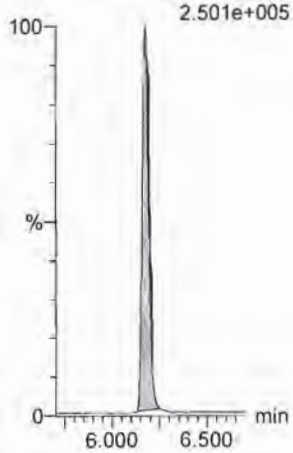
d3-N-MeFOSA



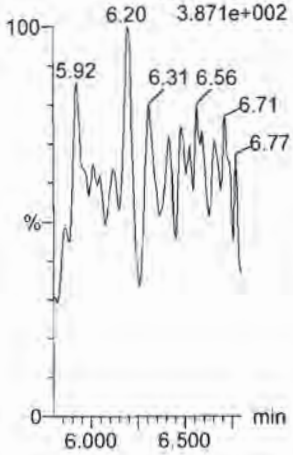
13C2-PFTeDA



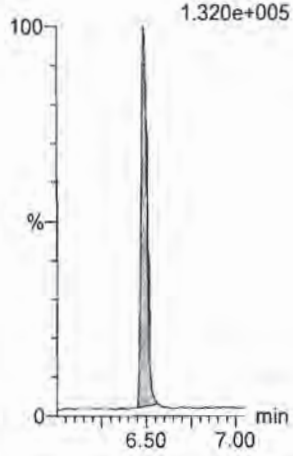
13C2-PFTeDA



d5-N-ETFOSA



13C2-PFHxDA

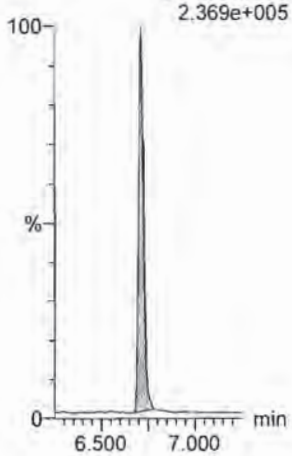


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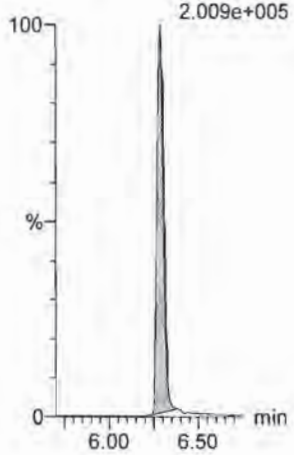
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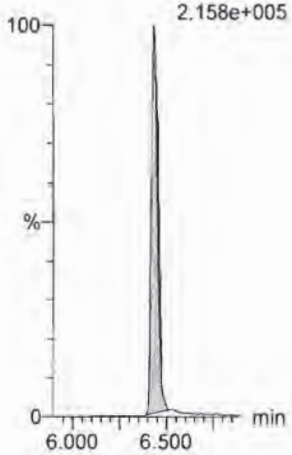
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
2.369e+005



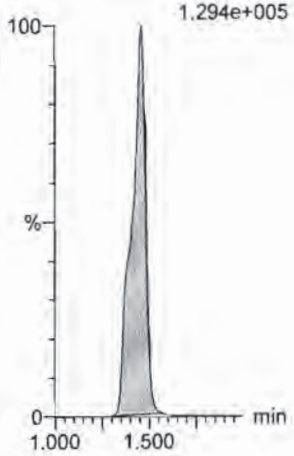
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
2.009e+005



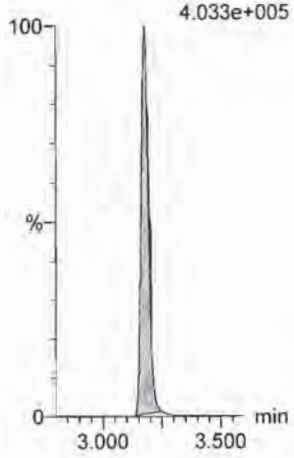
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
2.158e+005



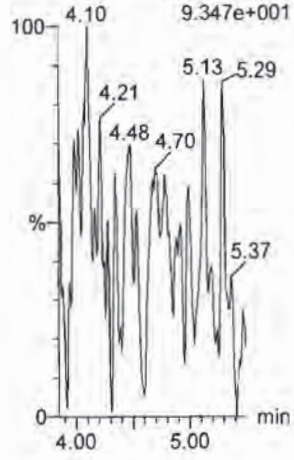
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.294e+005



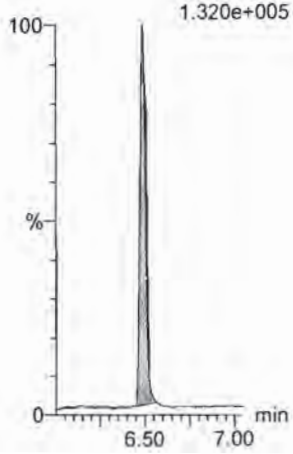
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.033e+005



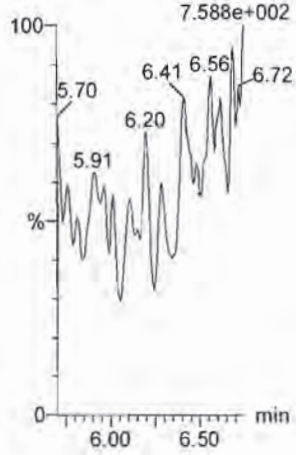
TCDA
F28:MRM of 3 channels,ES-
498.3 > 106.9
9.347e+001



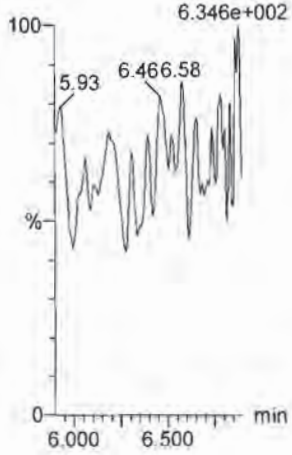
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.320e+005



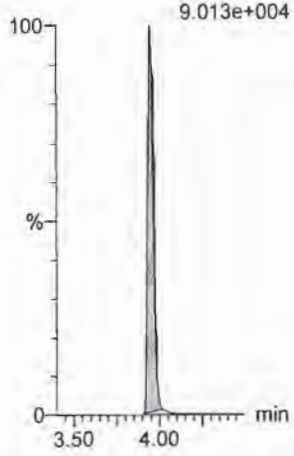
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
7.588e+002



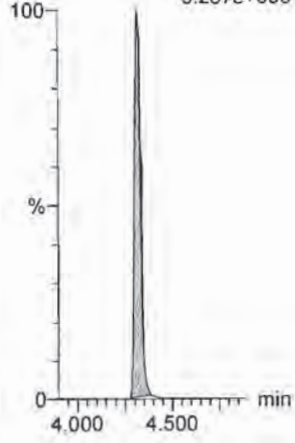
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
6.346e+002



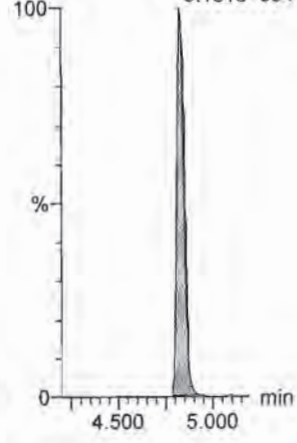
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
9.013e+004



13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.287e+005



13C8-PFOS
F32:MRM of 1 channel,ES-
507.0 > 79.9
9.181e+004

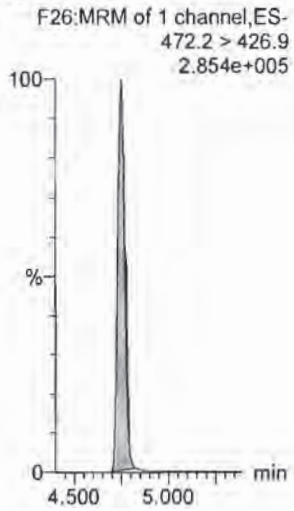


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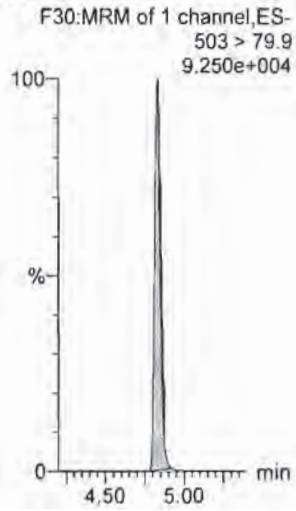
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Printed: Thursday, December 14, 2017 10:48:51 Pacific Standard Time

Name: 171213M1_31, Date: 14-Dec-2017, Time: 00:34:13, ID: ST171213M1-11 PFC CS3 17L0509, Description: PFC CS3 17L0509

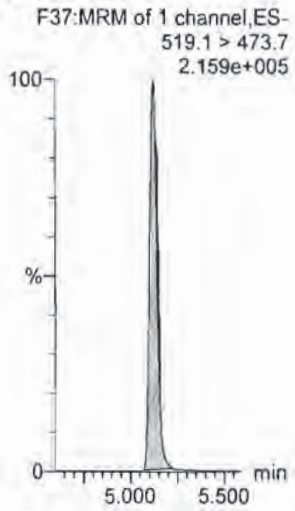
13C9-PFNA



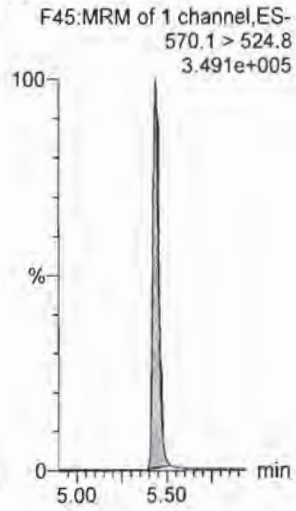
13C4-PFOS



13C6-PFDA



13C7-PFUdA



INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

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

Vista Analytical Laboratory

PFTrDA > 130% in ICV.

No MeFOSA/E, EtFOSA/E in curve.

Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:39:58 Pacific Standard Time

AC 12/14/17

rjh 12/14/2017

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Compound name: PFBA
Correlation coefficient: r = 0.999453, r^2 = 0.998907
Calibration curve: 1.18697 * x + -0.0167855
Response type: Internal Std (Ref 31), 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 171213M1_2	Standard	0.250	1.46	261.902	10741.975	0.305	0.3	8.4	NO	0.999	NO	MM
2	2 171213M1_3	Standard	0.500	1.46	474.495	11135.552	0.533	0.5	-7.4	NO	0.999	NO	MM
3	3 171213M1_4	Standard	1.000	1.45	1056.414	11168.987	1.182	1.0	1.0	NO	0.999	NO	bb
4	4 171213M1_5	Standard	2.000	1.46	1822.155	10409.641	2.188	1.9	-7.1	NO	0.999	NO	bb
5	5 171213M1_6	Standard	5.000	1.46	5395.028	10406.228	6.481	5.5	9.5	NO	0.999	NO	bb
6	6 171213M1_7	Standard	10.000	1.46	9023.885	10102.983	11.165	9.4	-5.8	NO	0.999	NO	bb
7	7 171213M1_8	Standard	50.000	1.46	47116.199	10122.787	58.181	49.0	-1.9	NO	0.999	NO	bb
8	8 171213M1_9	Standard	100.000	1.46	88749.234	9791.349	113.301	95.5	-4.5	NO	0.999	NO	bb
9	9 171213M1_10	Standard	250.000	1.46	245252.125	10099.015	303.559	255.8	2.3	NO	0.999	NO	bb

Compound name: PFPeA
Correlation coefficient: r = 0.999563, r^2 = 0.999127
Calibration curve: 1.00487 * x + 0.0537496
Response type: Internal Std (Ref 32), 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 171213M1_2	Standard	0.250	2.41	269.234	13632.397	0.247	0.2	-23.1	NO	0.999	NO	bb
2	2 171213M1_3	Standard	0.500	2.41	638.176	14071.133	0.567	0.5	2.1	NO	0.999	NO	bb
3	3 171213M1_4	Standard	1.000	2.41	1141.285	13591.616	1.050	1.0	-0.9	NO	0.999	NO	bb
4	4 171213M1_5	Standard	2.000	2.41	2084.551	12277.306	2.122	2.1	2.9	NO	0.999	NO	bb
5	5 171213M1_6	Standard	5.000	2.41	6435.508	13405.649	6.001	5.9	18.4	NO	0.999	NO	bb
6	6 171213M1_7	Standard	10.000	2.41	10126.159	12149.220	10.419	10.3	3.1	NO	0.999	NO	bb
7	7 171213M1_8	Standard	50.000	2.41	52521.867	13023.261	50.412	50.1	0.2	NO	0.999	NO	bb
8	8 171213M1_9	Standard	100.000	2.41	98767.273	12756.222	96.783	96.3	-3.7	NO	0.999	NO	bb
9	9 171213M1_10	Standard	250.000	2.41	263160.063	12967.556	253.672	252.4	1.0	NO	0.999	NO	bb

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Compound name: PFBS
Correlation coefficient: r = 0.998571, r^2 = 0.997145
Calibration curve: 2.10892 * x + 0.0857162
Response type: Internal Std (Ref 33), 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	171213M1_2	Standard	0.250	2.68	84.968	1652.976	0.643	0.3	5.6	NO	0.997	NO	bb
2	2	171213M1_3	Standard	0.500	2.68	166.303	1815.295	1.145	0.5	0.5	NO	0.997	NO	bb
3	3	171213M1_4	Standard	1.000	2.68	349.137	1978.115	2.206	1.0	0.6	NO	0.997	NO	bb
4	4	171213M1_5	Standard	2.000	2.68	586.523	1845.958	3.972	1.8	-7.9	NO	0.997	NO	bb
5	5	171213M1_6	Standard	5.000	2.68	1832.631	1956.266	11.710	5.5	10.2	NO	0.997	NO	bb
6	6	171213M1_7	Standard	10.000	2.68	2922.685	1684.768	21.685	10.2	2.4	NO	0.997	NO	bb
7	7	171213M1_8	Standard	50.000	2.69	14218.522	1884.269	94.324	44.7	-10.6	NO	0.997	NO	bb
8	8	171213M1_9	Standard	100.000	2.69	28528.805	1769.017	201.587	95.5	-4.5	NO	0.997	NO	bb
9	9	171213M1_10	Standard	250.000	2.68	71855.758	1643.209	546.612	259.1	3.7	NO	0.997	NO	bb

Compound name: PFHxA
Correlation coefficient: r = 0.999254, r^2 = 0.998509
Calibration curve: 1.33545 * x + 0.146764
Response type: Internal Std (Ref 34), 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	171213M1_2	Standard	0.250	3.18	395.928	4824.253	0.410	0.2	-21.0	NO	0.999	NO	bb
2	2	171213M1_3	Standard	0.500	3.18	812.896	4628.844	0.878	0.5	9.5	NO	0.999	NO	bb
3	3	171213M1_4	Standard	1.000	3.17	1426.696	5542.956	1.287	0.9	-14.6	NO	0.999	NO	bb
4	4	171213M1_5	Standard	2.000	3.18	2817.762	4618.847	3.050	2.2	8.7	NO	0.999	NO	bb
5	5	171213M1_6	Standard	5.000	3.18	7593.981	4966.737	7.645	5.6	12.3	NO	0.999	NO	bb
6	6	171213M1_7	Standard	10.000	3.18	12943.562	4532.189	14.280	10.6	5.8	NO	0.999	NO	bb
7	7	171213M1_8	Standard	50.000	3.17	62902.719	4906.496	64.101	47.9	-4.2	NO	0.999	NO	bb
8	8	171213M1_9	Standard	100.000	3.18	131651.234	4676.034	140.772	105.3	5.3	NO	0.999	NO	bb
9	9	171213M1_10	Standard	250.000	3.18	300799.906	4583.738	328.116	245.6	-1.8	NO	0.999	NO	bb

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Compound name: PFHpA
Correlation coefficient: r = 0.998934, r^2 = 0.997870
Calibration curve: 1.46694 * x + 0.051332
Response type: Internal Std (Ref 35), 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 171213M1_2	Standard	0.250	3.80	325.046	10764.013	0.377	0.2	-11.1	NO	0.998	NO	bb
2	2 171213M1_3	Standard	0.500	3.80	584.769	10617.380	0.688	0.4	-13.1	NO	0.998	NO	bb
3	3 171213M1_4	Standard	1.000	3.80	1274.319	10199.383	1.562	1.0	3.0	NO	0.998	NO	bb
4	4 171213M1_5	Standard	2.000	3.80	2571.687	10952.771	2.935	2.0	-1.7	NO	0.998	NO	bb
5	5 171213M1_6	Standard	5.000	3.80	6801.587	9432.160	9.014	6.1	22.2	NO	0.998	NO	bb
6	6 171213M1_7	Standard	10.000	3.80	11042.482	9132.018	15.115	10.3	2.7	NO	0.998	NO	bb
7	7 171213M1_8	Standard	50.000	3.80	57528.398	9471.118	75.926	51.7	3.4	NO	0.998	NO	bb
8	8 171213M1_9	Standard	100.000	3.80	104954.930	9608.101	136.545	93.0	-7.0	NO	0.998	NO	bb
9	9 171213M1_10	Standard	250.000	3.80	260062.172	8725.025	372.581	253.9	1.6	NO	0.998	NO	bb

Compound name: L-PFHxS
Correlation coefficient: r = 0.998619, r^2 = 0.997241
Calibration curve: 2.32252 * x + -0.164608
Response type: Internal Std (Ref 36), 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 171213M1_2	Standard	0.250	3.94	52.060	1520.939	0.428	0.3	2.0	NO	0.997	NO	MM
2	2 171213M1_3	Standard	0.500	3.95	137.976	1632.040	1.057	0.5	5.2	NO	0.997	NO	MM
3	3 171213M1_4	Standard	1.000	3.94	265.685	1533.072	2.166	1.0	0.4	NO	0.997	NO	MM
4	4 171213M1_5	Standard	2.000	3.95	489.548	1329.291	4.603	2.1	2.6	NO	0.997	NO	MM
5	5 171213M1_6	Standard	5.000	3.95	1559.810	1492.712	13.062	5.7	13.9	NO	0.997	NO	MM
6	6 171213M1_7	Standard	10.000	3.95	2241.487	1482.237	18.903	8.2	-17.9	NO	0.997	NO	MM
7	7 171213M1_8	Standard	50.000	3.95	12120.174	1462.747	103.574	44.7	-10.7	NO	0.997	NO	MM
8	8 171213M1_9	Standard	100.000	3.95	23374.797	1220.088	239.479	103.2	3.2	NO	0.997	NO	MM
9	9 171213M1_10	Standard	250.000	3.95	60150.441	1279.138	587.802	253.2	1.3	NO	0.997	NO	MM

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Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998758
Calibration curve: -0.000703372 * x^2 + 0.91717 * x + 0.0898025
Response type: Internal Std (Ref 37), 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	171213M1_2	Standard	0.250	4.26	64.729	2466.089	0.328	0.3	3.9	NO	0.999	NO	bb
2	2	171213M1_3	Standard	0.500	4.26	142.230	3134.912	0.567	0.5	4.1	NO	0.999	NO	bb
3	3	171213M1_4	Standard	1.000	4.26	204.900	2935.334	0.873	0.9	-14.6	NO	0.999	NO	bb
4	4	171213M1_5	Standard	2.000	4.27	385.217	2616.329	1.840	1.9	-4.4	NO	0.999	NO	bb
5	5	171213M1_6	Standard	5.000	4.26	1038.239	2668.189	4.864	5.2	4.5	NO	0.999	NO	bb
6	6	171213M1_7	Standard	10.000	4.26	2039.394	2545.120	10.016	10.9	9.1	NO	0.999	NO	bb
7	7	171213M1_8	Standard	50.000	4.26	10079.762	2952.051	42.681	48.2	-3.6	NO	0.999	NO	bb
8	8	171213M1_9	Standard	100.000	4.26	22232.719	3252.778	85.437	100.9	0.9	NO	0.999	NO	bb
9	9	171213M1_10	Standard	250.000	4.26	50924.656	4583.686	138.875	174.7	-30.1	NO	0.999	NO	bbX

Compound name: L-PFOA
Correlation coefficient: r = 0.998700, r^2 = 0.997401
Calibration curve: 0.99298 * x + 0.378081
Response type: Internal Std (Ref 38), 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	171213M1_2	Standard	0.250	4.32	679.854	13779.503	0.617	0.2	-3.9	NO	0.997	NO	MM
2	2	171213M1_3	Standard	0.500	4.32	1094.439	16160.108	0.847	0.5	-5.6	NO	0.997	NO	MM
3	3	171213M1_4	Standard	1.000	4.32	1669.859	15103.297	1.382	1.0	1.1	NO	0.997	NO	MM
4	4	171213M1_5	Standard	2.000	4.32	2230.495	12922.896	2.158	1.8	-10.4	NO	0.997	NO	MM
5	5	171213M1_6	Standard	5.000	4.32	6886.213	12601.789	6.831	6.5	30.0	NO	0.997	NO	MM
6	6	171213M1_7	Standard	10.000	4.32	10758.337	13432.239	10.012	9.7	-3.0	NO	0.997	NO	bb
7	7	171213M1_8	Standard	50.000	4.32	53313.211	14836.972	44.916	44.9	-10.3	NO	0.997	NO	MM
8	8	171213M1_9	Standard	100.000	4.32	106025.000	13198.351	100.415	100.7	0.7	NO	0.997	NO	bb
9	9	171213M1_10	Standard	250.000	4.32	285711.500	14170.102	252.037	253.4	1.4	NO	0.997	NO	bb

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.995445
Calibration curve: -5.62387e-005 * x^2 + 0.243055 * x + -0.00977655
Response type: Internal Std (Ref 38), 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	171213M1_2	Standard	0.250	4.43	58.614	13779.503	0.053	0.3	3.6	NO	0.995	NO	MM
2	2	171213M1_3	Standard	0.500	4.43	123.610	16160.108	0.096	0.4	-13.3	NO	0.995	NO	bb
3	3	171213M1_4	Standard	1.000	4.43	255.299	15103.297	0.211	0.9	-9.0	NO	0.995	NO	bb
4	4	171213M1_5	Standard	2.000	4.43	532.621	12922.896	0.515	2.2	8.0	NO	0.995	NO	bb
5	5	171213M1_6	Standard	5.000	4.43	1344.550	12601.789	1.334	5.5	10.7	NO	0.995	NO	bb
6	6	171213M1_7	Standard	10.000	4.43	2789.768	13432.239	2.596	10.7	7.5	NO	0.995	NO	bb
7	7	171213M1_8	Standard	50.000	4.43	12192.587	14836.972	10.272	42.7	-14.5	NO	0.995	NO	bb
8	8	171213M1_9	Standard	100.000	4.43	26960.604	13198.351	25.534	107.8	7.8	NO	0.995	NO	bb
9	9	171213M1_10	Standard	250.000	4.43	64451.137	14170.102	56.855	248.2	-0.7	NO	0.995	NO	bb

Compound name: PFNA
Coefficient of Determination: R^2 = 0.999663
Calibration curve: 0.000186033 * x^2 + 1.35297 * x + 0.0544256
Response type: Internal Std (Ref 39), 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	171213M1_2	Standard	0.250	4.75	419.821	12557.678	0.418	0.3	7.5	NO	1.000	NO	MM
2	2	171213M1_3	Standard	0.500	4.75	636.694	12557.513	0.634	0.4	-14.4	NO	1.000	NO	bb
3	3	171213M1_4	Standard	1.000	4.75	1501.847	11316.919	1.659	1.2	18.6	NO	1.000	NO	bb
4	4	171213M1_5	Standard	2.000	4.75	2180.652	11568.229	2.356	1.7	-15.0	NO	1.000	NO	bb
5	5	171213M1_6	Standard	5.000	4.75	6497.625	11273.077	7.205	5.3	5.6	NO	1.000	NO	bb
6	6	171213M1_7	Standard	10.000	4.75	11063.078	10521.570	13.143	9.7	-3.4	NO	1.000	NO	bb
7	7	171213M1_8	Standard	50.000	4.75	68080.156	12252.649	69.455	50.9	1.9	NO	1.000	NO	bb
8	8	171213M1_9	Standard	100.000	4.75	110738.289	10179.540	135.981	99.1	-0.9	NO	1.000	NO	bb
9	9	171213M1_10	Standard	250.000	4.75	312860.969	11168.106	350.172	250.2	0.1	NO	1.000	NO	bb

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Compound name: PFOSA
Correlation coefficient: r = 0.998602, r^2 = 0.997205
Calibration curve: 0.966961 * x + 0.0826717
Response type: Internal Std (Ref 40), 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 171213M1_2	Standard	0.250	4.81	84.234	3563.003	0.296	0.2	-12.0	NO	0.997	NO	bb
2	2 171213M1_3	Standard	0.500	4.81	153.468	4250.932	0.451	0.4	-23.8	NO	0.997	NO	bb
3	3 171213M1_4	Standard	1.000	4.81	323.508	4235.003	0.955	0.9	-9.8	NO	0.997	NO	bb
4	4 171213M1_5	Standard	2.000	4.81	610.770	3576.185	2.135	2.1	6.1	NO	0.997	NO	bb
5	5 171213M1_6	Standard	5.000	4.81	1810.079	4033.987	5.609	5.7	14.3	NO	0.997	NO	bb
6	6 171213M1_7	Standard	10.000	4.81	3325.650	3498.629	11.882	12.2	22.0	NO	0.997	NO	bb
7	7 171213M1_8	Standard	50.000	4.81	15056.105	3595.655	52.341	54.0	8.1	NO	0.997	NO	bb
8	8 171213M1_9	Standard	100.000	4.81	28530.414	3830.357	93.106	96.2	-3.8	NO	0.997	NO	bb
9	9 171213M1_10	Standard	250.000	4.81	68746.086	3597.251	238.884	247.0	-1.2	NO	0.997	NO	bb

Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.993477
Calibration curve: -0.000507399 * x^2 + 1.13689 * x + -0.0425187
Response type: Internal Std (Ref 41), 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 171213M1_2	Standard	0.250	4.84	92.323	4312.839	0.268	0.3	9.1	NO	0.993	NO	MM
2	2 171213M1_3	Standard	0.500	4.83	184.073	4240.555	0.543	0.5	3.0	NO	0.993	NO	MM
3	3 171213M1_4	Standard	1.000	4.83	413.471	3656.256	1.414	1.3	28.2	NO	0.993	NO	MM
4	4 171213M1_5	Standard	2.000	4.83	536.750	3671.074	1.828	1.6	-17.7	NO	0.993	NO	MM
5	5 171213M1_6	Standard	5.000	4.83	1587.328	4127.500	4.807	4.3	-14.5	NO	0.993	NO	MM
6	6 171213M1_7	Standard	10.000	4.83	2723.338	3991.446	8.529	7.6	-24.4	NO	0.993	NO	MM
7	7 171213M1_8	Standard	50.000	4.83	15863.509	3888.885	50.990	45.8	-8.3	NO	0.993	NO	MM
8	8 171213M1_9	Standard	100.000	4.83	33036.906	3429.046	120.430	111.5	11.5	NO	0.993	NO	MM
9	9 171213M1_10	Standard	250.000	4.83	75791.555	3808.454	248.761	245.8	-1.7	NO	0.993	NO	MM

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.998850
Calibration curve: 0.000924921 * x^2 + 1.2141 * x + 0.132367
Response type: Internal Std (Ref 42), 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 171213M1_2	Standard	0.250	5.12	323.286	11558.876	0.350	0.2	-28.4	NO	0.999	NO	MM
2	2 171213M1_3	Standard	0.500	5.12	725.224	12458.429	0.728	0.5	-2.0	NO	0.999	NO	MM
3	3 171213M1_4	Standard	1.000	5.12	1382.860	12811.424	1.349	1.0	0.2	NO	0.999	NO	bb
4	4 171213M1_5	Standard	2.000	5.12	2773.359	13617.788	2.546	2.0	-0.8	NO	0.999	NO	bb
5	5 171213M1_6	Standard	5.000	5.12	6956.672	11099.144	7.835	6.3	26.3	NO	0.999	NO	bb
6	6 171213M1_7	Standard	10.000	5.12	14137.348	13046.675	13.545	11.0	9.6	NO	0.999	NO	bb
7	7 171213M1_8	Standard	50.000	5.12	64021.195	13366.214	59.872	47.5	-5.0	NO	0.999	NO	bb
8	8 171213M1_9	Standard	100.000	5.12	136345.969	13026.133	130.839	100.0	0.0	NO	0.999	NO	bb
9	9 171213M1_10	Standard	250.000	5.12	337491.344	11652.976	362.023	250.3	0.1	NO	0.999	NO	bb

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.997318
Calibration curve: -0.0187729 * x^2 + 2.25344 * x + -0.137718
Response type: Internal Std (Ref 43), 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 171213M1_2	Standard	0.250	5.09	32.323	1313.572	0.308	0.2	-20.8	NO	0.997	NO	MM
2	2 171213M1_3	Standard	0.500	5.10	86.889	1309.293	0.830	0.4	-13.8	NO	0.997	NO	bb
3	3 171213M1_4	Standard	1.000	5.10	302.378	1818.764	2.078	1.0	-0.8	NO	0.997	NO	bb
4	4 171213M1_5	Standard	2.000	5.09	660.366	1759.939	4.690	2.2	9.1	NO	0.997	NO	bb
5	5 171213M1_6	Standard	5.000	5.09	1496.405	1654.304	11.307	5.3	6.3	NO	0.997	NO	bb
6	6 171213M1_7	Standard	10.000	5.09	2213.431	1406.160	19.676	9.6	-4.5	NO	0.997	NO	bb
7	7 171213M1_8	Standard	50.000	5.09	9766.295	1858.332	65.693	50.2	0.5	NO	0.997	NO	bb
8	8 171213M1_9	Standard	100.000	5.10	17977.801	1633.551	137.567			NO	0.997	NO	bbXI
9	9 171213M1_10	Standard	250.000	5.10	46266.941	3093.997	186.922			NO	0.997	NO	bbXI

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Compound name: N-MeFOSAA
Coefficient of Determination: R^2 = 0.994300
Calibration curve: -0.0151242 * x^2 + 2.14185 * x + -0.310873
Response type: Internal Std (Ref 44), 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	171213M1_2	Standard	0.250	5.27	94.567	3641.869	0.325	0.3	18.9	NO	0.994	NO	bb
2	2	171213M1_3	Standard	0.500	5.27	201.048	4263.398	0.589	0.4	-15.7	NO	0.994	NO	bb
3	3	171213M1_4	Standard	1.000	5.27	554.139	4494.928	1.541	0.9	-13.0	NO	0.994	NO	bb
4	4	171213M1_5	Standard	2.000	5.27	1153.702	3109.020	4.639	2.3	17.5	NO	0.994	NO	bb
5	5	171213M1_6	Standard	5.000	5.27	3155.712	4508.316	8.750	4.4	-12.7	NO	0.994	NO	bb
6	6	171213M1_7	Standard	10.000	5.27	6112.946	3714.572	20.571	10.5	5.3	NO	0.994	NO	bb
7	7	171213M1_8	Standard	50.000	5.27	25259.822	4583.969	68.881	49.9	-0.3	NO	0.994	NO	bb
8	8	171213M1_9	Standard	100.000	5.27	53218.066	3590.146	185.292			NO	0.994	NO	bbXI
9	9	171213M1_10	Standard	250.000	5.27	152057.313	4317.613	440.224			NO	0.994	NO	bbXI

Compound name: N-EtFOSAA
Coefficient of Determination: R^2 = 0.999219
Calibration curve: -0.000667014 * x^2 + 1.31012 * x + -0.0902353
Response type: Internal Std (Ref 45), 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	171213M1_2	Standard	0.250	5.43	77.882	4474.278	0.218	0.2	-6.0	NO	0.999	NO	bb
2	2	171213M1_3	Standard	0.500	5.42	236.346	4995.517	0.591	0.5	4.1	NO	0.999	NO	bb
3	3	171213M1_4	Standard	1.000	5.43	441.889	5290.141	1.044	0.9	-13.4	NO	0.999	NO	bb
4	4	171213M1_5	Standard	2.000	5.43	993.926	4831.567	2.571	2.0	1.7	NO	0.999	NO	bb
5	5	171213M1_6	Standard	5.000	5.42	2637.642	5332.432	6.183	4.8	-4.0	NO	0.999	NO	bb
6	6	171213M1_7	Standard	10.000	5.43	4148.571	4625.979	11.210	8.7	-13.4	NO	0.999	NO	bb
7	7	171213M1_8	Standard	50.000	5.43	24596.391	4694.315	65.495	51.4	2.8	NO	0.999	NO	bb
8	8	171213M1_9	Standard	100.000	5.43	44009.672	4389.382	125.330	100.9	0.9	NO	0.999	NO	bb
9	9	171213M1_10	Standard	250.000	5.42	110688.148	4853.943	285.047	249.3	-0.3	NO	0.999	NO	bb

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Compound name: PFUdA
Coefficient of Determination: R^2 = 0.990272
Calibration curve: -0.00508554 * x^2 + 1.34816 * x + -0.354836
Response type: Internal Std (Ref 46), 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	171213M1_2	Standard	0.250	5.44	416.835	14492.284	0.360	0.5	112.4	NO	0.990	NO	MMX
2	2	171213M1_3	Standard	0.500	5.45	700.233	12473.360	0.702	0.8	57.2	NO	0.990	NO	bbX
3	3	171213M1_4	Standard	1.000	5.45	1080.834	11981.129	1.128	1.1	10.4	NO	0.990	NO	bb
4	4	171213M1_5	Standard	2.000	5.44	2303.039	12420.649	2.318	2.0	-0.1	NO	0.990	NO	bb
5	5	171213M1_6	Standard	5.000	5.44	7499.305	13959.854	6.715	5.4	7.0	NO	0.990	NO	bb
6	6	171213M1_7	Standard	10.000	5.44	11247.396	14526.441	9.678	7.7	-23.4	NO	0.990	NO	bb
7	7	171213M1_8	Standard	50.000	5.44	58914.699	12589.713	58.495	55.1	10.2	NO	0.990	NO	bb
8	8	171213M1_9	Standard	100.000	5.45	98870.289	15108.911	81.798	94.9	-5.1	NO	0.990	NO	bb
9	9	171213M1_10	Standard	250.000	5.44	258087.766	14108.189	228.668			NO	0.990	NO	bbXI

Compound name: PFDS
Coefficient of Determination: R^2 = 0.992768
Calibration curve: 0.000121501 * x^2 + 0.267729 * x + 0.0900245
Response type: Internal Std (Ref 46), 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	171213M1_2	Standard	0.250	5.49	54.830	14492.284	0.047			NO	0.993	NO	MMXI
2	2	171213M1_3	Standard	0.500	5.49	197.495	12473.360	0.198	0.4	-19.4	NO	0.993	NO	bb
3	3	171213M1_4	Standard	1.000	5.49	269.504	11981.129	0.281	0.7	-28.6	NO	0.993	NO	bb
4	4	171213M1_5	Standard	2.000	5.49	687.753	12420.649	0.692	2.2	12.3	NO	0.993	NO	bb
5	5	171213M1_6	Standard	5.000	5.49	2023.273	13959.854	1.812	6.4	28.2	NO	0.993	NO	bb
6	6	171213M1_7	Standard	10.000	5.49	3335.937	14526.441	2.871	10.3	3.4	NO	0.993	NO	bb
7	7	171213M1_8	Standard	50.000	5.49	15953.794	12589.713	15.840	57.3	14.7	NO	0.993	NO	bb
8	8	171213M1_9	Standard	100.000	5.49	29766.016	15108.911	24.626	88.1	-11.9	NO	0.993	NO	bb
9	9	171213M1_10	Standard	250.000	5.49	85296.344	14108.189	75.573	252.9	1.2	NO	0.993	NO	bb

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Compound name: PFDoA
Coefficient of Determination: R^2 = 0.990298
Calibration curve: -0.00167051 * x^2 + 1.70756 * x + 0.0120157
Response type: Internal Std (Ref 47), 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	171213M1_2	Standard	0.250	5.72	386.970	11846.610	0.408	0.2	-7.1	NO	0.990	NO	bb
2	2	171213M1_3	Standard	0.500	5.73	854.325	11029.081	0.968	0.6	12.1	NO	0.990	NO	bb
3	3	171213M1_4	Standard	1.000	5.73	1290.510	9475.742	1.702	1.0	-0.9	NO	0.990	NO	bb
4	4	171213M1_5	Standard	2.000	5.72	2624.146	10503.260	3.123	1.8	-8.7	NO	0.990	NO	bb
5	5	171213M1_6	Standard	5.000	5.73	8540.601	10021.945	10.652	6.3	25.4	NO	0.990	NO	bb
6	6	171213M1_7	Standard	10.000	5.72	11998.816	10454.989	14.346	8.5	-15.4	NO	0.990	NO	bb
7	7	171213M1_8	Standard	50.000	5.72	54481.945	9906.268	68.747	42.0	-16.0	NO	0.990	NO	bb
8	8	171213M1_9	Standard	100.000	5.73	123474.438	8989.113	171.700	113.0	13.0	NO	0.990	NO	bb
9	9	171213M1_10	Standard	250.000	5.73	287553.875	11303.352	317.996	244.9	-2.0	NO	0.990	NO	bb

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.995369
Calibration curve: -0.00477474 * x^2 + 1.83712 * x + -0.0484525
Response type: Internal Std (Ref 47), 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	171213M1_2	Standard	0.250	5.97	447.360	11846.610	0.472	0.3	13.4	NO	0.995	NO	bb
2	2	171213M1_3	Standard	0.500	5.97	582.348	11029.081	0.660	0.4	-22.8	NO	0.995	NO	bb
3	3	171213M1_4	Standard	1.000	5.97	1396.027	9475.742	1.842	1.0	3.2	NO	0.995	NO	bb
4	4	171213M1_5	Standard	2.000	5.97	3159.384	10503.260	3.760	2.1	4.2	NO	0.995	NO	bb
5	5	171213M1_6	Standard	5.000	5.96	8438.002	10021.945	10.524	5.8	16.9	NO	0.995	NO	MM
6	6	171213M1_7	Standard	10.000	5.97	12389.533	10454.989	14.813	8.3	-17.3	NO	0.995	NO	bb
7	7	171213M1_8	Standard	50.000	5.97	65258.410	9906.268	82.345	51.8	3.7	NO	0.995	NO	bb
8	8	171213M1_9	Standard	100.000	5.97	97013.820	8989.113	134.905	98.9	-1.1	NO	0.995	NO	bb
9	9	171213M1_10	Standard	250.000	5.97	281865.875	11303.352	311.706			NO	0.995	NO	bbXI

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Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.997049
Calibration curve: -0.000464932 * x^2 + 1.72622 * x + 0.103252
Response type: Internal Std (Ref 49), 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	171213M1_2	Standard	0.250	6.18	318.824	7735.764	0.515	0.2	-4.5	NO	0.997	NO	bb
2	2	171213M1_3	Standard	0.500	6.18	598.002	9440.763	0.792	0.4	-20.2	NO	0.997	NO	bb
3	3	171213M1_4	Standard	1.000	6.18	1233.823	9033.579	1.707	0.9	-7.1	NO	0.997	NO	bb
4	4	171213M1_5	Standard	2.000	6.18	2448.827	7113.971	4.303	2.4	21.7	NO	0.997	NO	bb
5	5	171213M1_6	Standard	5.000	6.18	6284.528	8109.637	9.687	5.6	11.2	NO	0.997	NO	bb
6	6	171213M1_7	Standard	10.000	6.18	9977.032	6847.282	18.213	10.5	5.2	NO	0.997	NO	bb
7	7	171213M1_8	Standard	50.000	6.18	52477.617	8662.468	75.726	44.3	-11.3	NO	0.997	NO	bb
8	8	171213M1_9	Standard	100.000	6.18	104196.227	7356.032	177.059	105.5	5.5	NO	0.997	NO	bb
9	9	171213M1_10	Standard	250.000	6.18	226637.391	7067.347	400.853	248.8	-0.5	NO	0.997	NO	bb

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Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.997037
Calibration curve: -0.000172023 * x^2 + 0.558966 * x + 0.120582
Response type: Internal Std (Ref 51), 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	171213M1_2	Standard	0.250	6.49	212.200	4407.479	0.241	0.2	-14.0	NO	0.997	NO	bb
2	2	171213M1_3	Standard	0.500	6.49	380.738	4391.232	0.434	0.6	12.0	NO	0.997	NO	bb
3	3	171213M1_4	Standard	1.000	6.49	595.275	4421.708	0.673	1.0	-1.1	NO	0.997	NO	bb
4	4	171213M1_5	Standard	2.000	6.49	986.131	4407.926	1.119	1.8	-10.7	NO	0.997	NO	bb
5	5	171213M1_6	Standard	5.000	6.49	3076.950	4363.278	3.526	6.1	22.1	NO	0.997	NO	bb
6	6	171213M1_7	Standard	10.000	6.49	4715.964	4290.659	5.496	9.6	-3.6	NO	0.997	NO	bb
7	7	171213M1_8	Standard	50.000	6.49	23978.689	4811.489	24.918	45.0	-10.0	NO	0.997	NO	bb
8	8	171213M1_9	Standard	100.000	6.49	50278.043	4378.051	57.421	106.0	6.0	NO	0.997	NO	bb
9	9	171213M1_10	Standard	250.000	6.49	124306.797	4840.535	128.402	248.5	-0.6	NO	0.997	NO	bb

Compound name: PFODA
Coefficient of Determination: R^2 = 0.998669
Calibration curve: -0.00039744 * x^2 + 0.822793 * x + 0.0114939
Response type: Internal Std (Ref 51), 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	171213M1_2	Standard	0.250	6.72	152.113	4407.479	0.173	0.2	-21.7	NO	0.999	NO	bb
2	2	171213M1_3	Standard	0.500	6.72	404.886	4391.232	0.461	0.5	9.3	NO	0.999	NO	bb
3	3	171213M1_4	Standard	1.000	6.71	731.639	4421.708	0.827	1.0	-0.8	NO	0.999	NO	bb
4	4	171213M1_5	Standard	2.000	6.72	1417.557	4407.926	1.608	1.9	-2.9	NO	0.999	NO	bb
5	5	171213M1_6	Standard	5.000	6.71	4376.341	4363.278	5.015	6.1	22.0	NO	0.999	NO	bb
6	6	171213M1_7	Standard	10.000	6.72	7321.194	4290.659	8.532	10.4	4.1	NO	0.999	NO	bb
7	7	171213M1_8	Standard	50.000	6.72	36391.309	4811.489	37.817	47.0	-6.0	NO	0.999	NO	bb
8	8	171213M1_9	Standard	100.000	6.72	69643.430	4378.051	79.537	101.6	1.6	NO	0.999	NO	bb
9	9	171213M1_10	Standard	250.000	6.72	175051.797	4840.535	180.819	249.9	-0.0	NO	0.999	NO	bb

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Compound name: 13C3-PFBA
Response Factor: 0.946958
RRF SD: 0.0205882, Relative SD: 2.17414
Response type: Internal Std (Ref 54), 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 171213M1_2	Standard	12.500	1.45	10741.975	11077.611	12.121	12.8	2.4	NO		NO	bb
2	2 171213M1_3	Standard	12.500	1.46	11135.552	12056.813	11.545	12.2	-2.5	NO		NO	bb
3	3 171213M1_4	Standard	12.500	1.46	11168.987	11445.461	12.198	12.9	3.1	NO		NO	bb
4	4 171213M1_5	Standard	12.500	1.46	10409.641	10933.431	11.901	12.6	0.5	NO		NO	bb
5	5 171213M1_6	Standard	12.500	1.46	10406.228	11003.989	11.821	12.5	-0.1	NO		NO	bb
6	6 171213M1_7	Standard	12.500	1.46	10102.983	10560.908	11.958	12.6	1.0	NO		NO	bb
7	7 171213M1_8	Standard	12.500	1.46	10122.787	10638.680	11.894	12.6	0.5	NO		NO	bb
8	8 171213M1_9	Standard	12.500	1.46	9791.349	10735.904	11.400	12.0	-3.7	NO		NO	bb
9	9 171213M1_10	Standard	12.500	1.46	10099.015	10794.699	11.694	12.3	-1.2	NO		NO	bb

Compound name: 13C3-PFPeA
Response Factor: 0.848509
RRF SD: 0.0400305, Relative SD: 4.71775
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	12.500	2.41	13632.397	15581.669	10.936	12.9	3.1	NO		NO	bb
2	2 171213M1_3	Standard	12.500	2.41	14071.133	16981.982	10.357	12.2	-2.3	NO		NO	bb
3	3 171213M1_4	Standard	12.500	2.41	13591.616	16906.754	10.049	11.8	-5.3	NO		NO	bb
4	4 171213M1_5	Standard	12.500	2.41	12277.306	15200.986	10.096	11.9	-4.8	NO		NO	bb
5	5 171213M1_6	Standard	12.500	2.41	13405.649	15279.291	10.967	12.9	3.4	NO		NO	bb
6	6 171213M1_7	Standard	12.500	2.41	12149.220	14734.080	10.307	12.1	-2.8	NO		NO	bb
7	7 171213M1_8	Standard	12.500	2.41	13023.261	15759.355	10.330	12.2	-2.6	NO		NO	bb
8	8 171213M1_9	Standard	12.500	2.41	12756.222	13799.057	11.555	13.6	8.9	NO		NO	bb
9	9 171213M1_10	Standard	12.500	2.41	12967.556	14926.524	10.859	12.8	2.4	NO		NO	bb

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Compound name: 13C3-PFBS
Response Factor: 0.11685
RRF SD: 0.00828632, Relative SD: 7.09143
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	12.500	2.68	1652.976	15581.669	1.326	11.3	-9.2	NO		NO	bb
2	2 171213M1_3	Standard	12.500	2.68	1815.295	16981.982	1.336	11.4	-8.5	NO		NO	bb
3	3 171213M1_4	Standard	12.500	2.68	1978.115	16906.754	1.463	12.5	0.1	NO		NO	bb
4	4 171213M1_5	Standard	12.500	2.68	1845.958	15200.986	1.518	13.0	3.9	NO		NO	bb
5	5 171213M1_6	Standard	12.500	2.68	1956.266	15279.291	1.600	13.7	9.6	NO		NO	bb
6	6 171213M1_7	Standard	12.500	2.68	1684.768	14734.080	1.429	12.2	-2.1	NO		NO	bb
7	7 171213M1_8	Standard	12.500	2.68	1884.269	15759.355	1.495	12.8	2.3	NO		NO	bb
8	8 171213M1_9	Standard	12.500	2.69	1769.017	13799.057	1.602	13.7	9.7	NO		NO	bb
9	9 171213M1_10	Standard	12.500	2.68	1643.209	14926.524	1.376	11.8	-5.8	NO		NO	bb

Compound name: 13C2-PFHxA
Response Factor: 0.778846
RRF SD: 0.0468738, Relative SD: 6.01837
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	5.000	3.17	4824.253	15581.669	3.870	5.0	-0.6	NO		NO	bb
2	2 171213M1_3	Standard	5.000	3.18	4628.844	16981.982	3.407	4.4	-12.5	NO		NO	bb
3	3 171213M1_4	Standard	5.000	3.17	5542.956	16906.754	4.098	5.3	5.2	NO		NO	bb
4	4 171213M1_5	Standard	5.000	3.18	4618.847	15200.986	3.798	4.9	-2.5	NO		NO	bb
5	5 171213M1_6	Standard	5.000	3.18	4966.737	15279.291	4.063	5.2	4.3	NO		NO	bb
6	6 171213M1_7	Standard	5.000	3.17	4532.189	14734.080	3.845	4.9	-1.3	NO		NO	bb
7	7 171213M1_8	Standard	5.000	3.17	4906.496	15759.355	3.892	5.0	-0.1	NO		NO	bb
8	8 171213M1_9	Standard	5.000	3.18	4676.034	13799.057	4.236	5.4	8.8	NO		NO	bb
9	9 171213M1_10	Standard	5.000	3.17	4583.738	14926.524	3.839	4.9	-1.4	NO		NO	bb

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Compound name: 13C4-PFHpA
Response Factor: 0.63986
RRF SD: 0.0491485, Relative SD: 7.68114
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	12.500	3.80	10764.013	15581.669	8.635	13.5	8.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	3.80	10617.380	16981.982	7.815	12.2	-2.3	NO		NO	bb
3	3 171213M1_4	Standard	12.500	3.80	10199.383	16906.754	7.541	11.8	-5.7	NO		NO	bb
4	4 171213M1_5	Standard	12.500	3.80	10952.771	15200.986	9.007	14.1	12.6	NO		NO	bb
5	5 171213M1_6	Standard	12.500	3.80	9432.160	15279.291	7.716	12.1	-3.5	NO		NO	bb
6	6 171213M1_7	Standard	12.500	3.80	9132.018	14734.080	7.747	12.1	-3.1	NO		NO	bb
7	7 171213M1_8	Standard	12.500	3.80	9471.118	15759.355	7.512	11.7	-6.1	NO		NO	bb
8	8 171213M1_9	Standard	12.500	3.80	9608.101	13799.057	8.704	13.6	8.8	NO		NO	bb
9	9 171213M1_10	Standard	12.500	3.80	8725.025	14926.524	7.307	11.4	-8.6	NO		NO	bb

Compound name: 18O2-PFHxS
Response Factor: 0.452199
RRF SD: 0.0269987, Relative SD: 5.97054
Response type: Internal Std (Ref 56), 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 171213M1_2	Standard	12.500	3.95	1520.939	3386.612	5.614	12.4	-0.7	NO		NO	bb
2	2 171213M1_3	Standard	12.500	3.95	1632.040	3518.378	5.798	12.8	2.6	NO		NO	bb
3	3 171213M1_4	Standard	12.500	3.94	1533.072	3800.467	5.042	11.2	-10.8	NO		NO	bb
4	4 171213M1_5	Standard	12.500	3.95	1329.291	2824.559	5.883	13.0	4.1	NO		NO	bb
5	5 171213M1_6	Standard	12.500	3.95	1492.712	3062.909	6.092	13.5	7.8	NO		NO	bb
6	6 171213M1_7	Standard	12.500	3.95	1482.237	3075.197	6.025	13.3	6.6	NO		NO	bb
7	7 171213M1_8	Standard	12.500	3.95	1462.747	3254.685	5.618	12.4	-0.6	NO		NO	bb
8	8 171213M1_9	Standard	12.500	3.95	1220.088	2844.139	5.362	11.9	-5.1	NO		NO	bb
9	9 171213M1_10	Standard	12.500	3.95	1279.138	2940.192	5.438	12.0	-3.8	NO		NO	bb

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Compound name: 13C2-6:2 FTS
Response Factor: 0.244687
RRF SD: 0.0257231, Relative SD: 10.5127
Response type: Internal Std (Ref 57), 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 171213M1_2	Standard	12.500	4.26	2466.089	11123.392	2.771	11.3	-9.4	NO		NO	bb
2	2 171213M1_3	Standard	12.500	4.26	3134.912	13127.391	2.985	12.2	-2.4	NO		NO	bb
3	3 171213M1_4	Standard	12.500	4.26	2935.334	11333.698	3.237	13.2	5.8	NO		NO	bb
4	4 171213M1_5	Standard	12.500	4.26	2616.329	11913.378	2.745	11.2	-10.2	NO		NO	bb
5	5 171213M1_6	Standard	12.500	4.26	2668.189	11256.094	2.963	12.1	-3.1	NO		NO	bb
6	6 171213M1_7	Standard	12.500	4.26	2545.120	10133.711	3.139	12.8	2.6	NO		NO	bb
7	7 171213M1_8	Standard	12.500	4.26	2952.051	12770.536	2.890	11.8	-5.5	NO		NO	bb
8	8 171213M1_9	Standard	12.500	4.26	3252.778	10878.024	3.738	15.3	22.2	NO		NO	bb
9	9 171213M1_10	Standard	12.500	4.26	4583.686	11279.480	5.080	20.8	66.1	NO		NO	bbX

Compound name: 13C2-PFOA
Response Factor: 1.21818
RRF SD: 0.0846947, Relative SD: 6.95258
Response type: Internal Std (Ref 57), 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 171213M1_2	Standard	12.500	4.32	13779.503	11123.392	15.485	12.7	1.7	NO		NO	MM
2	2 171213M1_3	Standard	12.500	4.32	16160.108	13127.391	15.388	12.6	1.1	NO		NO	MM
3	3 171213M1_4	Standard	12.500	4.32	15103.297	11333.698	16.658	13.7	9.4	NO		NO	bb
4	4 171213M1_5	Standard	12.500	4.31	12922.896	11913.378	13.559	11.1	-11.0	NO		NO	MM
5	5 171213M1_6	Standard	12.500	4.32	12601.789	11256.094	13.994	11.5	-8.1	NO		NO	MM
6	6 171213M1_7	Standard	12.500	4.32	13432.239	10133.711	16.569	13.6	8.8	NO		NO	bb
7	7 171213M1_8	Standard	12.500	4.31	14836.972	12770.536	14.523	11.9	-4.6	NO		NO	MM
8	8 171213M1_9	Standard	12.500	4.32	13198.351	10878.024	15.166	12.5	-0.4	NO		NO	bb
9	9 171213M1_10	Standard	12.500	4.32	14170.102	11279.480	15.703	12.9	3.1	NO		NO	bb

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Compound name: 13C5-PFNA
Response Factor: 1.01745
RRF SD: 0.0704754, Relative SD: 6.92663
Response type: Internal Std (Ref 58), 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 171213M1_2	Standard	12.500	4.75	12557.678	12337.525	12.723	12.5	0.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	4.75	12557.513	13774.881	11.395	11.2	-10.4	NO		NO	bb
3	3 171213M1_4	Standard	12.500	4.75	11316.919	12250.436	11.547	11.3	-9.2	NO		NO	bb
4	4 171213M1_5	Standard	12.500	4.75	11568.229	10840.550	13.339	13.1	4.9	NO		NO	bb
5	5 171213M1_6	Standard	12.500	4.75	11273.077	11443.091	12.314	12.1	-3.2	NO		NO	bb
6	6 171213M1_7	Standard	12.500	4.75	10521.570	9625.678	13.663	13.4	7.4	NO		NO	bb
7	7 171213M1_8	Standard	12.500	4.75	12252.649	11640.526	13.157	12.9	3.5	NO		NO	bb
8	8 171213M1_9	Standard	12.500	4.75	10179.540	10233.444	12.434	12.2	-2.2	NO		NO	bb
9	9 171213M1_10	Standard	12.500	4.75	11168.106	10050.774	13.890	13.7	9.2	NO		NO	bb

Compound name: 13C8-PFOSA
Response Factor: 0.308703
RRF SD: 0.036351, Relative SD: 11.7754
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	4.81	3563.003	13775.339	3.233	10.5	-16.2	NO		NO	bb
2	2 171213M1_3	Standard	12.500	4.81	4250.932	13197.242	4.026	13.0	4.3	NO		NO	bb
3	3 171213M1_4	Standard	12.500	4.81	4235.003	15024.033	3.524	11.4	-8.7	NO		NO	bb
4	4 171213M1_5	Standard	12.500	4.81	3576.185	11985.550	3.730	12.1	-3.3	NO		NO	bb
5	5 171213M1_6	Standard	12.500	4.81	4033.987	13205.894	3.818	12.4	-1.0	NO		NO	bb
6	6 171213M1_7	Standard	12.500	4.81	3498.629	12087.324	3.618	11.7	-6.2	NO		NO	bb
7	7 171213M1_8	Standard	12.500	4.81	3595.655	11654.253	3.857	12.5	-0.1	NO		NO	bb
8	8 171213M1_9	Standard	12.500	4.81	3830.357	11782.028	4.064	13.2	5.3	NO		NO	bb
9	9 171213M1_10	Standard	12.500	4.81	3597.251	9253.015	4.860	15.7	25.9	NO		NO	bb

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Compound name: 13C8-PFOS
Response Factor: 1.05287
RRF SD: 0.0591872, Relative SD: 5.62151
Response type: Internal Std (Ref 59), 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 171213M1_2	Standard	12.500	4.83	4312.839	3970.538	13.578	12.9	3.2	NO		NO	bb
2	2 171213M1_3	Standard	12.500	4.83	4240.555	4128.348	12.840	12.2	-2.4	NO		NO	bb
3	3 171213M1_4	Standard	12.500	4.83	3656.256	3753.524	12.176	11.6	-7.5	NO		NO	bb
4	4 171213M1_5	Standard	12.500	4.83	3671.074	3480.851	13.183	12.5	0.2	NO		NO	bb
5	5 171213M1_6	Standard	12.500	4.83	4127.500	3820.280	13.505	12.8	2.6	NO		NO	bb
6	6 171213M1_7	Standard	12.500	4.83	3991.446	3413.572	14.616	13.9	11.1	NO		NO	bb
7	7 171213M1_8	Standard	12.500	4.83	3888.885	3725.665	13.048	12.4	-0.9	NO		NO	bb
8	8 171213M1_9	Standard	12.500	4.83	3429.046	3505.262	12.228	11.6	-7.1	NO		NO	bb
9	9 171213M1_10	Standard	12.500	4.83	3808.454	3586.315	13.274	12.6	0.9	NO		NO	bb

Compound name: 13C2-PFDA
Response Factor: 1.21408
RRF SD: 0.114126, Relative SD: 9.40026
Response type: Internal Std (Ref 60), 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 171213M1_2	Standard	12.500	5.12	11558.876	10425.977	13.858	11.4	-8.7	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.12	12458.429	10615.052	14.671	12.1	-3.3	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.12	12811.424	9452.506	16.942	14.0	11.6	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.12	13617.788	10565.443	16.111	13.3	6.2	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.12	11099.144	10257.063	13.526	11.1	-10.9	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.12	13046.675	9868.906	16.525	13.6	8.9	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.12	13366.214	12562.351	13.300	11.0	-12.4	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.12	13026.133	9773.800	16.660	13.7	9.8	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.12	11652.976	9716.745	14.991	12.3	-1.2	NO		NO	bb

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Compound name: 13C2-8:2 FTS
Response Factor: 0.103095
RRF SD: 0.0158059, Relative SD: 15.3313
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	12.500	5.09	1313.572	15581.669	1.054	10.2	-18.2	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.10	1309.293	16981.982	0.964	9.3	-25.2	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.10	1818.764	16906.754	1.345	13.0	4.3	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.09	1759.939	15200.986	1.447	14.0	12.3	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.10	1654.304	15279.291	1.353	13.1	5.0	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.09	1406.160	14734.080	1.193	11.6	-7.4	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.09	1858.332	15759.355	1.474	14.3	14.4	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.09	1633.551	13799.057	1.480	14.4	14.8	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.09	3093.997	14926.524	2.591	25.1	101.1	NO		NO	bbX

Compound name: d3-N-MeFOSAA
Response Factor: 0.328819
RRF SD: 0.0654173, Relative SD: 19.8946
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	5.27	3641.869	13775.339	3.305	10.1	-19.6	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.27	4263.398	13197.242	4.038	12.3	-1.8	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.27	4494.928	15024.033	3.740	11.4	-9.0	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.27	3109.020	11985.550	3.242	9.9	-21.1	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.27	4508.316	13205.894	4.267	13.0	3.8	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.26	3714.572	12087.324	3.841	11.7	-6.5	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.27	4583.969	11654.253	4.917	15.0	19.6	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.27	3590.146	11782.028	3.809	11.6	-7.3	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.27	4317.613	9253.015	5.833	17.7	41.9	NO		NO	bb

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Compound name: d5-N-EtFOSAA
Response Factor: 0.393888
RRF SD: 0.0555394, Relative SD: 14.1003
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	5.42	4474.278	13775.339	4.060	10.3	-17.5	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.42	4995.517	13197.242	4.732	12.0	-3.9	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.42	5290.141	15024.033	4.401	11.2	-10.6	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.42	4831.567	11985.550	5.039	12.8	2.3	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.42	5332.432	13205.894	5.047	12.8	2.5	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.42	4625.979	12087.324	4.784	12.1	-2.8	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.42	4694.315	11654.253	5.035	12.8	2.3	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.42	4389.382	11782.028	4.657	11.8	-5.4	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.42	4853.943	9253.015	6.557	16.6	33.2	NO		NO	bb

Compound name: 13C2-PFUdA
Response Factor: 1.10858
RRF SD: 0.208397, Relative SD: 18.7986
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	5.44	14492.284	13775.339	13.151	11.9	-5.1	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.44	12473.360	13197.242	11.814	10.7	-14.7	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.44	11981.129	15024.033	9.968	9.0	-28.1	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.44	12420.649	11985.550	12.954	11.7	-6.5	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.44	13959.854	13205.894	13.214	11.9	-4.6	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.44	14526.441	12087.324	15.022	13.6	8.4	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.44	12589.713	11654.253	13.503	12.2	-2.6	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.44	15108.911	11782.028	16.030	14.5	15.7	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.44	14108.189	9253.015	19.059	17.2	37.5	NO		NO	bb

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Compound name: 13C2-PFDoA
Response Factor: 0.851237
RRF SD: 0.159393, Relative SD: 18.7249
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	5.72	11846.610	13775.339	10.750	12.6	1.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	5.72	11029.081	13197.242	10.446	12.3	-1.8	NO		NO	bb
3	3 171213M1_4	Standard	12.500	5.72	9475.742	15024.033	7.884	9.3	-25.9	NO		NO	bb
4	4 171213M1_5	Standard	12.500	5.73	10503.260	11985.550	10.954	12.9	2.9	NO		NO	bb
5	5 171213M1_6	Standard	12.500	5.73	10021.945	13205.894	9.486	11.1	-10.8	NO		NO	bb
6	6 171213M1_7	Standard	12.500	5.72	10454.989	12087.324	10.812	12.7	1.6	NO		NO	bb
7	7 171213M1_8	Standard	12.500	5.72	9906.268	11654.253	10.625	12.5	-0.1	NO		NO	bb
8	8 171213M1_9	Standard	12.500	5.72	8989.113	11782.028	9.537	11.2	-10.4	NO		NO	bb
9	9 171213M1_10	Standard	12.500	5.73	11303.352	9253.015	15.270	17.9	43.5	NO		NO	bb

Compound name: 13C2-PFTeDA
Response Factor: 0.642638
RRF SD: 0.0772485, Relative SD: 12.0205
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	12.500	6.18	7735.764	13775.339	7.020	10.9	-12.6	NO		NO	bb
2	2 171213M1_3	Standard	12.500	6.18	9440.763	13197.242	8.942	13.9	11.3	NO		NO	bb
3	3 171213M1_4	Standard	12.500	6.18	9033.579	15024.033	7.516	11.7	-6.4	NO		NO	bb
4	4 171213M1_5	Standard	12.500	6.18	7113.971	11985.550	7.419	11.5	-7.6	NO		NO	bb
5	5 171213M1_6	Standard	12.500	6.18	8109.637	13205.894	7.676	11.9	-4.4	NO		NO	bb
6	6 171213M1_7	Standard	12.500	6.18	6847.282	12087.324	7.081	11.0	-11.9	NO		NO	bb
7	7 171213M1_8	Standard	12.500	6.18	8662.468	11654.253	9.291	14.5	15.7	NO		NO	bb
8	8 171213M1_9	Standard	12.500	6.18	7356.032	11782.028	7.804	12.1	-2.8	NO		NO	bb
9	9 171213M1_10	Standard	12.500	6.18	7067.347	9253.015	9.547	14.9	18.9	NO		NO	bb

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Compound name: 13C2-PFHxDA
Response Factor: 0.918811
RRF SD: 0.16922, Relative SD: 18.4173
Response type: Internal Std (Ref 61), 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 171213M1_2	Standard	5.000	6.49	4407.479	13775.339	3.999	4.4	-12.9	NO		NO	bb
2	2 171213M1_3	Standard	5.000	6.49	4391.232	13197.242	4.159	4.5	-9.5	NO		NO	bb
3	3 171213M1_4	Standard	5.000	6.49	4421.708	15024.033	3.679	4.0	-19.9	NO		NO	bb
4	4 171213M1_5	Standard	5.000	6.49	4407.926	11985.550	4.597	5.0	0.1	NO		NO	bb
5	5 171213M1_6	Standard	5.000	6.49	4363.278	13205.894	4.130	4.5	-10.1	NO		NO	bb
6	6 171213M1_7	Standard	5.000	6.49	4290.659	12087.324	4.437	4.8	-3.4	NO		NO	bb
7	7 171213M1_8	Standard	5.000	6.49	4811.489	11654.253	5.161	5.6	12.3	NO		NO	bb
8	8 171213M1_9	Standard	5.000	6.49	4378.051	11782.028	4.645	5.1	1.1	NO		NO	bb
9	9 171213M1_10	Standard	5.000	6.49	4840.535	9253.015	6.539	7.1	42.3	NO		NO	bb

Compound name: 13C4-PFBA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 54), 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 171213M1_2	Standard	12.500	1.46	11077.611	11077.611	12.500	12.5	0.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	1.46	12056.813	12056.813	12.500	12.5	0.0	NO		NO	bb
3	3 171213M1_4	Standard	12.500	1.46	11445.461	11445.461	12.500	12.5	0.0	NO		NO	bb
4	4 171213M1_5	Standard	12.500	1.46	10933.431	10933.431	12.500	12.5	0.0	NO		NO	bb
5	5 171213M1_6	Standard	12.500	1.46	11003.989	11003.989	12.500	12.5	0.0	NO		NO	bb
6	6 171213M1_7	Standard	12.500	1.46	10560.908	10560.908	12.500	12.5	0.0	NO		NO	bb
7	7 171213M1_8	Standard	12.500	1.46	10638.680	10638.680	12.500	12.5	0.0	NO		NO	bb
8	8 171213M1_9	Standard	12.500	1.46	10735.904	10735.904	12.500	12.5	0.0	NO		NO	bb
9	9 171213M1_10	Standard	12.500	1.46	10794.699	10794.699	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 6.7987e-017, Relative SD: 6.7987e-015
Response type: Internal Std (Ref 55), 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 171213M1_2	Standard	12.500	3.17	15581.669	15581.669	12.500	12.5	0.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	3.18	16981.982	16981.982	12.500	12.5	0.0	NO		NO	bb
3	3 171213M1_4	Standard	12.500	3.18	16906.754	16906.754	12.500	12.5	0.0	NO		NO	bb
4	4 171213M1_5	Standard	12.500	3.18	15200.986	15200.986	12.500	12.5	0.0	NO		NO	bb
5	5 171213M1_6	Standard	12.500	3.18	15279.291	15279.291	12.500	12.5	0.0	NO		NO	bb
6	6 171213M1_7	Standard	12.500	3.17	14734.080	14734.080	12.500	12.5	0.0	NO		NO	bb
7	7 171213M1_8	Standard	12.500	3.18	15759.355	15759.355	12.500	12.5	0.0	NO		NO	bb
8	8 171213M1_9	Standard	12.500	3.18	13799.057	13799.057	12.500	12.5	0.0	NO		NO	bb
9	9 171213M1_10	Standard	12.500	3.18	14926.524	14926.524	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C3-PFHxS
Response Factor: 1
RRF SD: 8.77708e-017, Relative SD: 8.77708e-015
Response type: Internal Std (Ref 56), 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 171213M1_2	Standard	12.500	3.95	3386.612	3386.612	12.500	12.5	0.0	NO		NO	bb
2	2 171213M1_3	Standard	12.500	3.95	3518.378	3518.378	12.500	12.5	0.0	NO		NO	bb
3	3 171213M1_4	Standard	12.500	3.95	3800.467	3800.467	12.500	12.5	0.0	NO		NO	bb
4	4 171213M1_5	Standard	12.500	3.95	2824.559	2824.559	12.500	12.5	0.0	NO		NO	bb
5	5 171213M1_6	Standard	12.500	3.95	3062.909	3062.909	12.500	12.5	0.0	NO		NO	bb
6	6 171213M1_7	Standard	12.500	3.95	3075.197	3075.197	12.500	12.5	0.0	NO		NO	bb
7	7 171213M1_8	Standard	12.500	3.95	3254.685	3254.685	12.500	12.5	0.0	NO		NO	bb
8	8 171213M1_9	Standard	12.500	3.95	2844.139	2844.139	12.500	12.5	0.0	NO		NO	bb
9	9 171213M1_10	Standard	12.500	3.95	2940.192	2940.192	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 57), 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	171213M1_2	Standard	12.500	4.32	11123.392	11123.392	12.500	12.5	0.0	NO		NO	bb
2	2	171213M1_3	Standard	12.500	4.32	13127.391	13127.391	12.500	12.5	0.0	NO		NO	bb
3	3	171213M1_4	Standard	12.500	4.32	11333.698	11333.698	12.500	12.5	0.0	NO		NO	bb
4	4	171213M1_5	Standard	12.500	4.31	11913.378	11913.378	12.500	12.5	0.0	NO		NO	bb
5	5	171213M1_6	Standard	12.500	4.32	11256.094	11256.094	12.500	12.5	0.0	NO		NO	bb
6	6	171213M1_7	Standard	12.500	4.31	10133.711	10133.711	12.500	12.5	0.0	NO		NO	bb
7	7	171213M1_8	Standard	12.500	4.31	12770.536	12770.536	12.500	12.5	0.0	NO		NO	bb
8	8	171213M1_9	Standard	12.500	4.32	10878.024	10878.024	12.500	12.5	0.0	NO		NO	bb
9	9	171213M1_10	Standard	12.500	4.32	11279.480	11279.480	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C9-PFNA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 58), 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	171213M1_2	Standard	12.500	4.76	12337.525	12337.525	12.500	12.5	0.0	NO		NO	bb
2	2	171213M1_3	Standard	12.500	4.75	13774.881	13774.881	12.500	12.5	0.0	NO		NO	bb
3	3	171213M1_4	Standard	12.500	4.75	12250.436	12250.436	12.500	12.5	0.0	NO		NO	bb
4	4	171213M1_5	Standard	12.500	4.75	10840.550	10840.550	12.500	12.5	0.0	NO		NO	bb
5	5	171213M1_6	Standard	12.500	4.75	11443.091	11443.091	12.500	12.5	0.0	NO		NO	bb
6	6	171213M1_7	Standard	12.500	4.75	9625.678	9625.678	12.500	12.5	0.0	NO		NO	bb
7	7	171213M1_8	Standard	12.500	4.75	11640.526	11640.526	12.500	12.5	0.0	NO		NO	bb
8	8	171213M1_9	Standard	12.500	4.75	10233.444	10233.444	12.500	12.5	0.0	NO		NO	bb
9	9	171213M1_10	Standard	12.500	4.75	10050.774	10050.774	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 1.24127e-016, Relative SD: 1.24127e-014
Response type: Internal Std (Ref 59), 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	171213M1_2	Standard	12.500	4.83	3970.538	3970.538	12.500	12.5	0.0	NO		NO	bb
2	2	171213M1_3	Standard	12.500	4.83	4128.348	4128.348	12.500	12.5	0.0	NO		NO	bb
3	3	171213M1_4	Standard	12.500	4.83	3753.524	3753.524	12.500	12.5	0.0	NO		NO	bb
4	4	171213M1_5	Standard	12.500	4.83	3480.851	3480.851	12.500	12.5	0.0	NO		NO	bb
5	5	171213M1_6	Standard	12.500	4.83	3820.280	3820.280	12.500	12.5	0.0	NO		NO	bb
6	6	171213M1_7	Standard	12.500	4.83	3413.572	3413.572	12.500	12.5	0.0	NO		NO	bb
7	7	171213M1_8	Standard	12.500	4.83	3725.665	3725.665	12.500	12.5	0.0	NO		NO	bb
8	8	171213M1_9	Standard	12.500	4.83	3505.262	3505.262	12.500	12.5	0.0	NO		NO	bb
9	9	171213M1_10	Standard	12.500	4.83	3586.315	3586.315	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 60), 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	171213M1_2	Standard	12.500	5.12	10425.977	10425.977	12.500	12.5	0.0	NO		NO	bb
2	2	171213M1_3	Standard	12.500	5.12	10615.052	10615.052	12.500	12.5	0.0	NO		NO	bb
3	3	171213M1_4	Standard	12.500	5.12	9452.506	9452.506	12.500	12.5	0.0	NO		NO	bb
4	4	171213M1_5	Standard	12.500	5.12	10565.443	10565.443	12.500	12.5	0.0	NO		NO	bb
5	5	171213M1_6	Standard	12.500	5.12	10257.063	10257.063	12.500	12.5	0.0	NO		NO	bb
6	6	171213M1_7	Standard	12.500	5.12	9868.906	9868.906	12.500	12.5	0.0	NO		NO	bb
7	7	171213M1_8	Standard	12.500	5.12	12562.351	12562.351	12.500	12.5	0.0	NO		NO	bb
8	8	171213M1_9	Standard	12.500	5.12	9773.800	9773.800	12.500	12.5	0.0	NO		NO	bb
9	9	171213M1_10	Standard	12.500	5.12	9716.745	9716.745	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 61), 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	171213M1_2	Standard	12.500	5.44	13775.339	13775.339	12.500	12.5	0.0	NO		NO	bb
2	2	171213M1_3	Standard	12.500	5.44	13197.242	13197.242	12.500	12.5	0.0	NO		NO	bb
3	3	171213M1_4	Standard	12.500	5.44	15024.033	15024.033	12.500	12.5	0.0	NO		NO	bb
4	4	171213M1_5	Standard	12.500	5.44	11985.550	11985.550	12.500	12.5	0.0	NO		NO	bb
5	5	171213M1_6	Standard	12.500	5.44	13205.894	13205.894	12.500	12.5	0.0	NO		NO	bb
6	6	171213M1_7	Standard	12.500	5.45	12087.324	12087.324	12.500	12.5	0.0	NO		NO	bb
7	7	171213M1_8	Standard	12.500	5.44	11654.253	11654.253	12.500	12.5	0.0	NO		NO	bb
8	8	171213M1_9	Standard	12.500	5.44	11782.028	11782.028	12.500	12.5	0.0	NO		NO	bb
9	9	171213M1_10	Standard	12.500	5.44	9253.015	9253.015	12.500	12.5	0.0	NO		NO	bb

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Dataset: Untitled

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Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	171213M1_1	IPA	13-Dec-17	18:58:54
2	171213M1_2	ST171213M1-1 PFC CS-2 17L0504	13-Dec-17	19:10:03
3	171213M1_3	ST171213M1-2 PFC CS-1 17L0505	13-Dec-17	19:21:14
4	171213M1_4	ST171213M1-3 PFC CS0 17L0506	13-Dec-17	19:32:25
5	171213M1_5	ST171213M1-4 PFC CS1 17L0507	13-Dec-17	19:43:35
6	171213M1_6	ST171213M1-5 PFC CS2 17L0508	13-Dec-17	19:54:46
7	171213M1_7	ST171213M1-6 PFC CS3 17L0509	13-Dec-17	20:05:56
8	171213M1_8	ST171213M1-7 PFC CS4 17L0510	13-Dec-17	20:17:07
9	171213M1_9	ST171213M1-8 PFC CS5 17L0511	13-Dec-17	20:28:17
10	171213M1_10	ST171213M1-9 PFC CS6 17L0512	13-Dec-17	20:39:28
11	171213M1_11	ST171213M1-10 PFC CS7 17L0513	13-Dec-17	20:50:39
12	171213M1_12	IPA	13-Dec-17	21:01:50
13	171213M1_13	ICV171213M1-1 PFC ICV 17L0503	13-Dec-17	21:13:00
14	171213M1_14	IPA	13-Dec-17	21:24:11

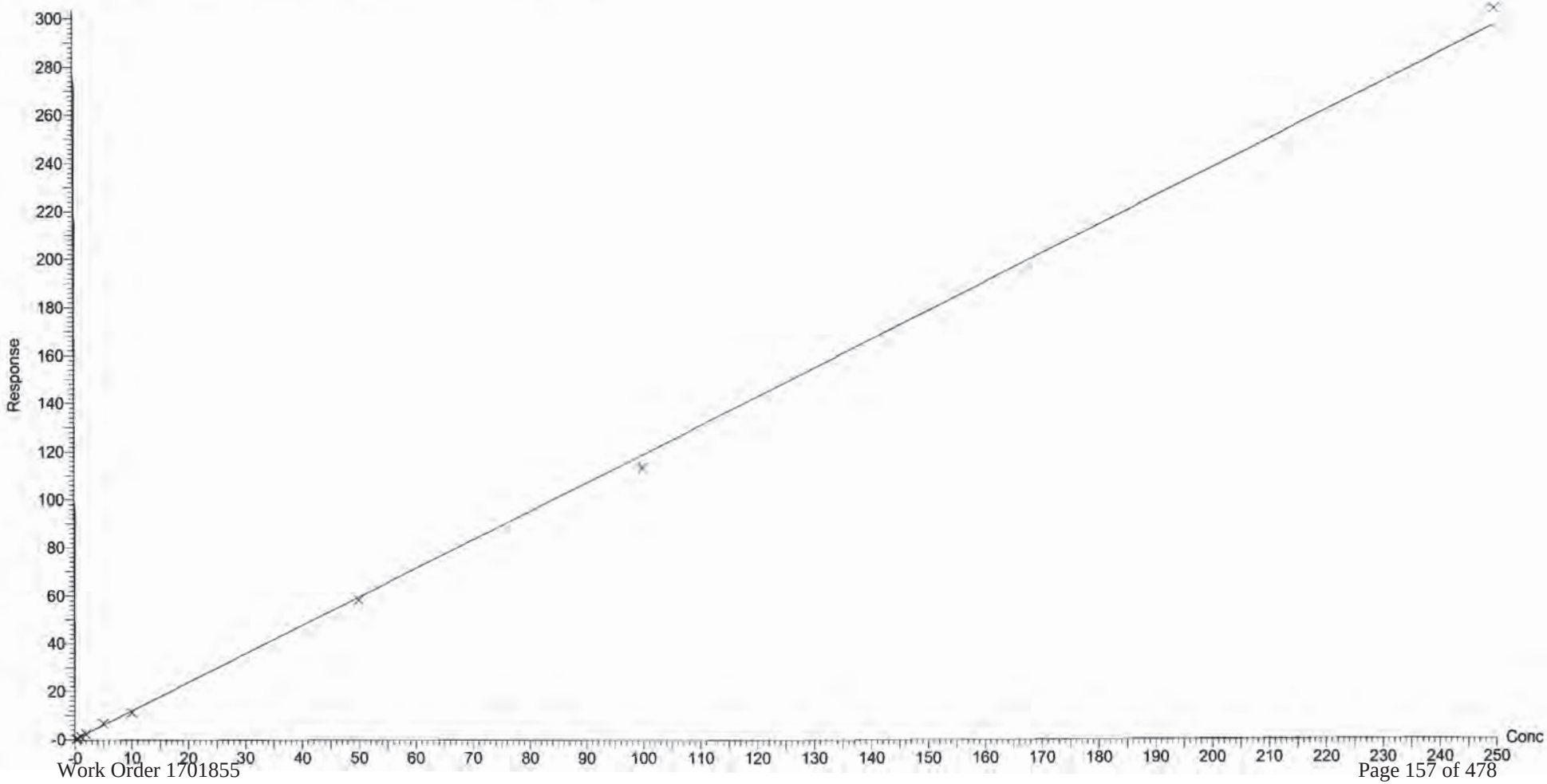
Vista Analytical Laboratory Q1

Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

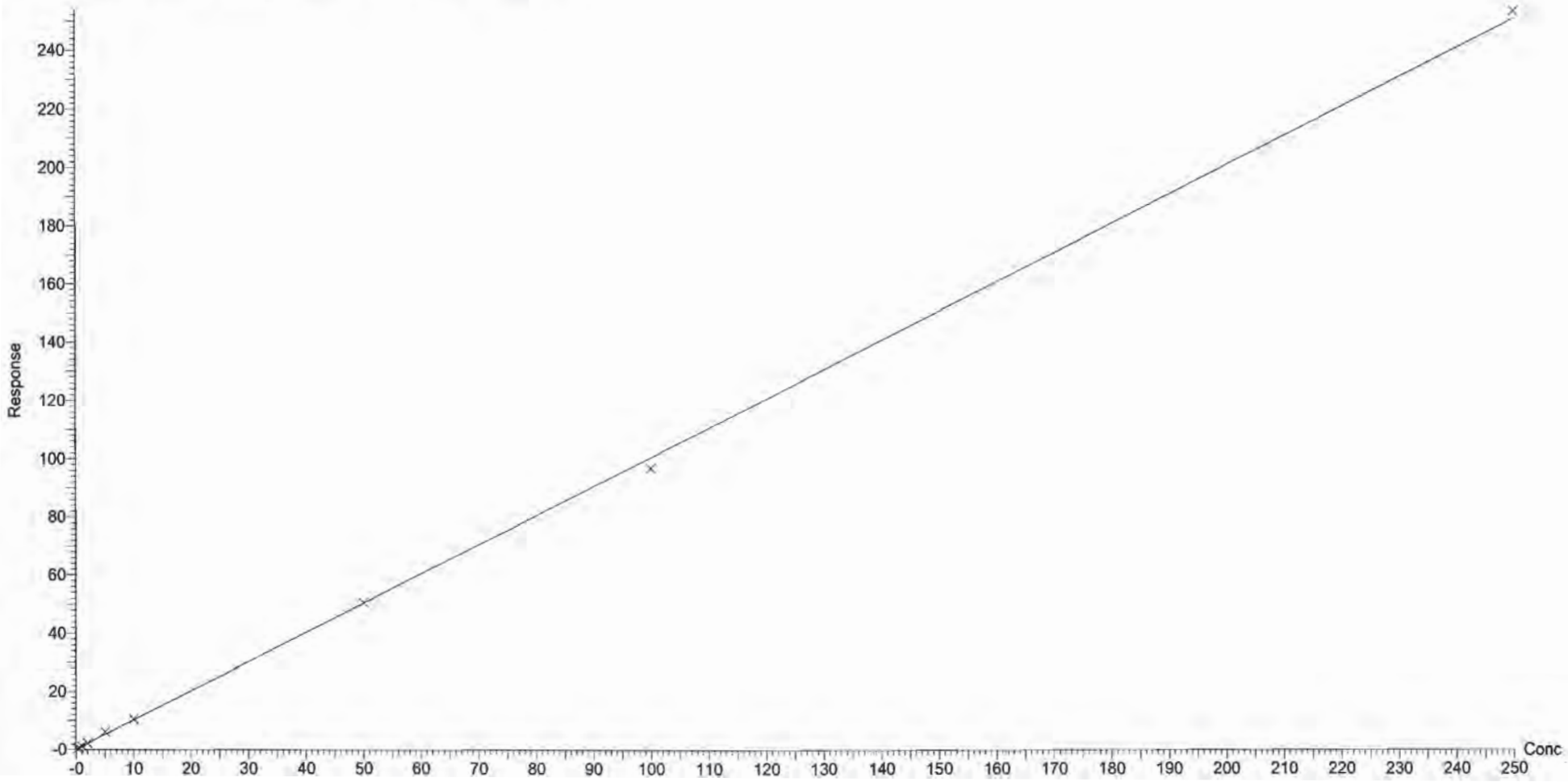
Compound name: PFBA
Correlation coefficient: r = 0.999453, r^2 = 0.998907
Calibration curve: 1.18697 * x + -0.0167855
Response type: Internal Std (Ref 31), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

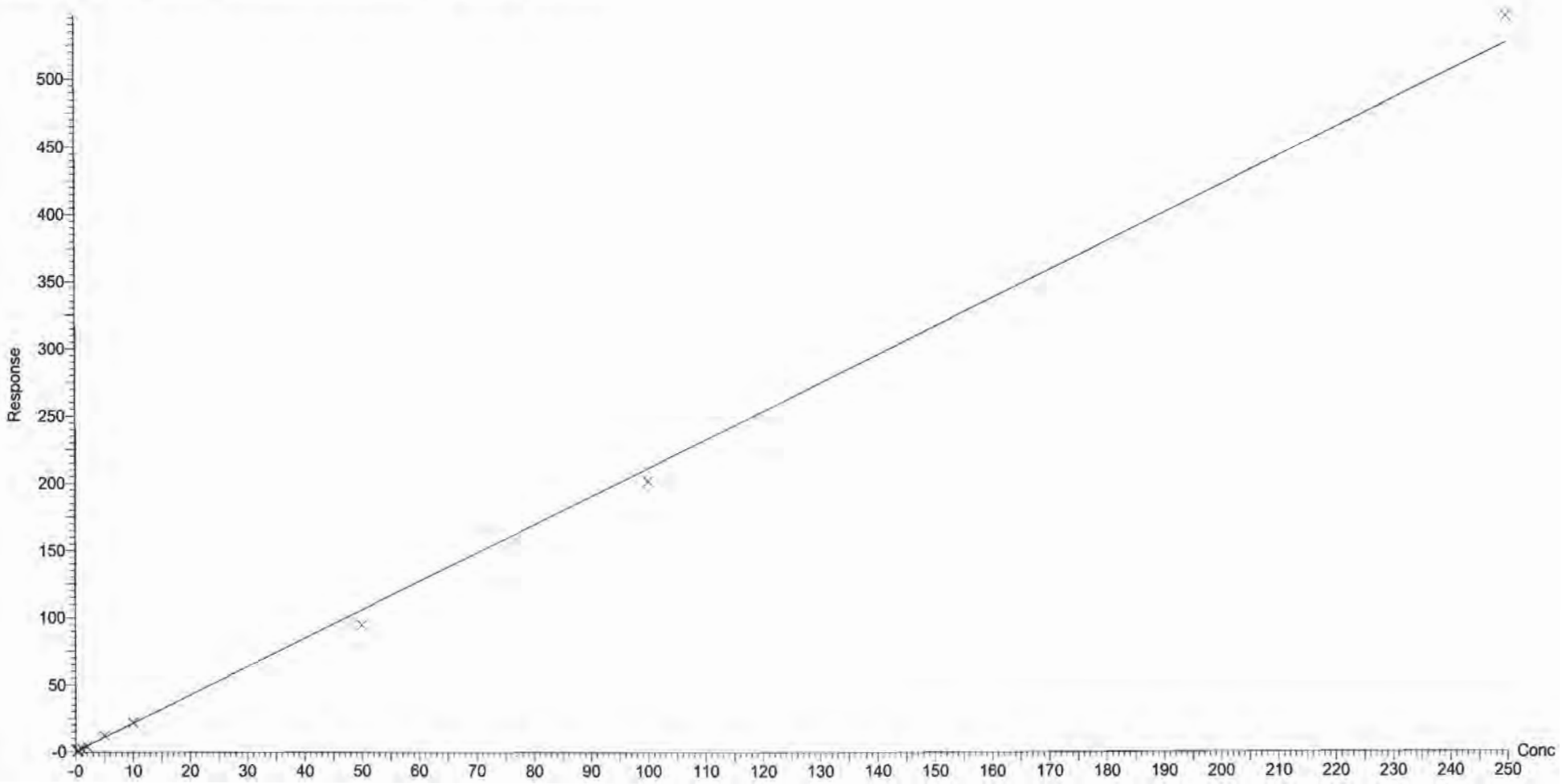
Compound name: PFPeA
Correlation coefficient: r = 0.999563, r^2 = 0.999127
Calibration curve: 1.00487 * x + 0.0537496
Response type: Internal Std (Ref 32), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

Compound name: PFBS
Correlation coefficient: r = 0.998571, r^2 = 0.997145
Calibration curve: 2.10892 * x + 0.0857162
Response type: Internal Std (Ref 33), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

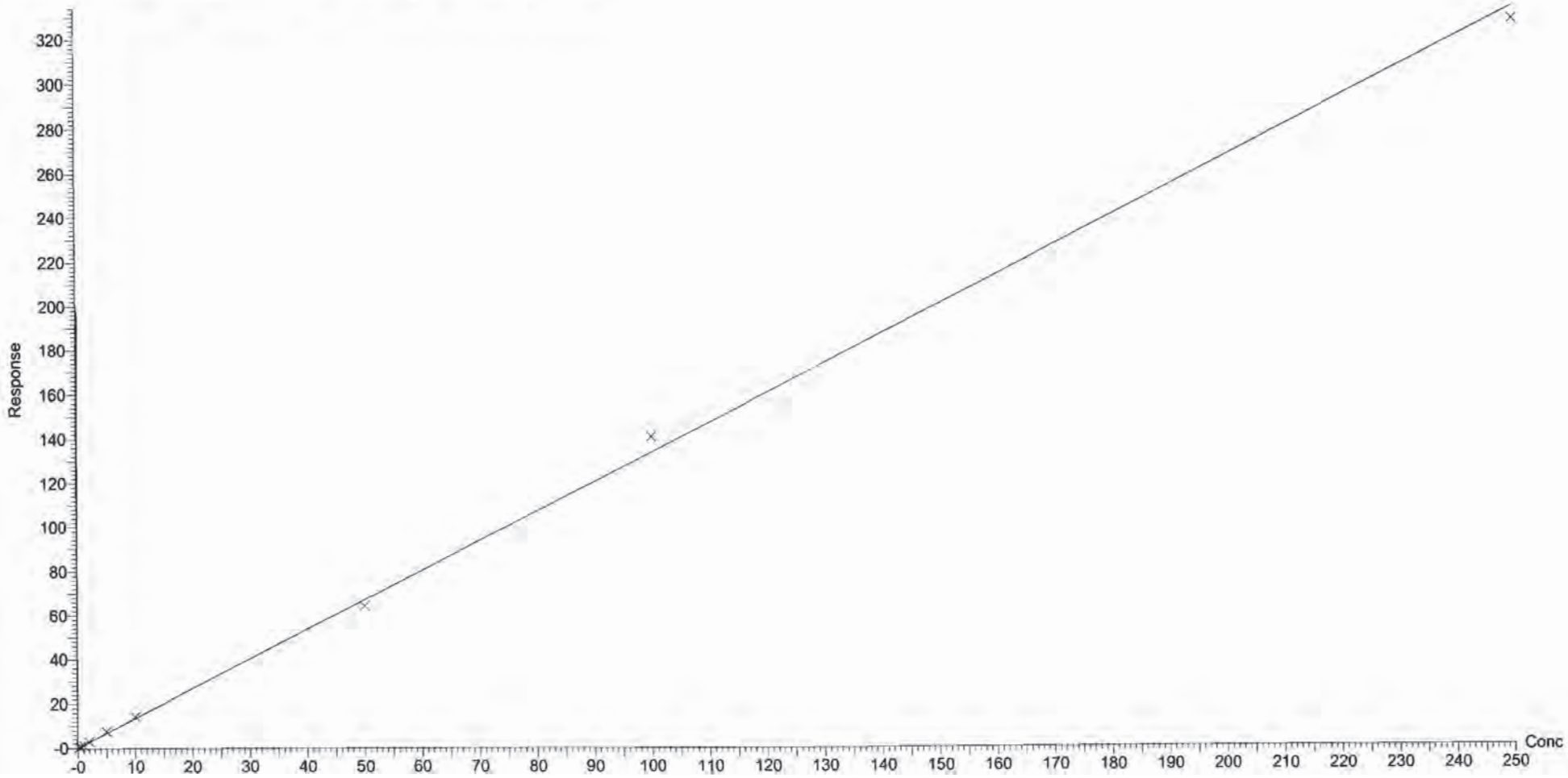


Vista Analytical Laboratory Q1

Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

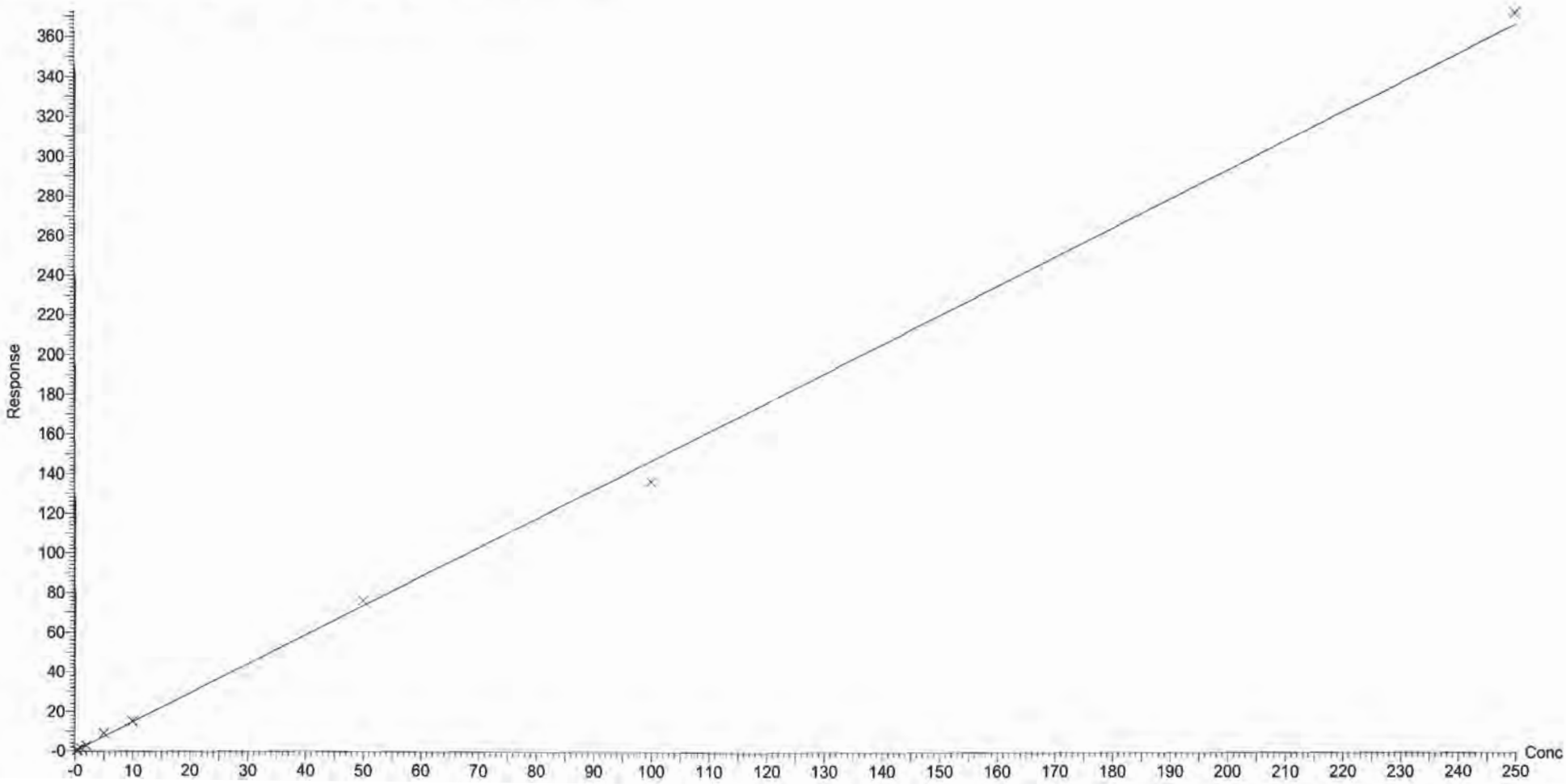
Compound name: PFHxA
Correlation coefficient: r = 0.999254, r^2 = 0.998509
Calibration curve: 1.33545 * x + 0.146764
Response type: Internal Std (Ref 34), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

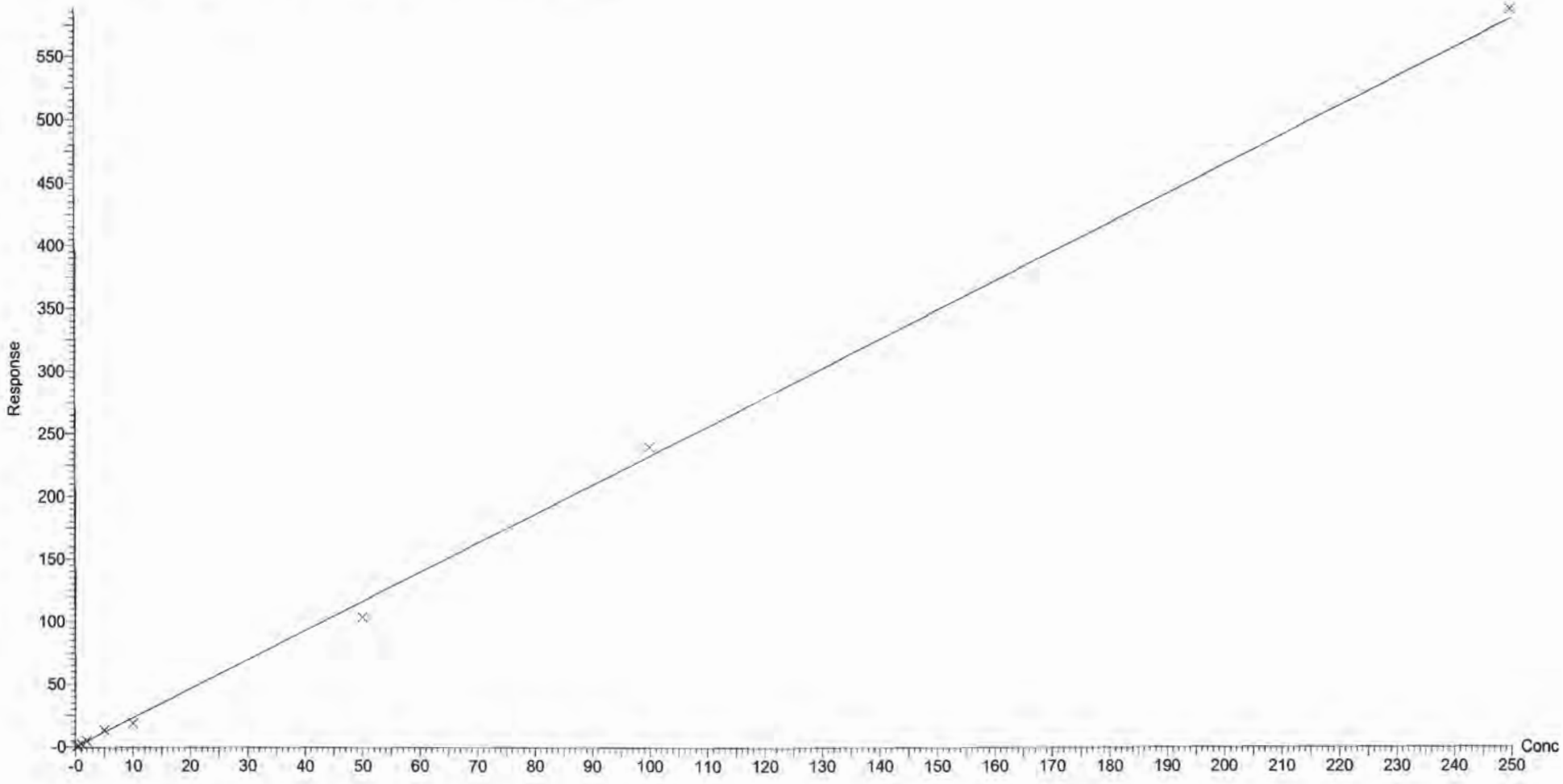
Compound name: PFHpA
Correlation coefficient: r = 0.998934, r^2 = 0.997870
Calibration curve: 1.46694 * x + 0.051332
Response type: Internal Std (Ref 35), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

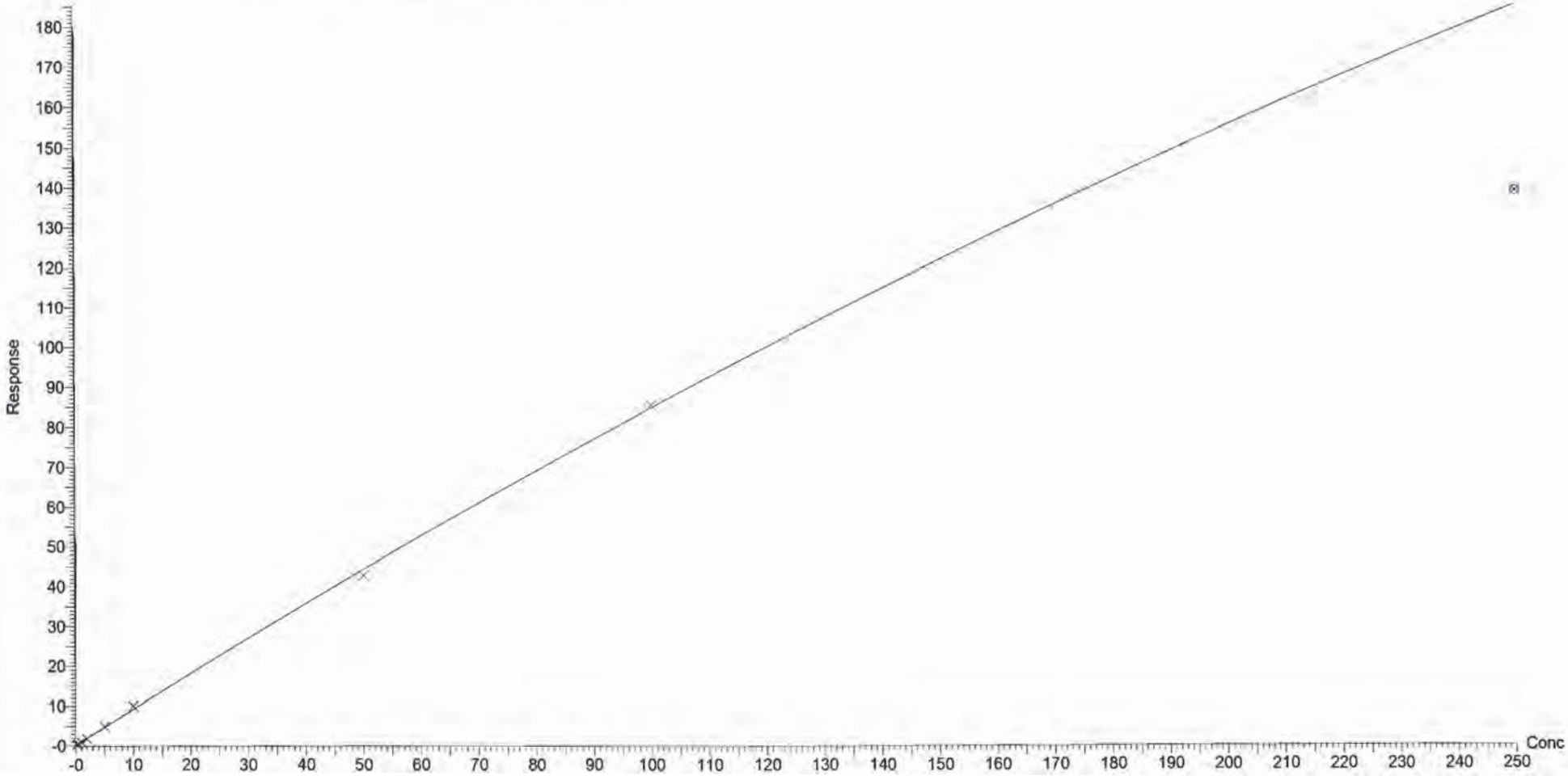
Compound name: L-PFHxS
Correlation coefficient: r = 0.998619, r^2 = 0.997241
Calibration curve: 2.32252 * x + -0.164608
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

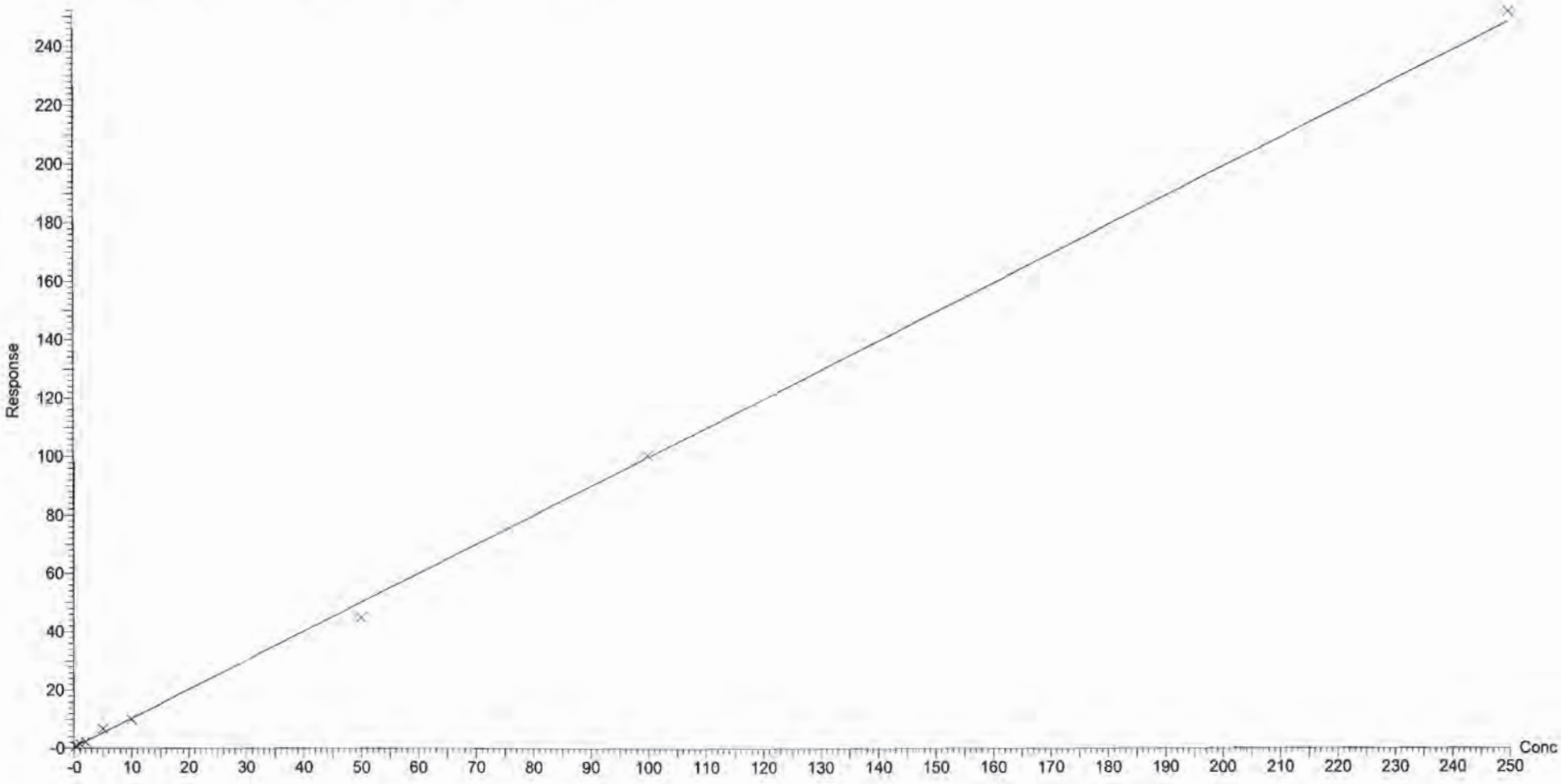
Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998758
Calibration curve: -0.000703372 * x^2 + 0.91717 * x + 0.0898025
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

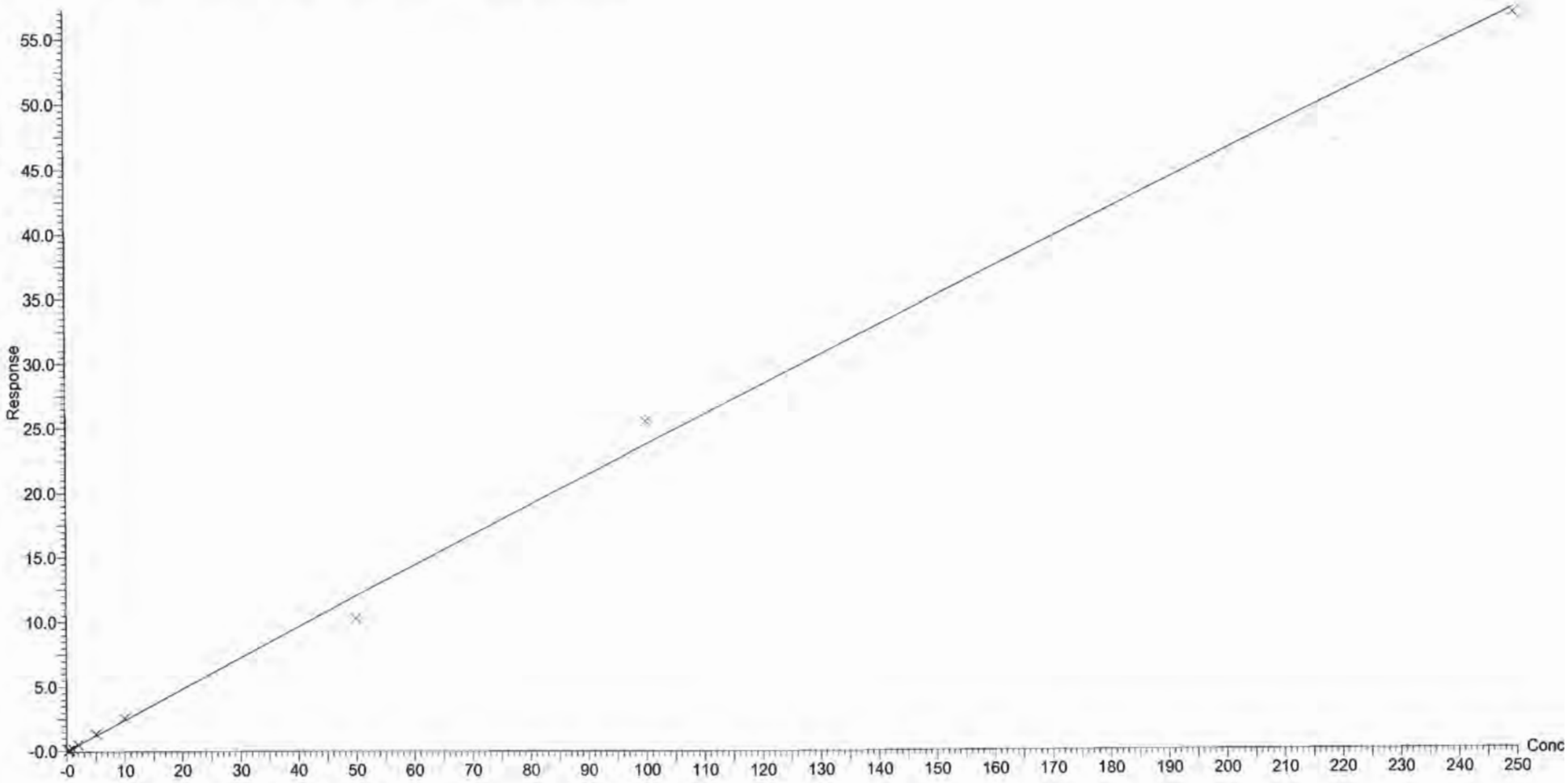
Compound name: L-PFOA
Correlation coefficient: r = 0.998700, r^2 = 0.997401
Calibration curve: 0.99298 * x + 0.378081
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

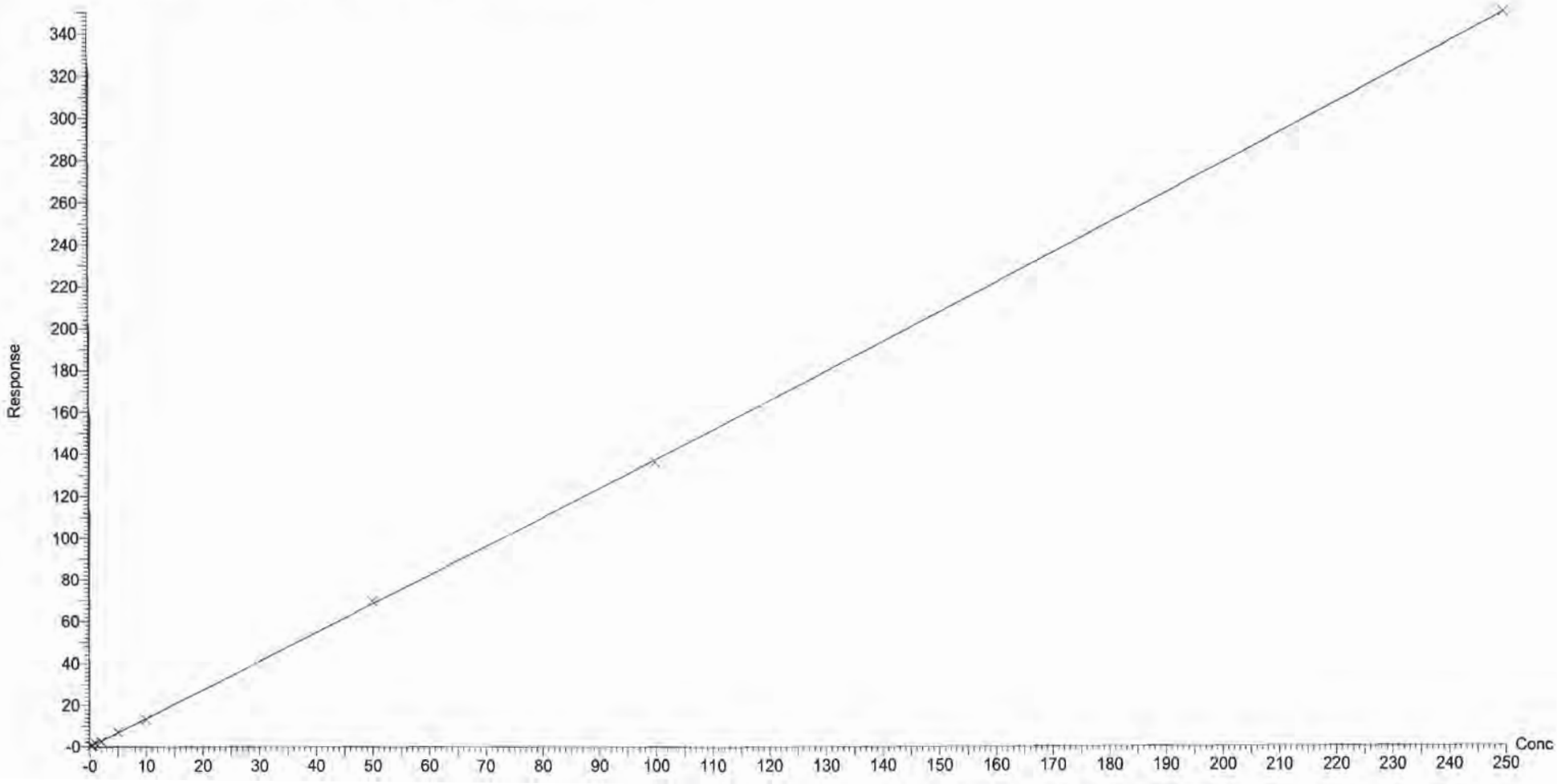
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.995445
Calibration curve: -5.62387e-005 * x^2 + 0.243055 * x + -0.00977655
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

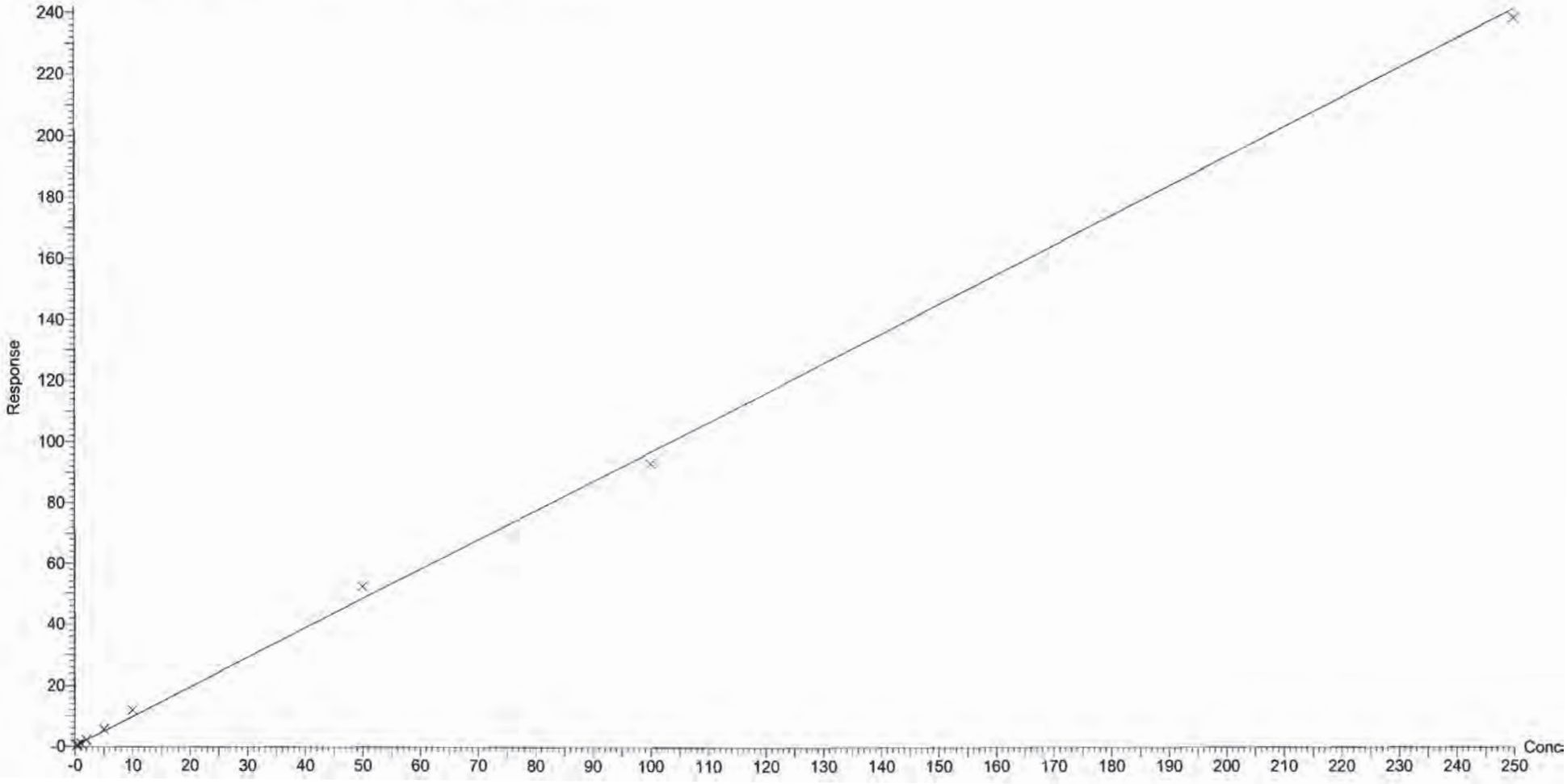
Compound name: PFNA
Coefficient of Determination: R^2 = 0.999663
Calibration curve: 0.000186033 * x^2 + 1.35297 * x + 0.0544256
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

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Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

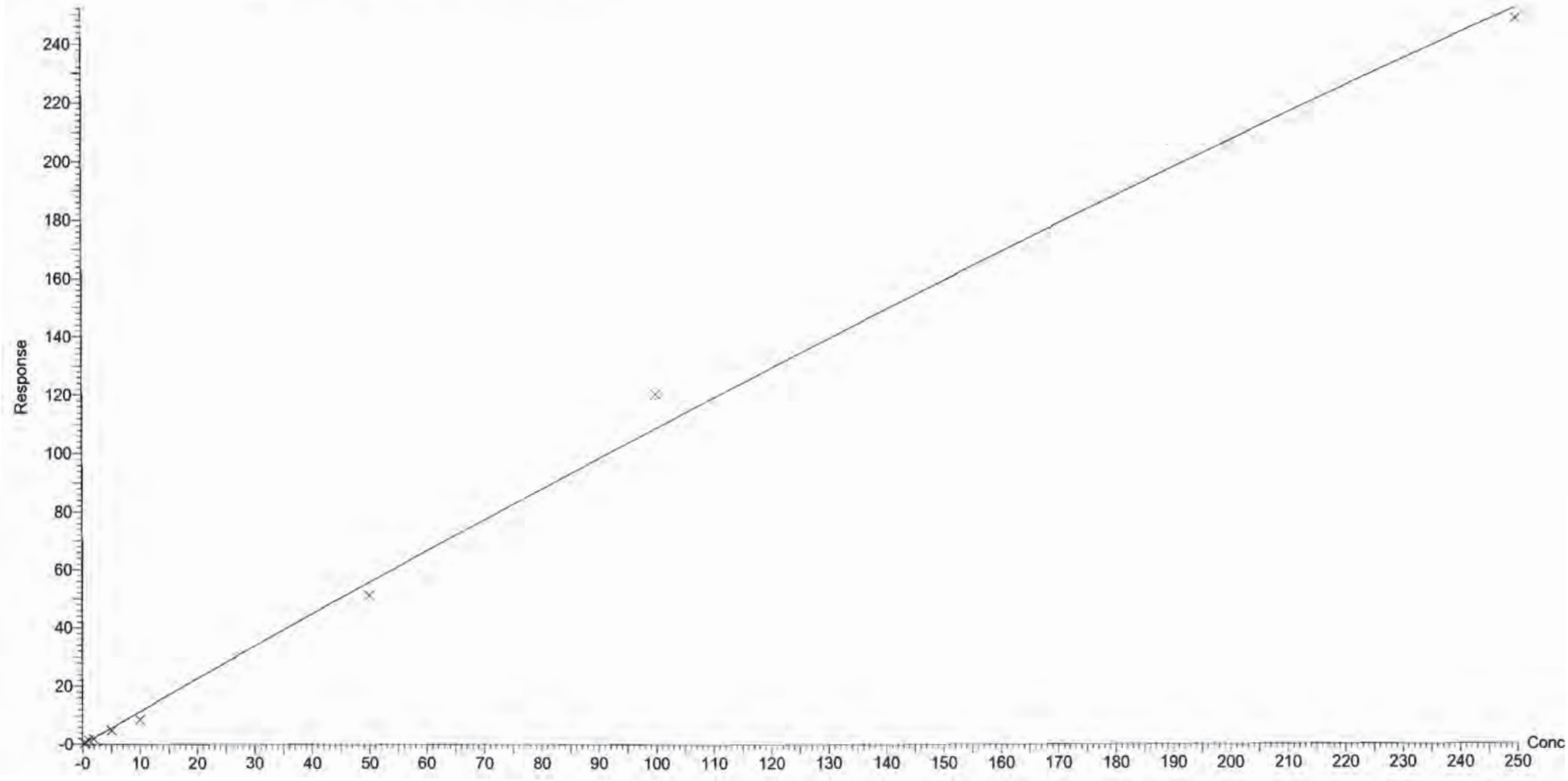
Compound name: PFOSA
Correlation coefficient: r = 0.998602, r^2 = 0.997205
Calibration curve: 0.966961 * x + 0.0826717
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

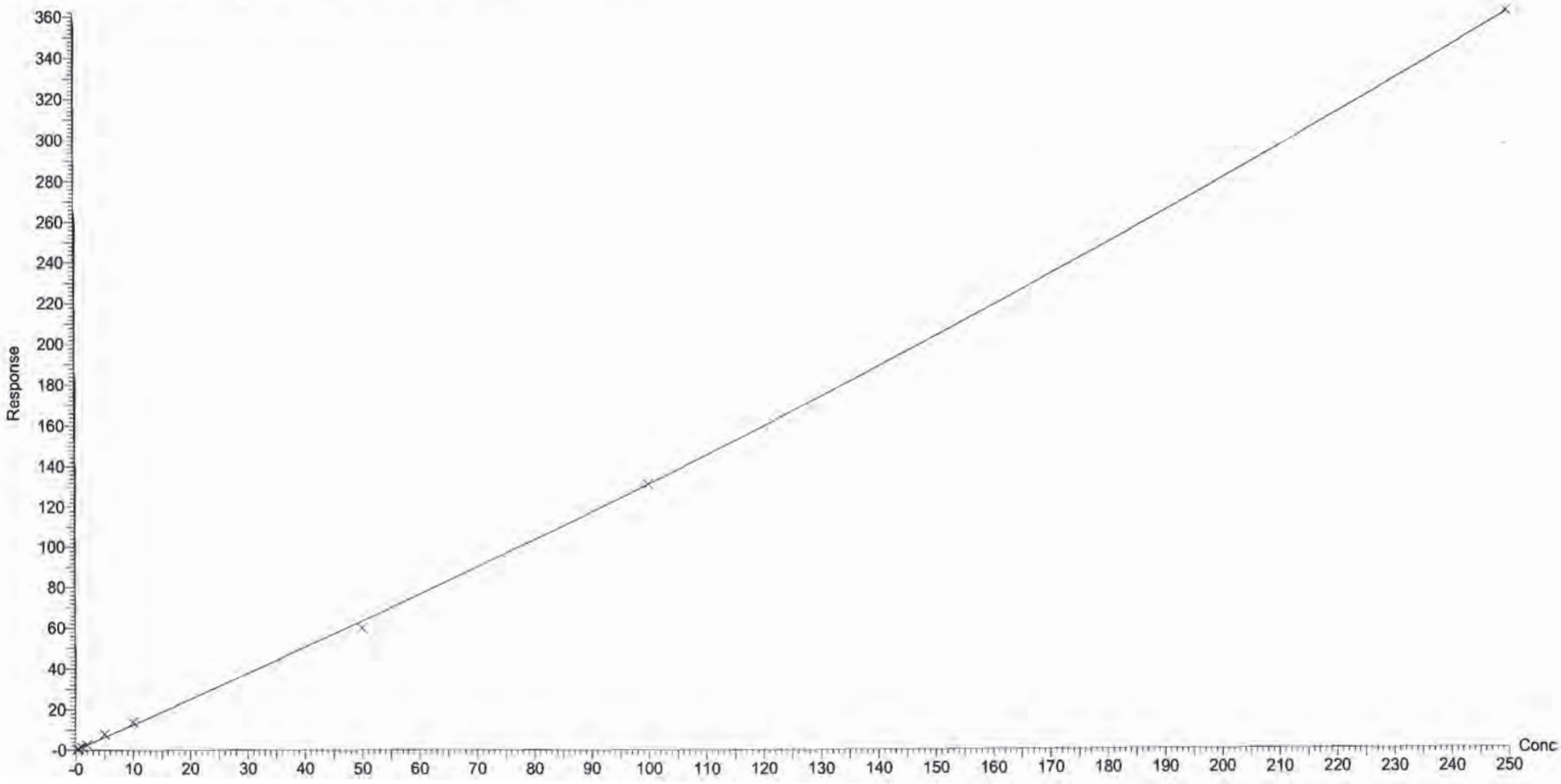
Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.993477
Calibration curve: -0.000507399 * x^2 + 1.13689 * x + -0.0425187
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

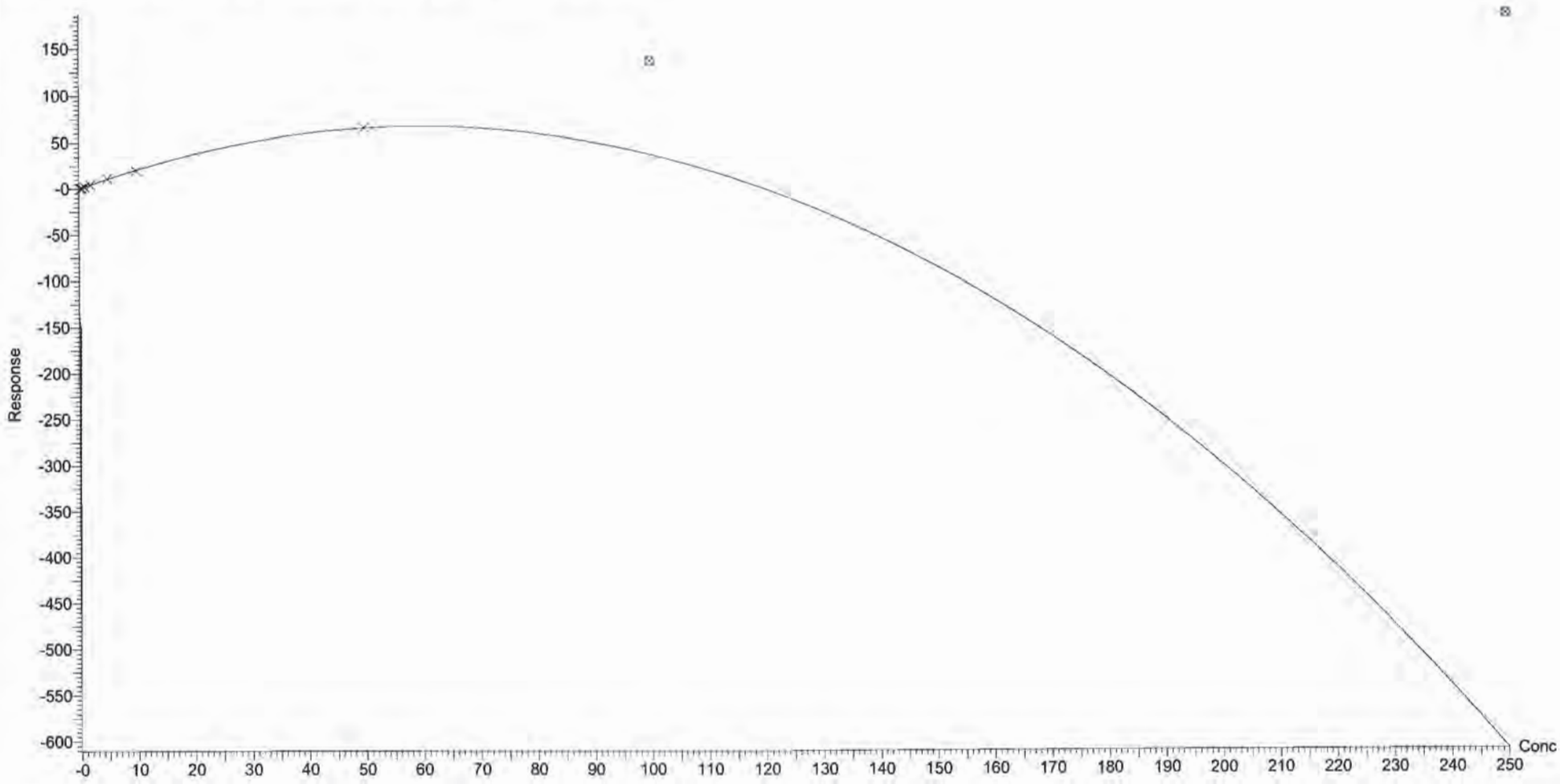
Compound name: PFDA
Coefficient of Determination: R^2 = 0.998850
Calibration curve: 0.000924921 * x^2 + 1.2141 * x + 0.132367
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

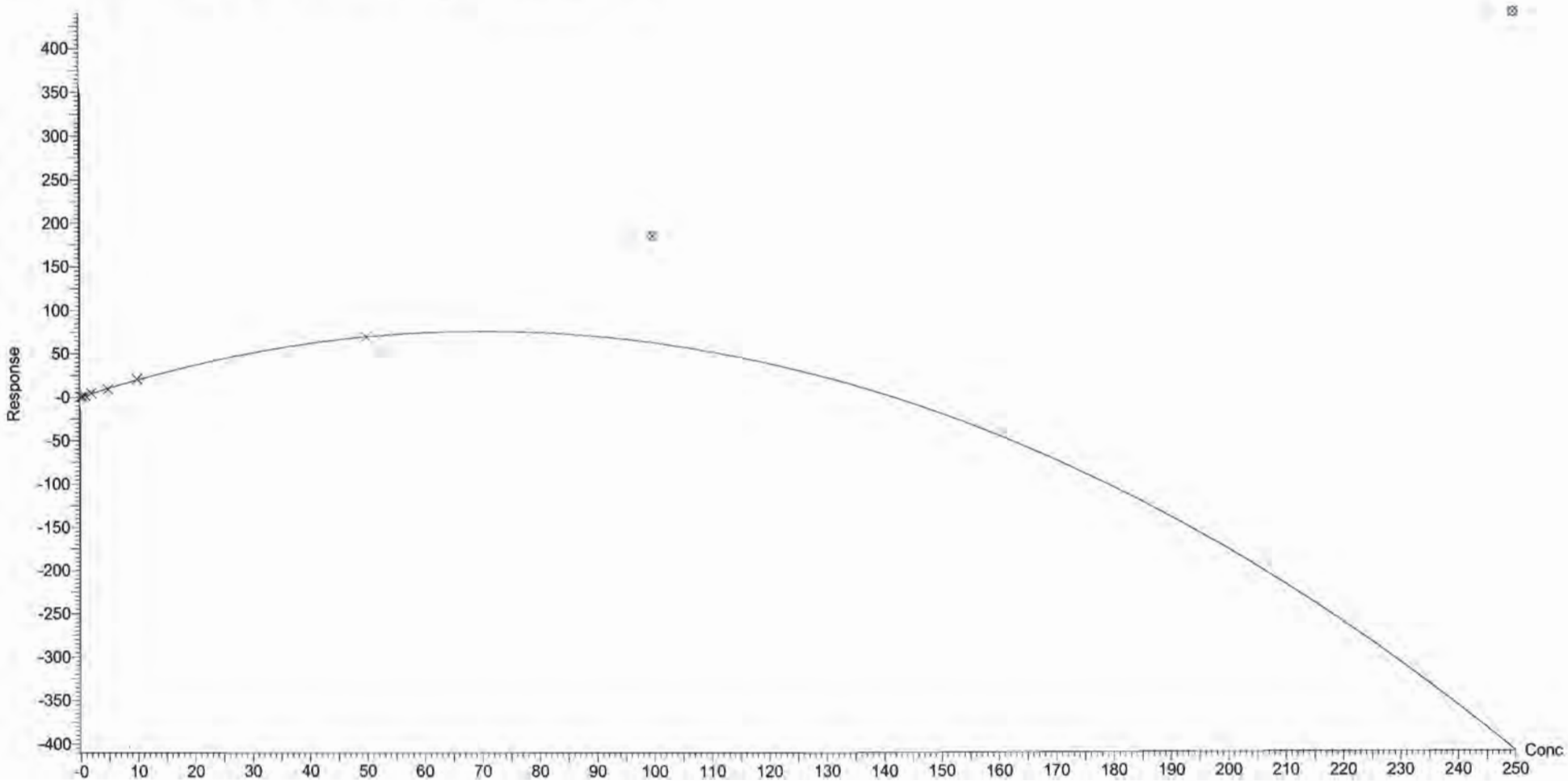
Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.997318
Calibration curve: -0.0187729 * x^2 + 2.25344 * x + -0.137718
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

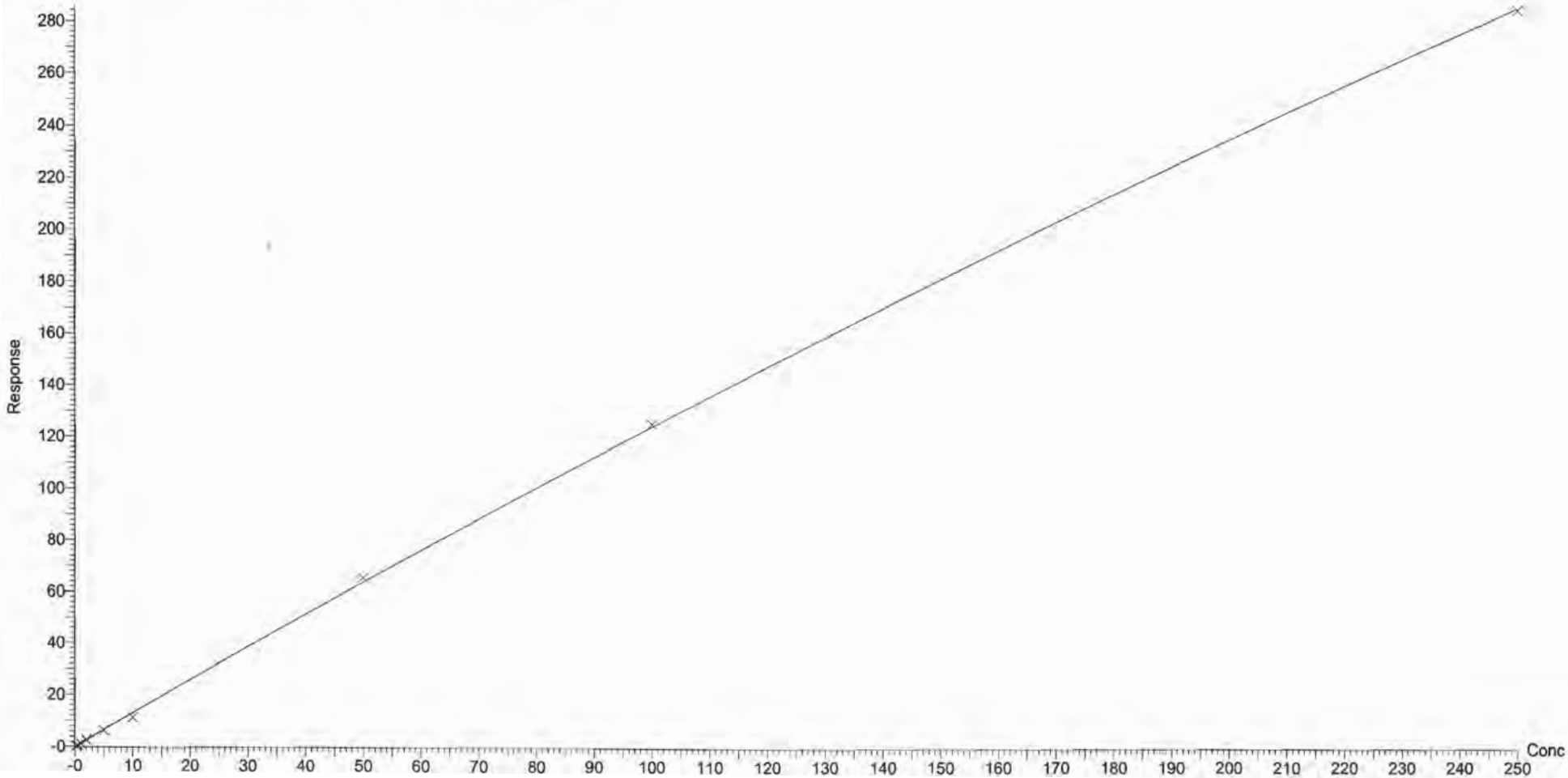
Compound name: N-MeFOSAA
Coefficient of Determination: R^2 = 0.994300
Calibration curve: -0.0151242 * x^2 + 2.14185 * x + -0.310873
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

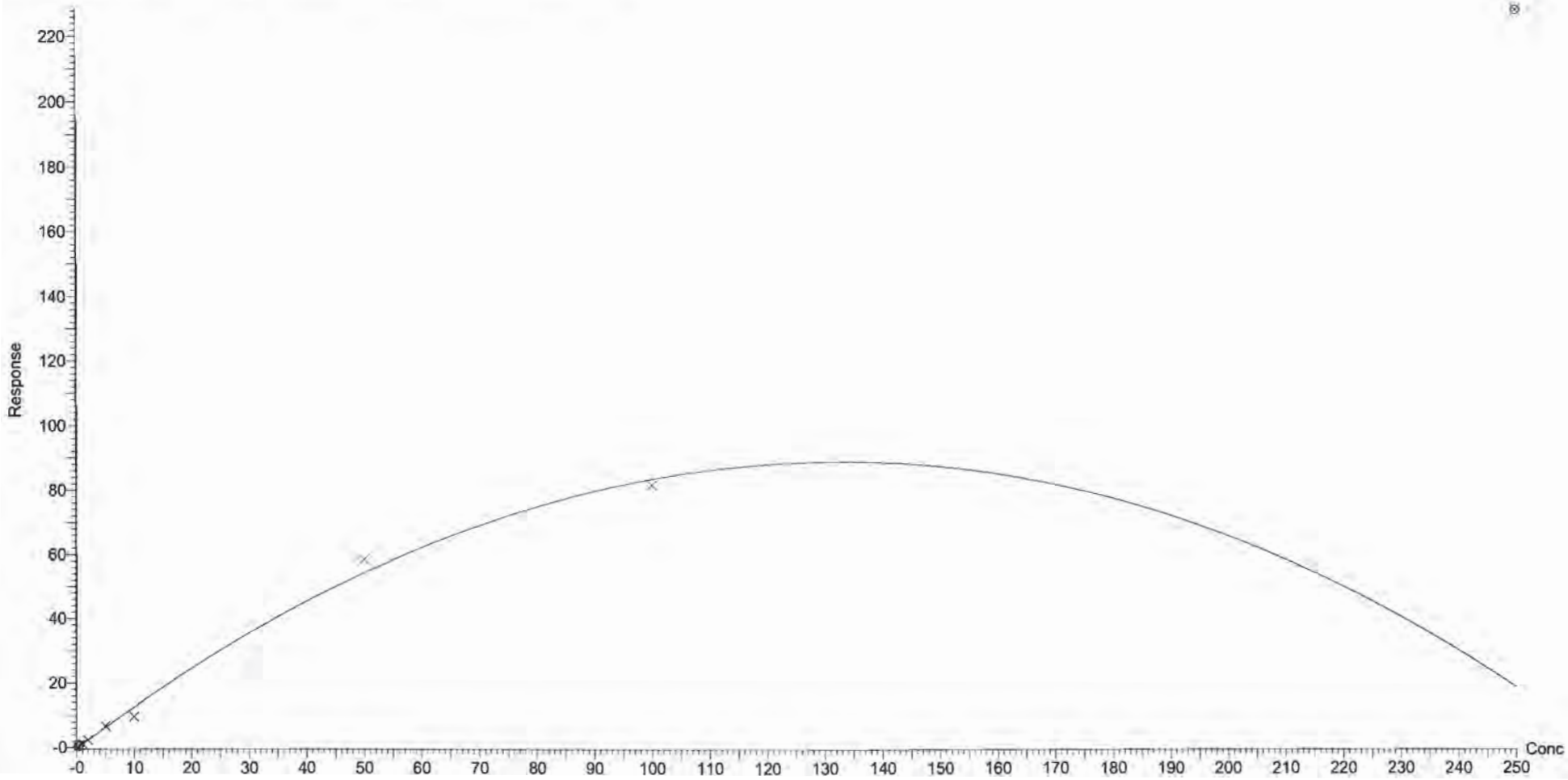
Compound name: N-EtFOSAA
Coefficient of Determination: R^2 = 0.999219
Calibration curve: -0.000667014 * x^2 + 1.31012 * x + -0.0902353
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

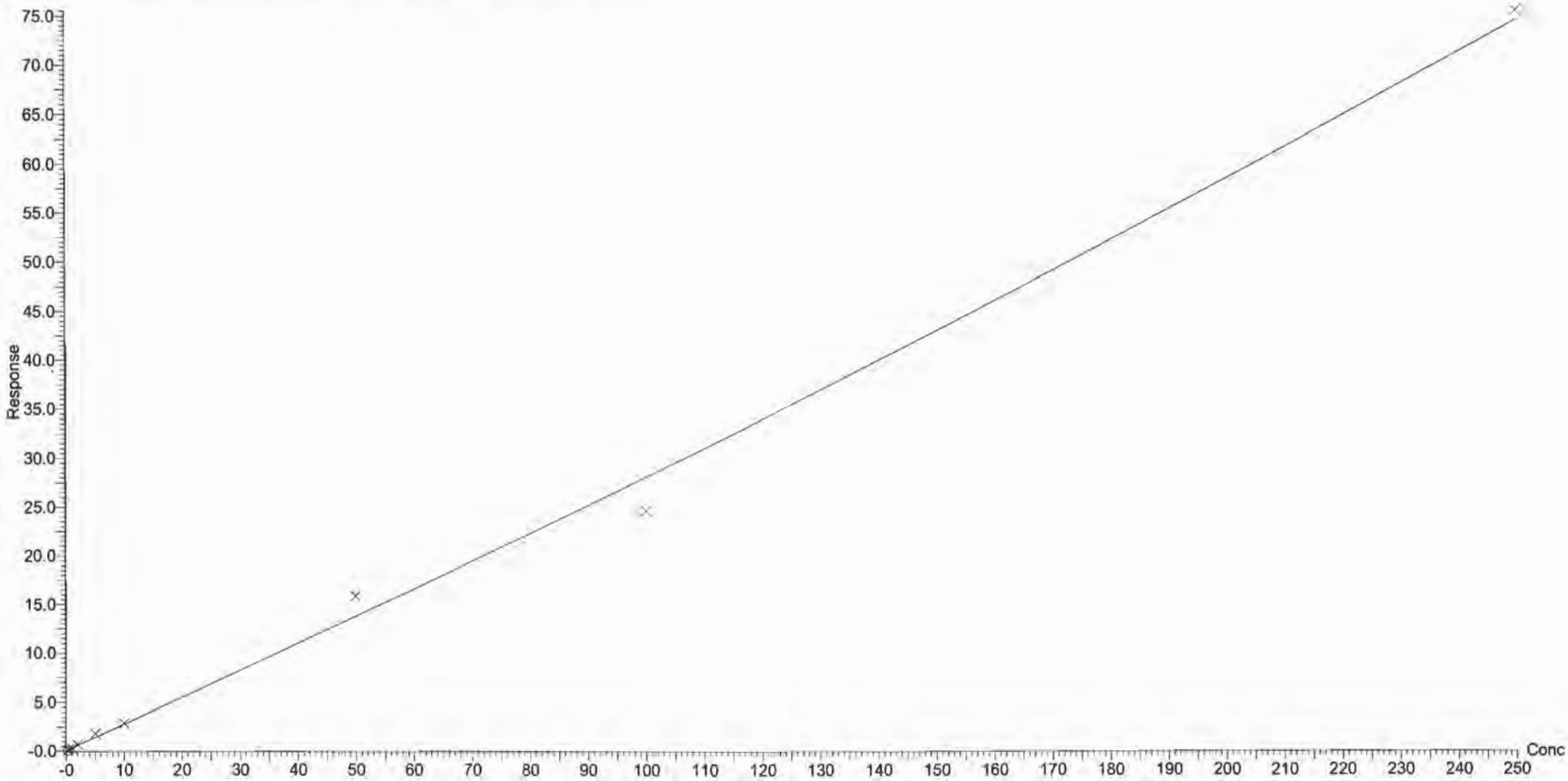
Compound name: PFUdA
Coefficient of Determination: R^2 = 0.990272
Calibration curve: -0.00508554 * x^2 + 1.34816 * x + -0.354836
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

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Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

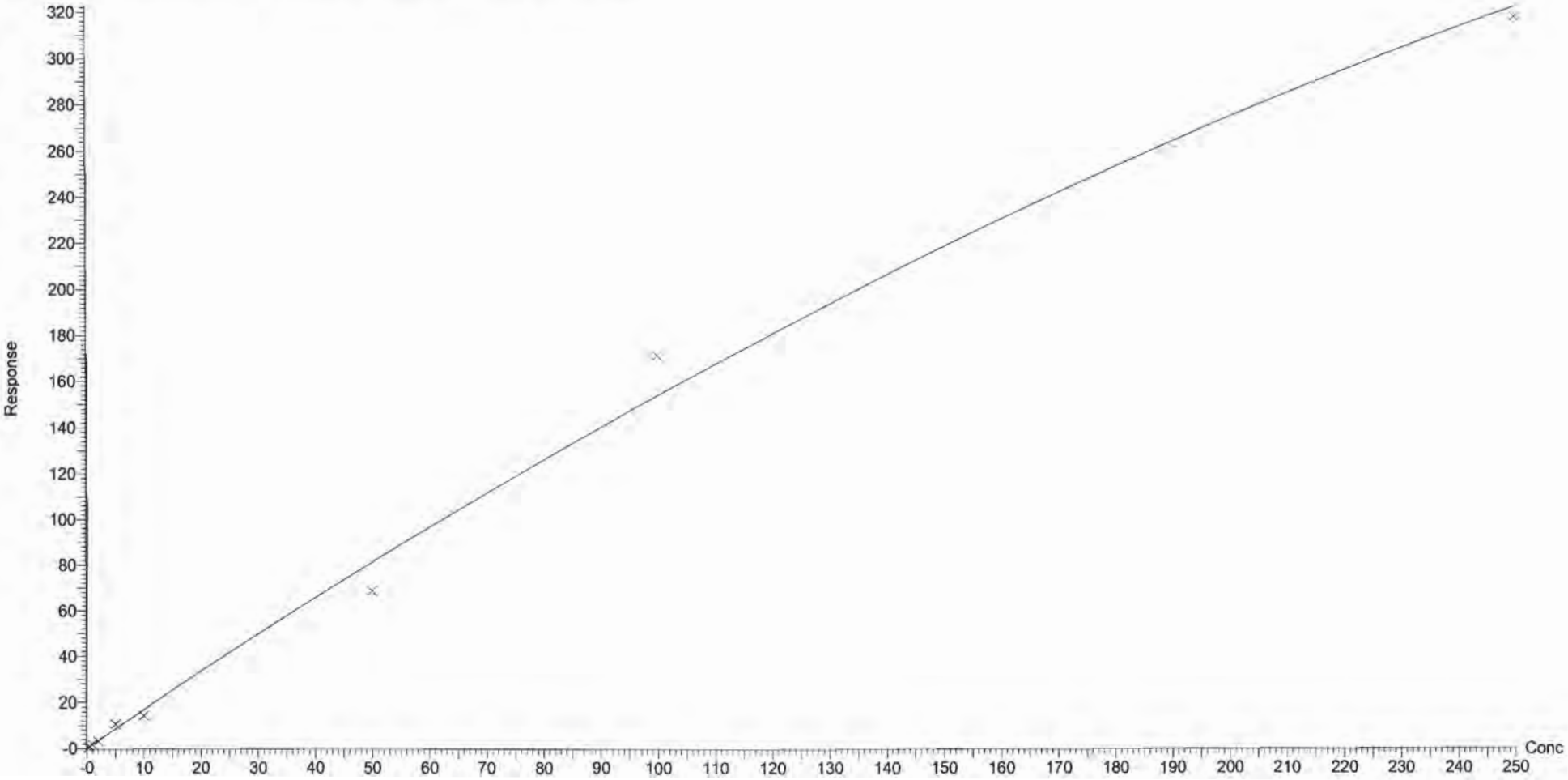
Compound name: PFDS
Coefficient of Determination: R^2 = 0.992768
Calibration curve: 0.000121501 * x^2 + 0.267729 * x + 0.0900245
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

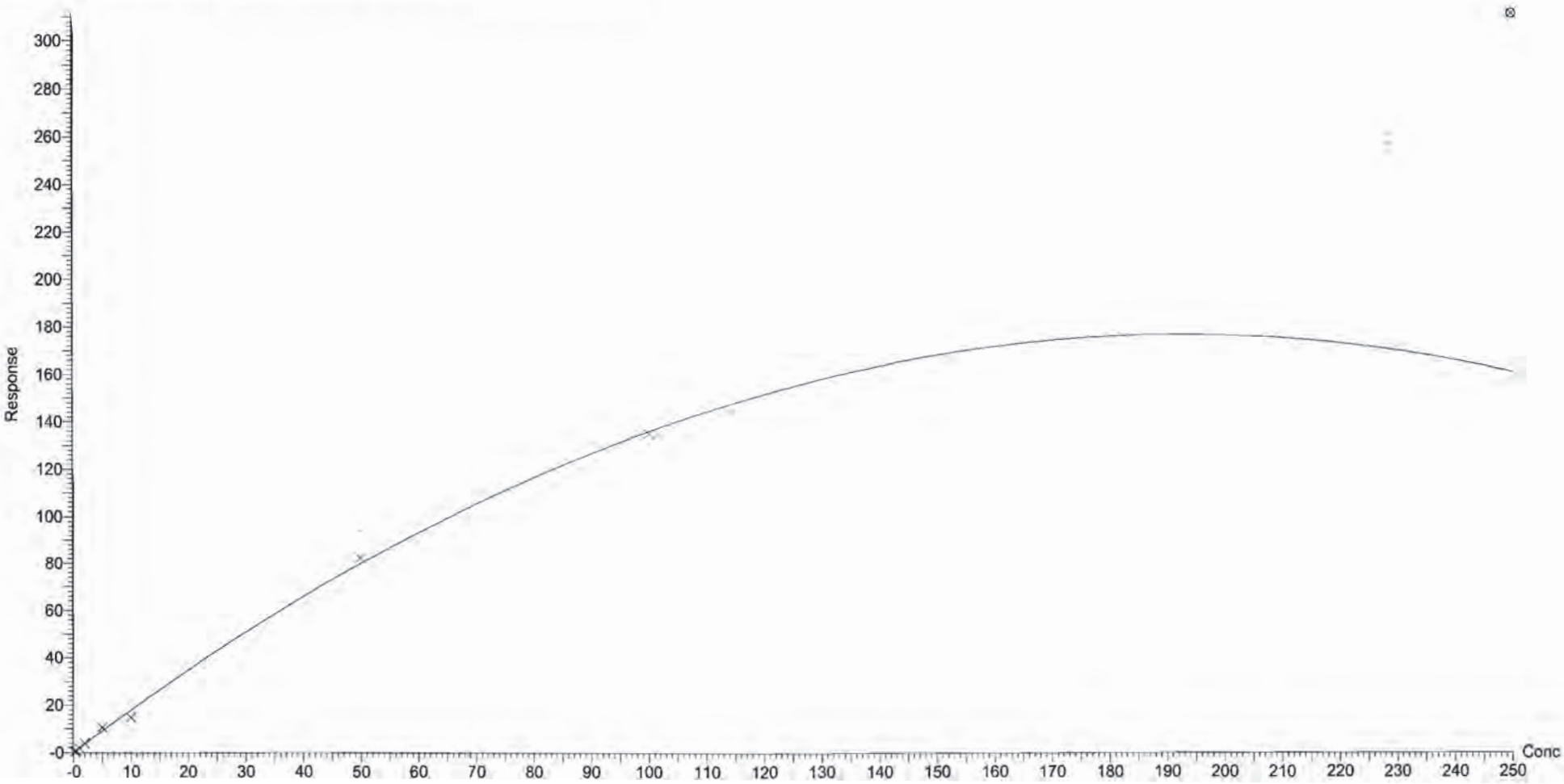
Compound name: PFDoA
Coefficient of Determination: R^2 = 0.990298
Calibration curve: -0.00167051 * x^2 + 1.70756 * x + 0.0120157
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

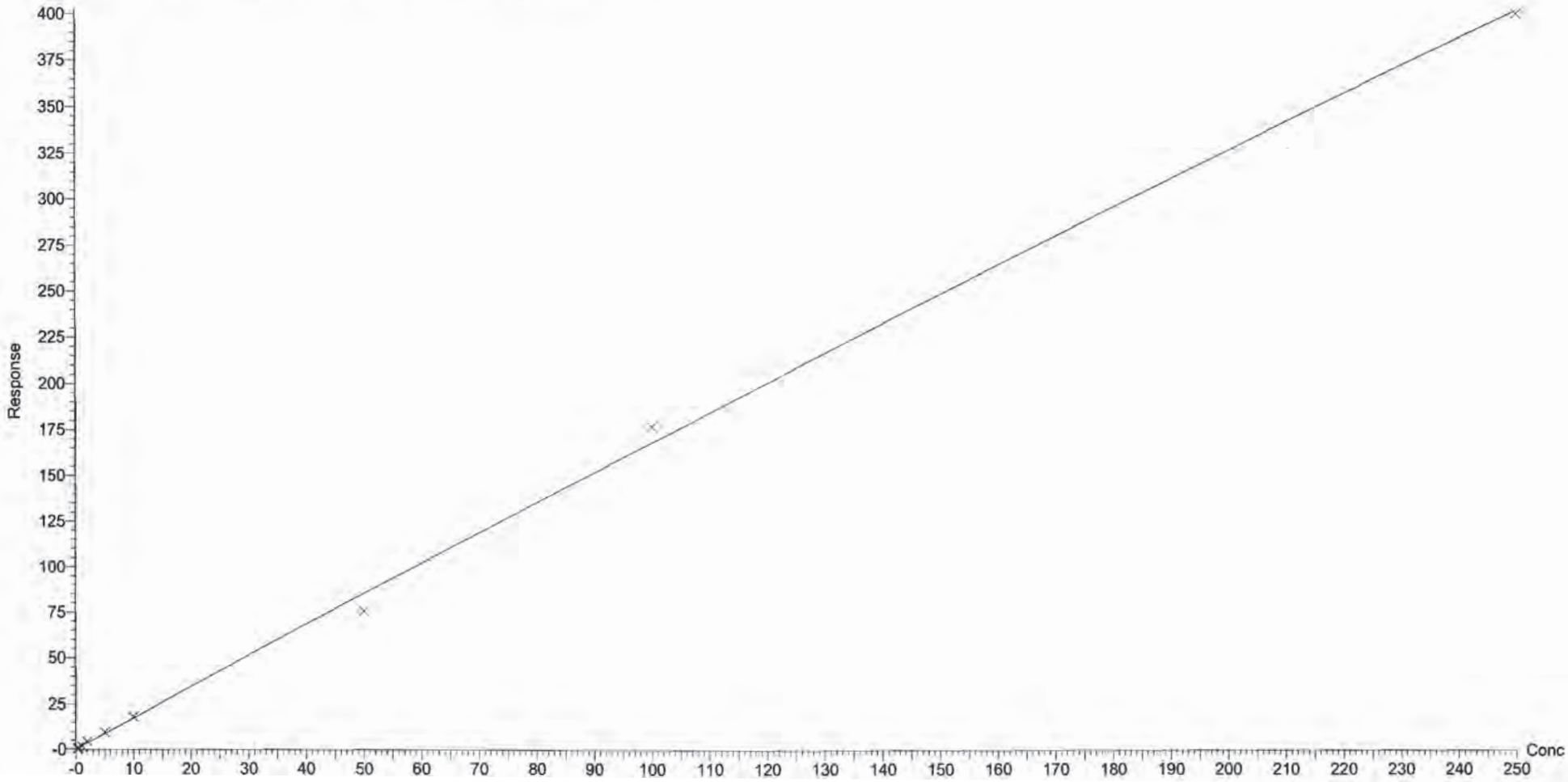
Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.995369
Calibration curve: -0.00477474 * x^2 + 1.83712 * x + -0.0484525
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:17 Pacific Standard Time

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.997049
Calibration curve: -0.000464932 * x^2 + 1.72622 * x + 0.103252
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



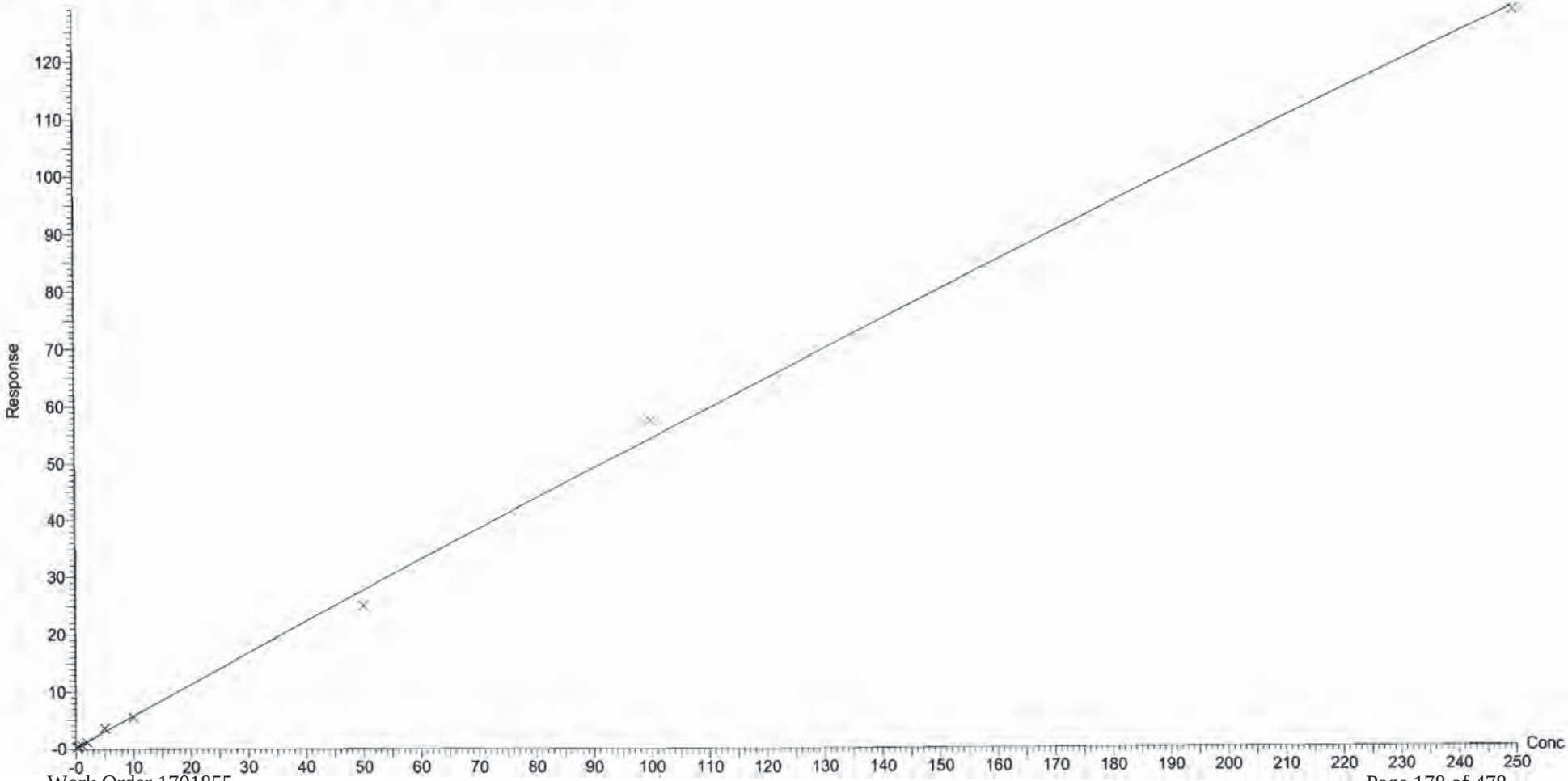
Vista Analytical Laboratory Q1

Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:34 Pacific Standard Time

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
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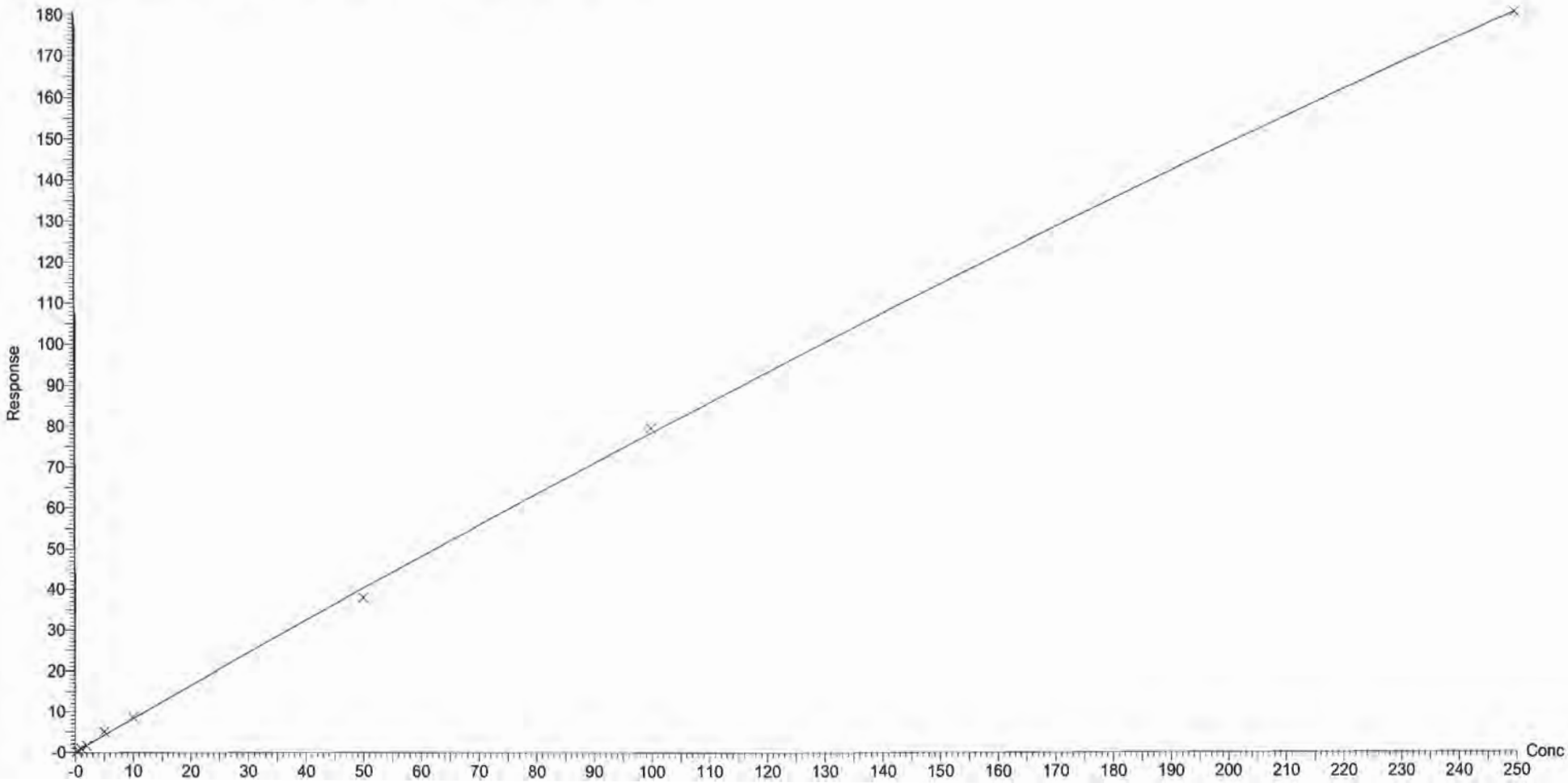
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.997037
Calibration curve: -0.000172023 * x^2 + 0.558966 * x + 0.120582
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: U:\Q4.PRO\results\171213M1\171213M1-CRV.qld

Last Altered: Thursday, December 14, 2017 09:31:10 Pacific Standard Time
Printed: Thursday, December 14, 2017 09:38:34 Pacific Standard Time

Compound name: PFODA
Coefficient of Determination: R^2 = 0.998669
Calibration curve: -0.00039744 * x^2 + 0.822793 * x + 0.0114939
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



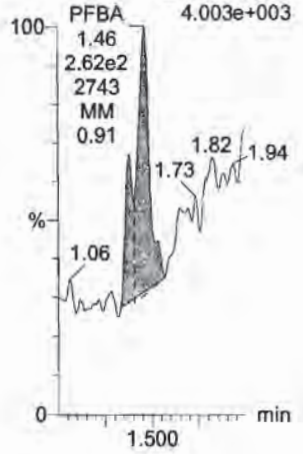
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Printed: Thursday, December 14, 2017 09:35:37 Pacific Standard Time

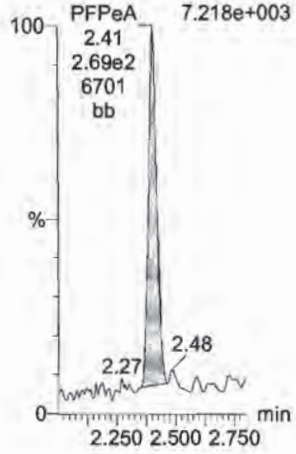
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Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_2, Date: 13-Dec-2017, Time: 19:10:03, ID: ST171213M1-1 PFC CS-2 17L0504, Description: PFC CS-2 17L0504

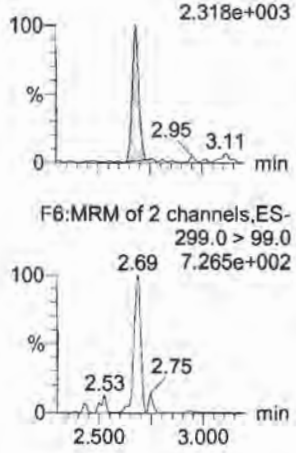
PFBA



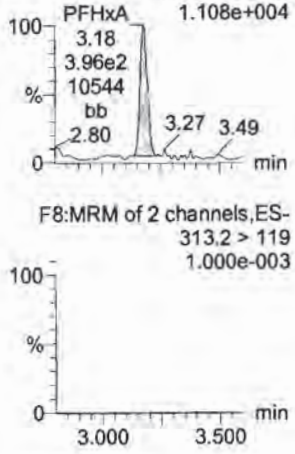
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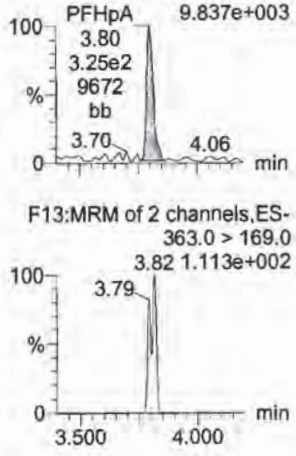
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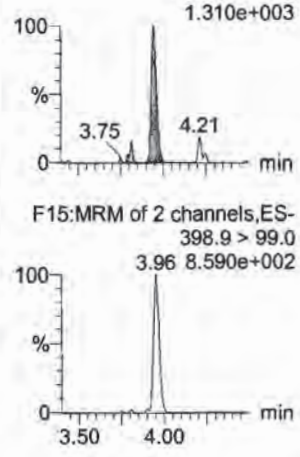
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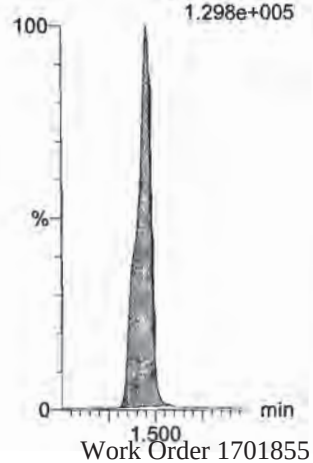
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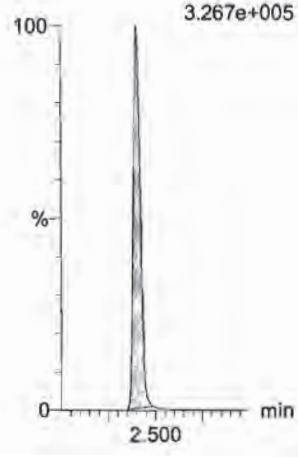
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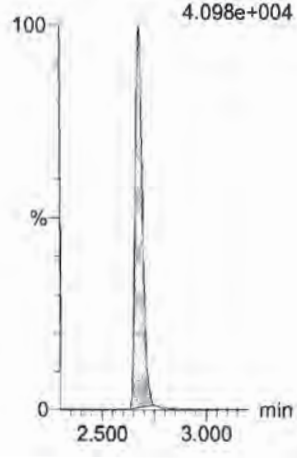
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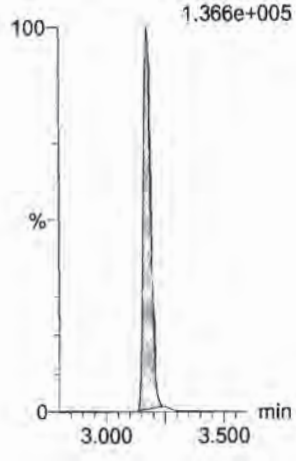
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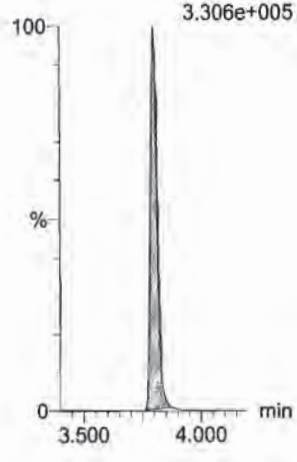
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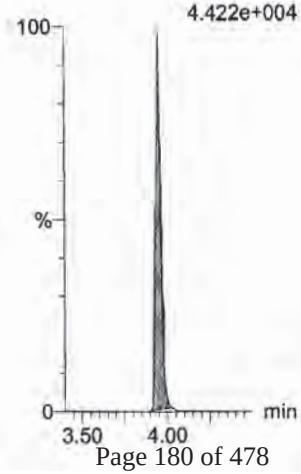
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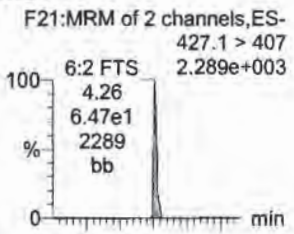


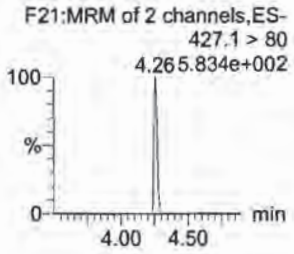
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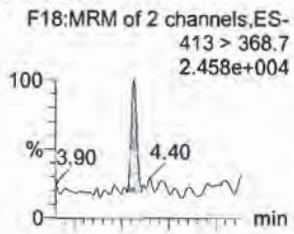
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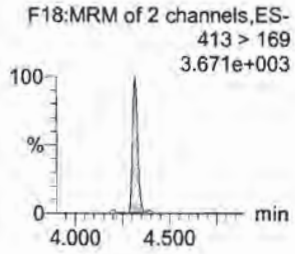
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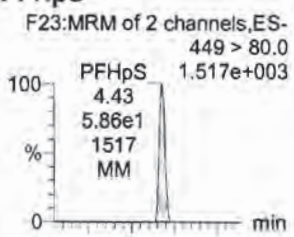


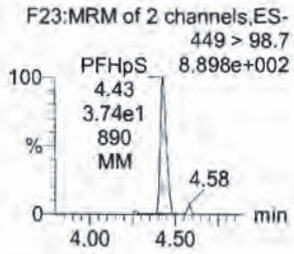
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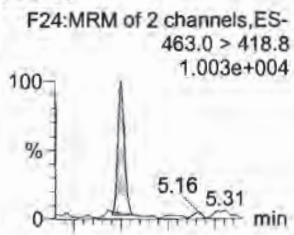


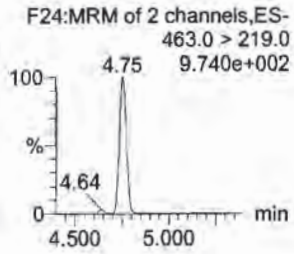
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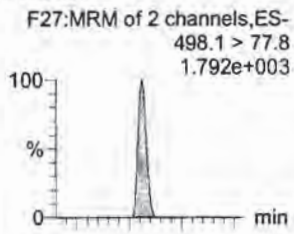


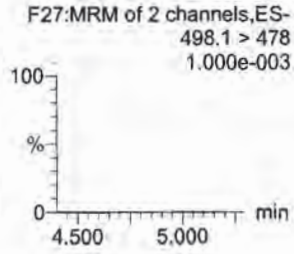
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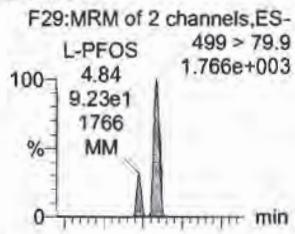


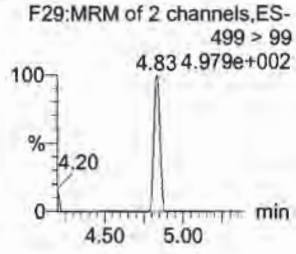
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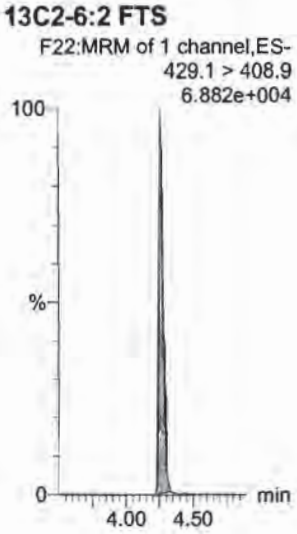


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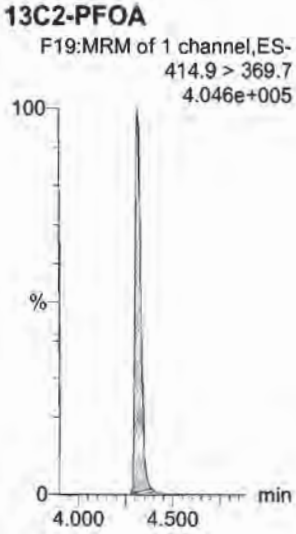




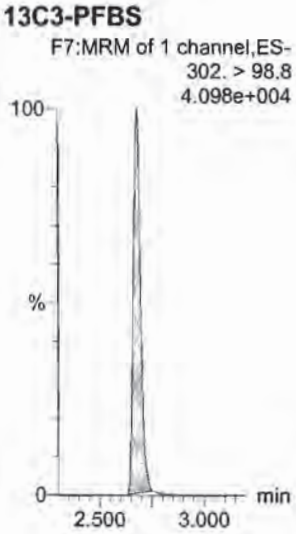
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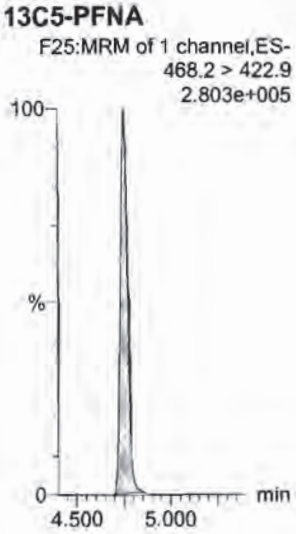
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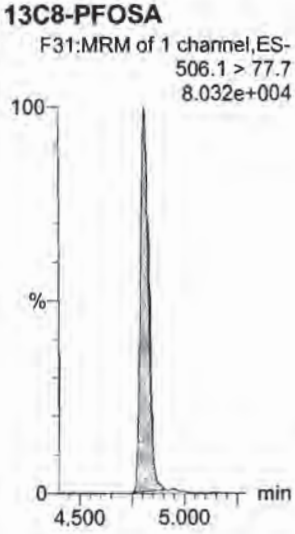
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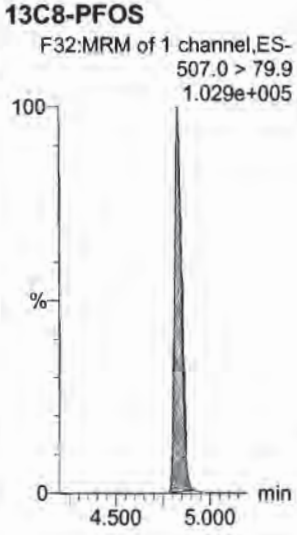
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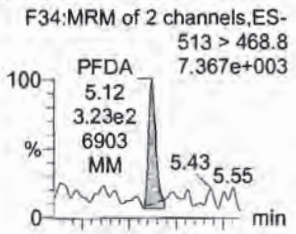


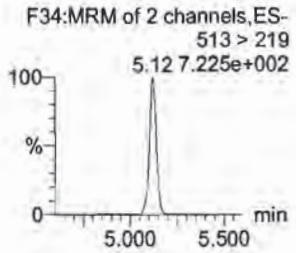
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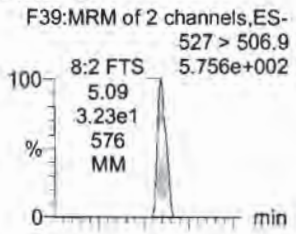
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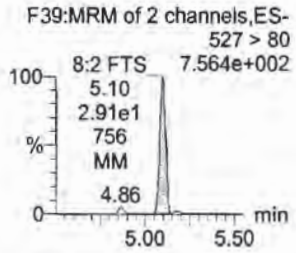
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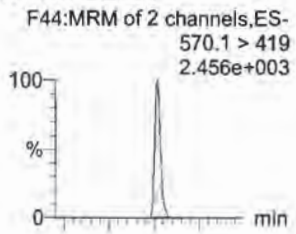


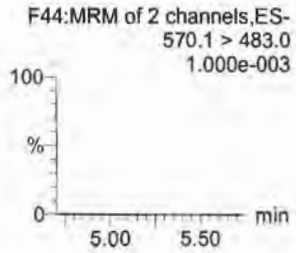
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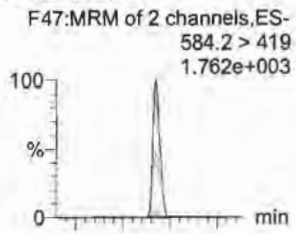


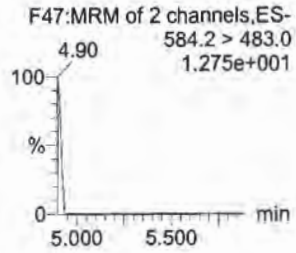
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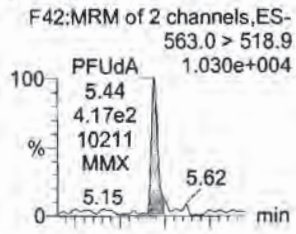


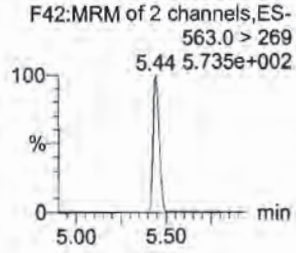
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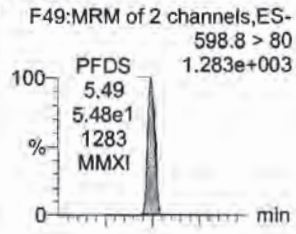


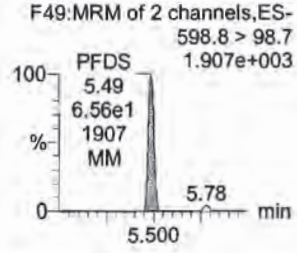
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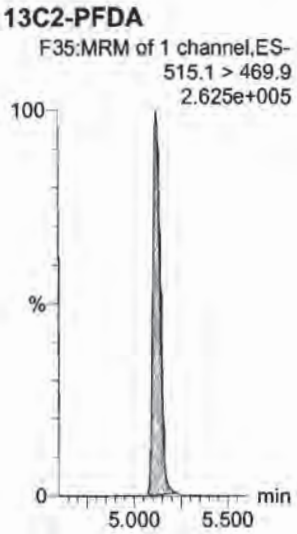


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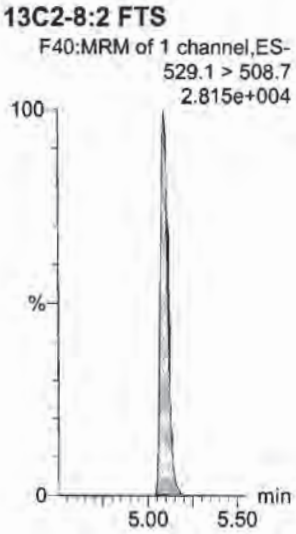




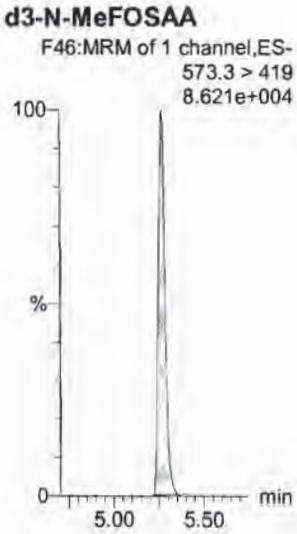
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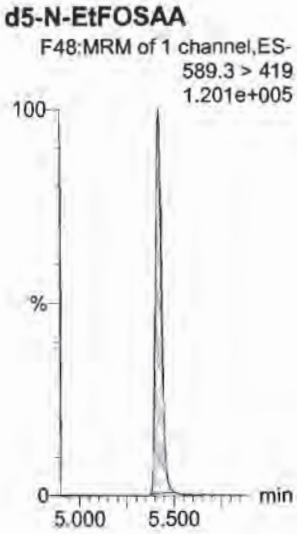
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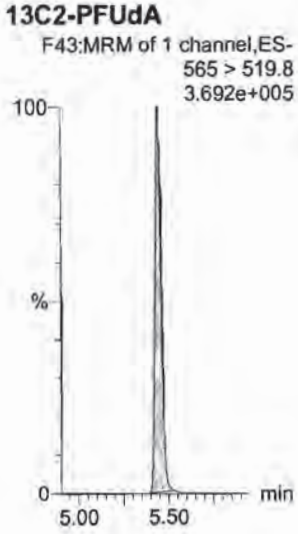
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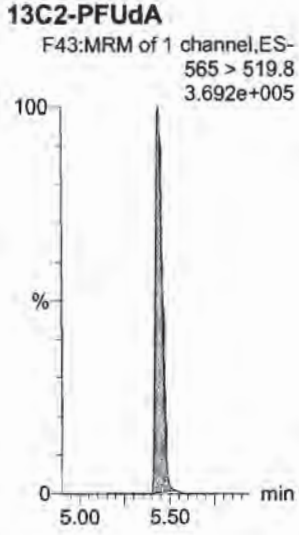
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13C2-PFUdA



13C2-PFUdA

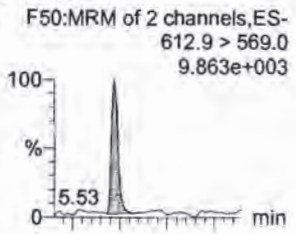


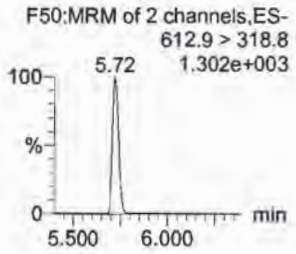
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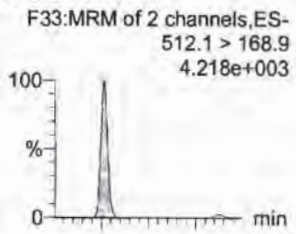
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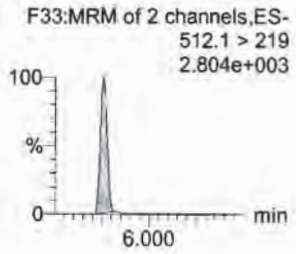
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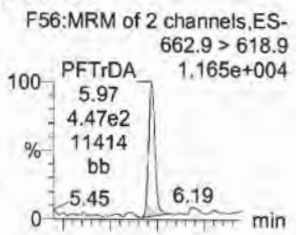


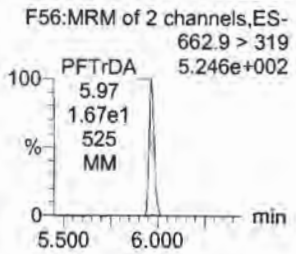
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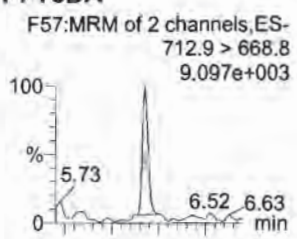


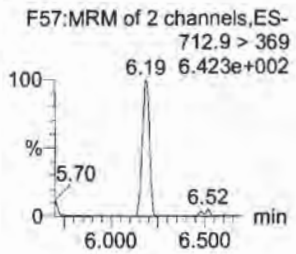
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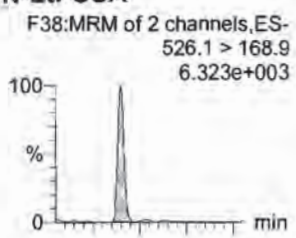


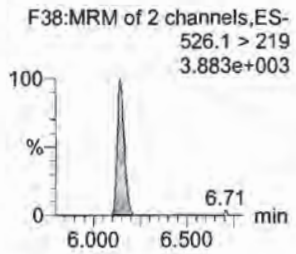
PFTeDA



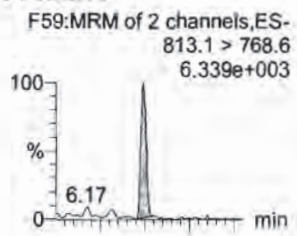


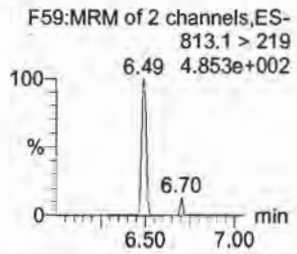
N-EtFOSA



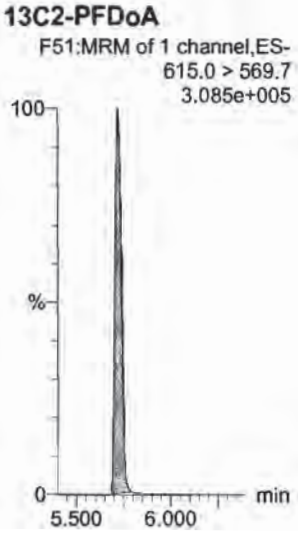


PFHxDA

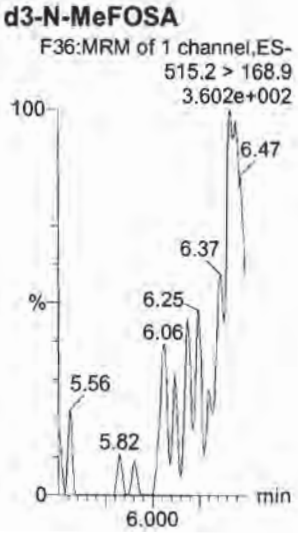




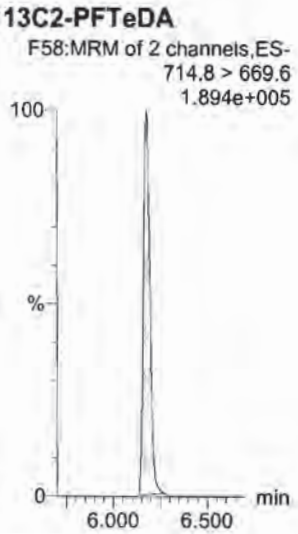
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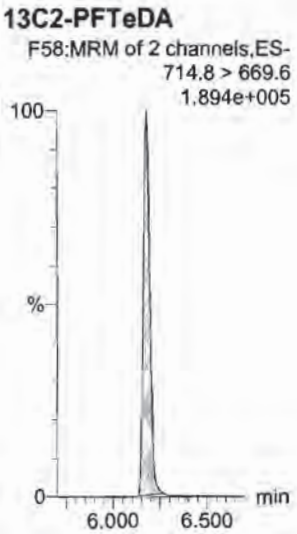
d3-N-MeFOSA



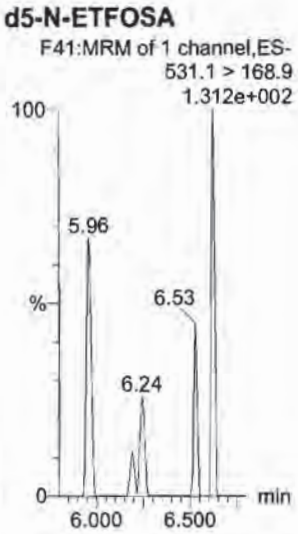
13C2-PFTeDA



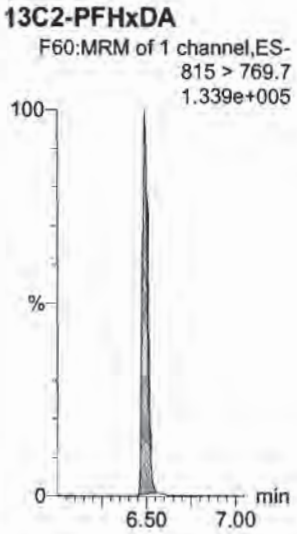
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d5-N-ETFOSA



13C2-PFHxDA

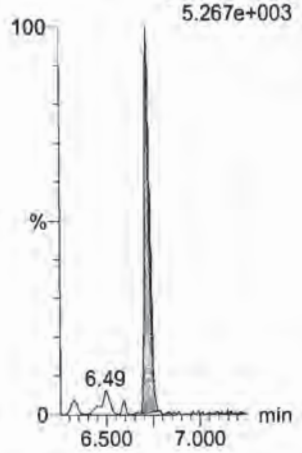


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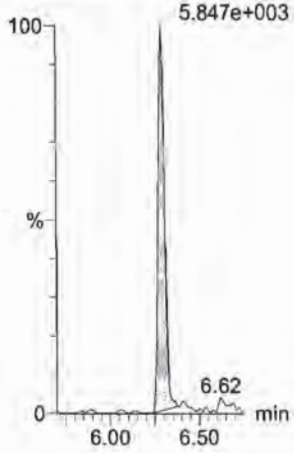
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Printed: Thursday, December 14, 2017 09:35:37 Pacific Standard Time

Name: 171213M1_2, Date: 13-Dec-2017, Time: 19:10:03, ID: ST171213M1-1 PFC CS-2 17L0504, Description: PFC CS-2 17L0504

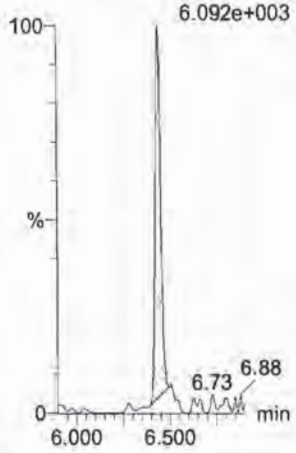
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
5.267e+003



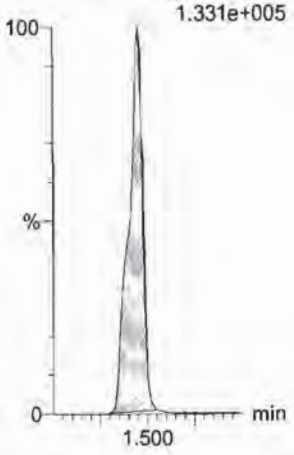
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
5.847e+003



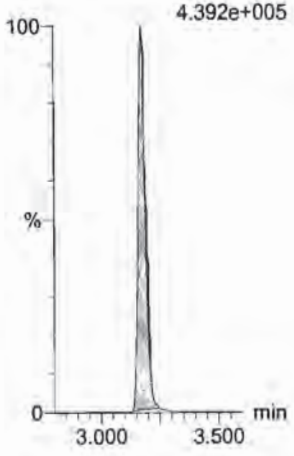
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
6.092e+003



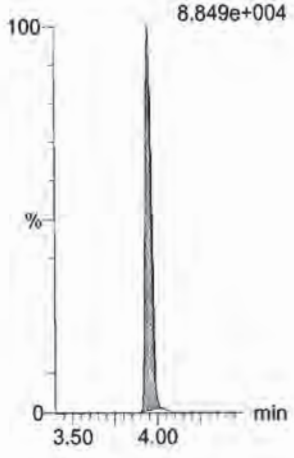
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.331e+005



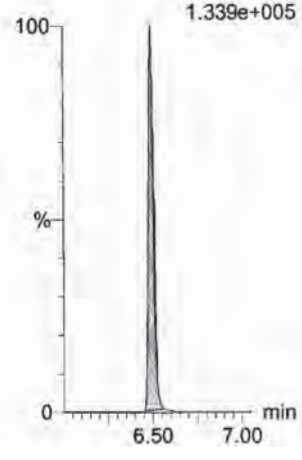
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.392e+005



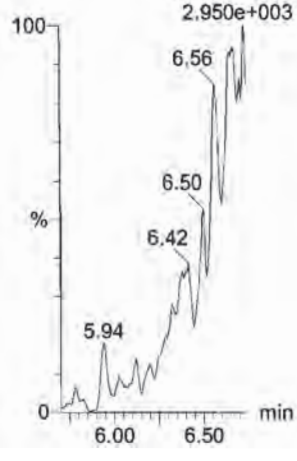
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
8.849e+004



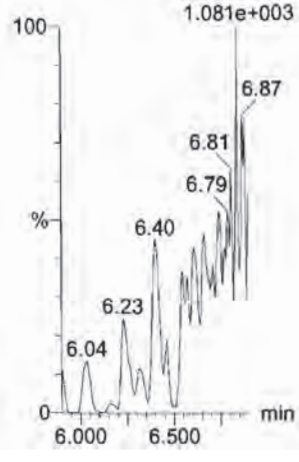
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.339e+005



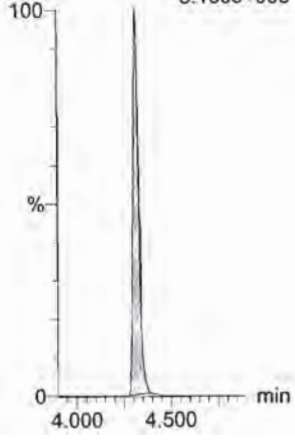
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
2.950e+003



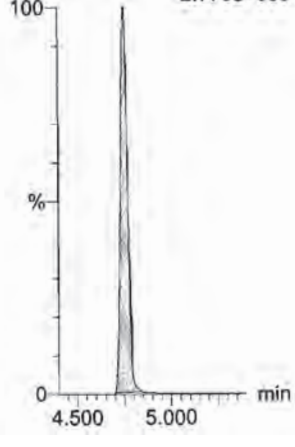
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
1.081e+003



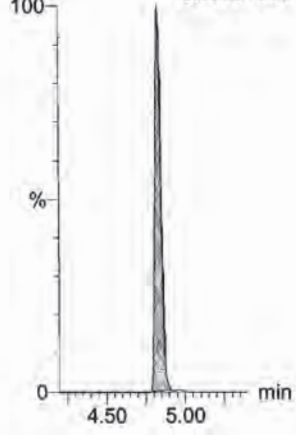
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.160e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.770e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
9.154e+004

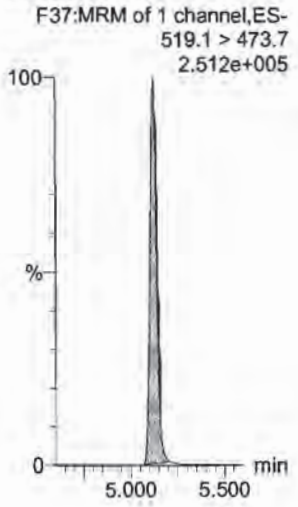


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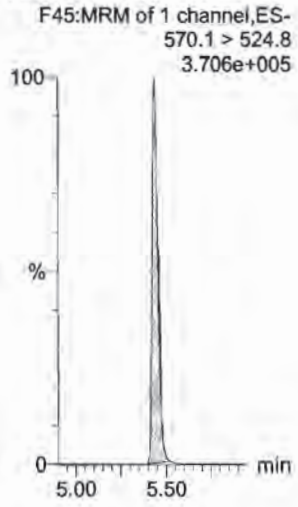
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Name: 171213M1_2, Date: 13-Dec-2017, Time: 19:10:03, ID: ST171213M1-1 PFC CS-2 17L0504, Description: PFC CS-2 17L0504

13C6-PFDA



13C7-PFUdA

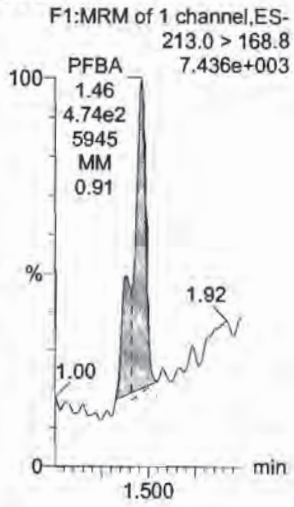


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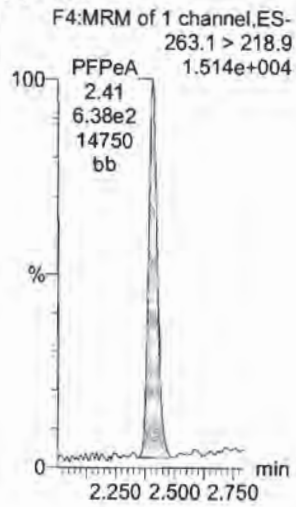
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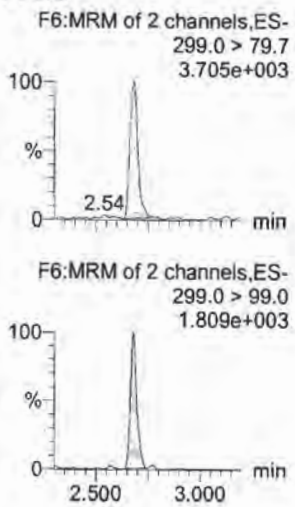
PFBA



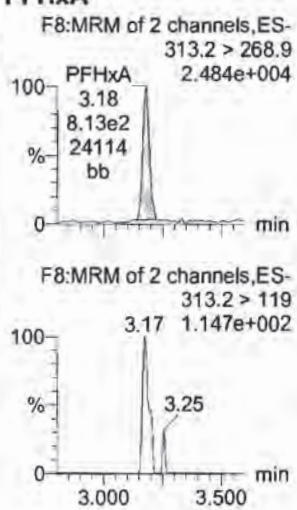
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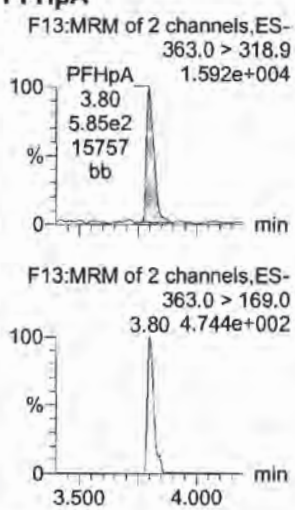
PFBS



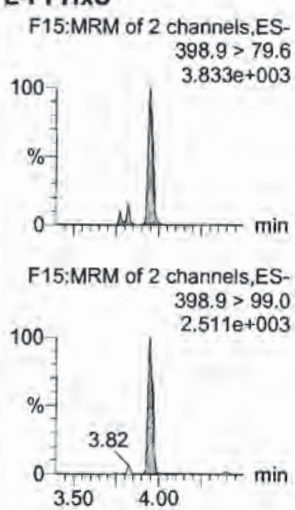
PFHxA



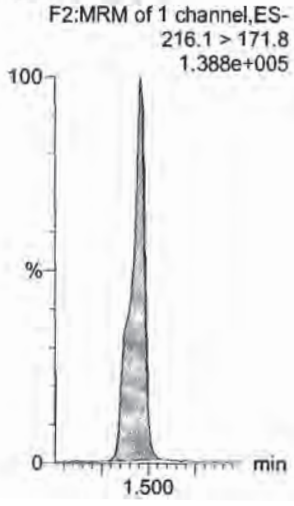
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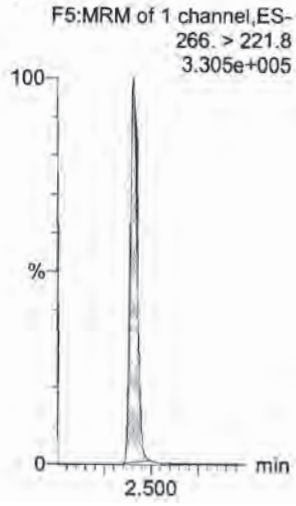
L-PFHxS



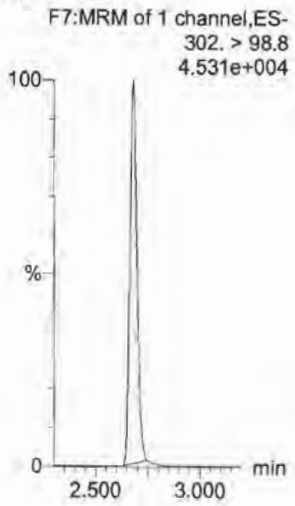
13C3-PFBA



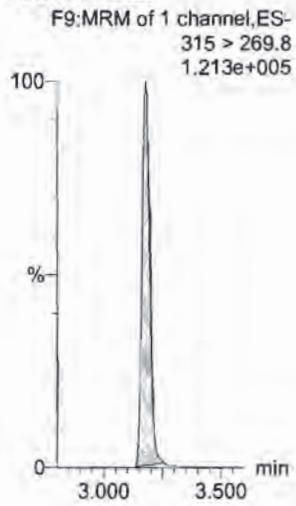
13C3-PFPeA



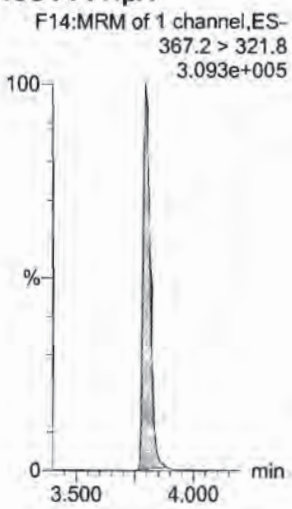
13C3-PFBS



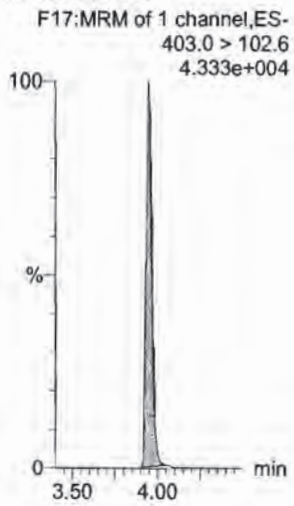
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13C4-PFHpA



18O2-PFHxS

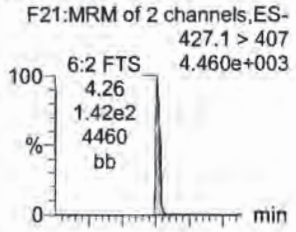


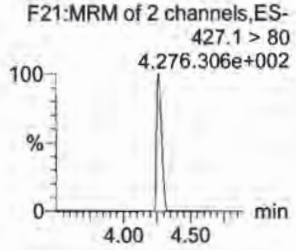
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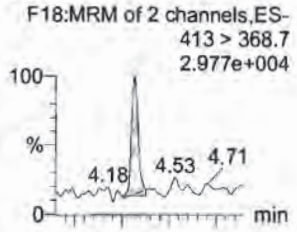
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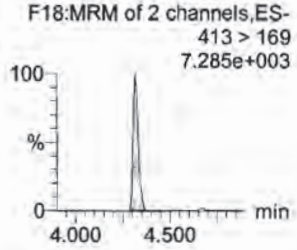
6:2 FTS



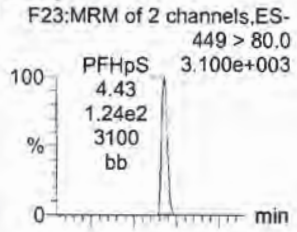


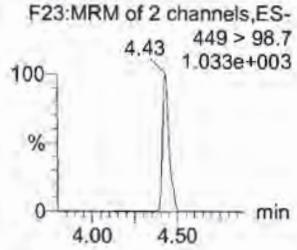
L-PFOA



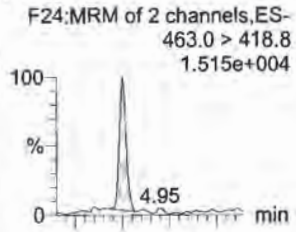


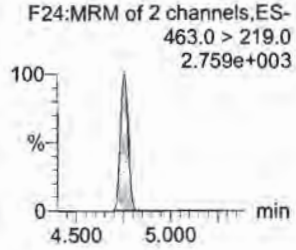
PFHpS



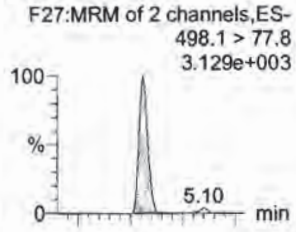


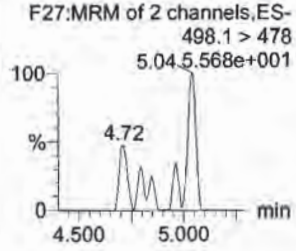
PFNA



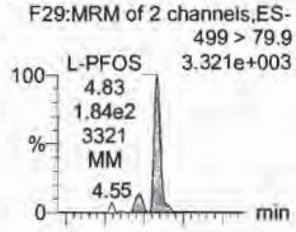


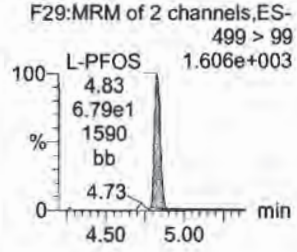
PFOSA



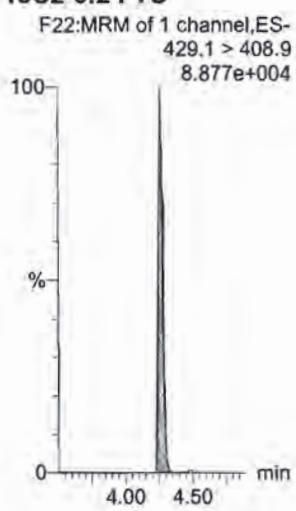


L-PFOS

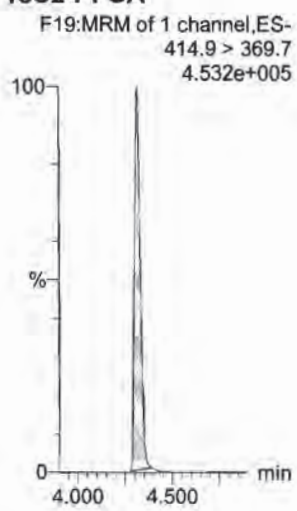




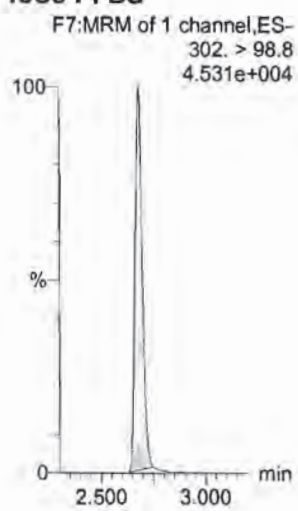
13C2-6:2 FTS



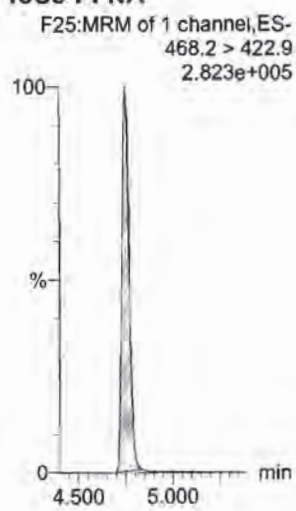
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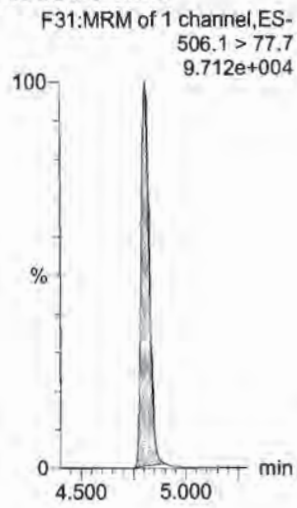
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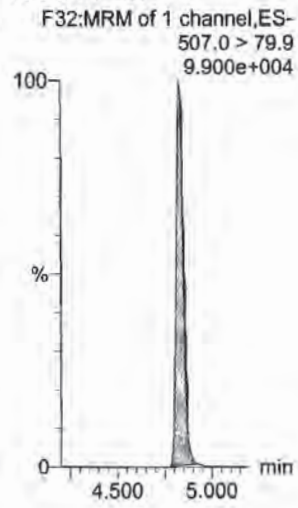
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13C8-PFOSA



13C8-PFOS

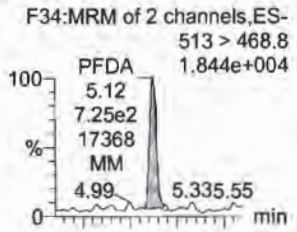


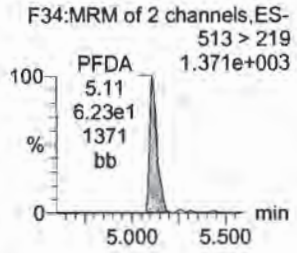
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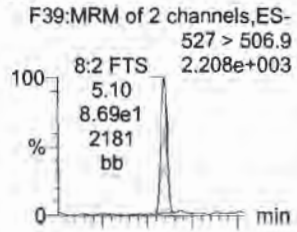
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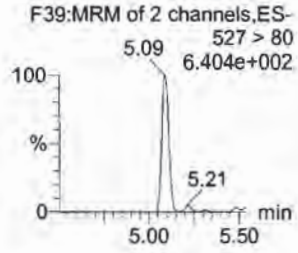
PFDA



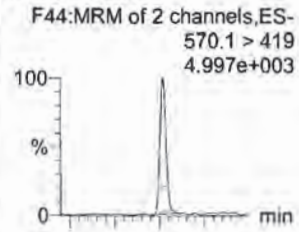


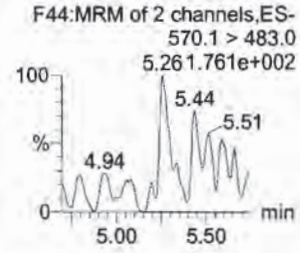
8:2 FTS



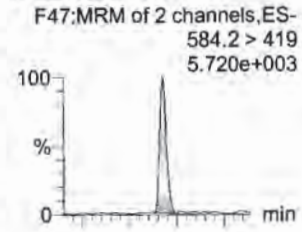


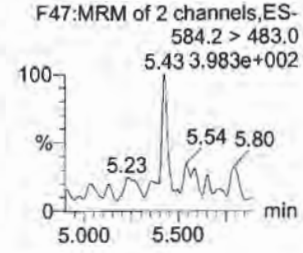
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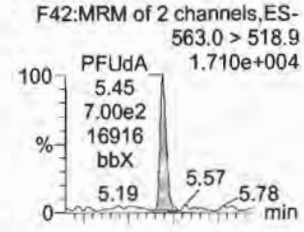


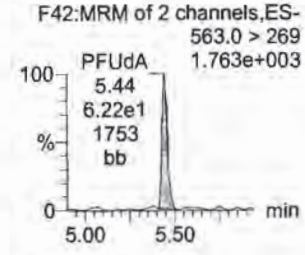
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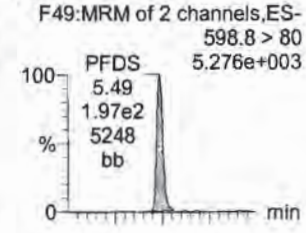


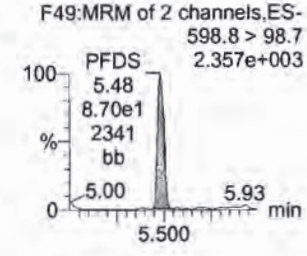
PFUdA



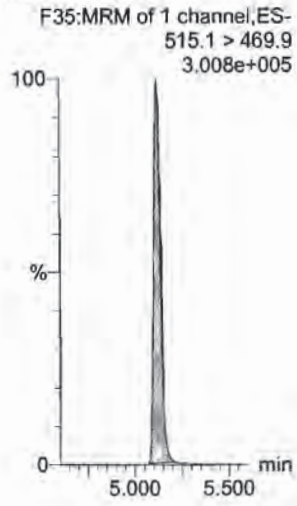


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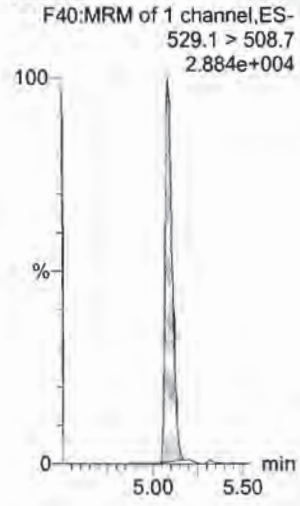




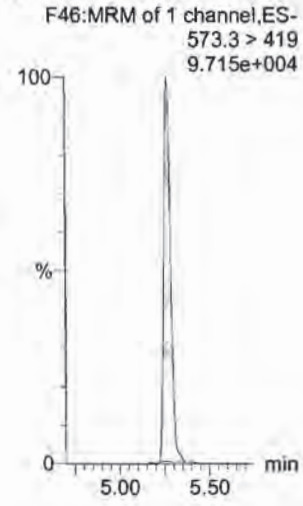
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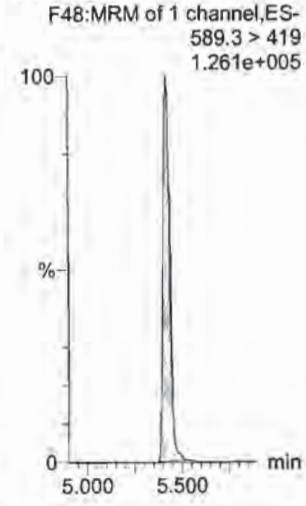
13C2-8:2 FTS



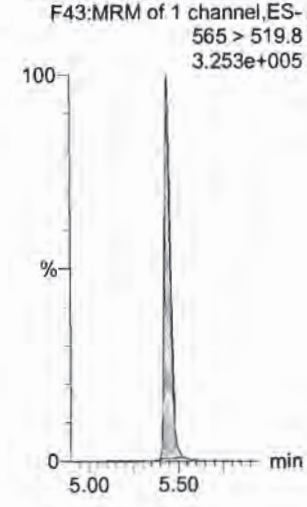
d3-N-MeFOSAA



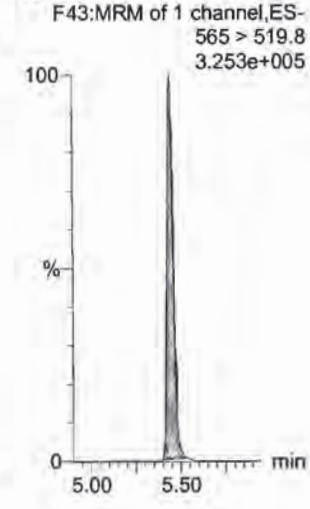
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

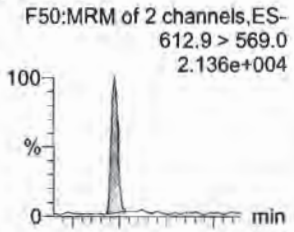


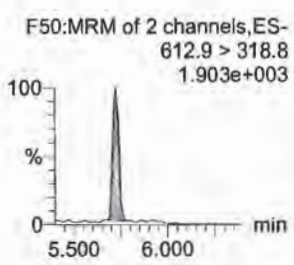
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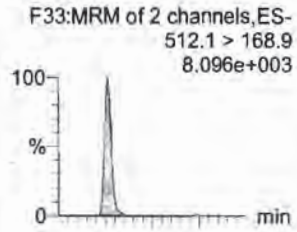
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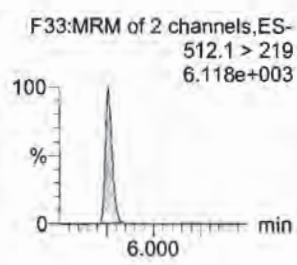
PFDoA



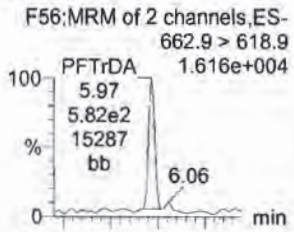


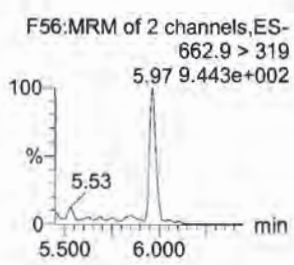
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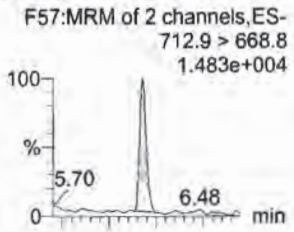


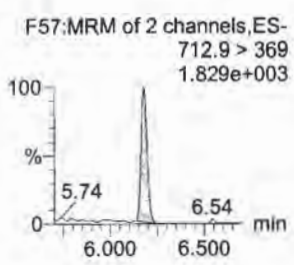
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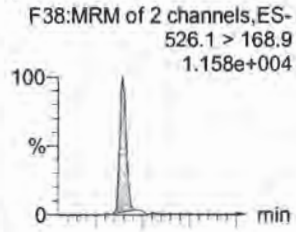


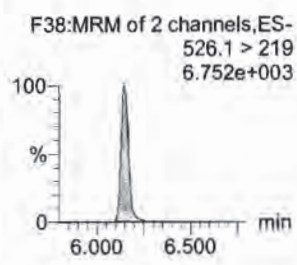
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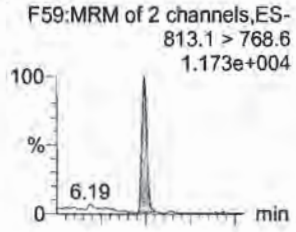


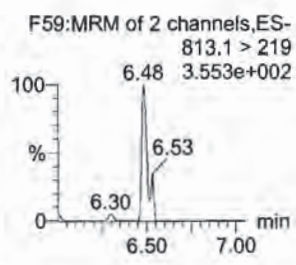
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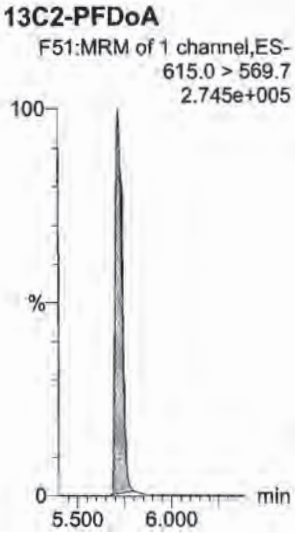


PFHxDA

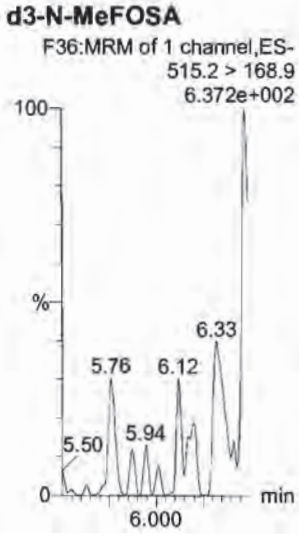




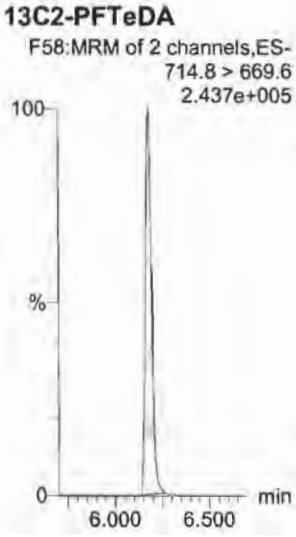
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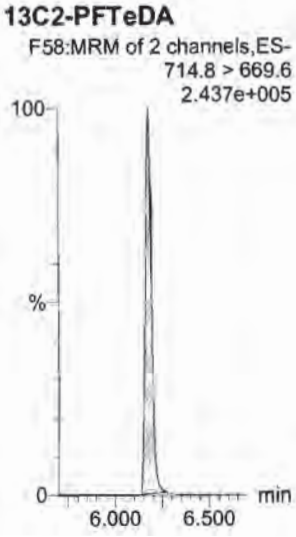
d3-N-MeFOSA



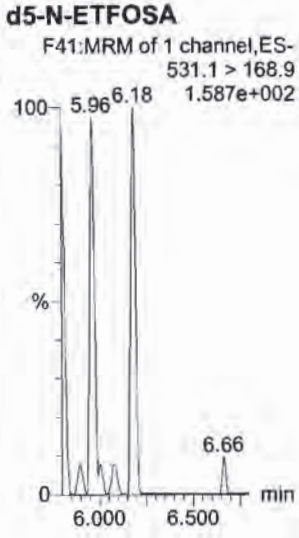
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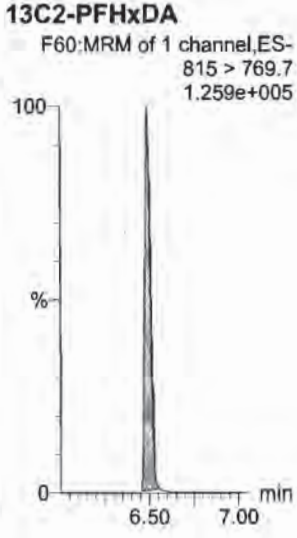
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d5-N-ETFOSA



13C2-PFHxDA

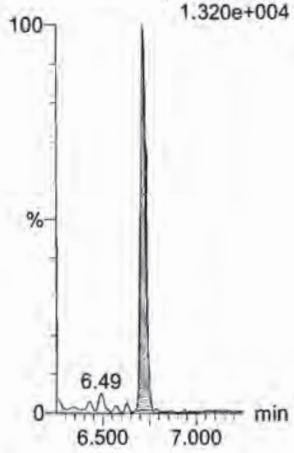


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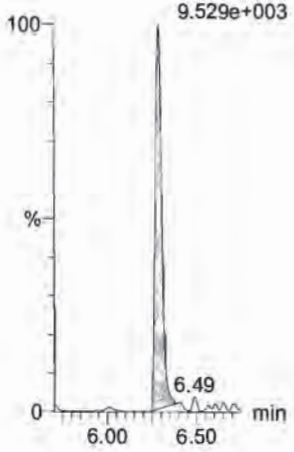
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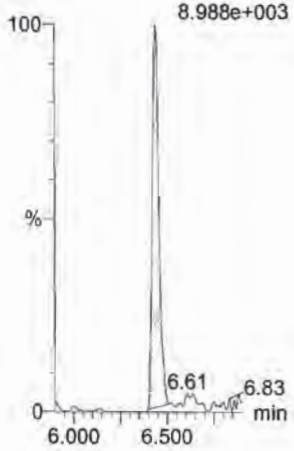
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
1.320e+004



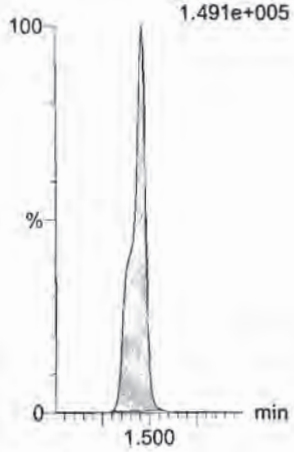
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
9.529e+003



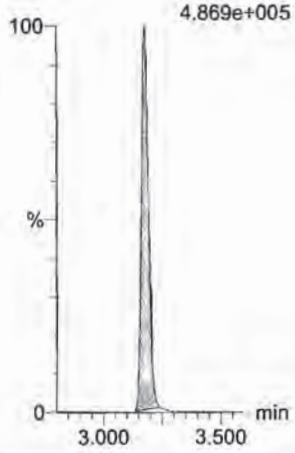
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
8.988e+003



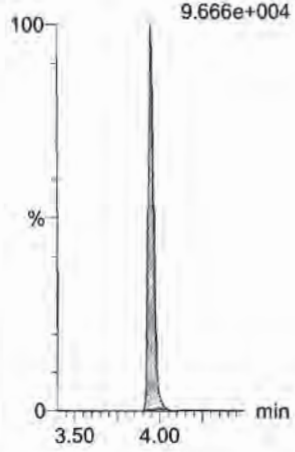
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F3:MRM of 1 channel,ES-
217. > 171.8
1.491e+005



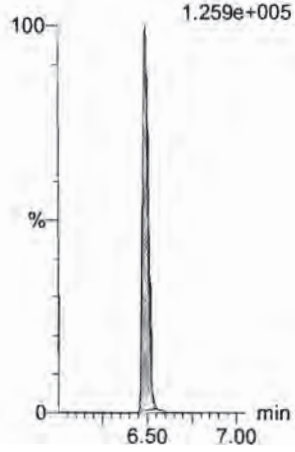
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.869e+005



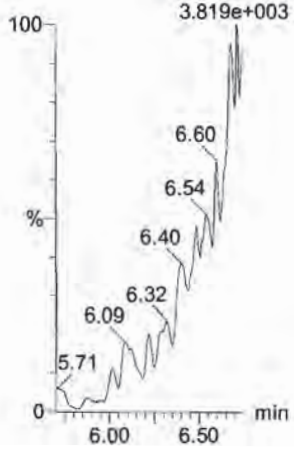
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
9.666e+004



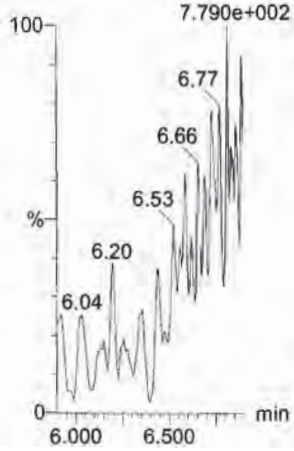
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.259e+005



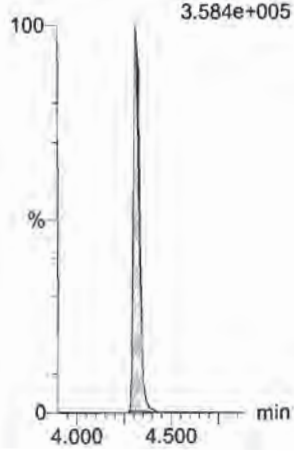
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
3.819e+003



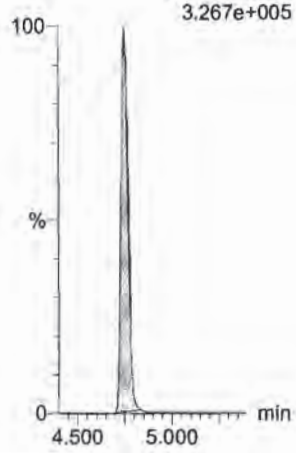
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
7.790e+002



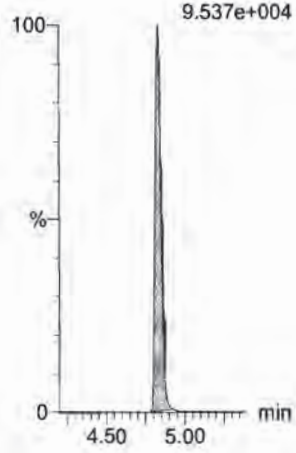
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.584e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
3.267e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
9.537e+004

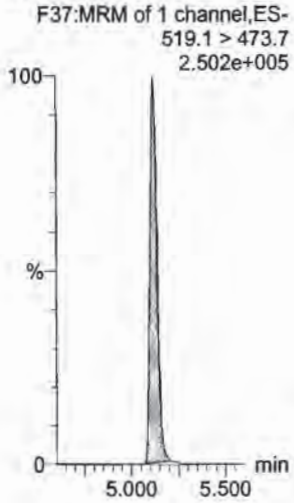


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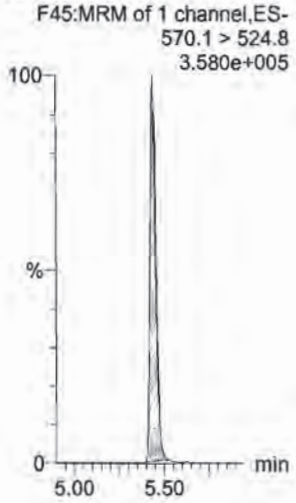
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13C6-PFDA



13C7-PFUdA

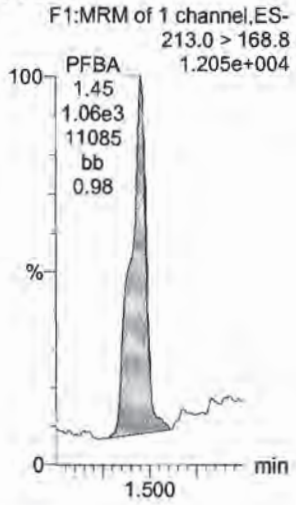


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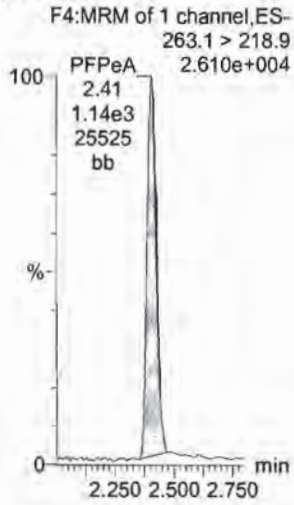
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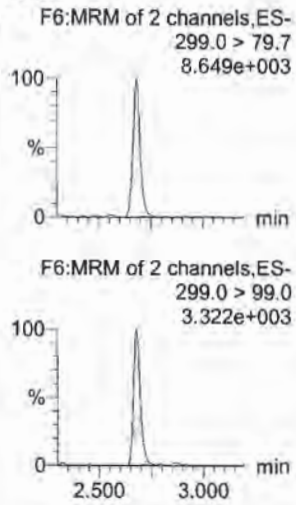
PFBA



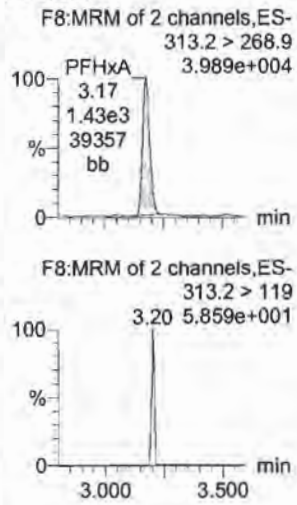
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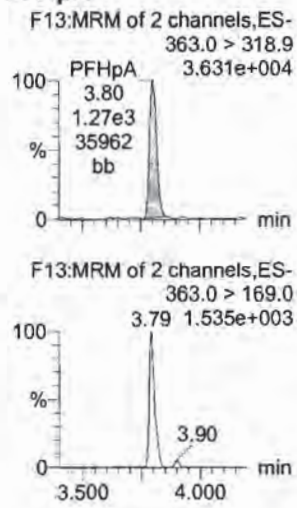
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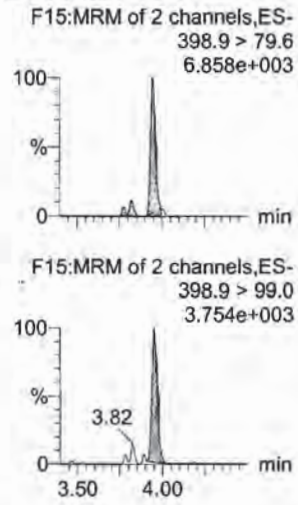
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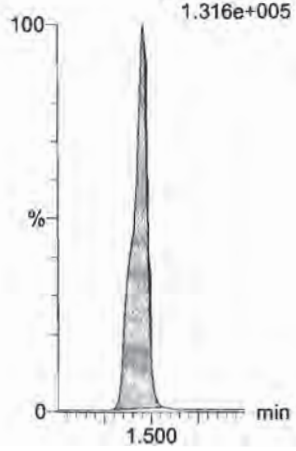
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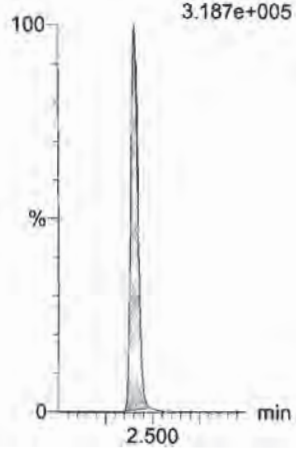
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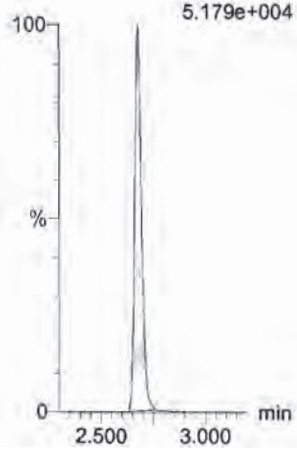
13C3-PFBA



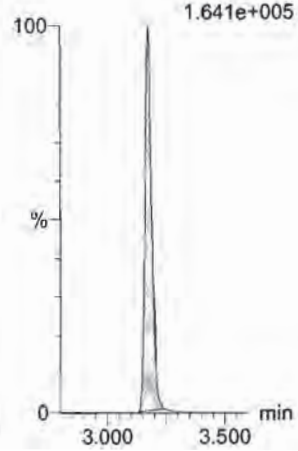
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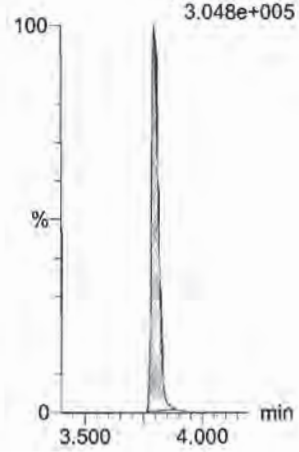
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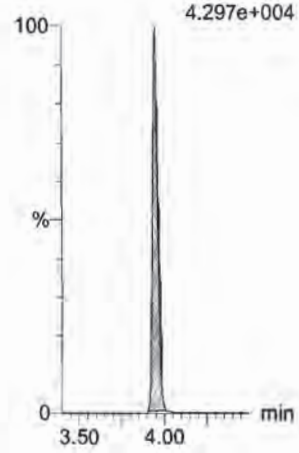
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13C4-PFHpA



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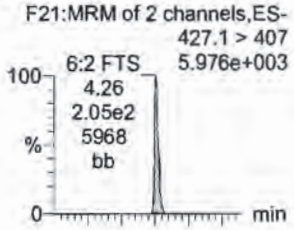


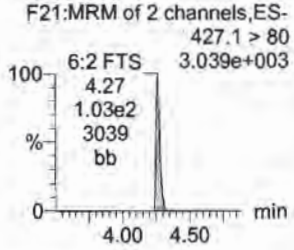
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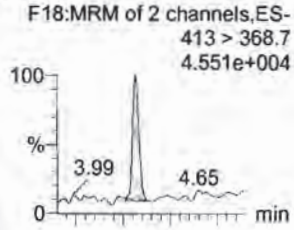
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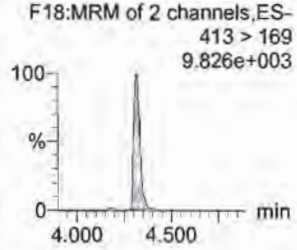
6:2 FTS



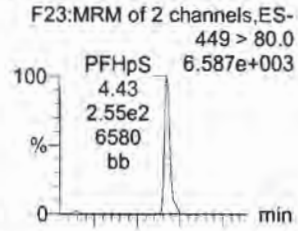


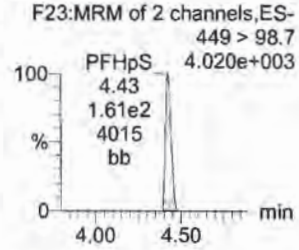
L-PFOA



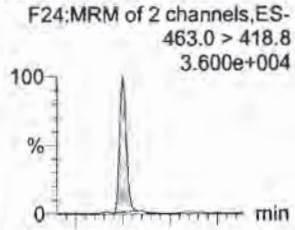


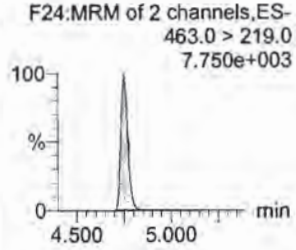
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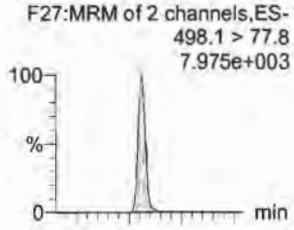


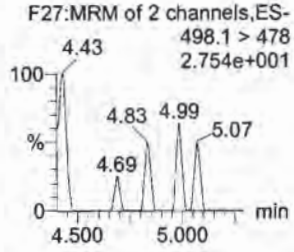
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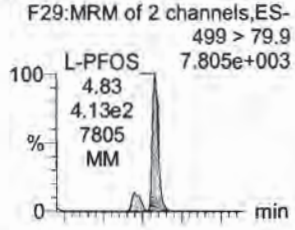


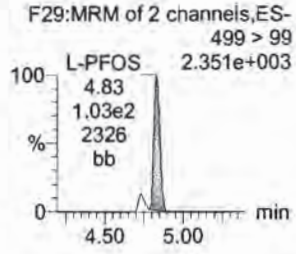
PFOSA



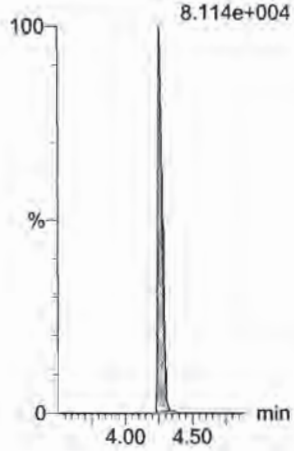


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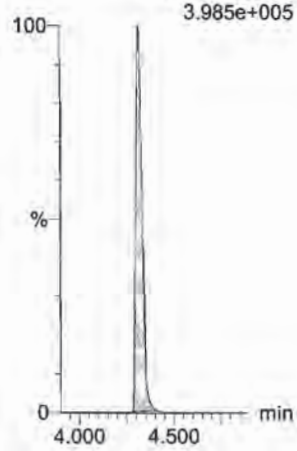




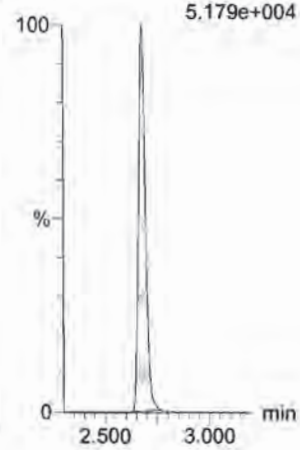
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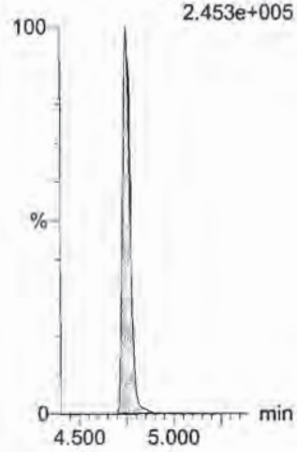
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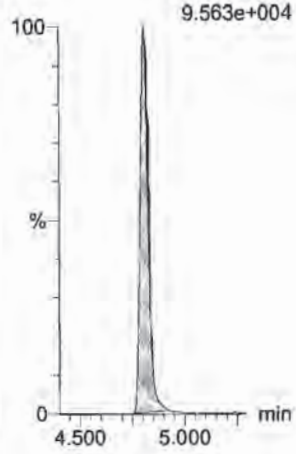
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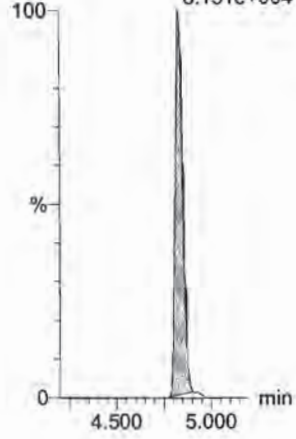
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13C8-PFOSA



13C8-PFOS

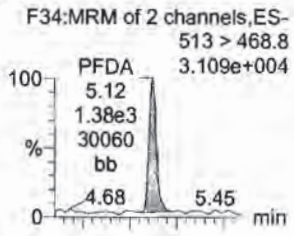


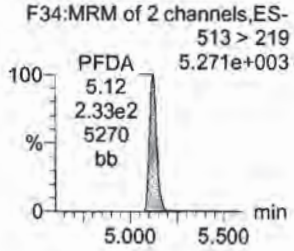
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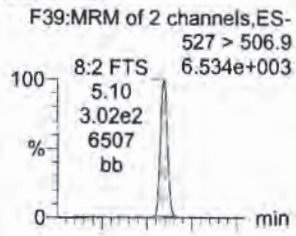
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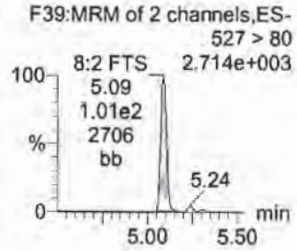
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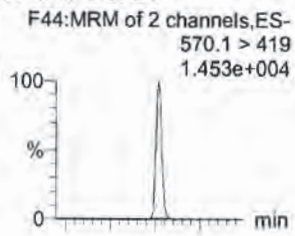


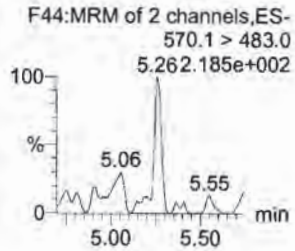
8:2 FTS



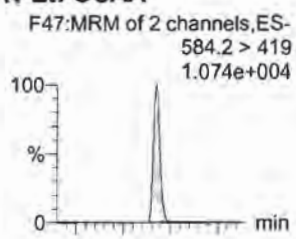


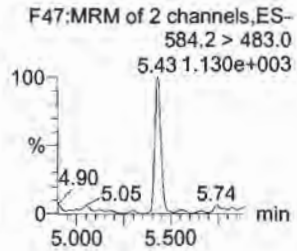
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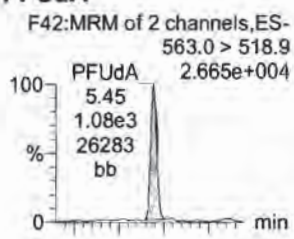


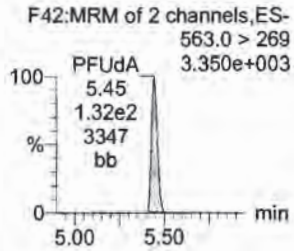
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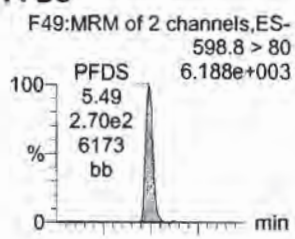


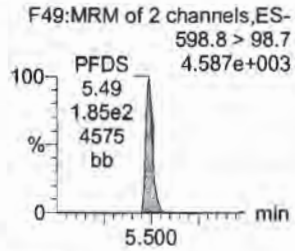
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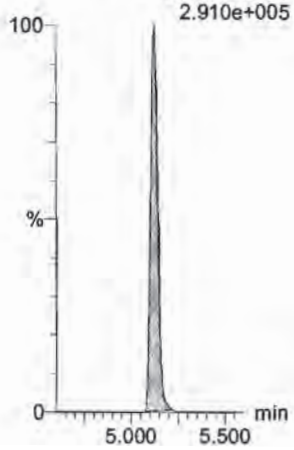


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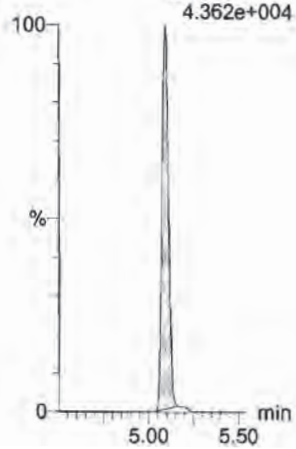




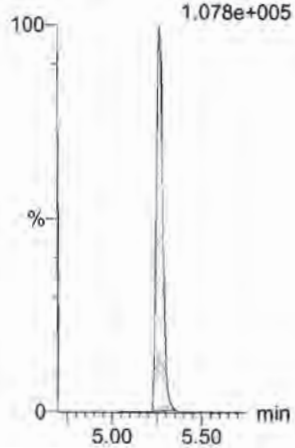
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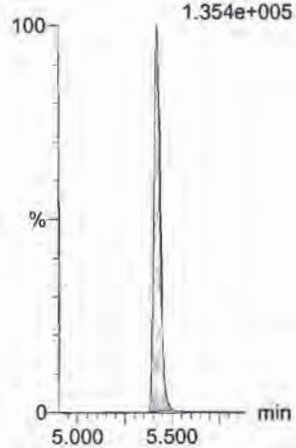
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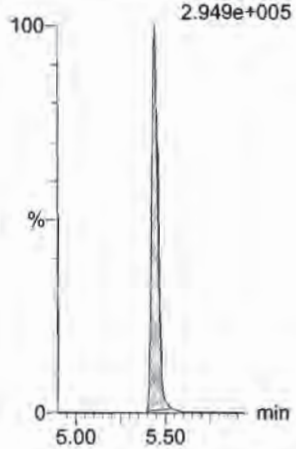
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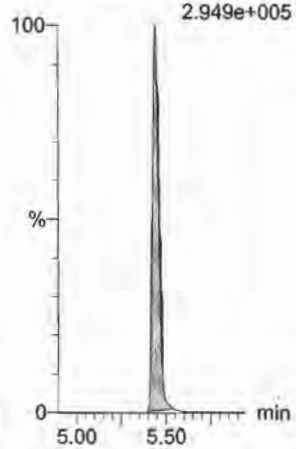
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13C2-PFUdA



13C2-PFUdA

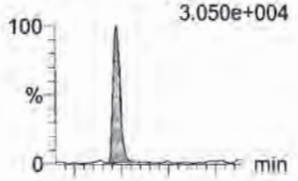


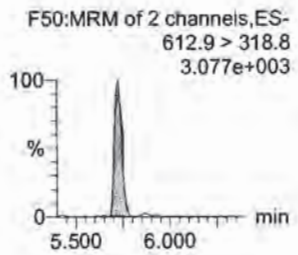
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Printed: Thursday, December 14, 2017 09:35:37 Pacific Standard Time

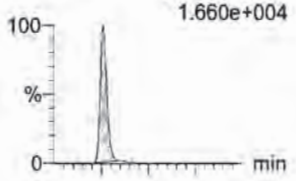
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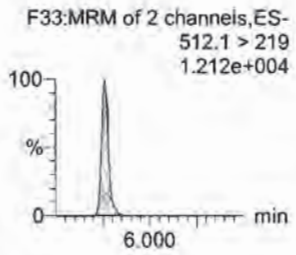
PFDoA



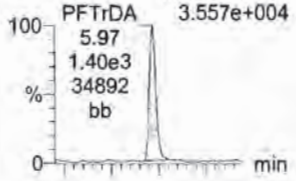


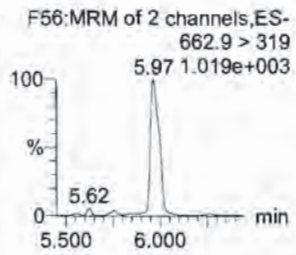
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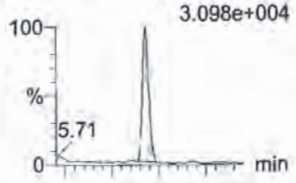


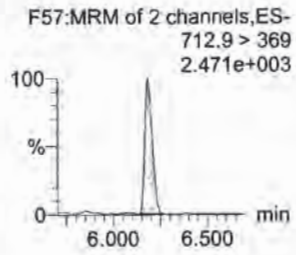
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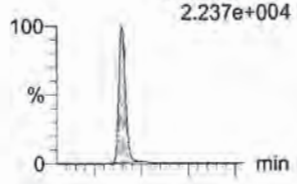


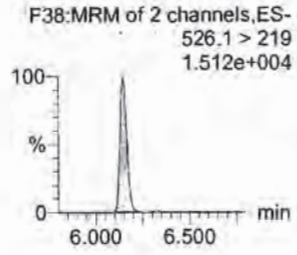
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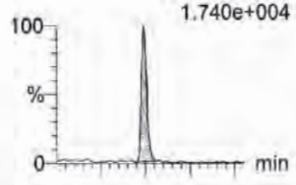


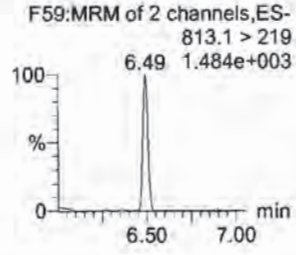
N-EtFOSA



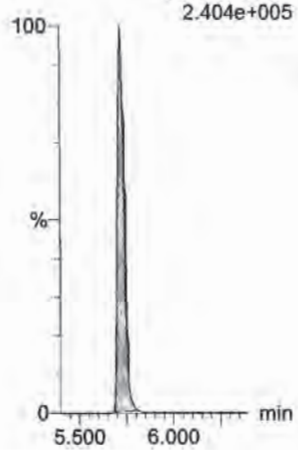


PFHxDA

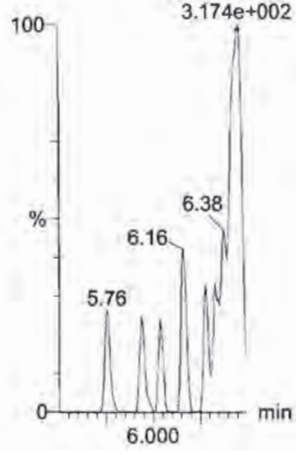




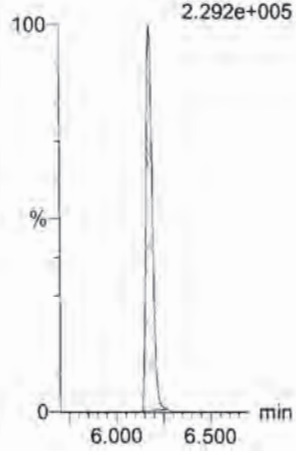
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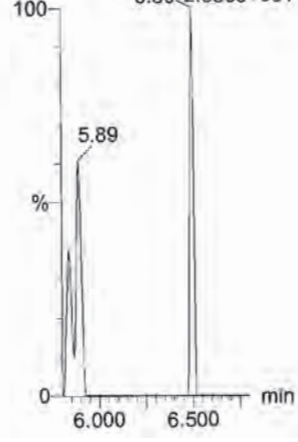
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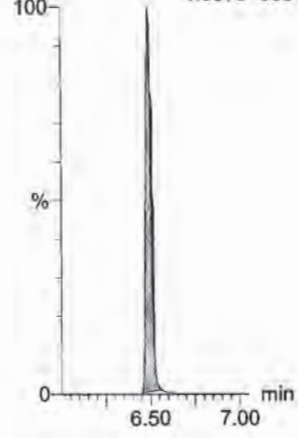
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d5-N-ETFOSA



13C2-PFHxDA

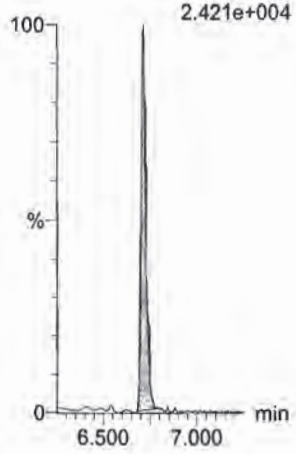


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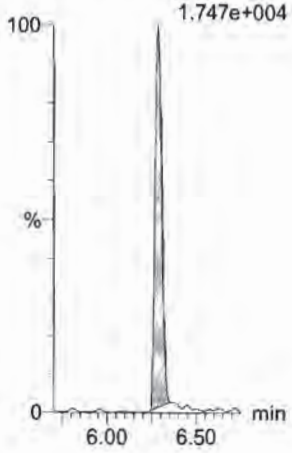
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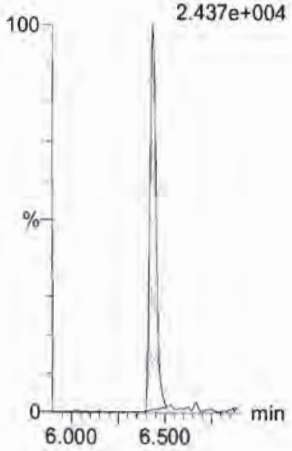
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
2.421e+004



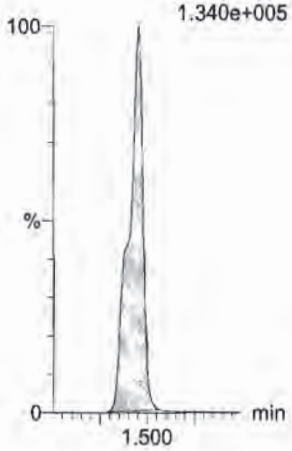
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F52:MRM of 1 channel,ES-
616.1 > 58.9
1.747e+004



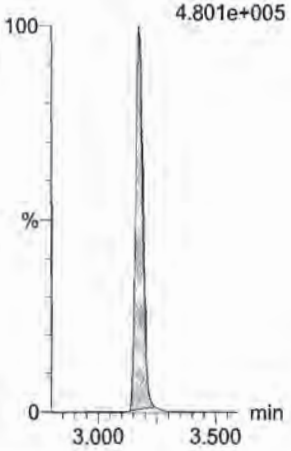
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
2.437e+004



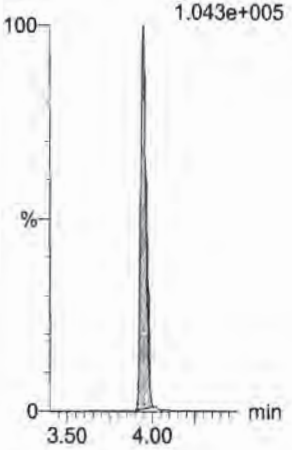
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.340e+005



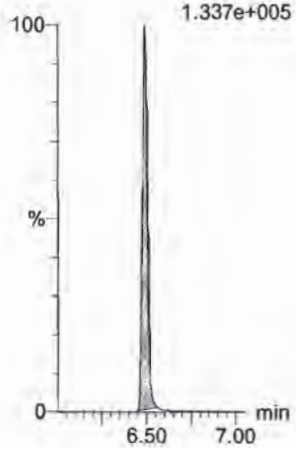
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.801e+005



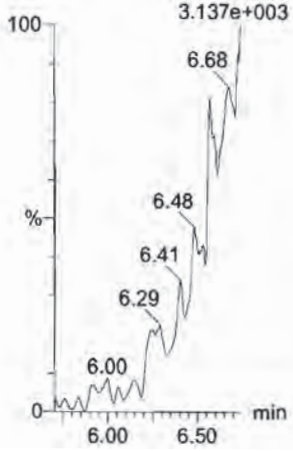
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
1.043e+005



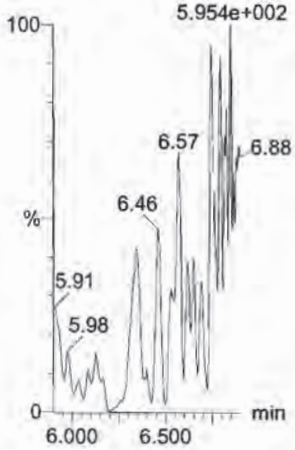
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F60:MRM of 1 channel,ES-
815 > 769.7
1.337e+005



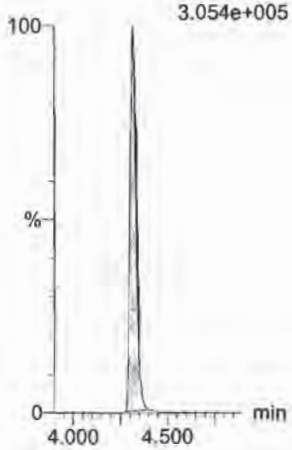
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
3.137e+003



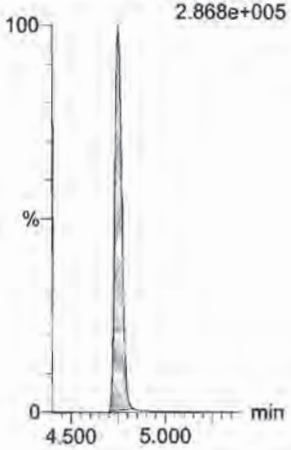
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
5.954e+002



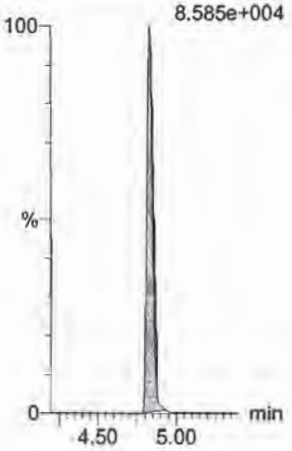
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.054e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.868e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.585e+004

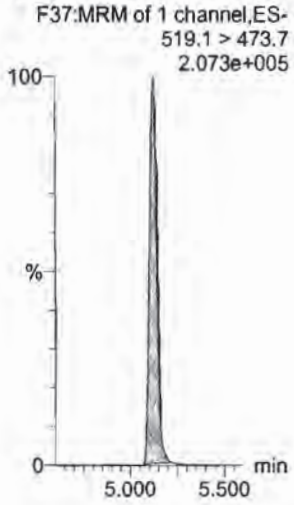


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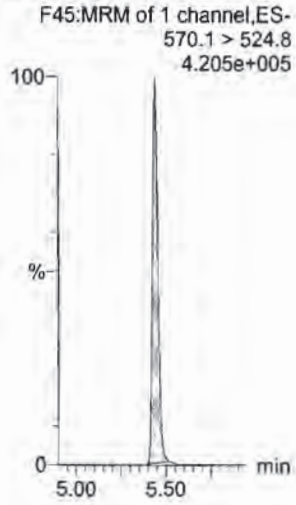
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Name: 171213M1_4, Date: 13-Dec-2017, Time: 19:32:25, ID: ST171213M1-3 PFC CS0 17L0506, Description: PFC CS0 17L0506

13C6-PFDA



13C7-PFUdA

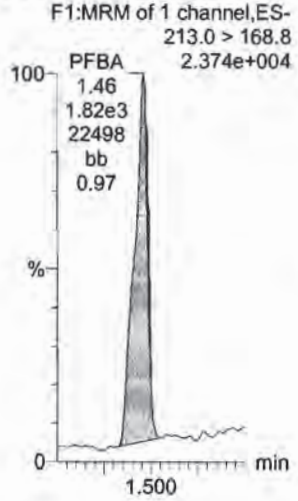


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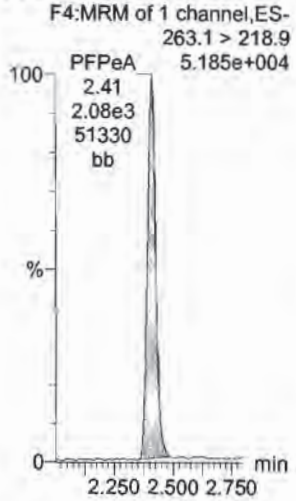
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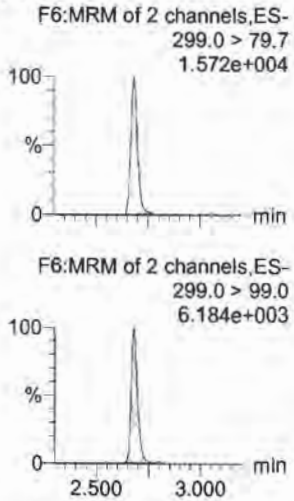
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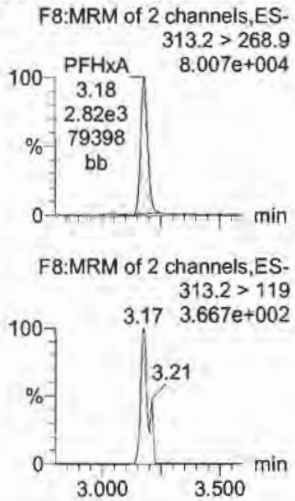
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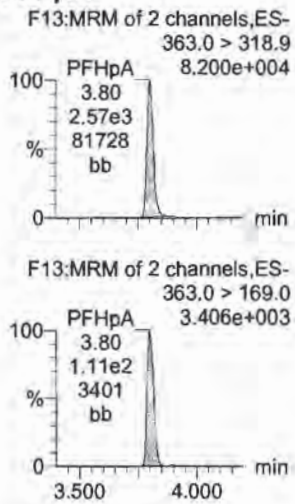
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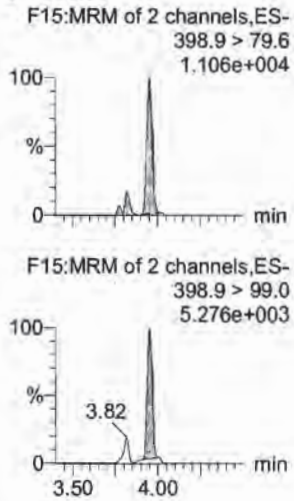
PFHxA



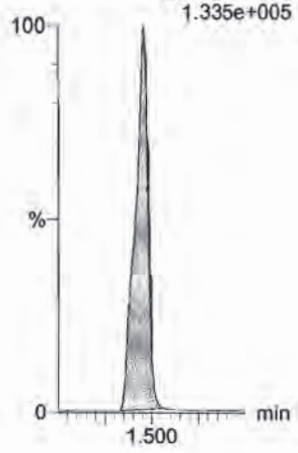
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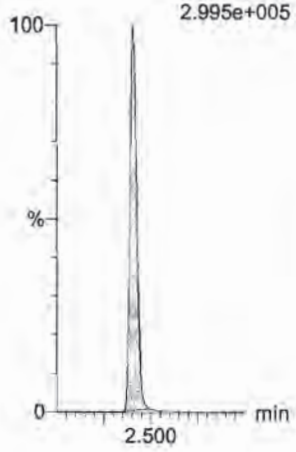
L-PFHxS



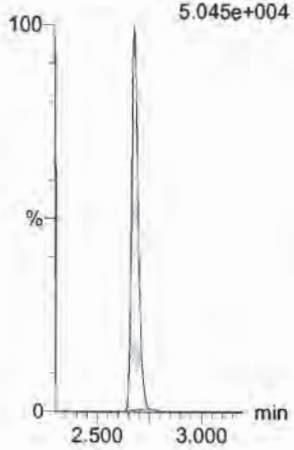
13C3-PFBA



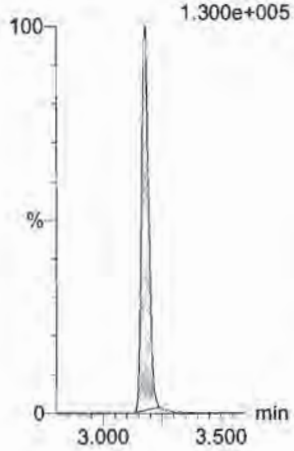
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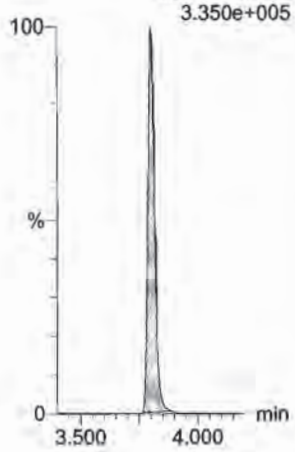
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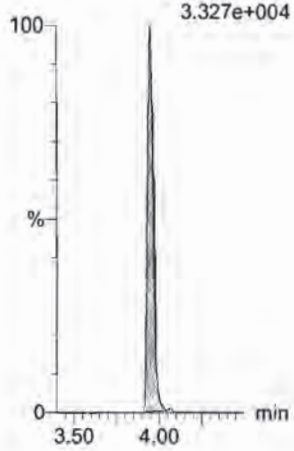
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13C4-PFHpA



18O2-PFHxS

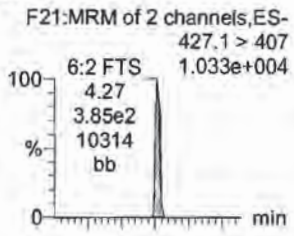


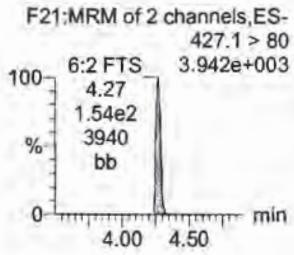
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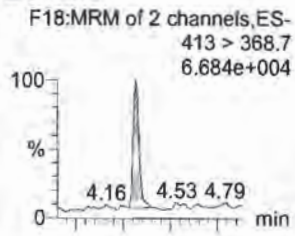
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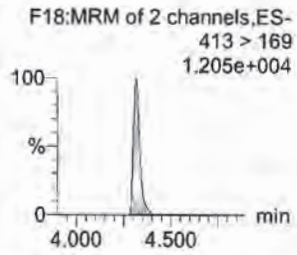
6:2 FTS



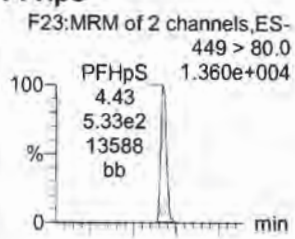


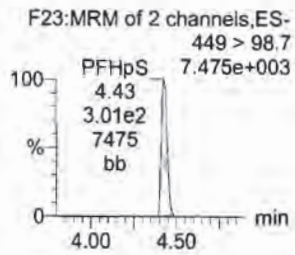
L-PFOA



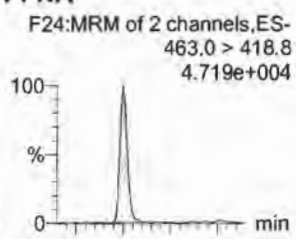


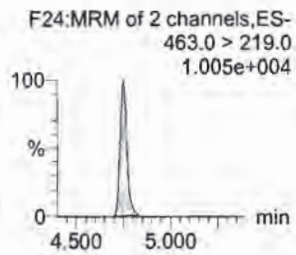
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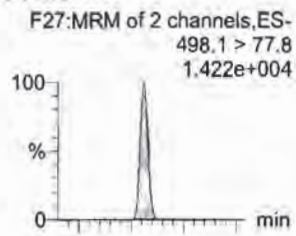


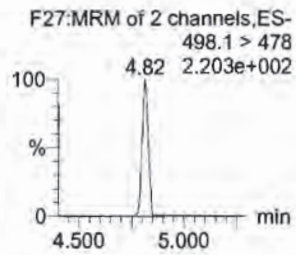
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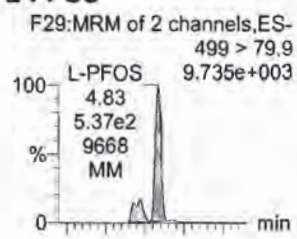


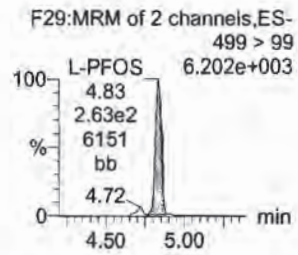
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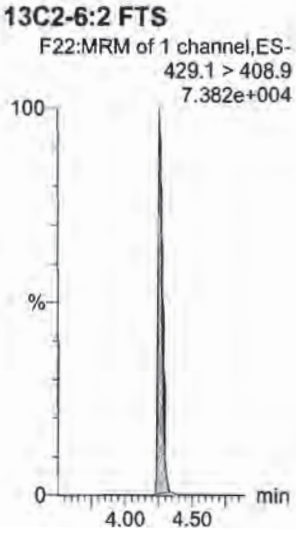


L-PFOS

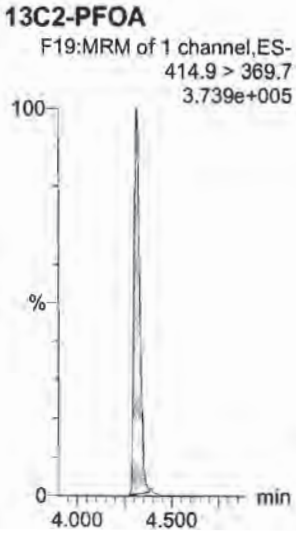




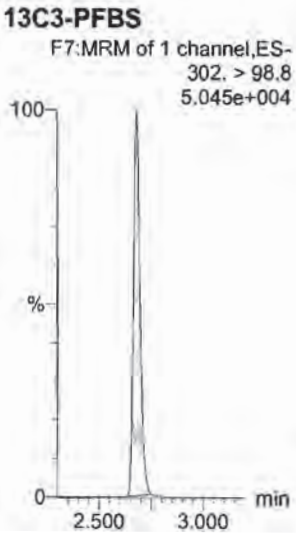
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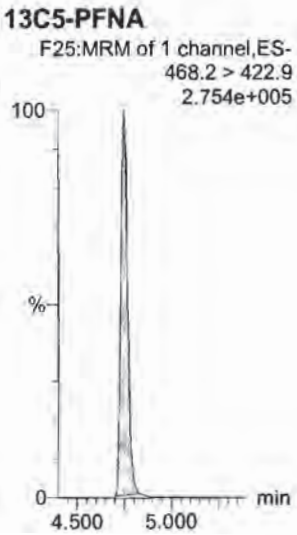
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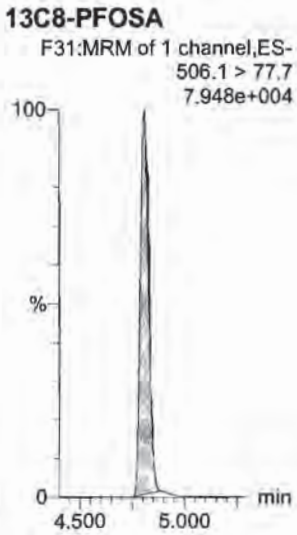
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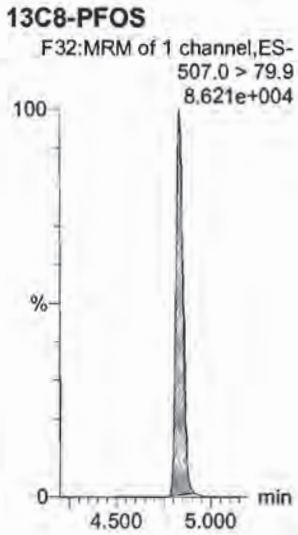
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13C8-PFOSA



13C8-PFOS

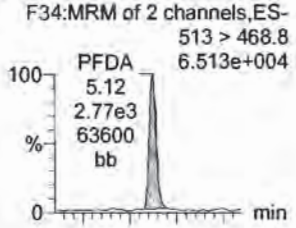


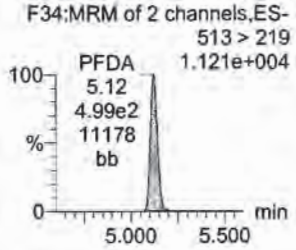
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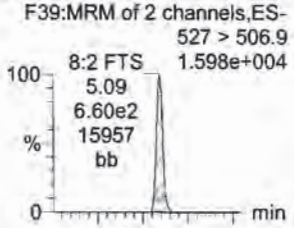
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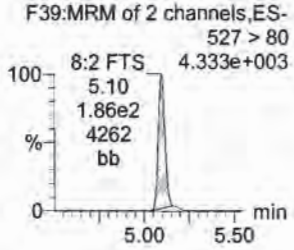
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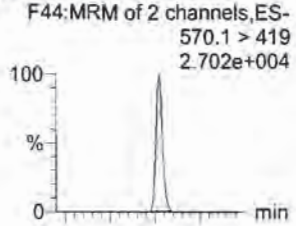


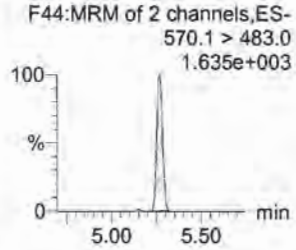
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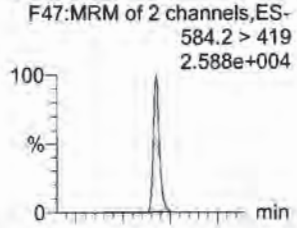


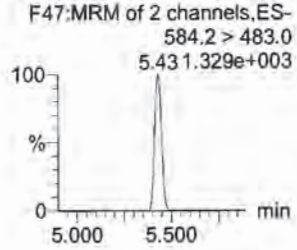
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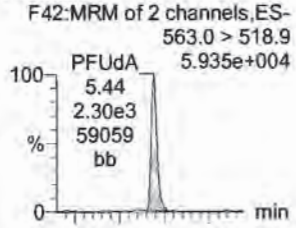


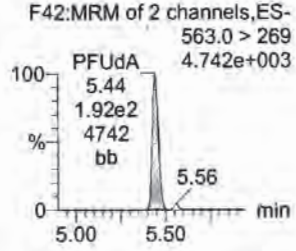
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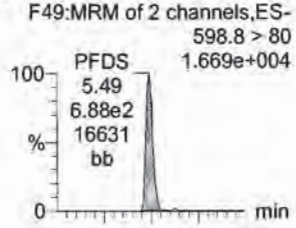


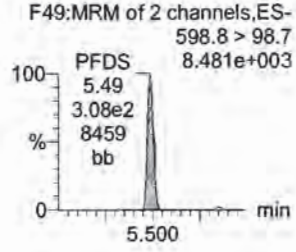
PFUdA



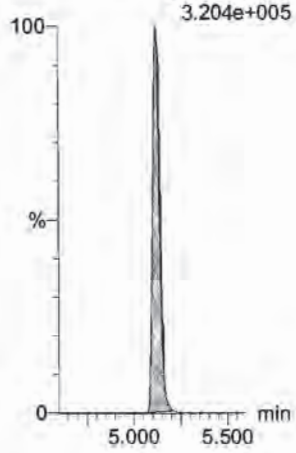


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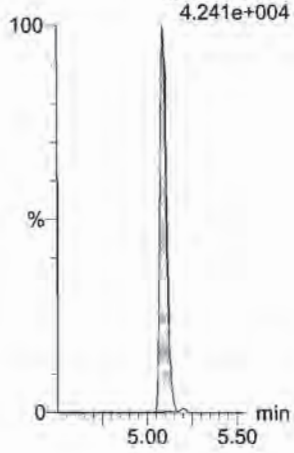




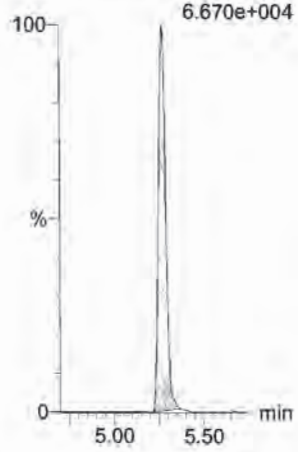
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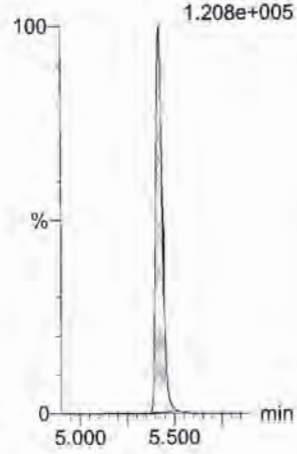
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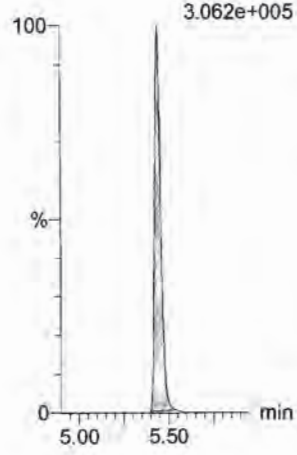
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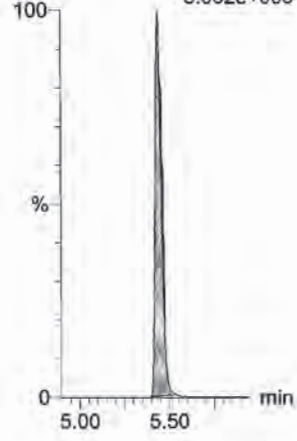
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

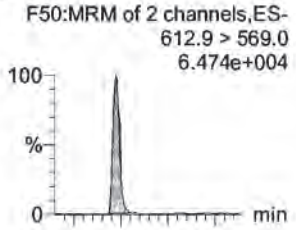


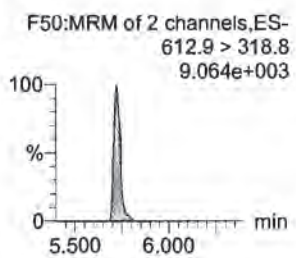
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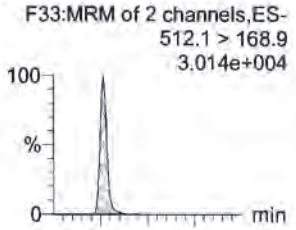
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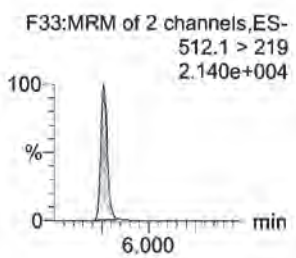
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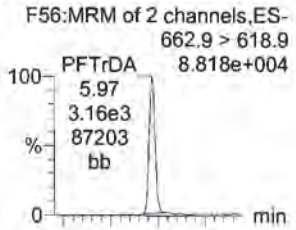


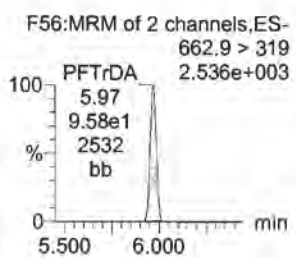
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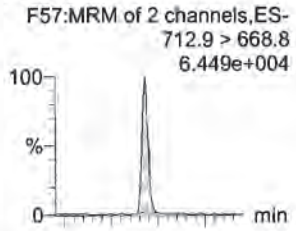


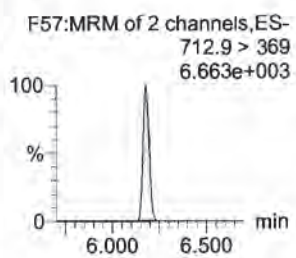
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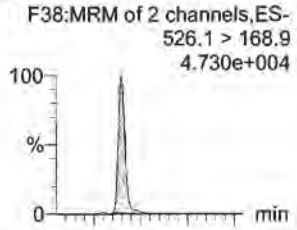


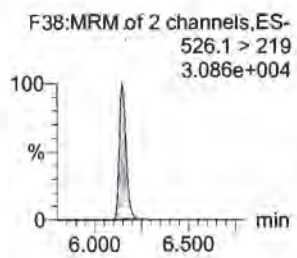
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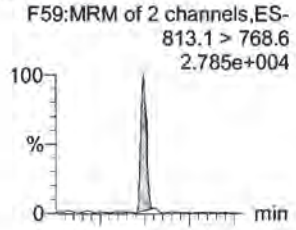


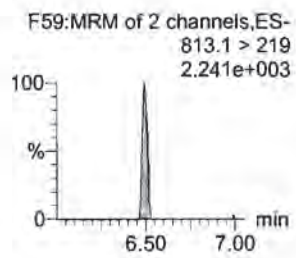
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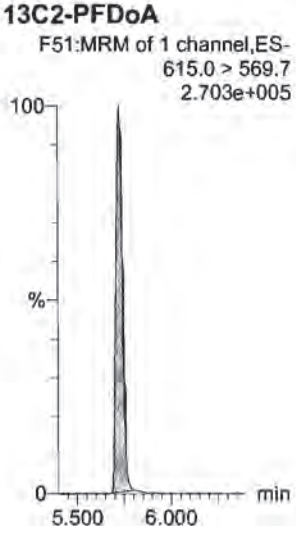


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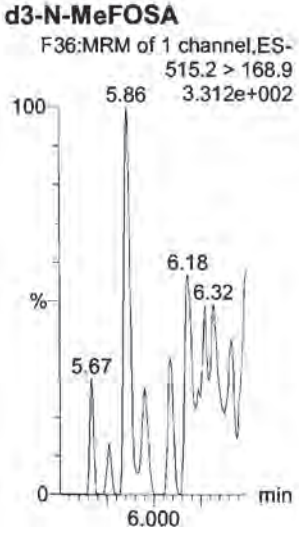




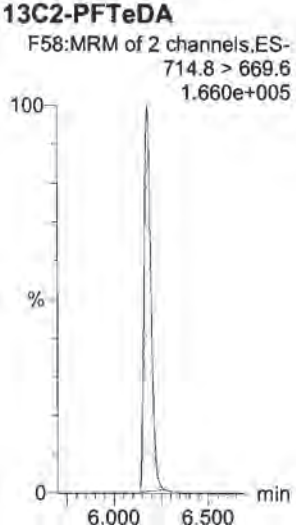
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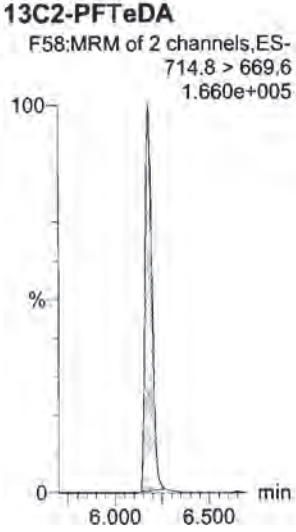
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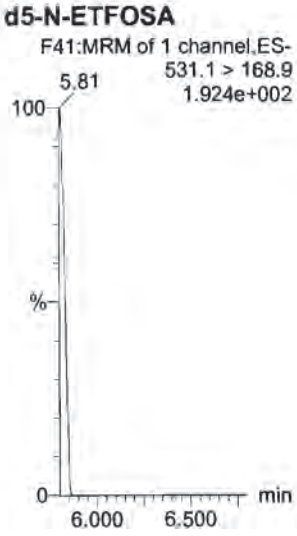
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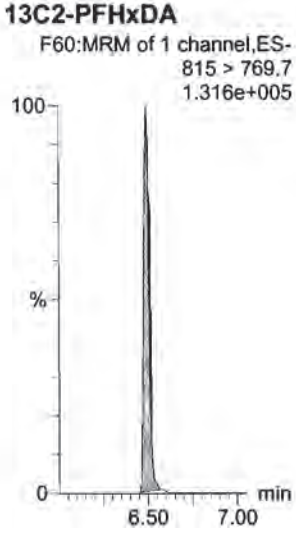
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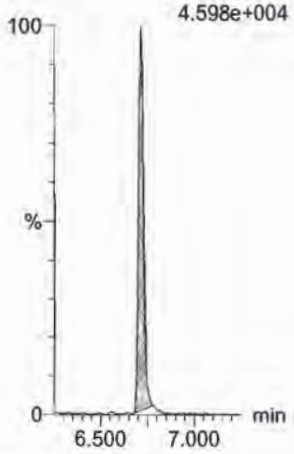


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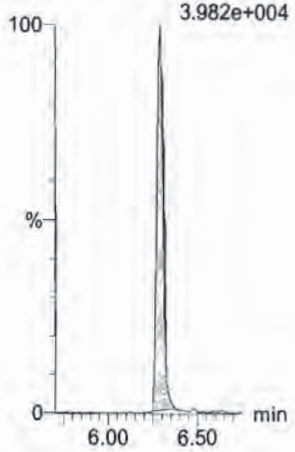
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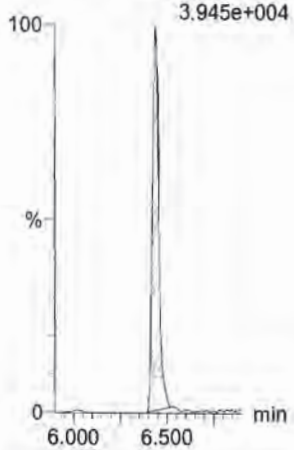
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
4.598e+004



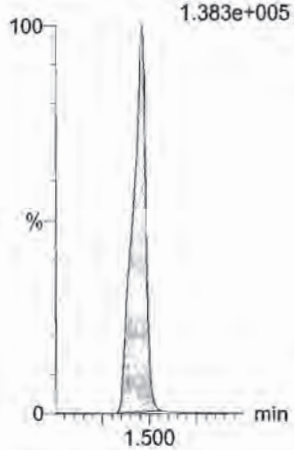
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
3.982e+004



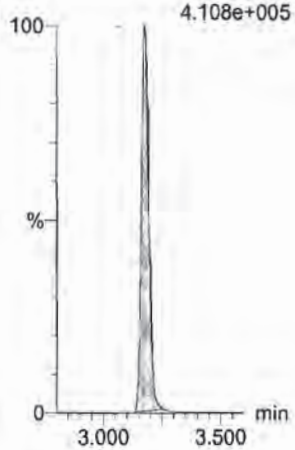
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
3.945e+004



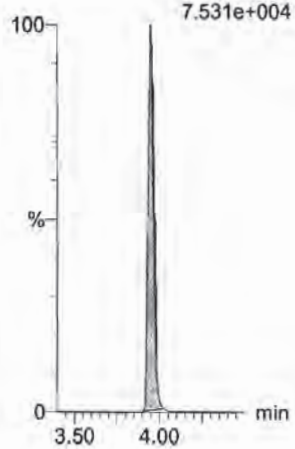
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.383e+005



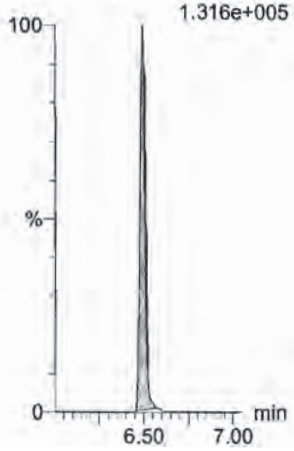
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.108e+005



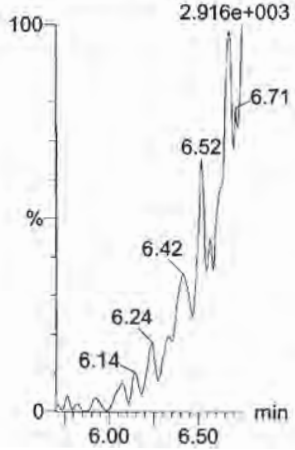
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
7.531e+004



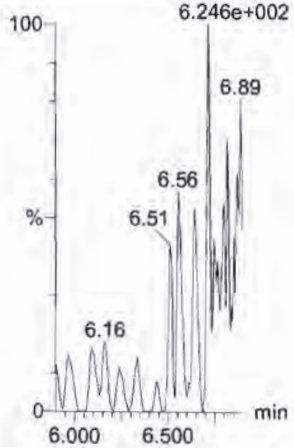
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.316e+005



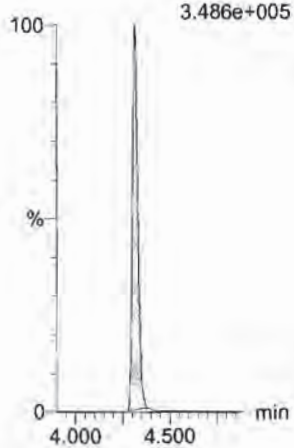
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
2.916e+003



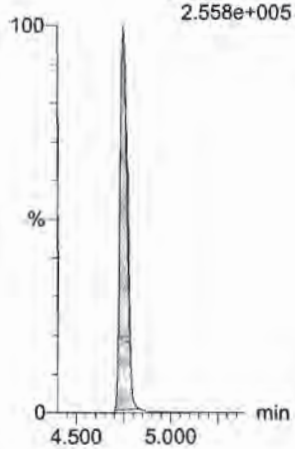
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
6.246e+002



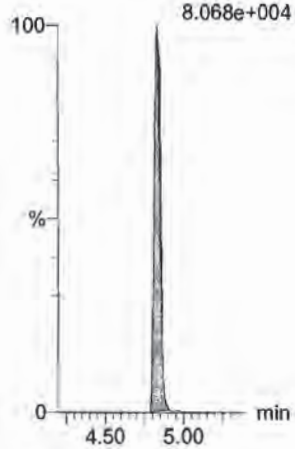
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.486e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.558e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.068e+004

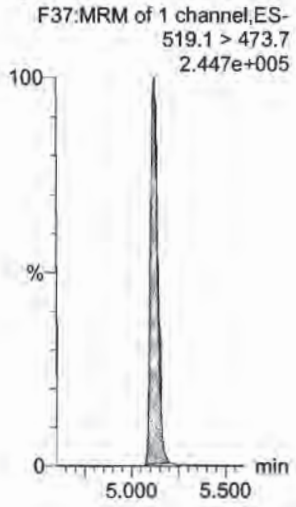


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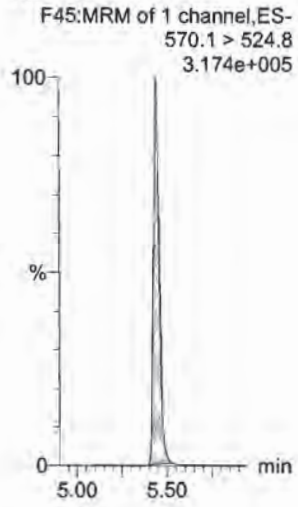
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13C6-PFDA



13C7-PFUdA

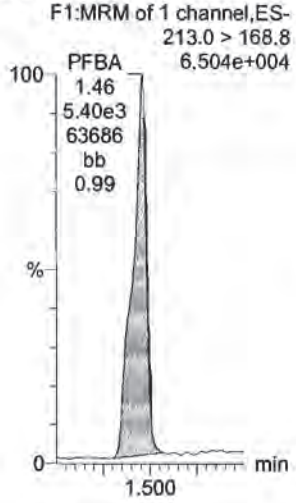


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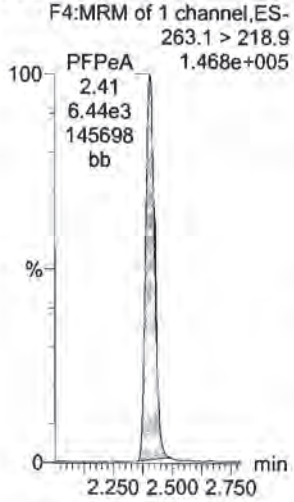
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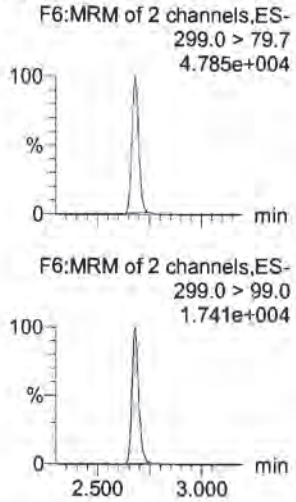
PFBA



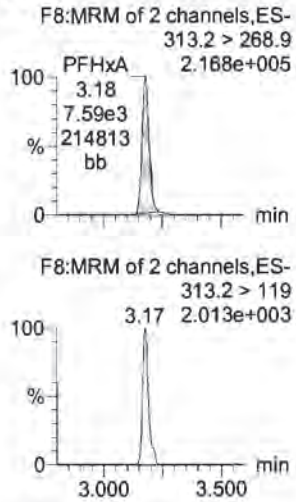
PFPeA



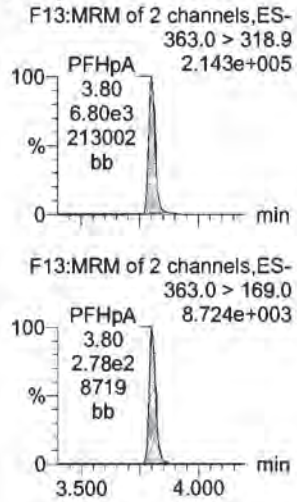
PFBS



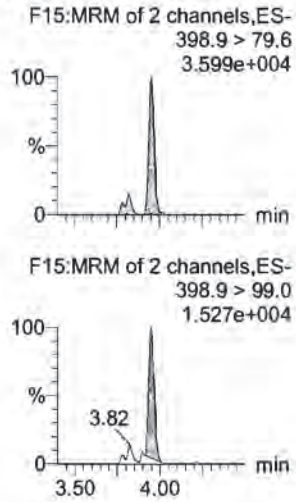
PFHxA



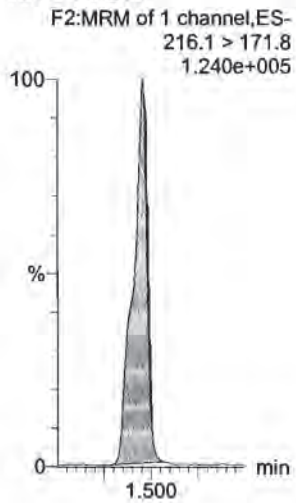
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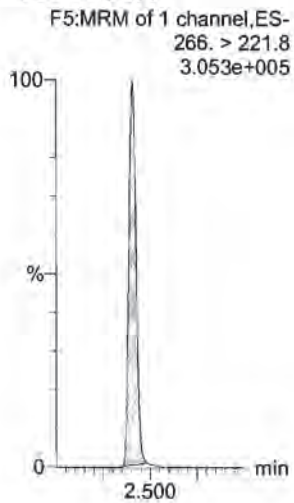
L-PFHxS



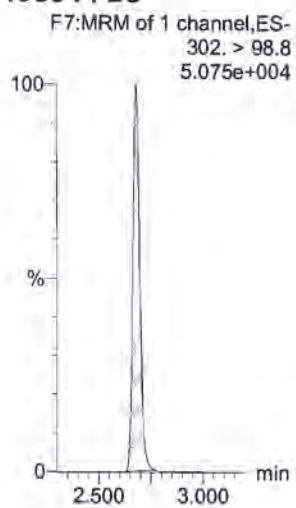
13C3-PFBA



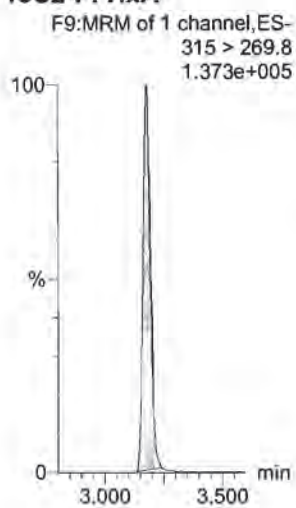
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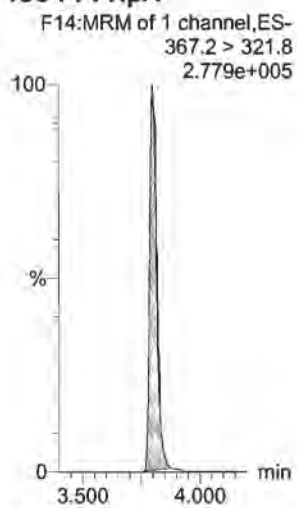
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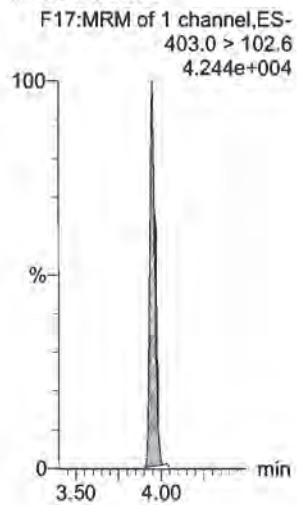
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS

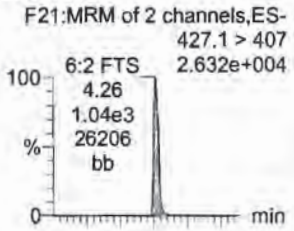


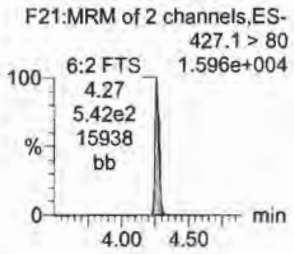
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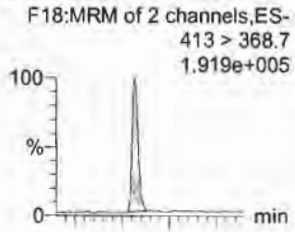
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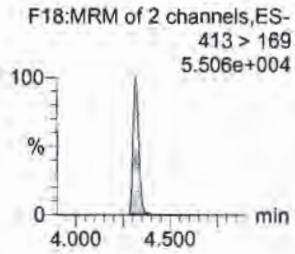
6:2 FTS



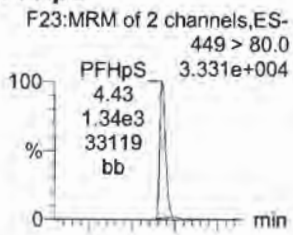


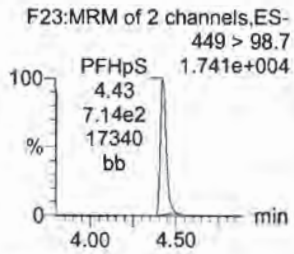
L-PFOA



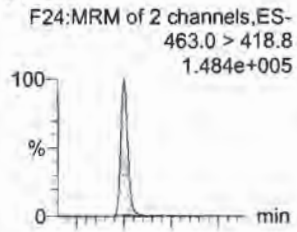


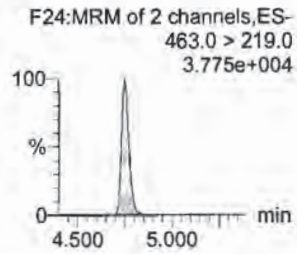
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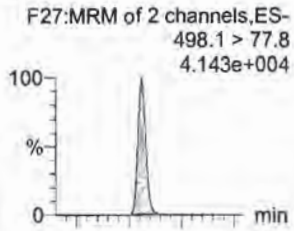


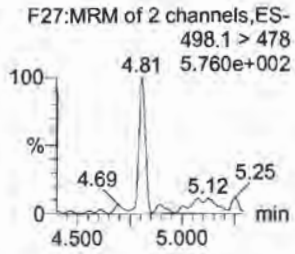
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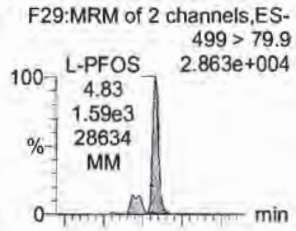


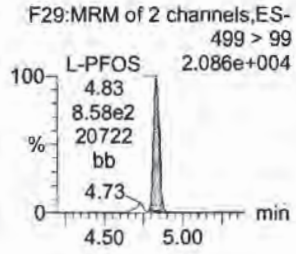
PFOSA



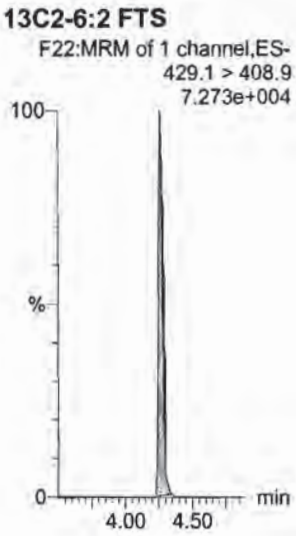


L-PFOS

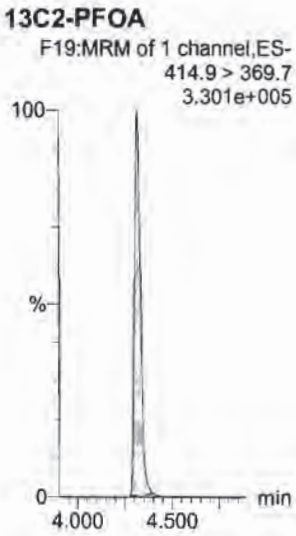




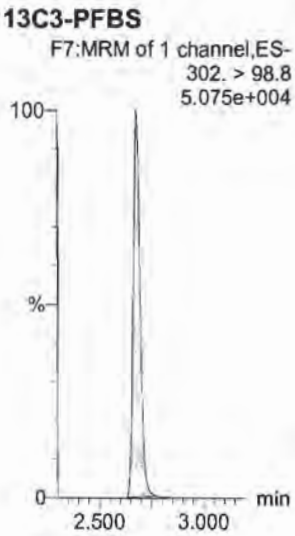
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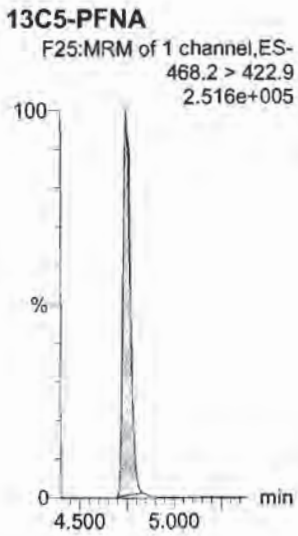
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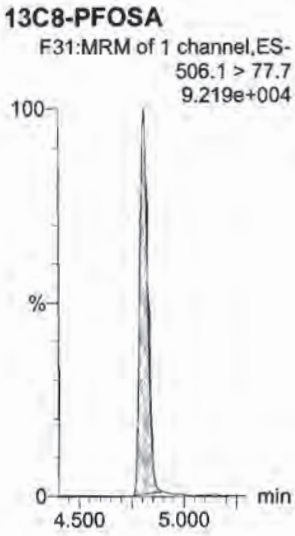
13C3-PFBS



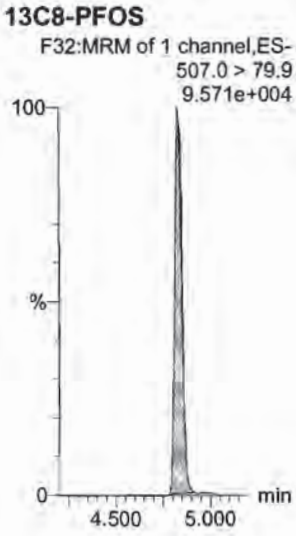
13C5-PFNA



13C8-PFOSA



13C8-PFOS

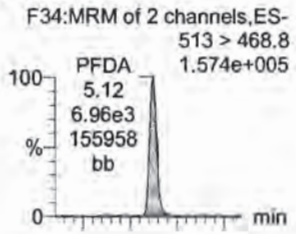


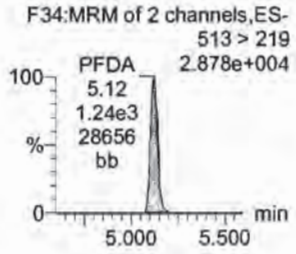
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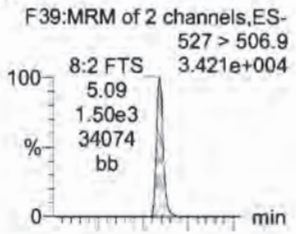
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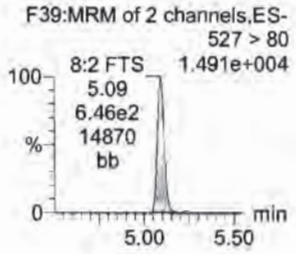
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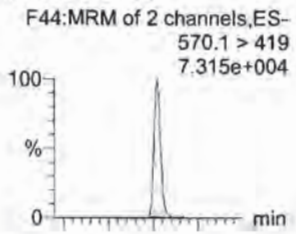


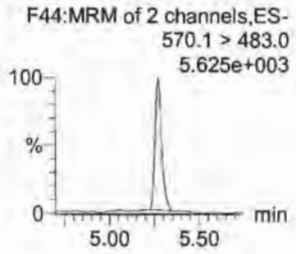
8:2 FTS



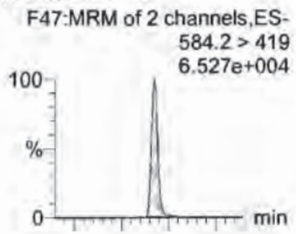


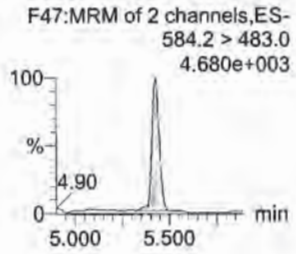
N-MeFOSAA



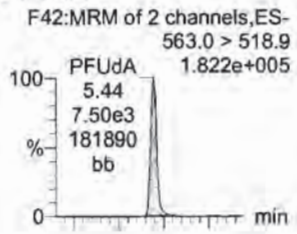


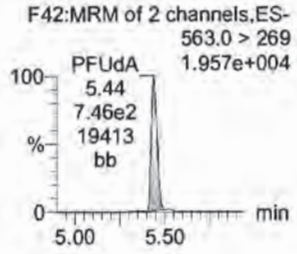
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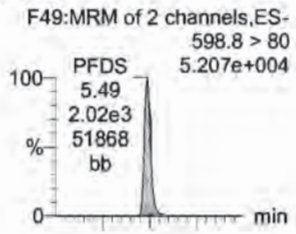


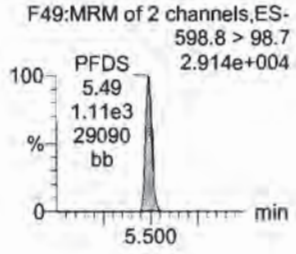
PFUdA



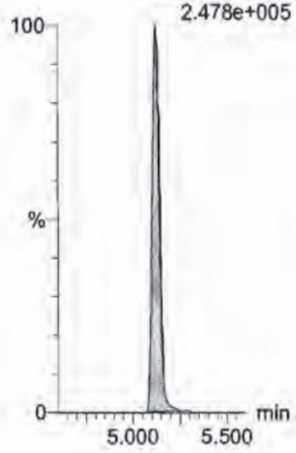


PFDS

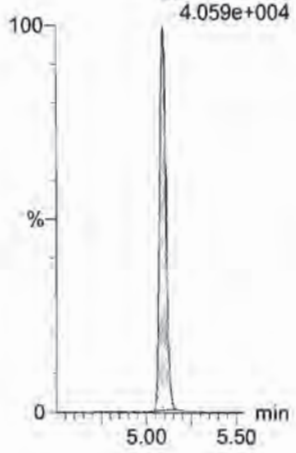




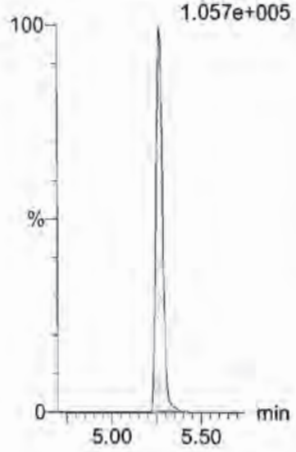
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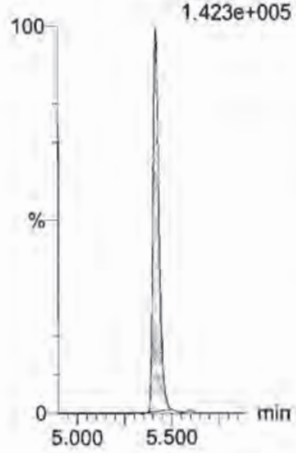
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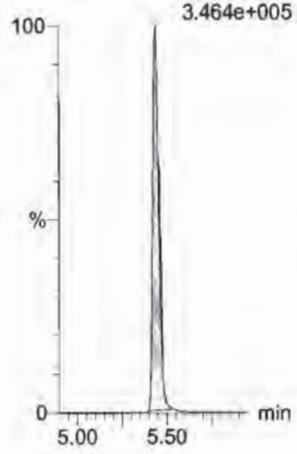
d3-N-MeFOSAA



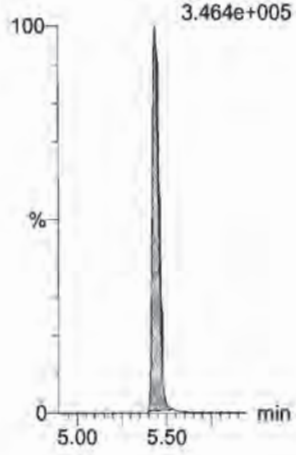
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13C2-PFUdA



13C2-PFUdA

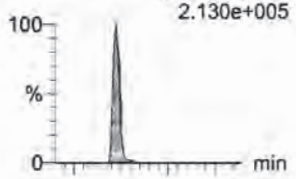


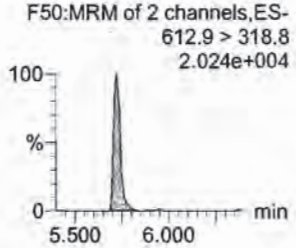
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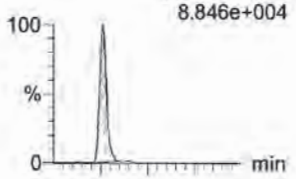
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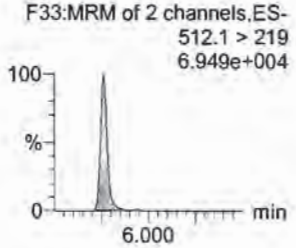
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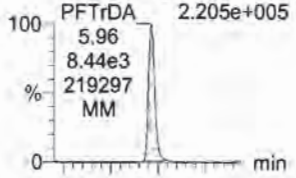


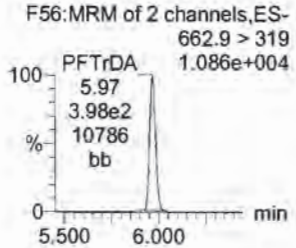
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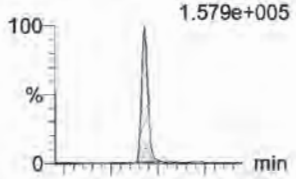


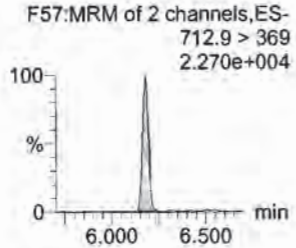
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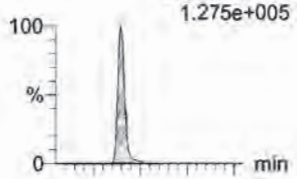


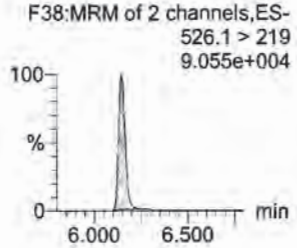
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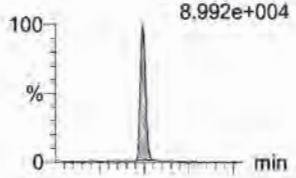


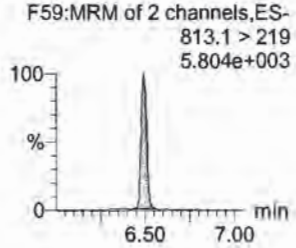
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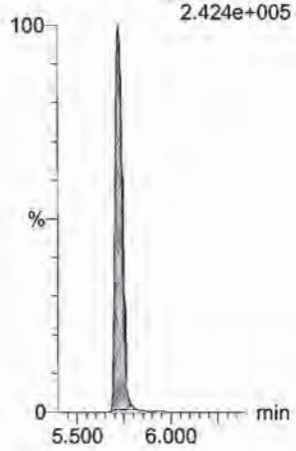


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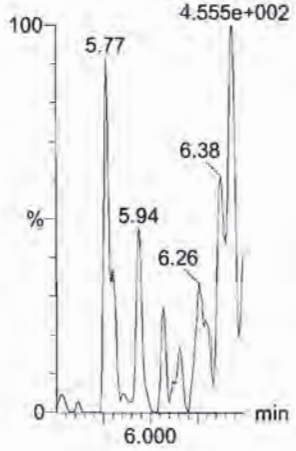




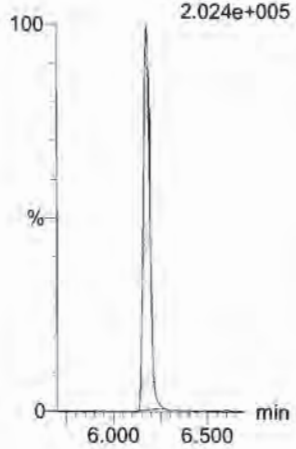
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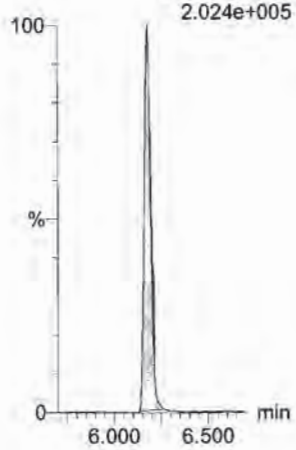
d3-N-MeFOSA



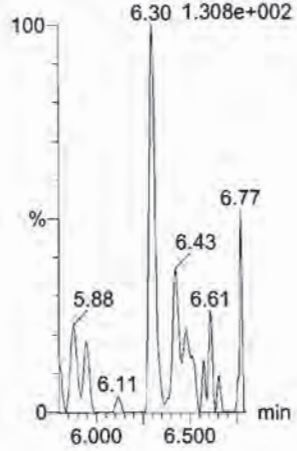
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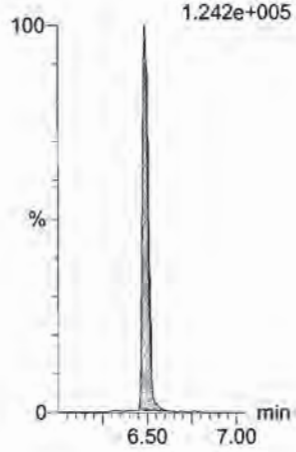
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d5-N-ETFOSA



13C2-PFHxDA

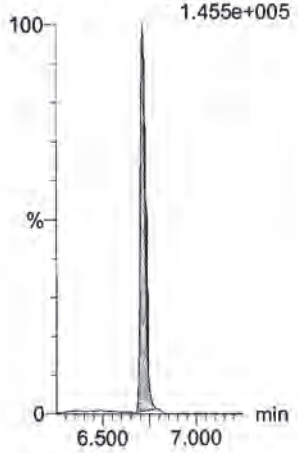


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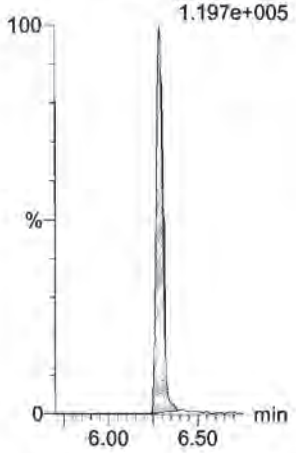
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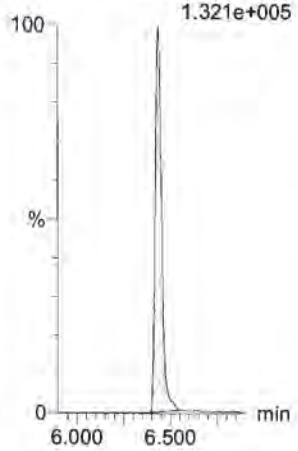
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
1.455e+005



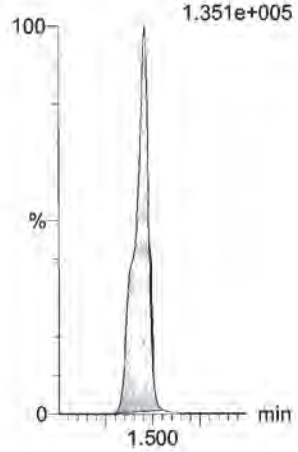
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
1.197e+005



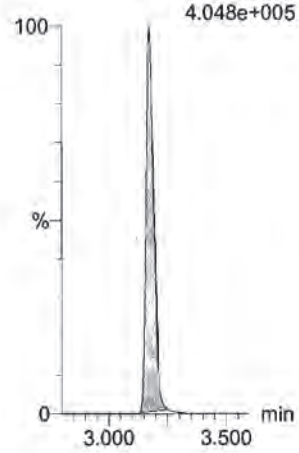
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F54:MRM of 1 channel,ES-
630.1 > 58.9
1.321e+005



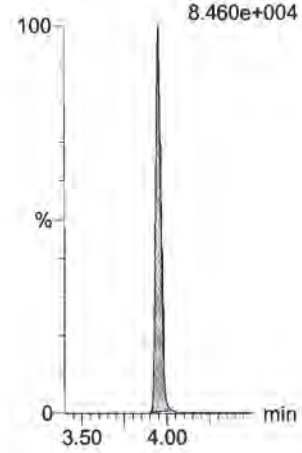
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.351e+005



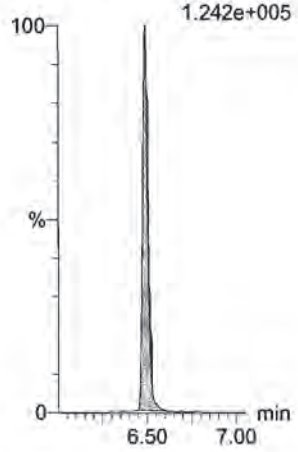
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.048e+005



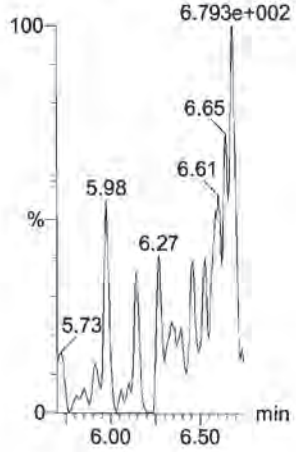
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
8.460e+004



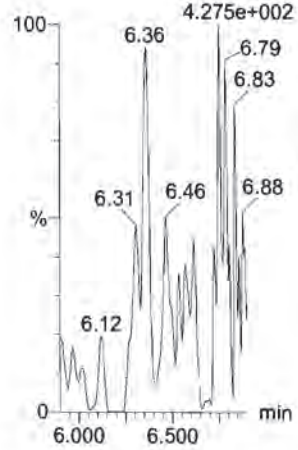
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.242e+005



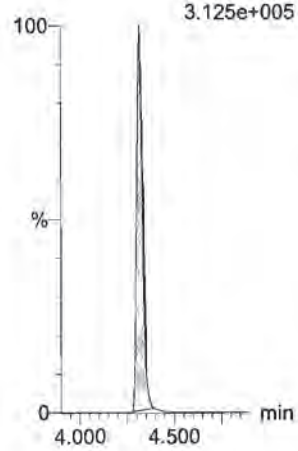
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
6.793e+002



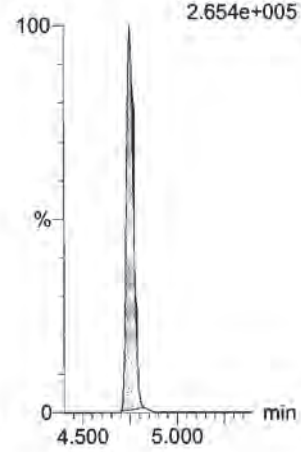
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
4.275e+002



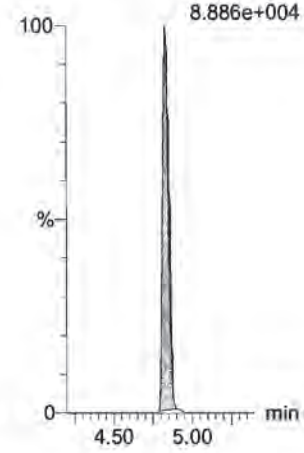
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.125e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.654e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.886e+004

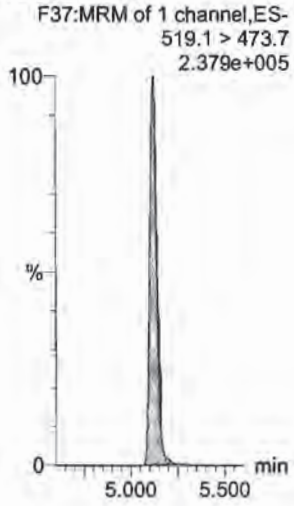


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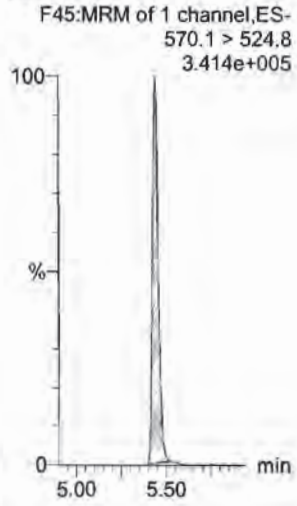
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13C6-PFDA



13C7-PFUdA

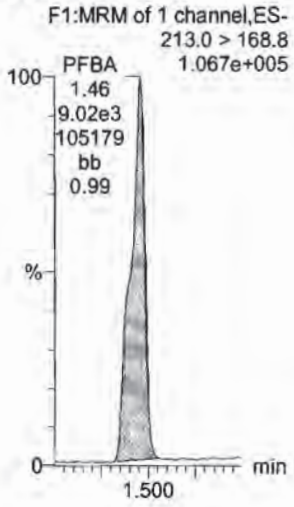


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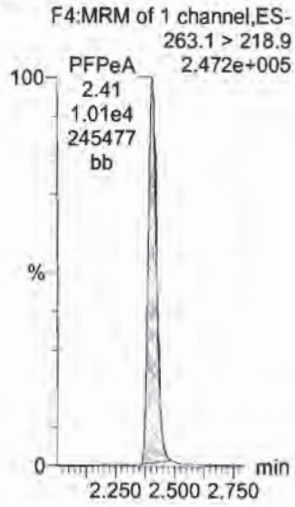
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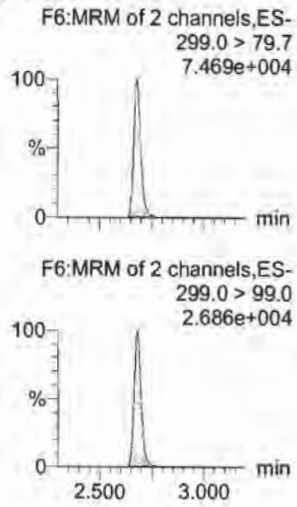
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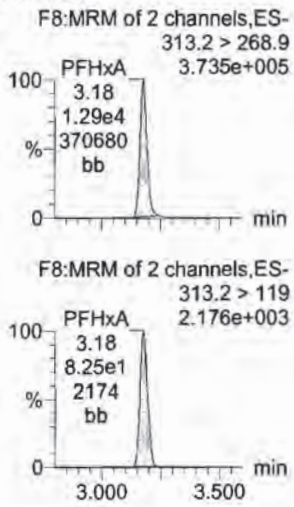
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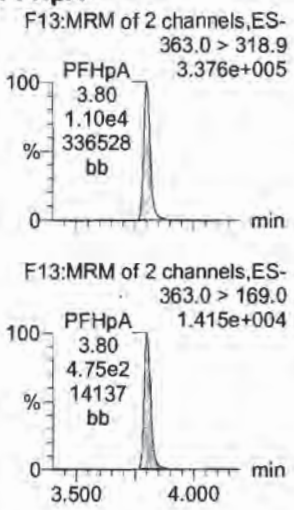
PFBS



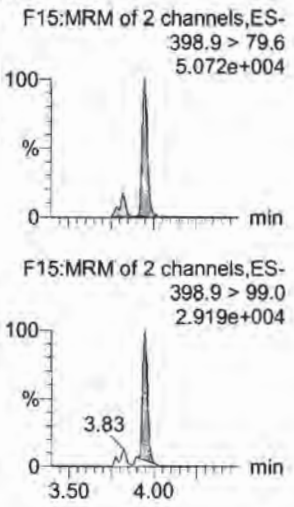
PFHxA



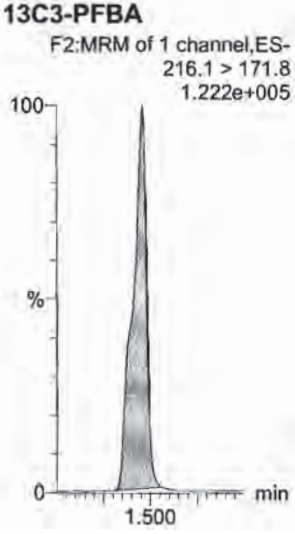
PFHpA



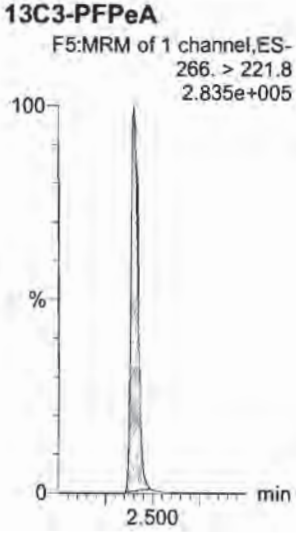
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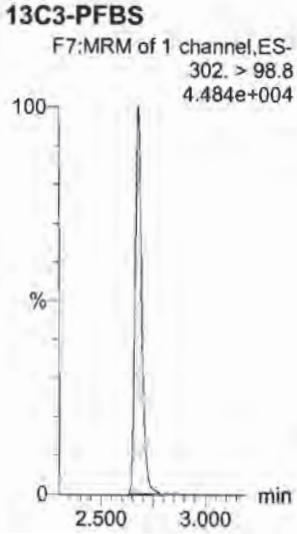
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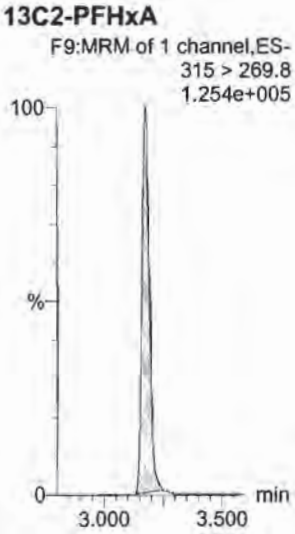
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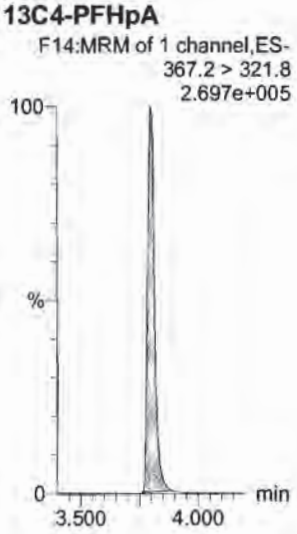
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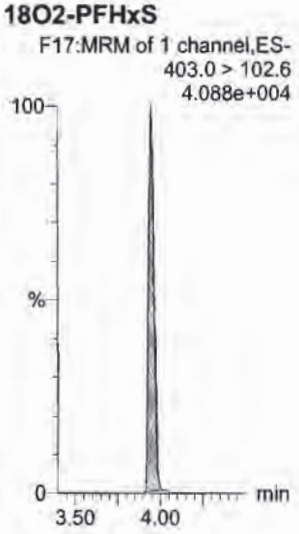
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13C4-PFHpA



18O2-PFHxS

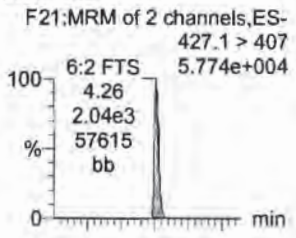


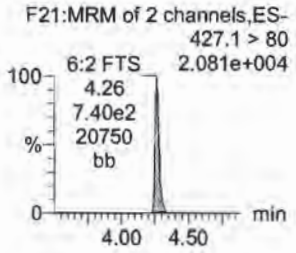
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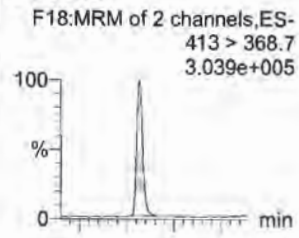
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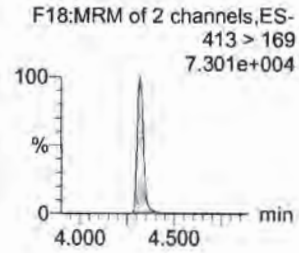
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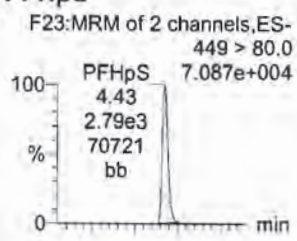


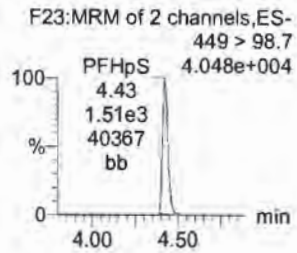
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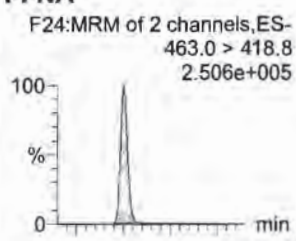


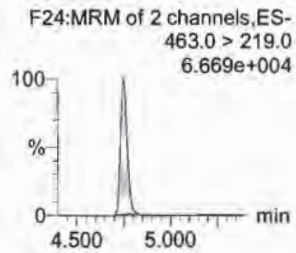
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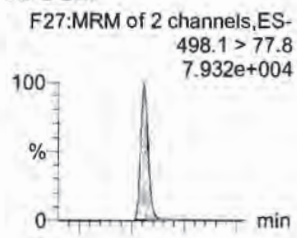


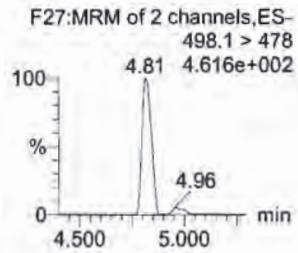
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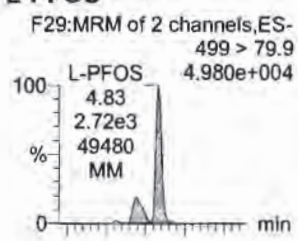


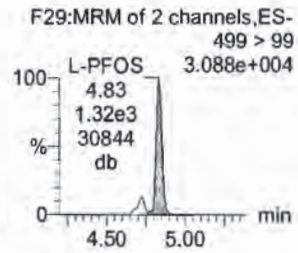
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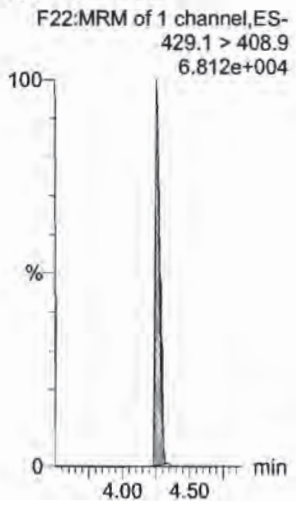


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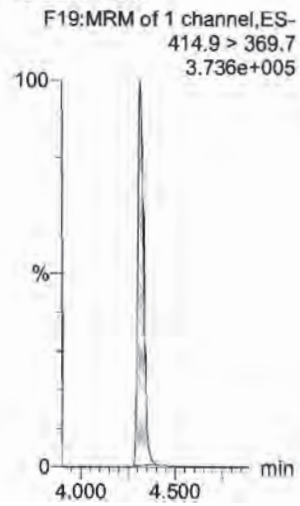




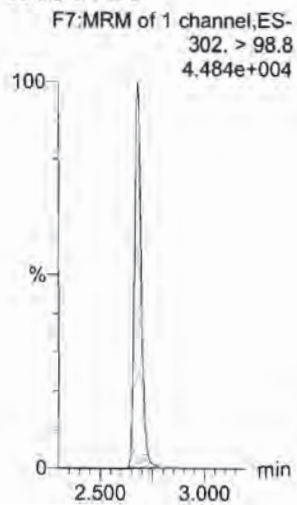
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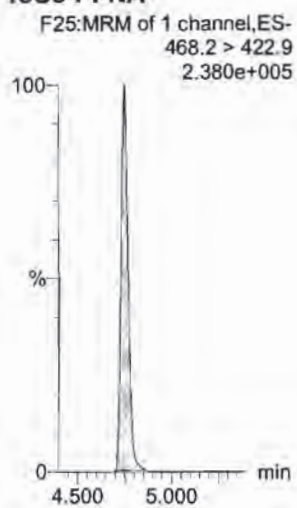
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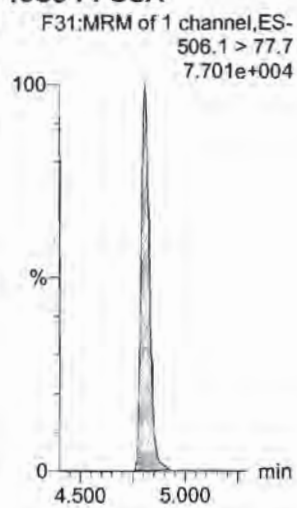
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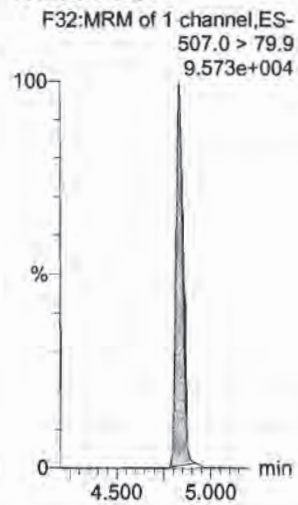
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13C8-PFOSA



13C8-PFOS

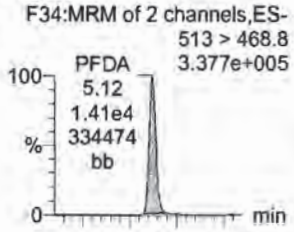


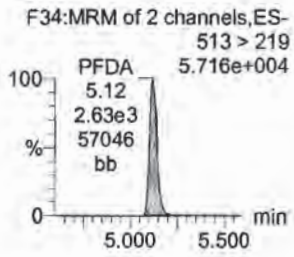
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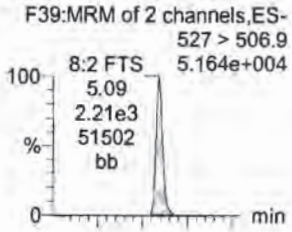
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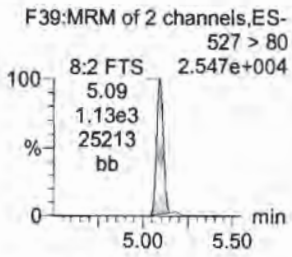
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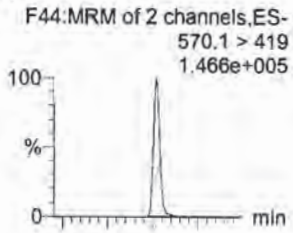


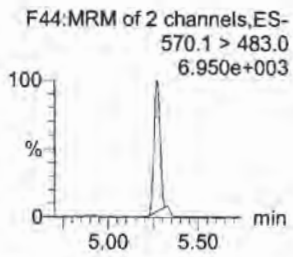
8:2 FTS



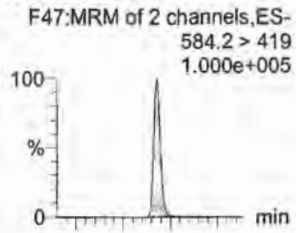


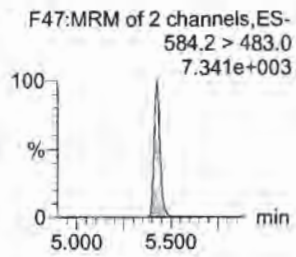
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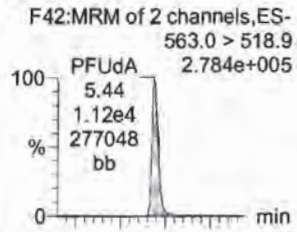


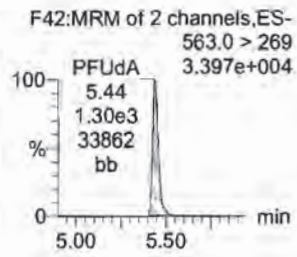
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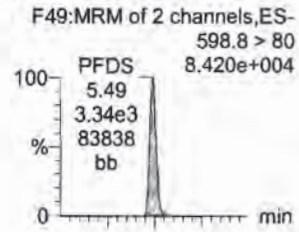


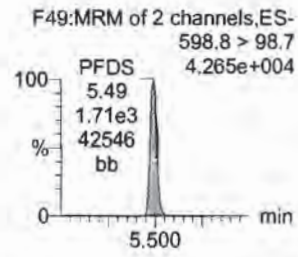
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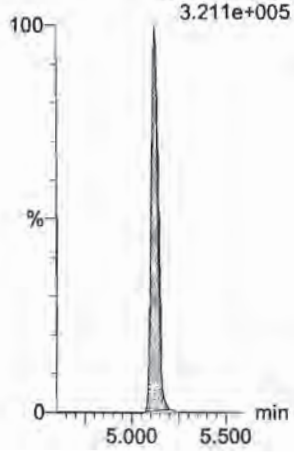


PFDS

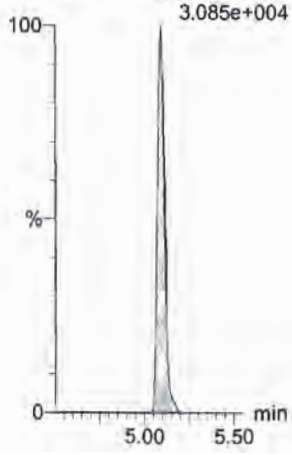




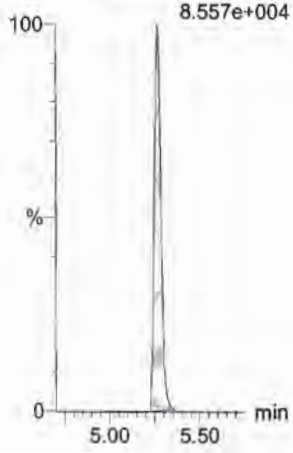
13C2-PFDA



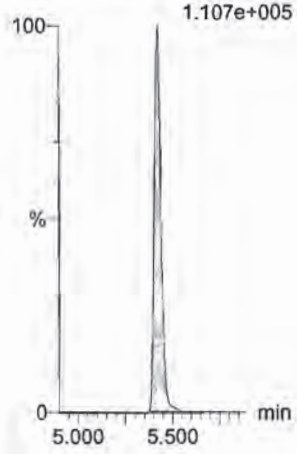
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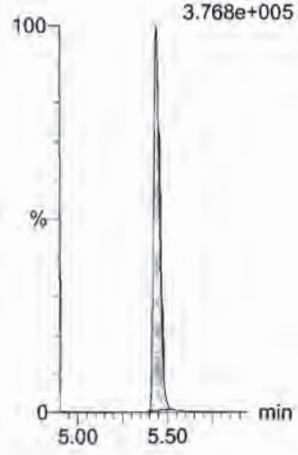
d3-N-MeFOSAA



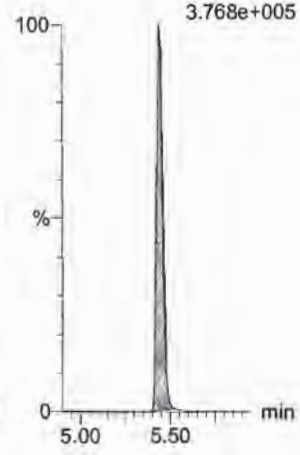
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

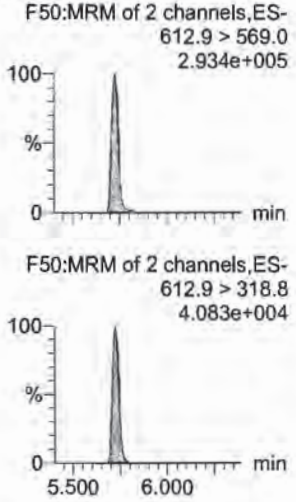


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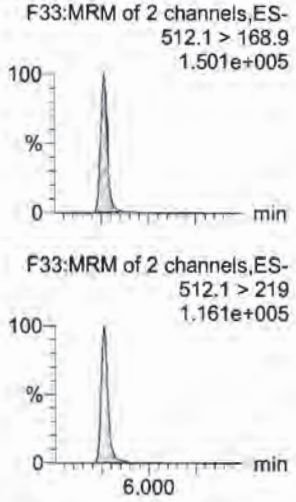
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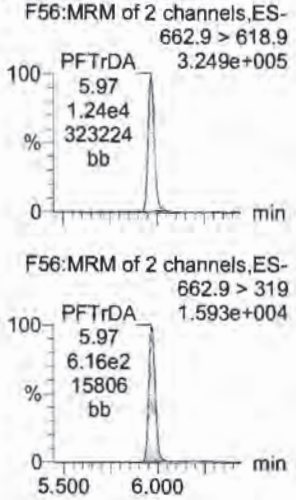
PFDoA



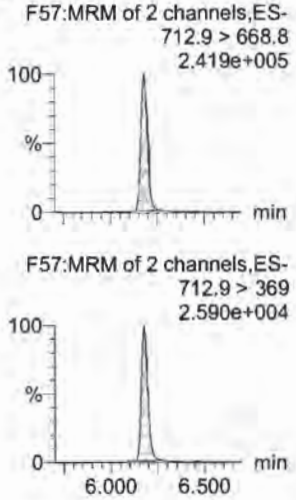
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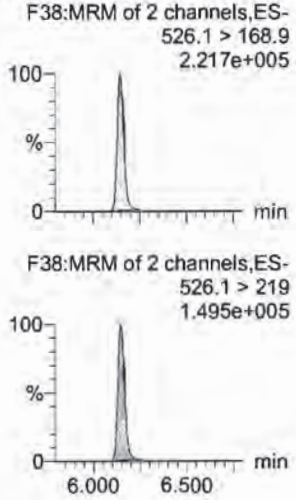
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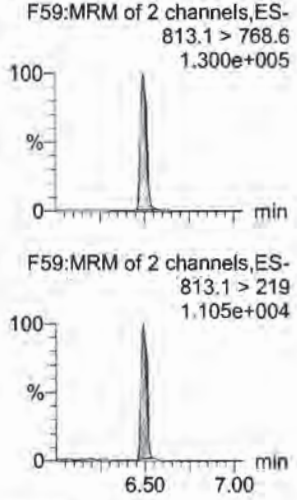
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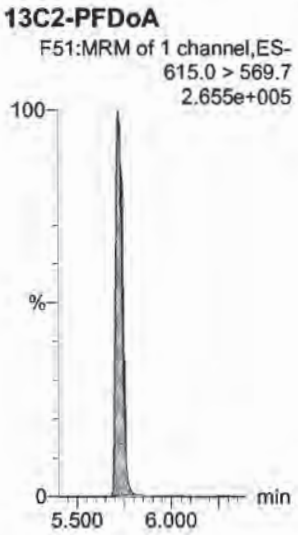
N-EtFOSA



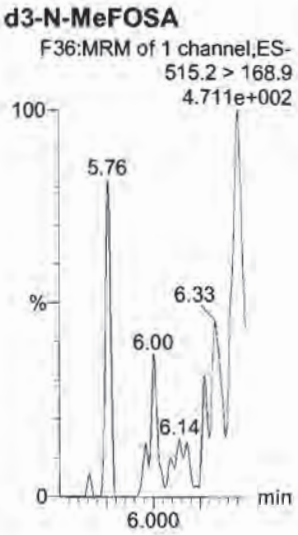
PFHxDA



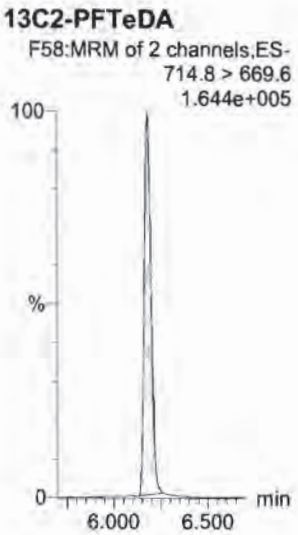
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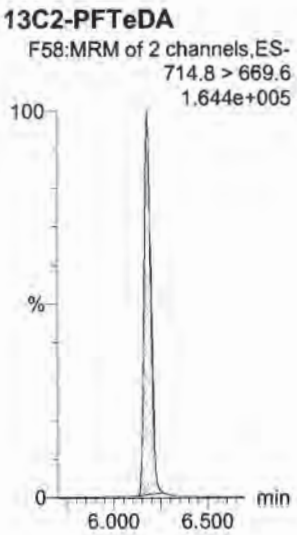
d3-N-MeFOSA



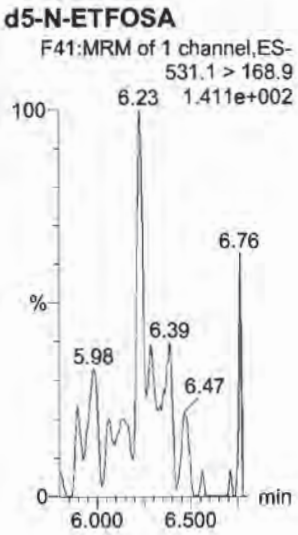
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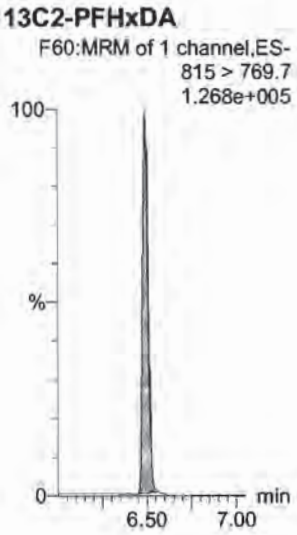
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d5-N-ETFOSA



13C2-PFHxDA

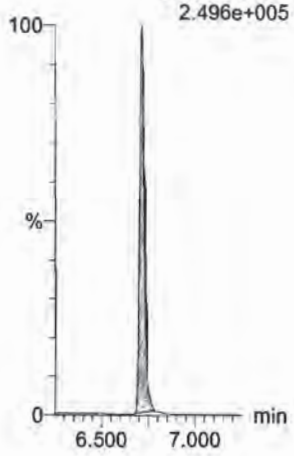


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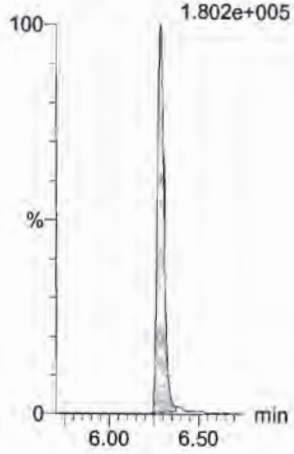
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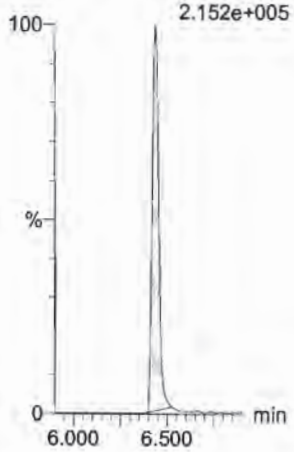
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
2.496e+005



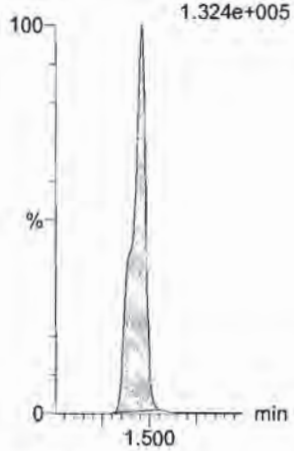
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
1.802e+005



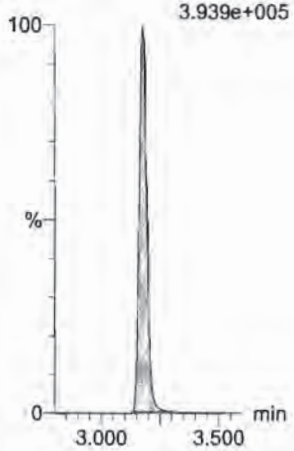
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
2.152e+005



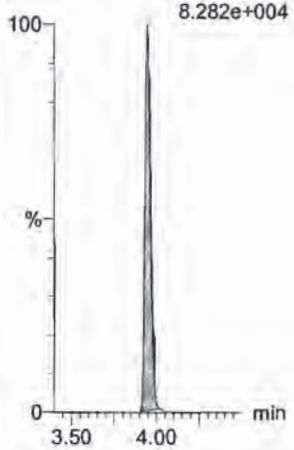
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.324e+005



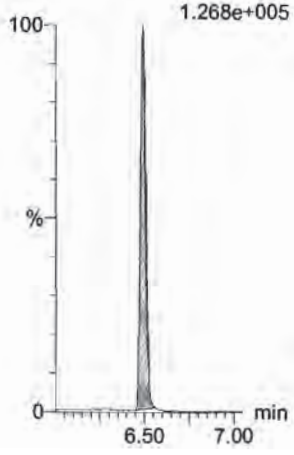
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F10:MRM of 1 channel,ES-
318 > 272.9
3.939e+005



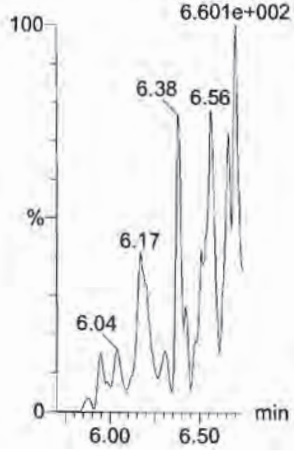
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
8.282e+004



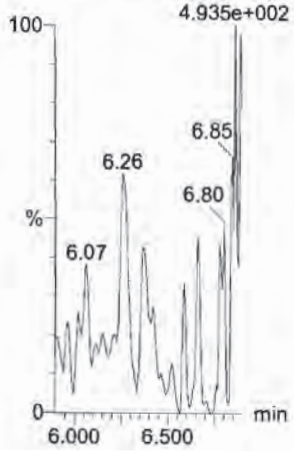
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F60:MRM of 1 channel,ES-
815 > 769.7
1.268e+005



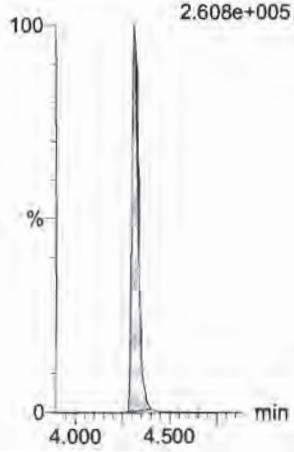
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
6.601e+002



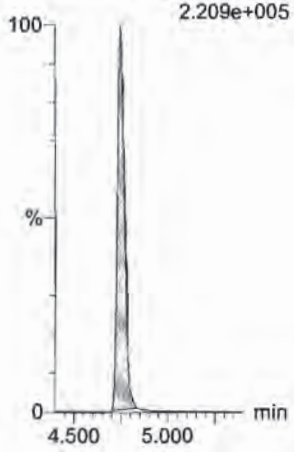
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
4.935e+002



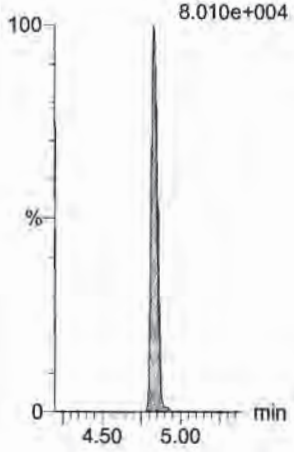
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
2.608e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.209e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.010e+004

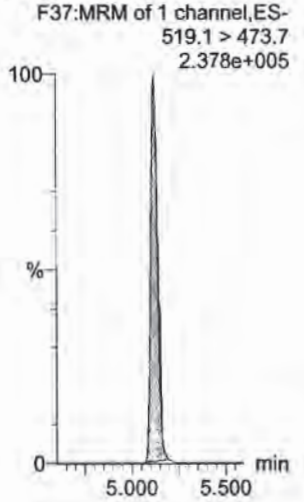


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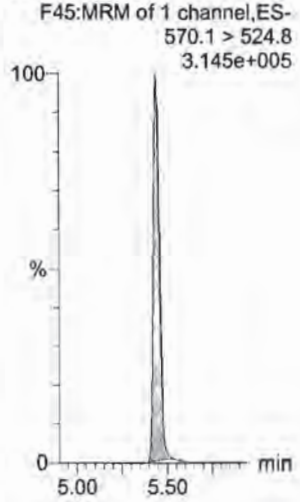
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Name: 171213M1_7, Date: 13-Dec-2017, Time: 20:05:56, ID: ST171213M1-6 PFC CS3 17L0509, Description: PFC CS3 17L0509

13C6-PFDA



13C7-PFUdA

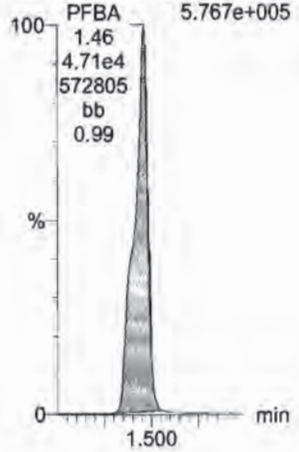


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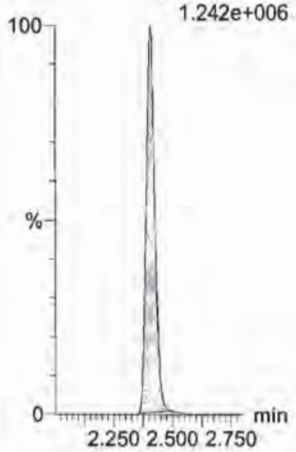
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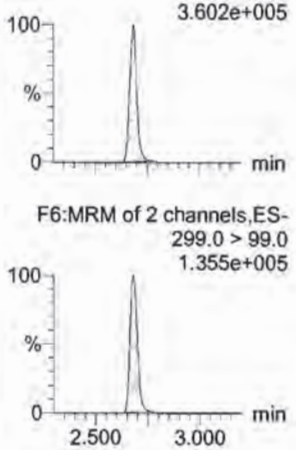
PFBA



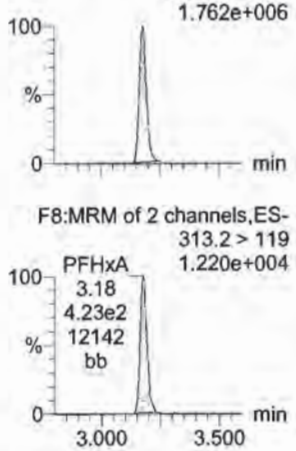
PFPeA



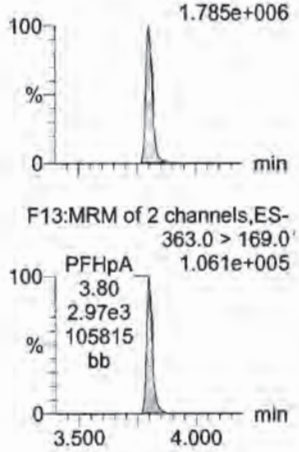
PFBS



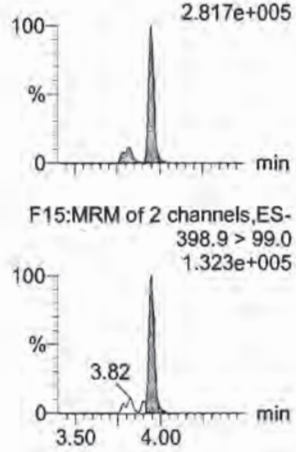
PFHxA



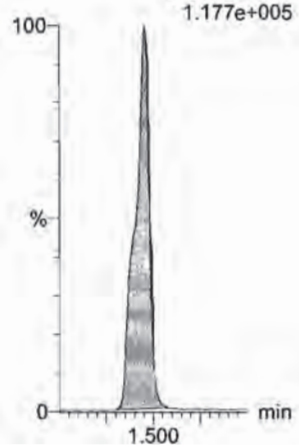
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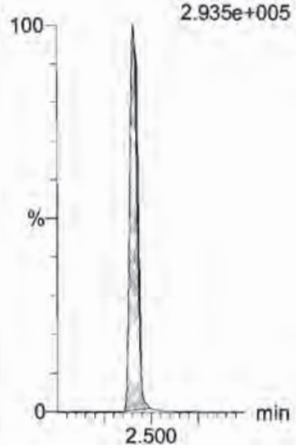
L-PFHxS



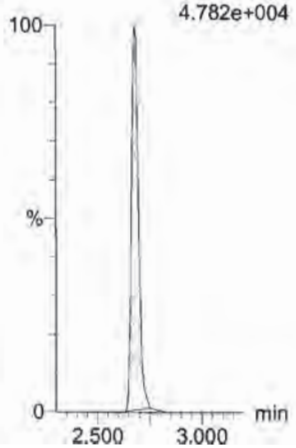
13C3-PFBA



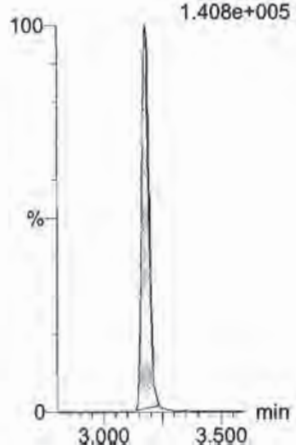
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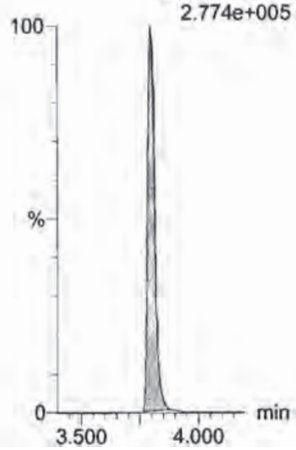
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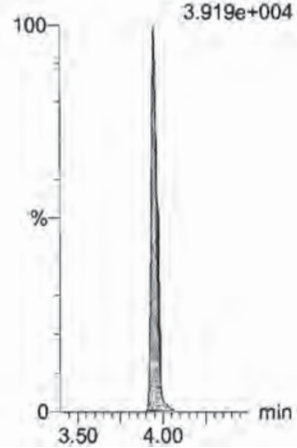
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13C4-PFHpA



18O2-PFHxS

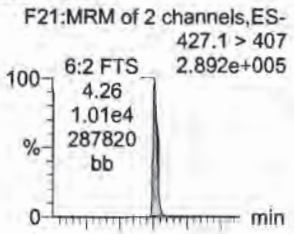


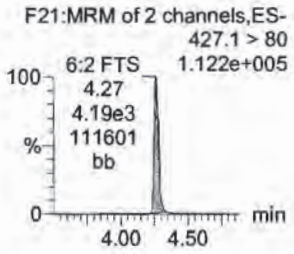
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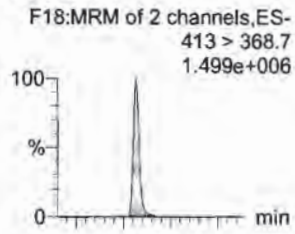
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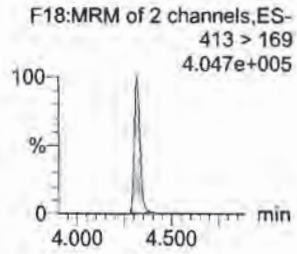
6:2 FTS



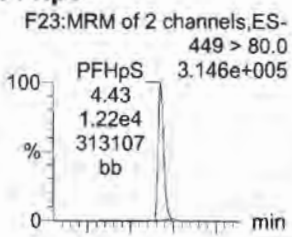


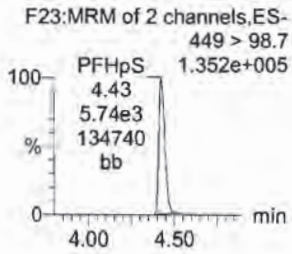
L-PFOA



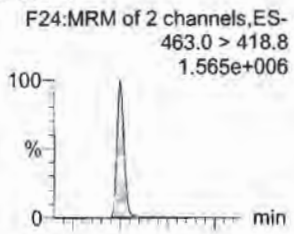


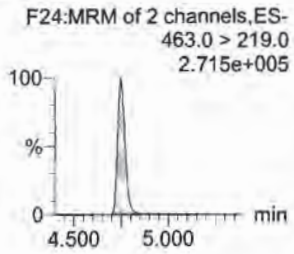
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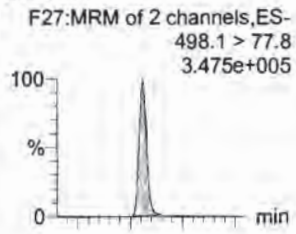


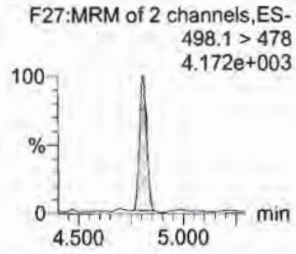
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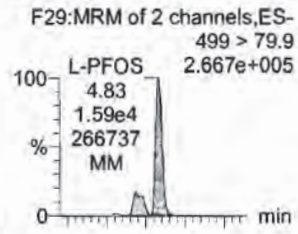


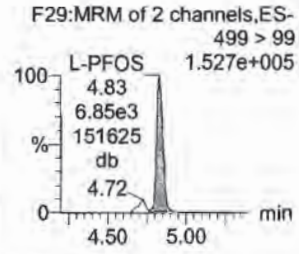
PFOSA



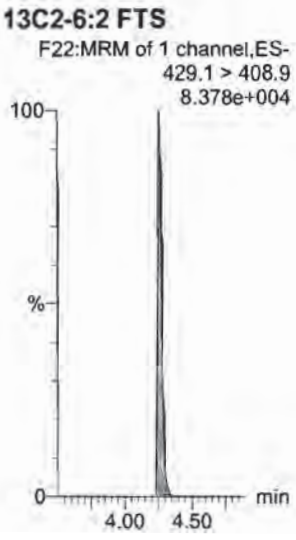


L-PFOS

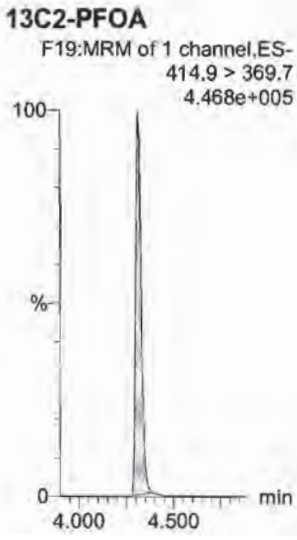




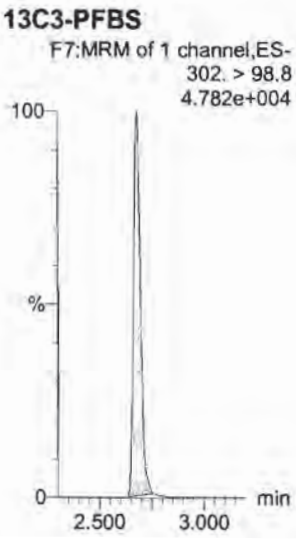
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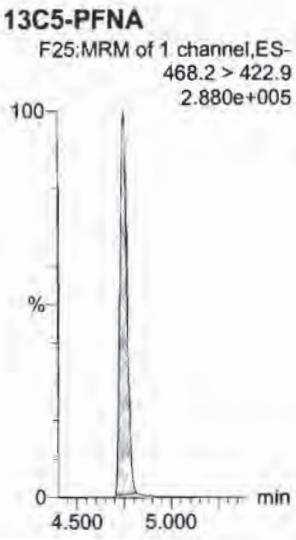
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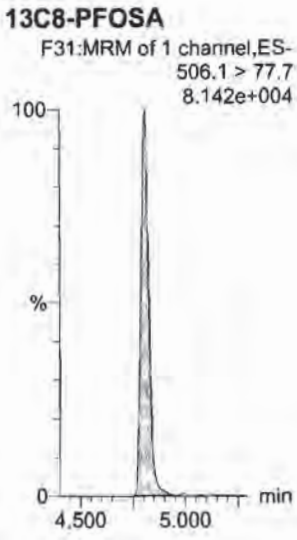
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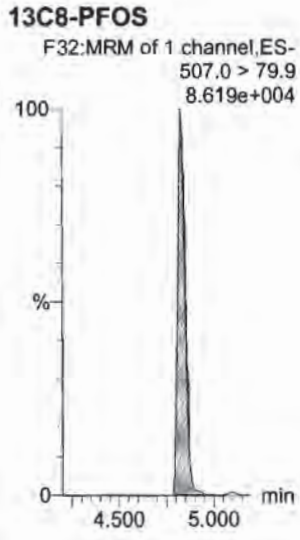
13C5-PFNA



13C8-PFOSA



13C8-PFOS

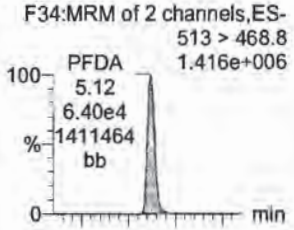


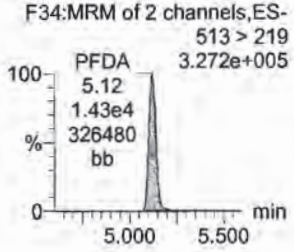
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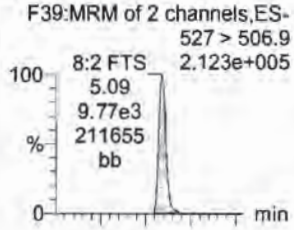
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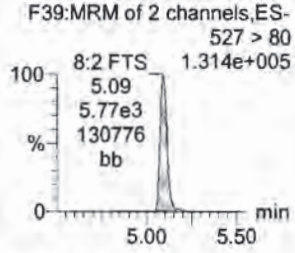
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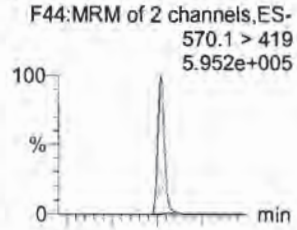


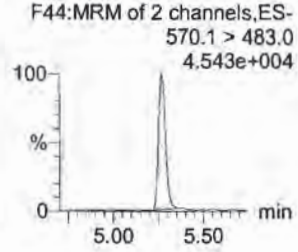
8:2 FTS



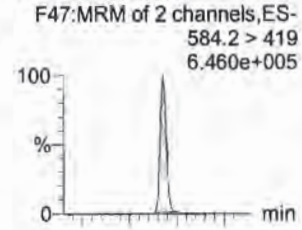


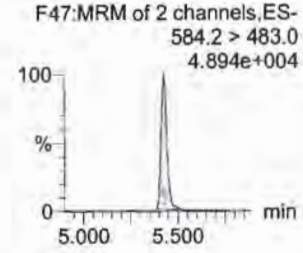
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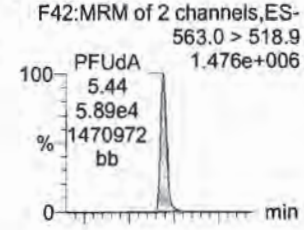


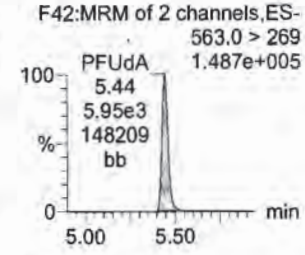
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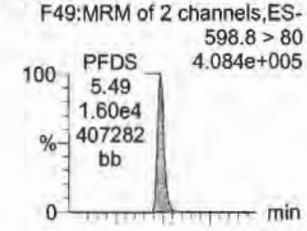


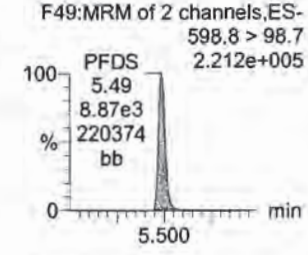
PFUdA



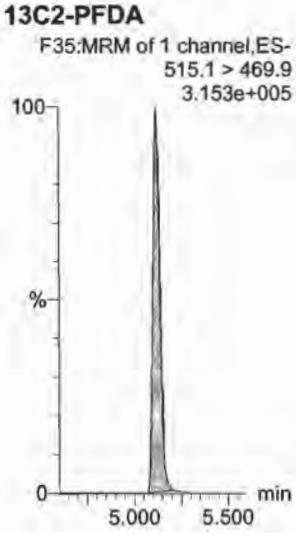


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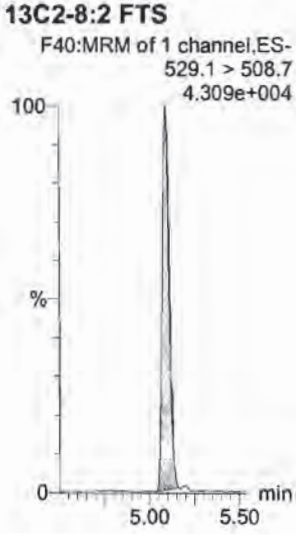




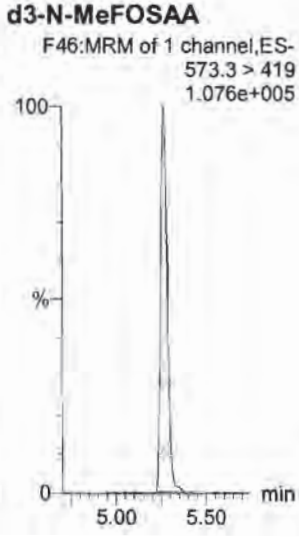
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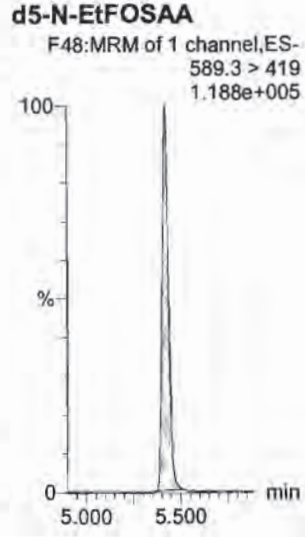
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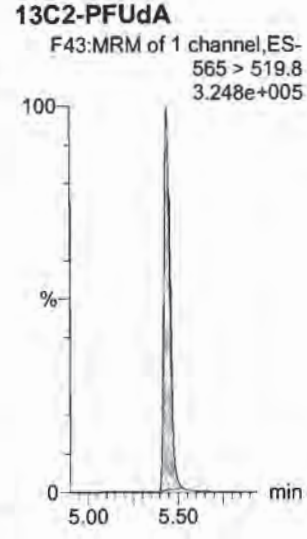
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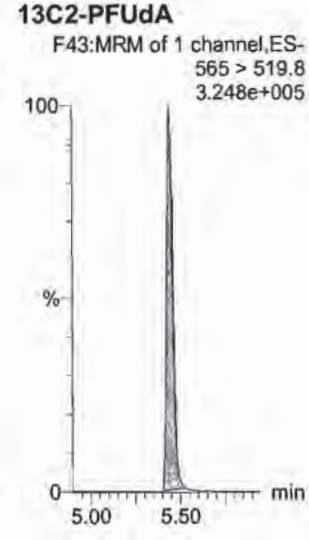
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13C2-PFUdA



13C2-PFUdA

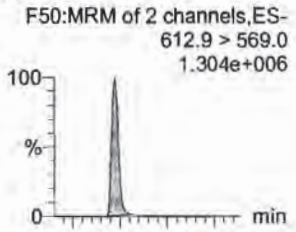


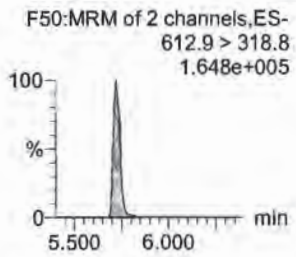
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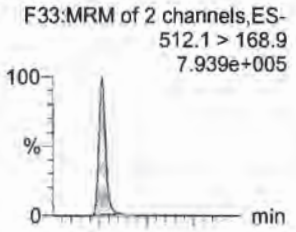
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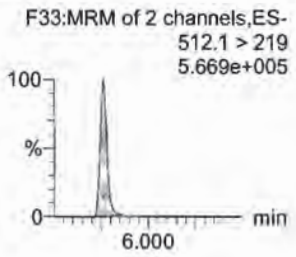
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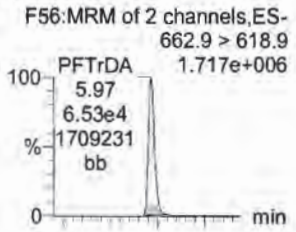


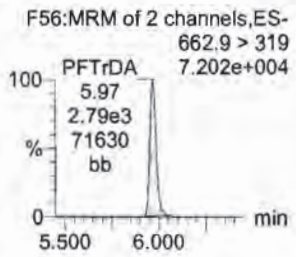
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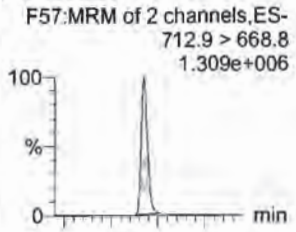


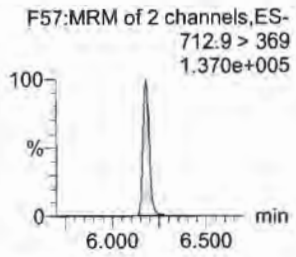
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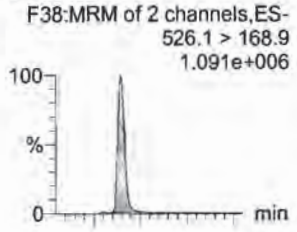


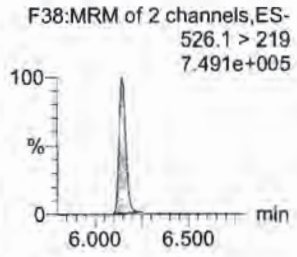
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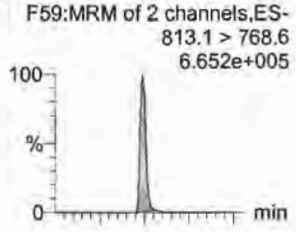


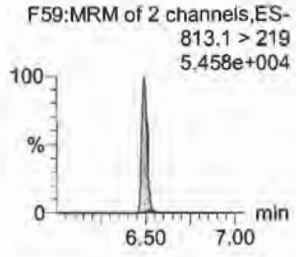
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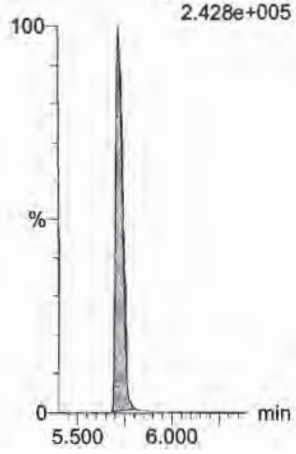


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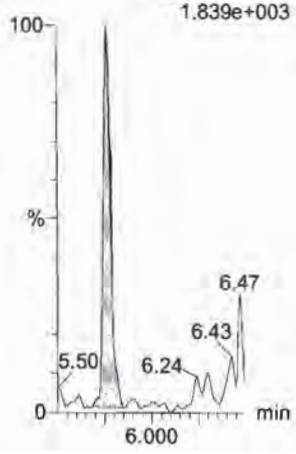




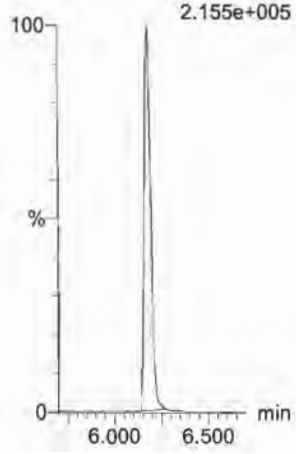
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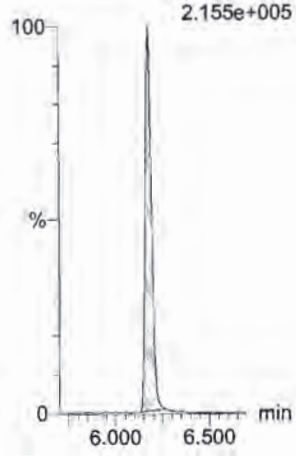
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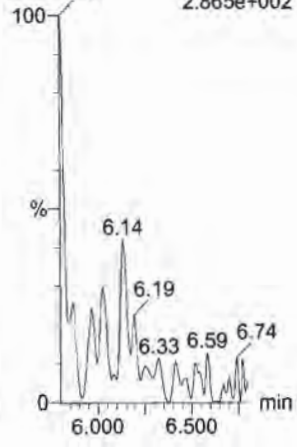
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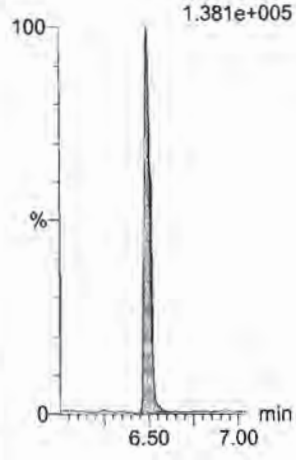
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13C2-PFHxDA

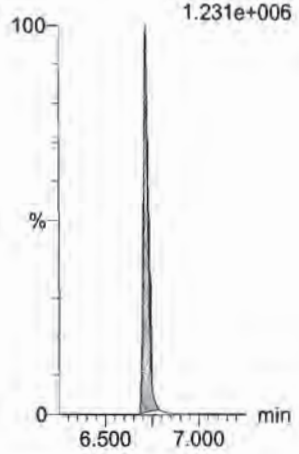


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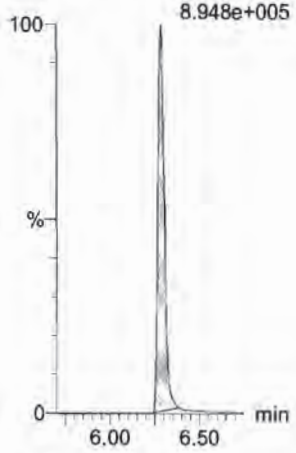
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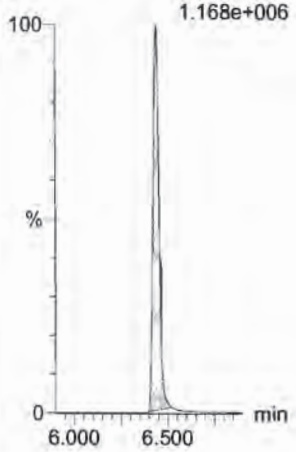
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
1.231e+006



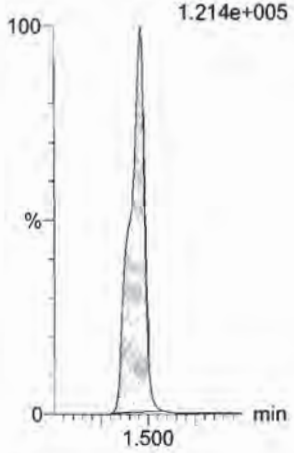
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
8.948e+005



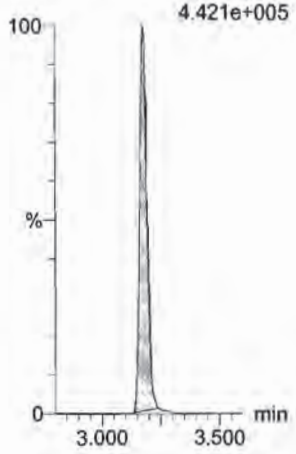
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
1.168e+006



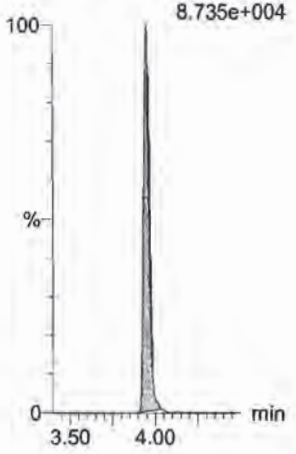
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.214e+005



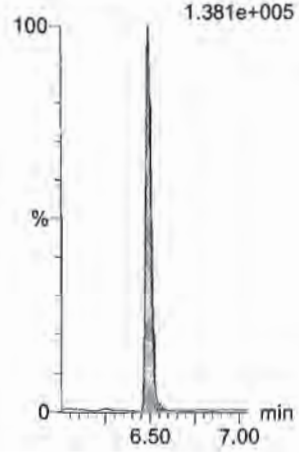
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.421e+005



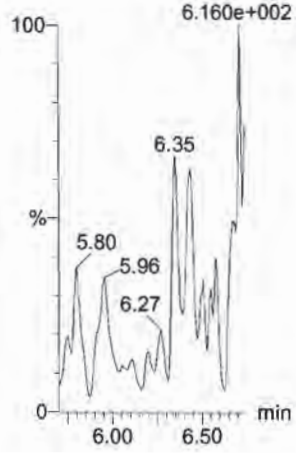
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
8.735e+004



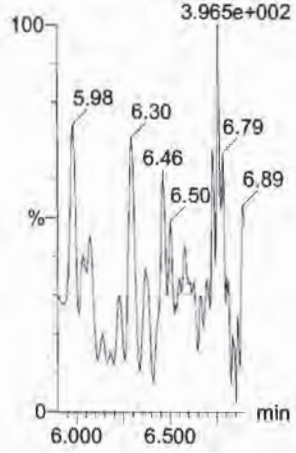
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.381e+005



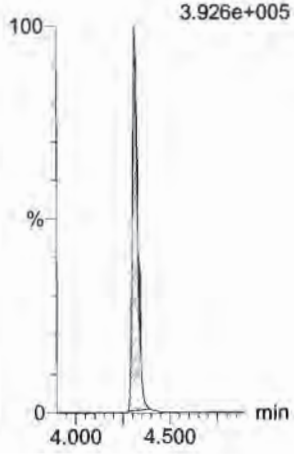
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
6.160e+002



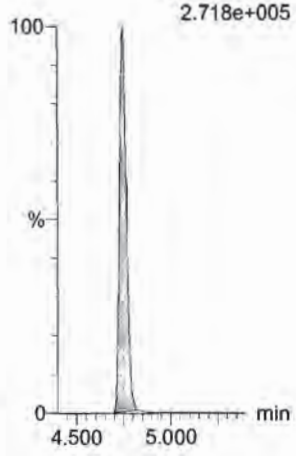
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
3.965e+002



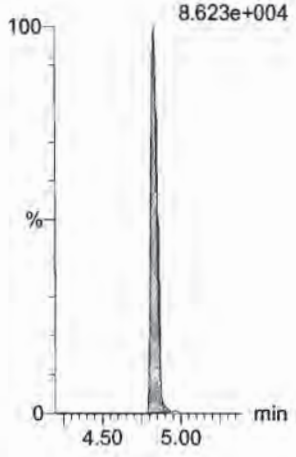
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.926e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.718e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.623e+004

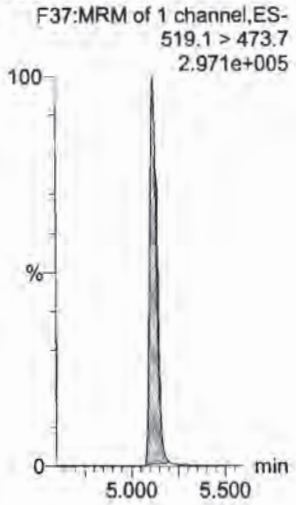


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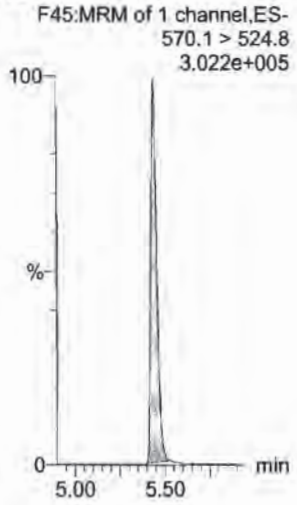
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13C6-PFDA



13C7-PFUdA

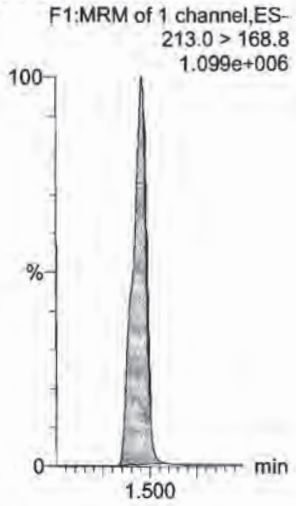


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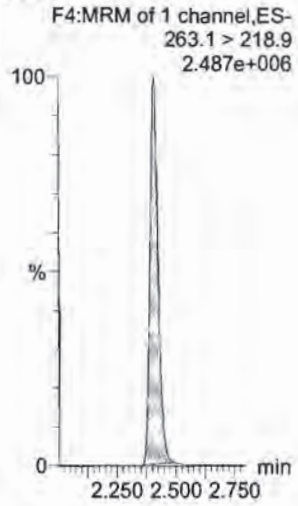
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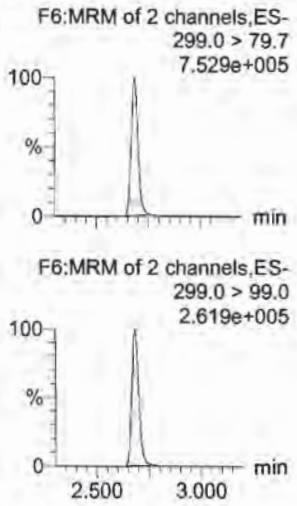
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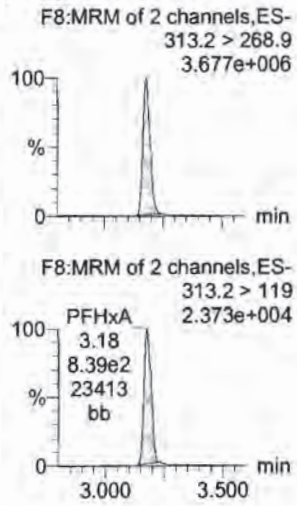
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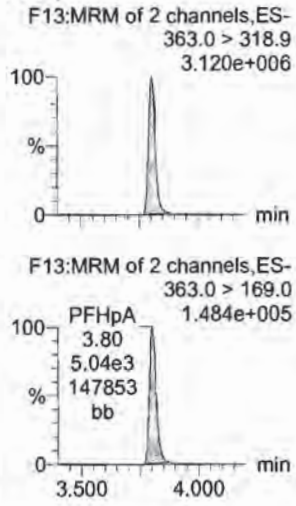
PFBS



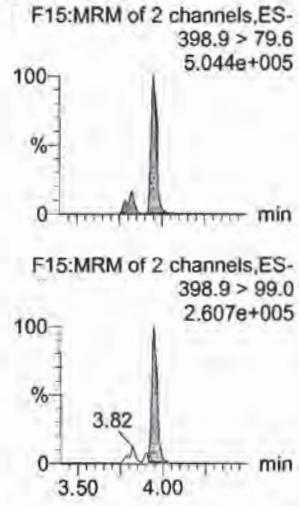
PFHxA



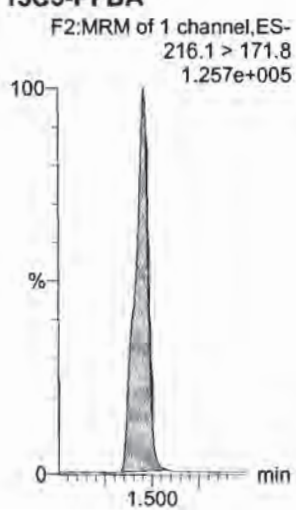
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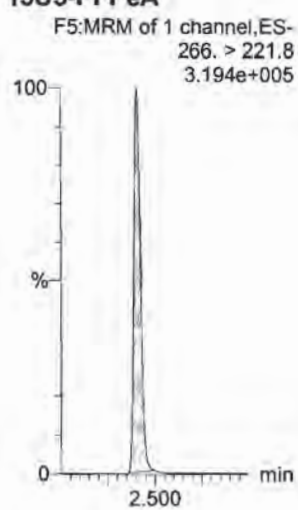
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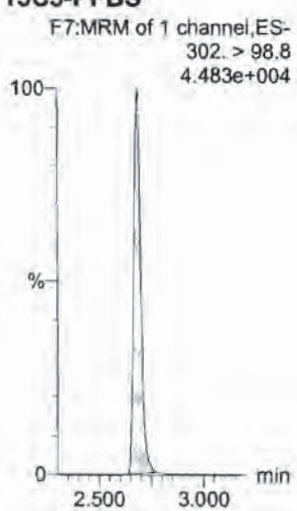
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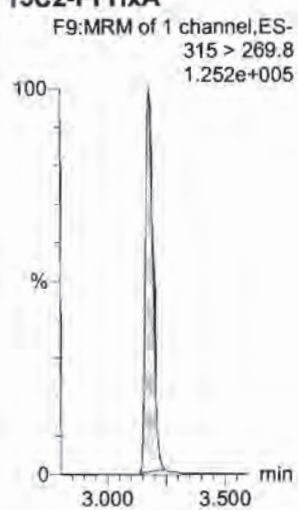
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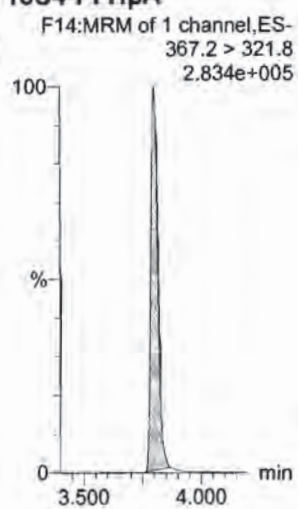
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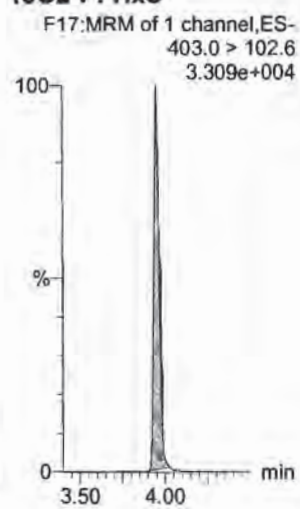
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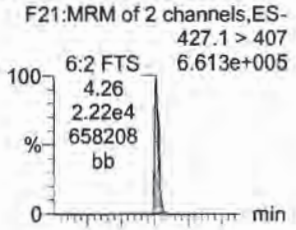


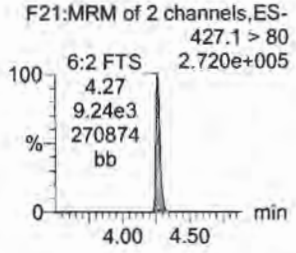
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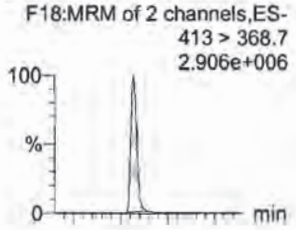
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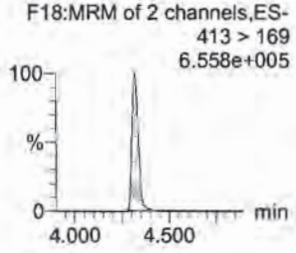
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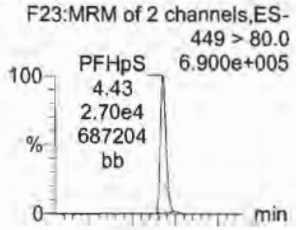


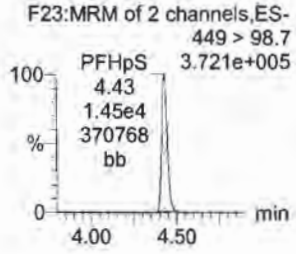
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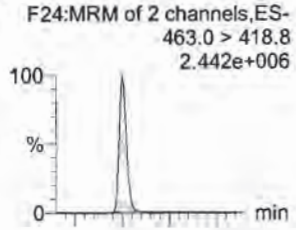


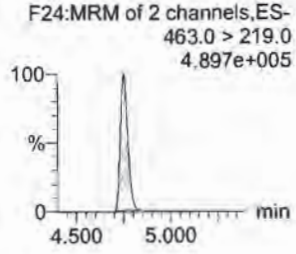
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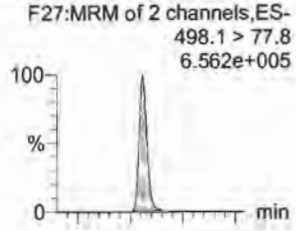


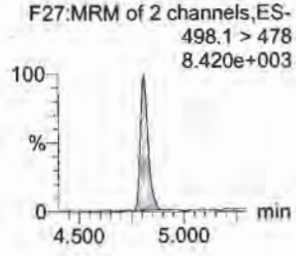
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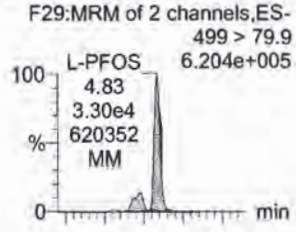


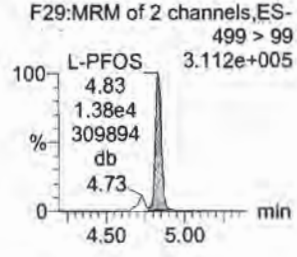
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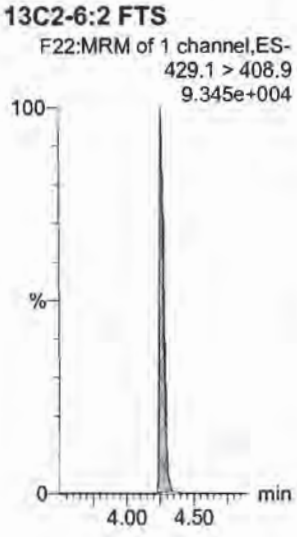


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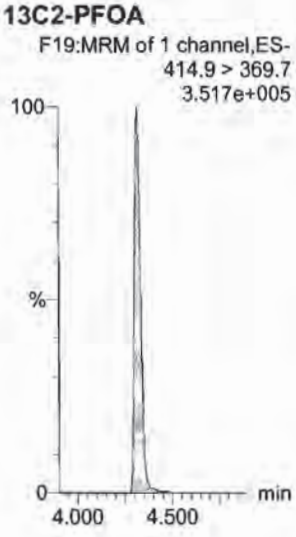




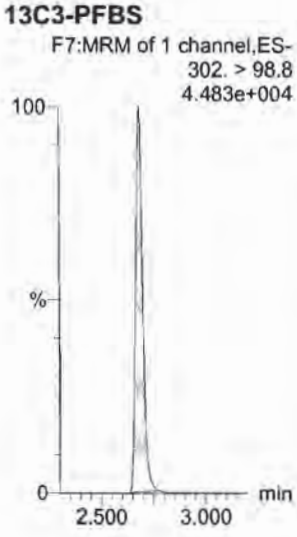
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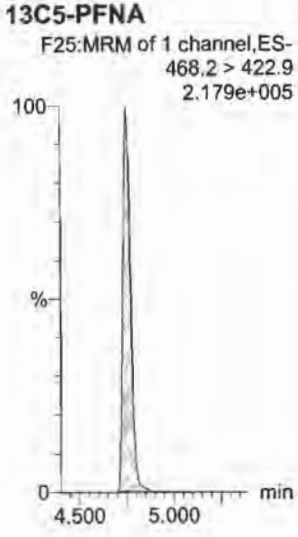
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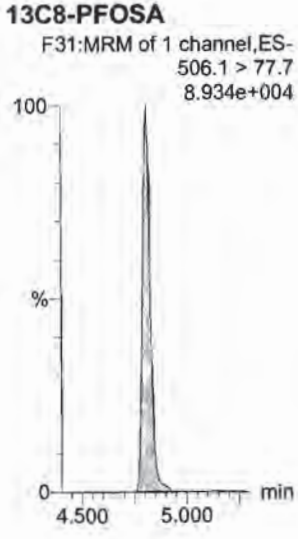
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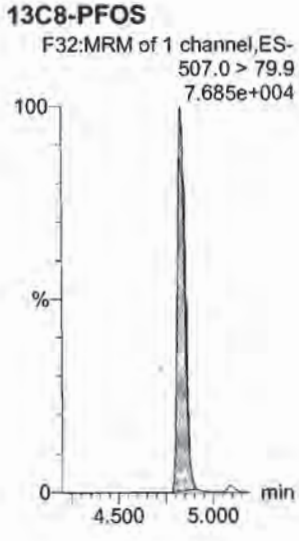
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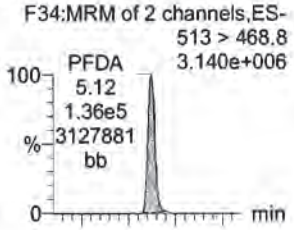


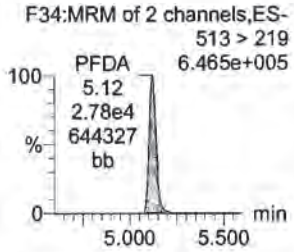
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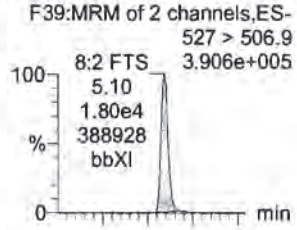
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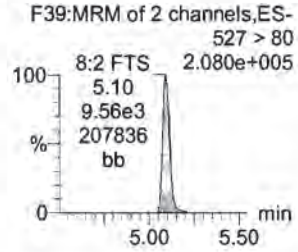
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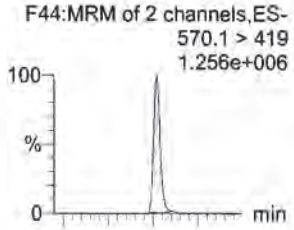


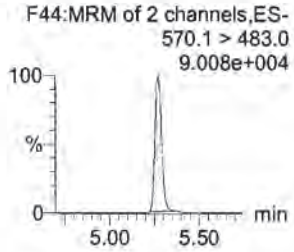
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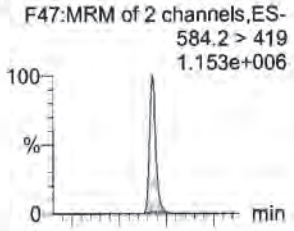


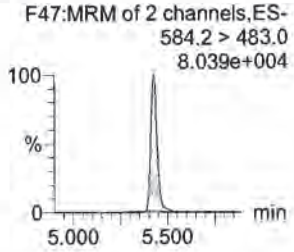
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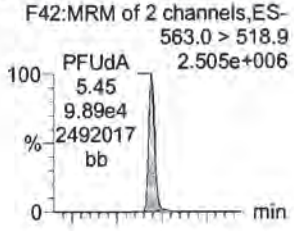


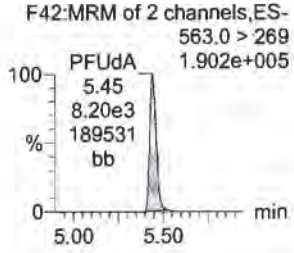
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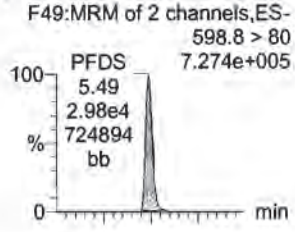


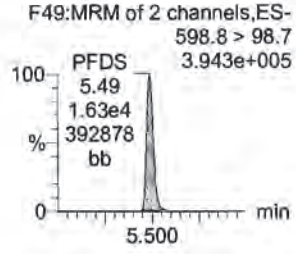
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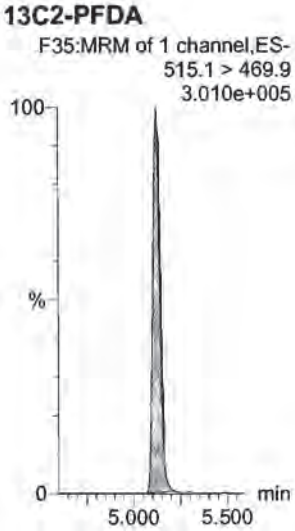


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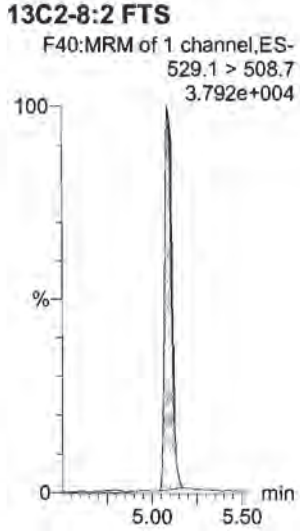




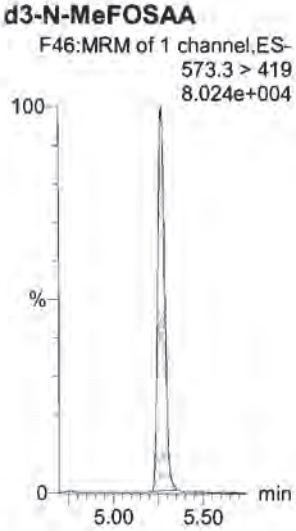
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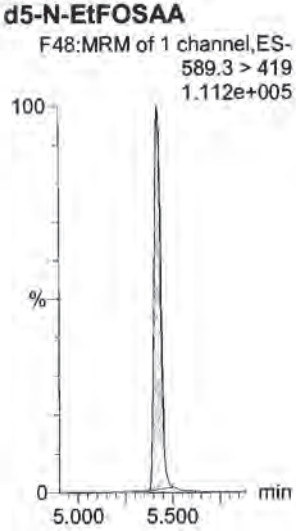
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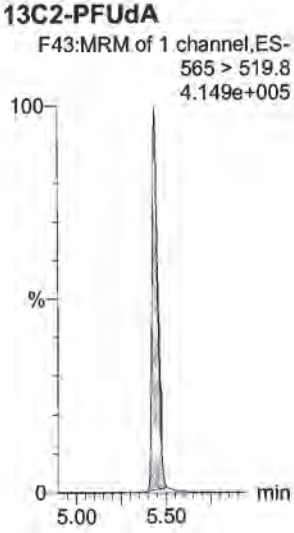
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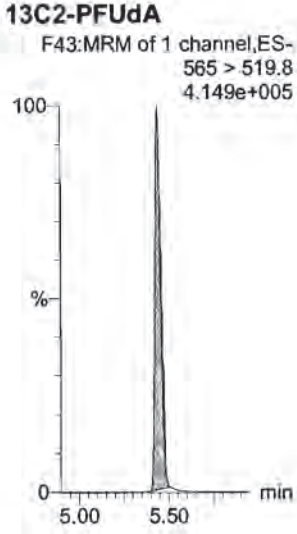
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13C2-PFUdA



13C2-PFUdA

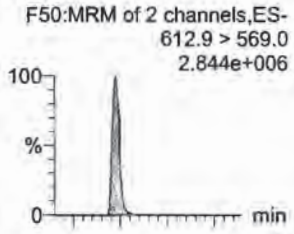


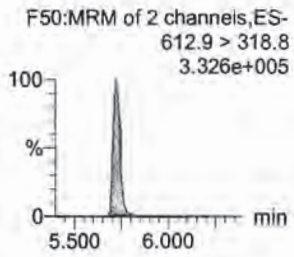
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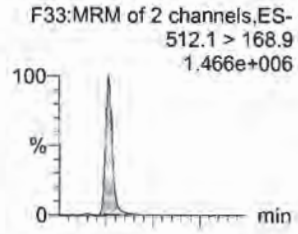
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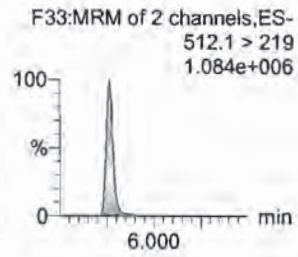
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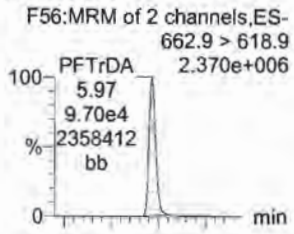


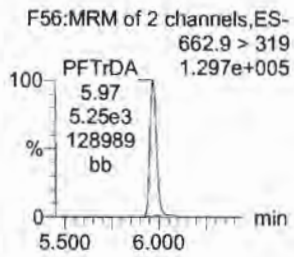
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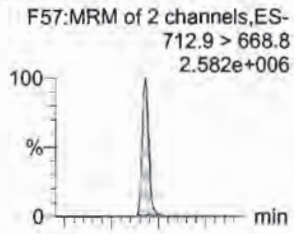


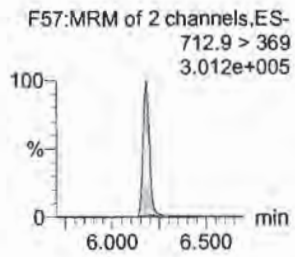
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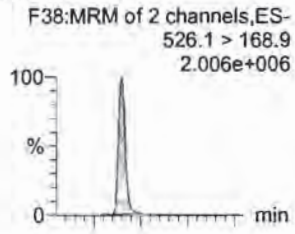


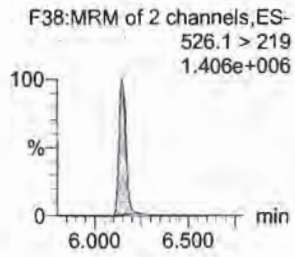
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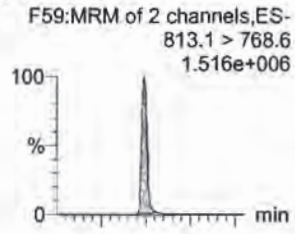


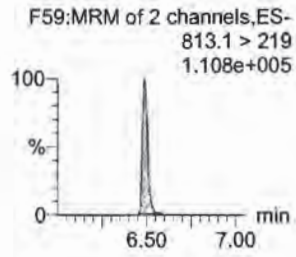
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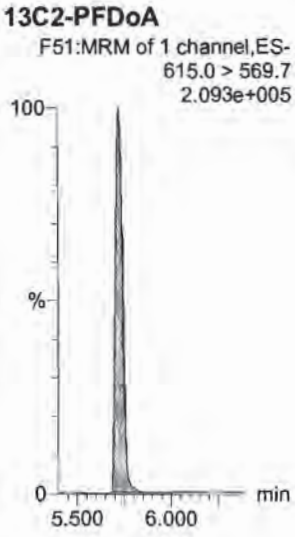


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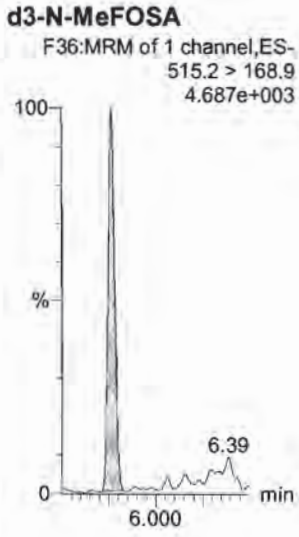




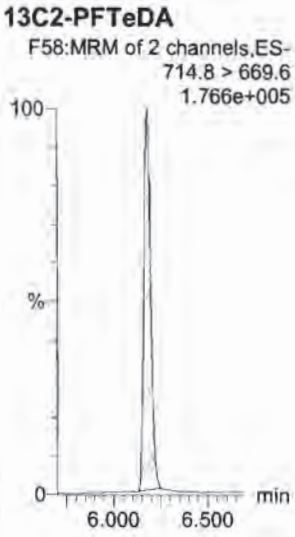
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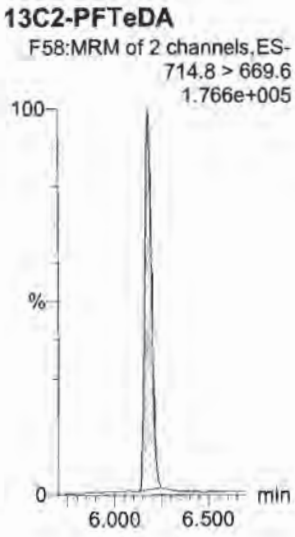
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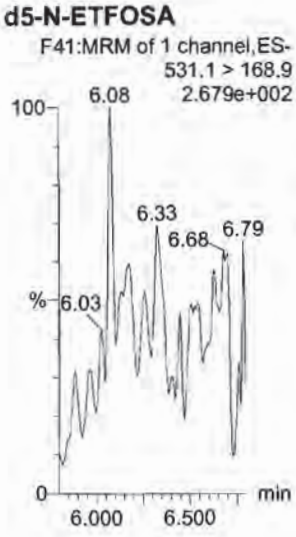
13C2-PFTeDA



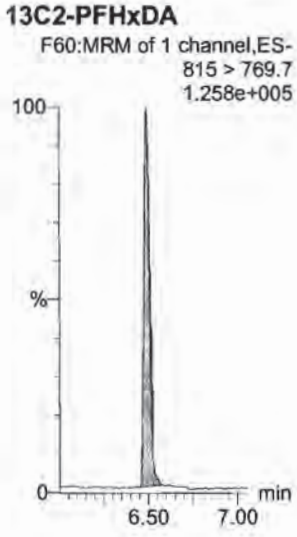
13C2-PFTeDA



d5-N-ETFOSA



13C2-PFHxDA

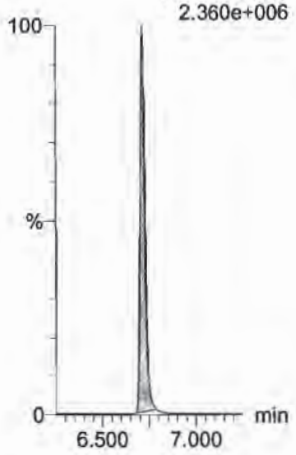


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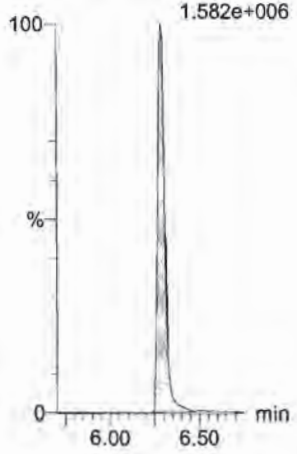
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Name: 171213M1_9, Date: 13-Dec-2017, Time: 20:28:17, ID: ST171213M1-8 PFC CS5 17L0511, Description: PFC CS5 17L0511

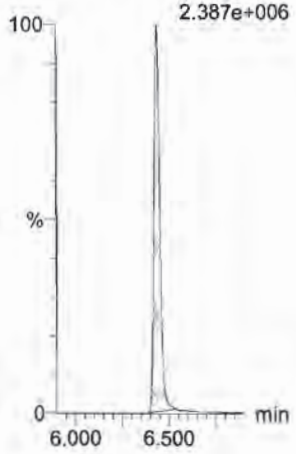
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
2.360e+006



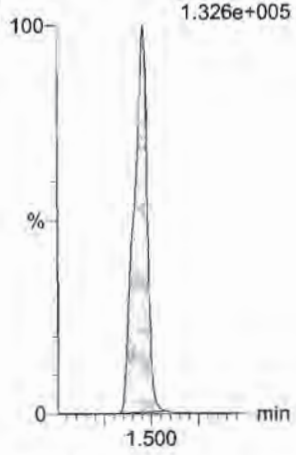
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
1.582e+006



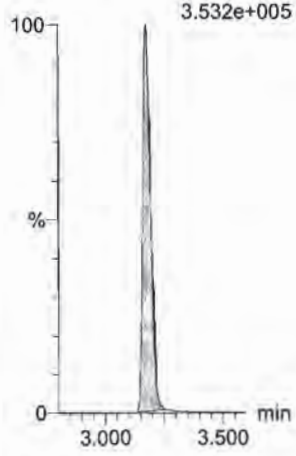
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
2.387e+006



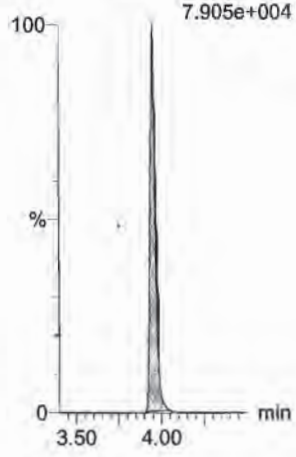
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.326e+005



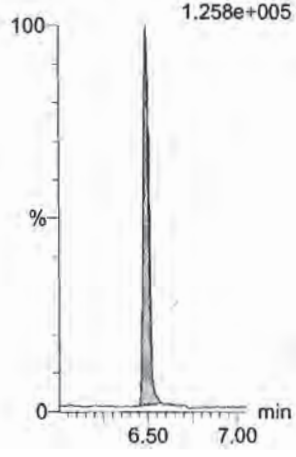
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
3.532e+005



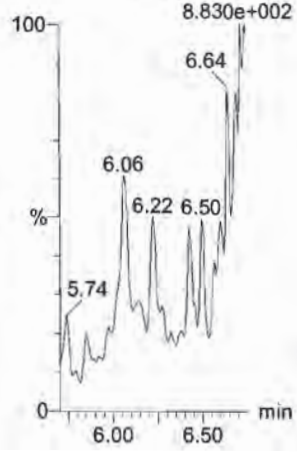
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
7.905e+004



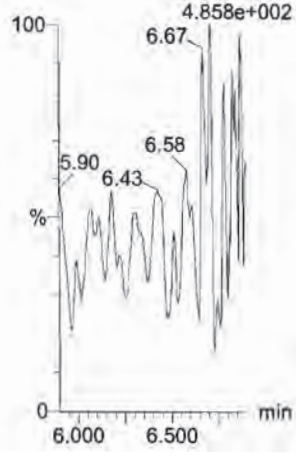
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.258e+005



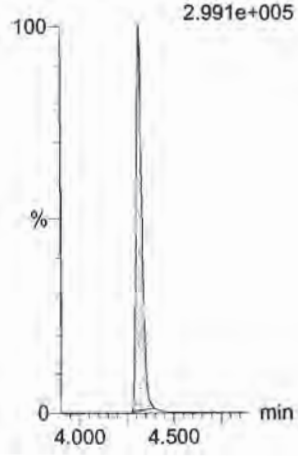
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
8.830e+002



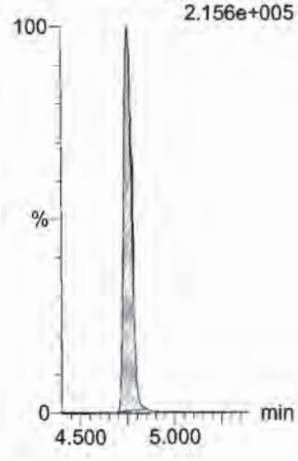
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
4.858e+002



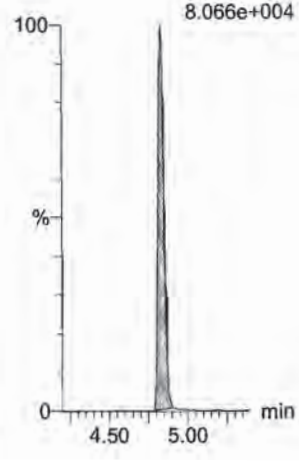
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
2.991e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.156e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.066e+004

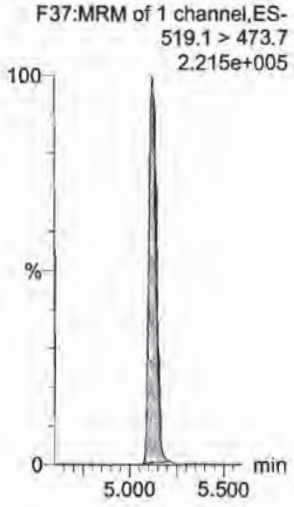


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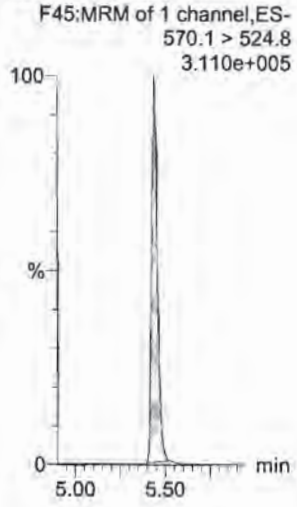
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Name: 171213M1_9, Date: 13-Dec-2017, Time: 20:28:17, ID: ST171213M1-8 PFC CS5 17L0511, Description: PFC CS5 17L0511

13C6-PFDA



13C7-PFUdA

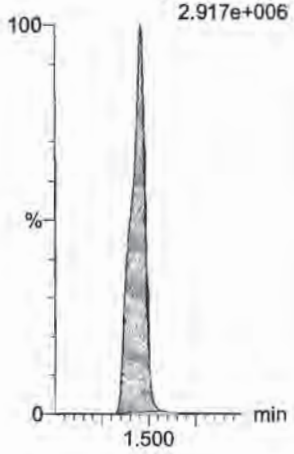


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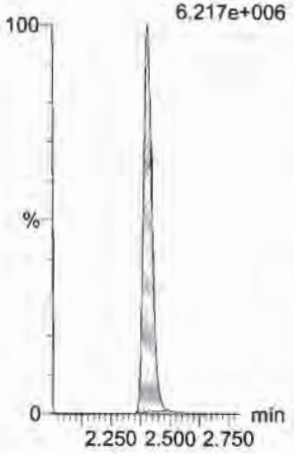
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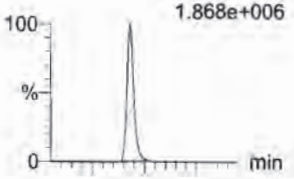
PFBA
F1:MRM of 1 channel,ES-
213.0 > 168.8
2.917e+006



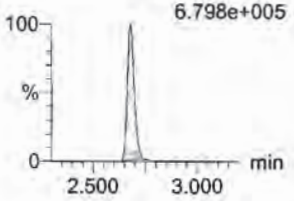
PFPeA
F4:MRM of 1 channel,ES-
263.1 > 218.9
6.217e+006



PFBS
F6:MRM of 2 channels,ES-
299.0 > 79.7
1.868e+006



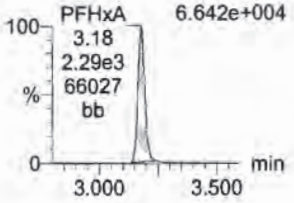
F6:MRM of 2 channels,ES-
299.0 > 99.0
6.798e+005



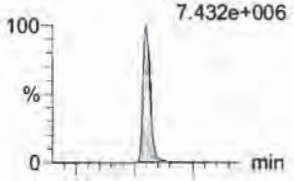
PFHxA
F8:MRM of 2 channels,ES-
313.2 > 268.9
8.231e+006



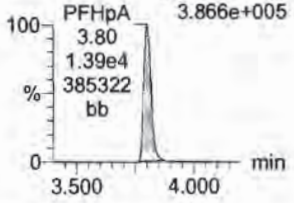
F8:MRM of 2 channels,ES-
313.2 > 119
6.642e+004



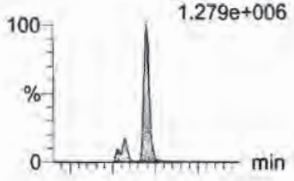
PFHpA
F13:MRM of 2 channels,ES-
363.0 > 318.9
7.432e+006



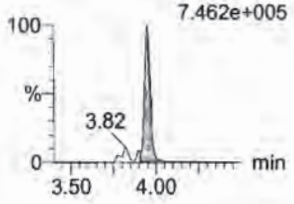
F13:MRM of 2 channels,ES-
363.0 > 169.0
3.866e+005



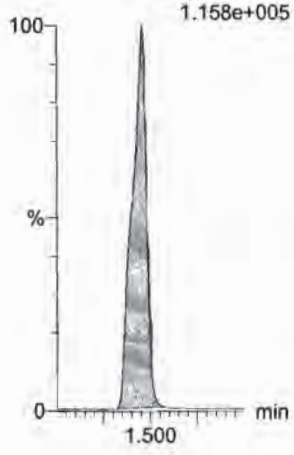
L-PFHxS
F15:MRM of 2 channels,ES-
398.9 > 79.6
1.279e+006



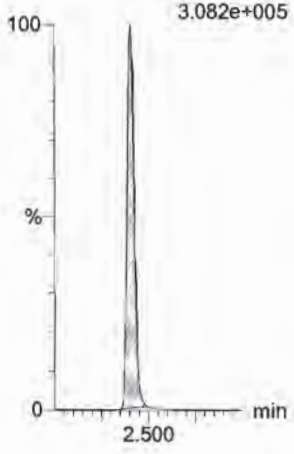
F15:MRM of 2 channels,ES-
398.9 > 99.0
7.462e+005



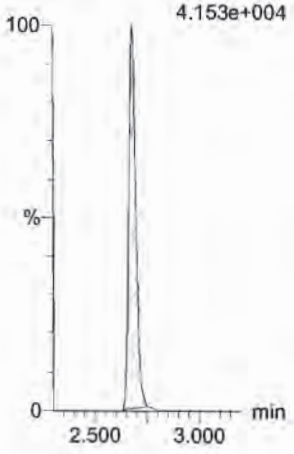
13C3-PFBA
F2:MRM of 1 channel,ES-
216.1 > 171.8
1.158e+005



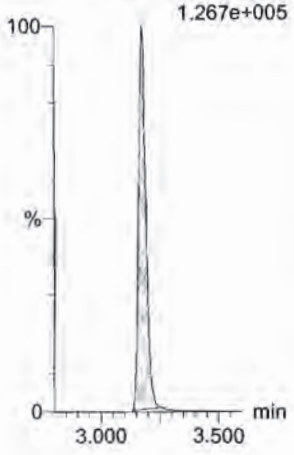
13C3-PFPeA
F5:MRM of 1 channel,ES-
266. > 221.8
3.082e+005



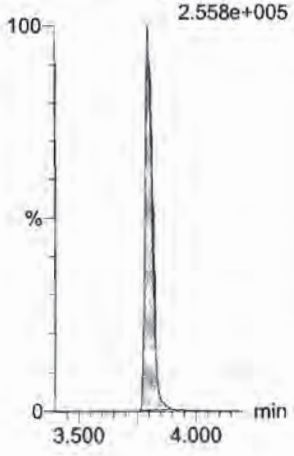
13C3-PFBS
F7:MRM of 1 channel,ES-
302. > 98.8
4.153e+004



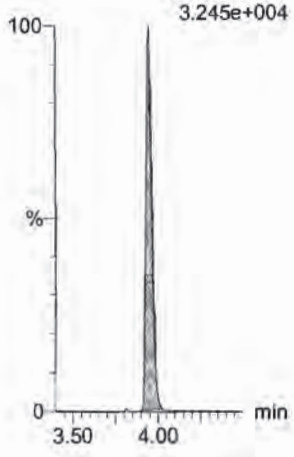
13C2-PFHxA
F9:MRM of 1 channel,ES-
315 > 269.8
1.267e+005



13C4-PFHpA
F14:MRM of 1 channel,ES-
367.2 > 321.8
2.558e+005



18O2-PFHxS
F17:MRM of 1 channel,ES-
403.0 > 102.6
3.245e+004

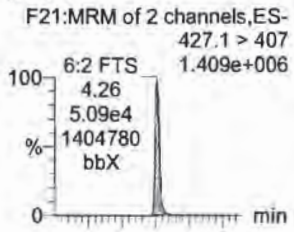


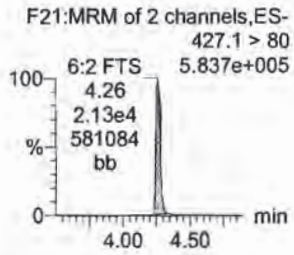
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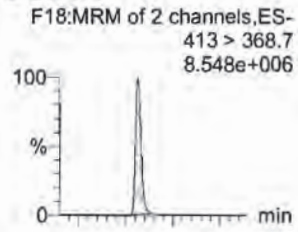
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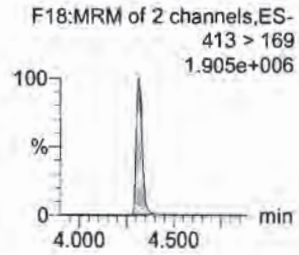
6:2 FTS



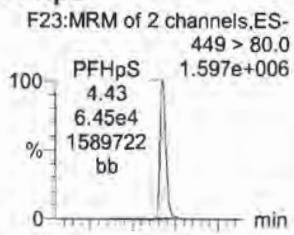


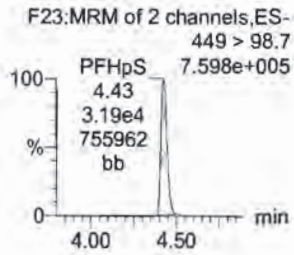
L-PFOA



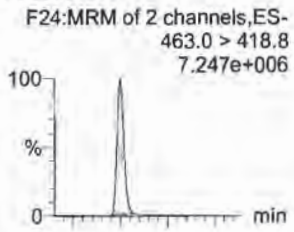


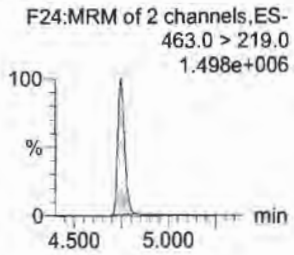
PFHpS



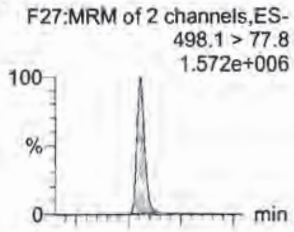


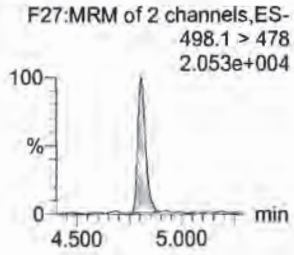
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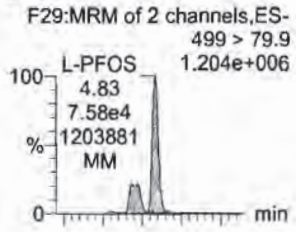


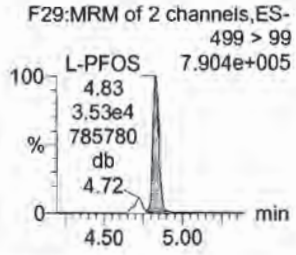
PFOSA



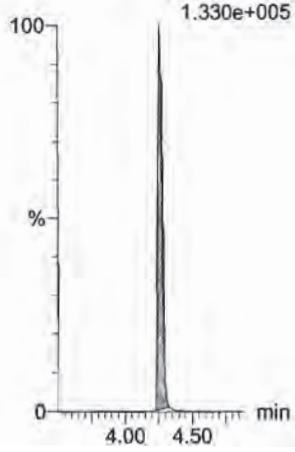


L-PFOS

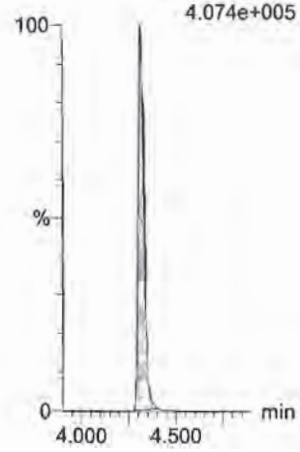




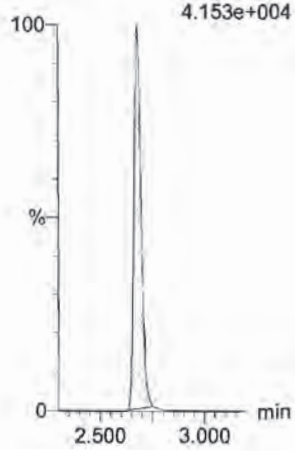
13C2-6:2 FTS



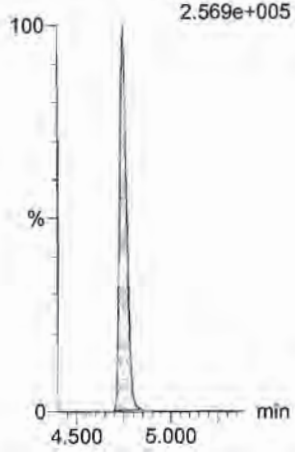
13C2-PFOA



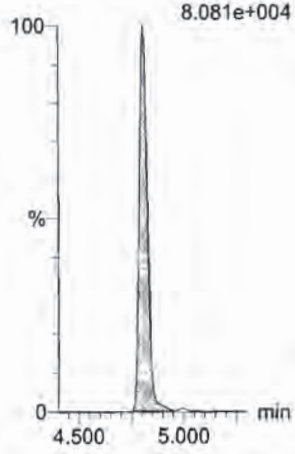
13C3-PFBS



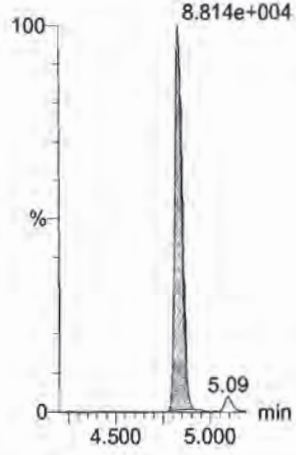
13C5-PFNA



13C8-PFOSA



13C8-PFOS

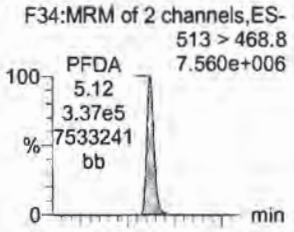


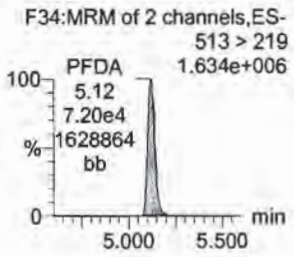
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Printed: Thursday, December 14, 2017 09:35:37 Pacific Standard Time

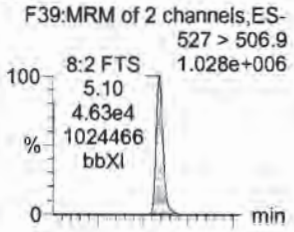
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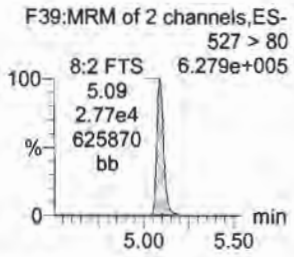
PFDA



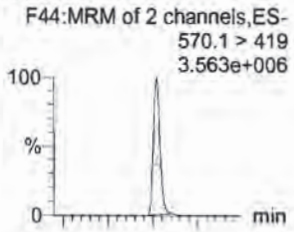


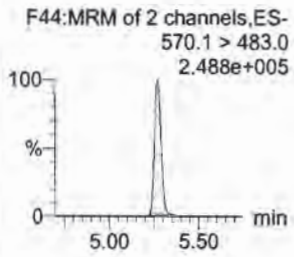
8:2 FTS



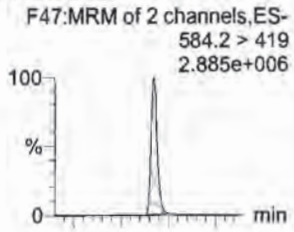


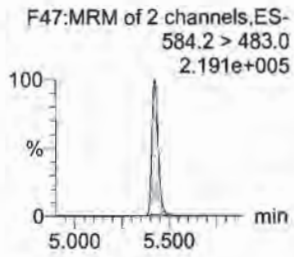
N-MeFOSAA



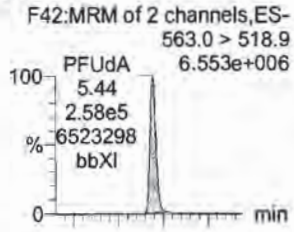


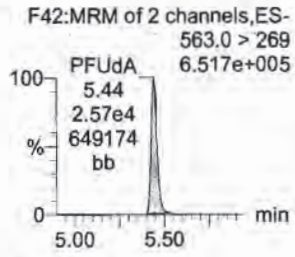
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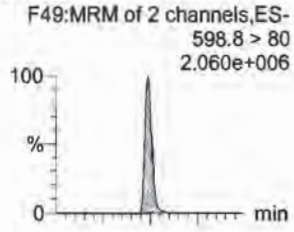


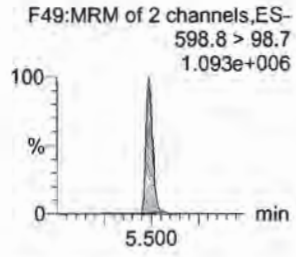
PFUdA



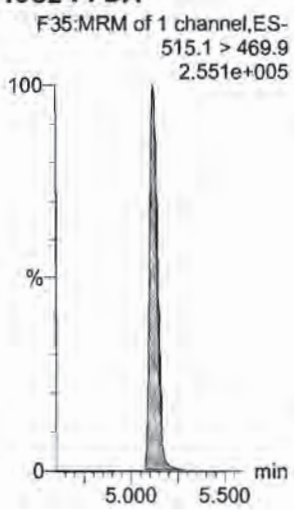


PFDS

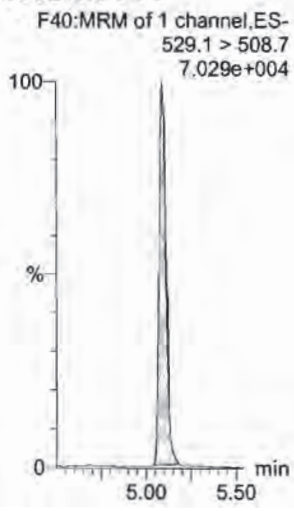




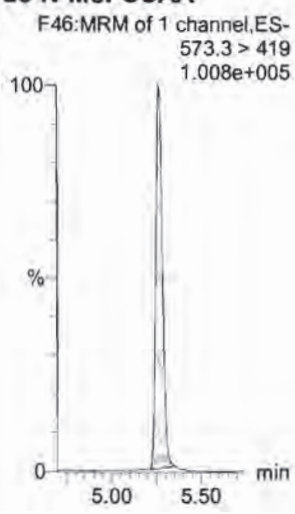
13C2-PFDA



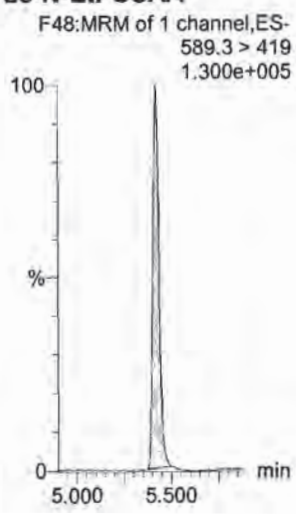
13C2-8:2 FTS



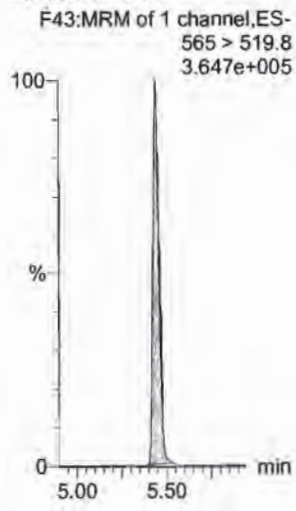
d3-N-MeFOSAA



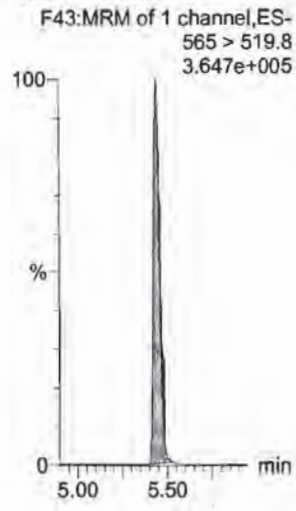
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

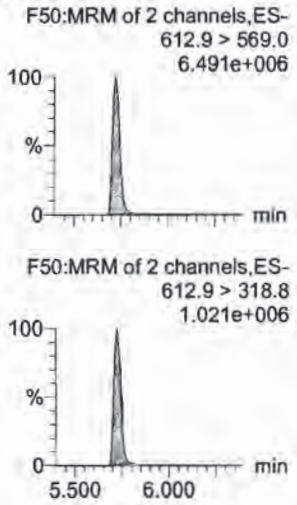


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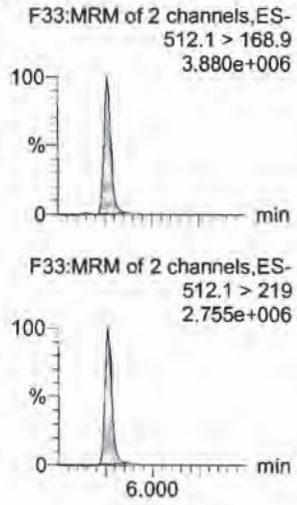
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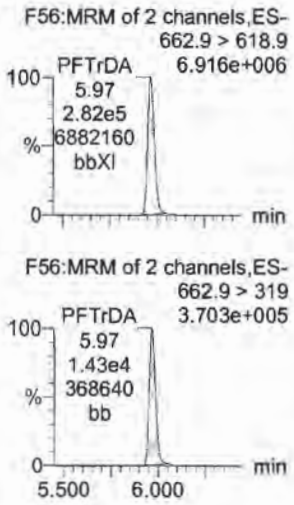
PFDoA



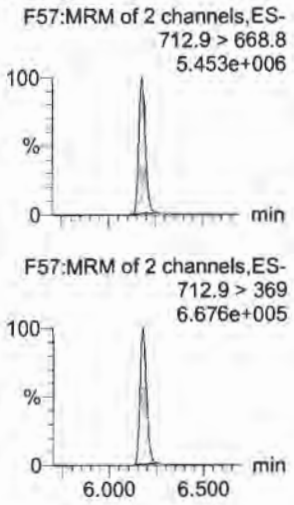
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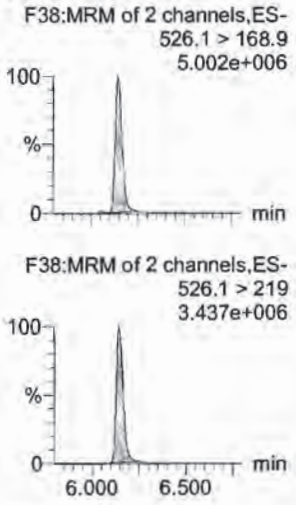
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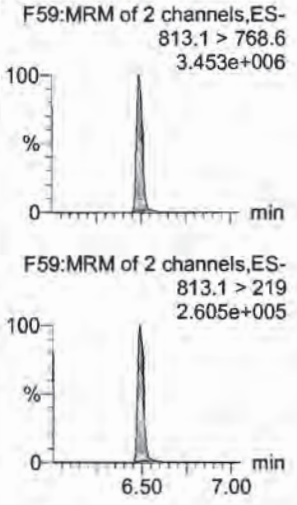
PFTeDA



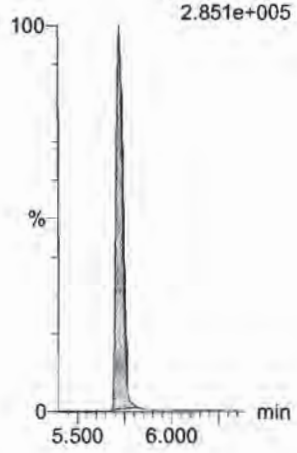
N-EtFOSA



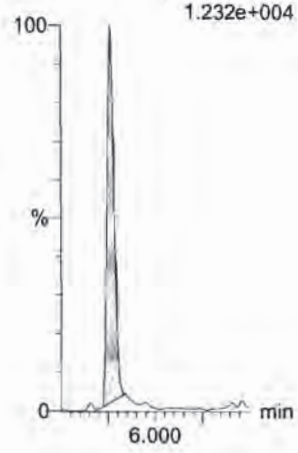
PFHxDA



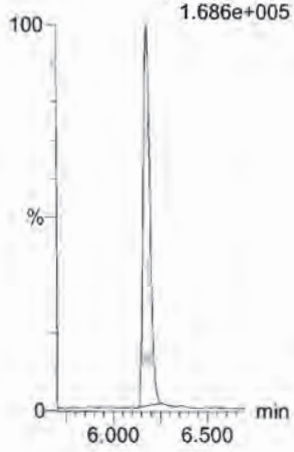
13C2-PFDoA



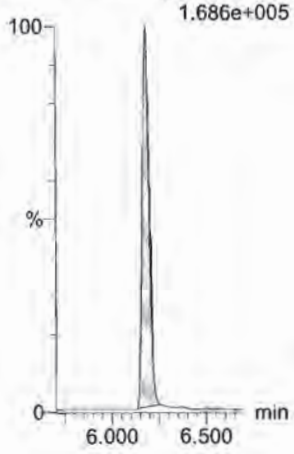
d3-N-MeFOSA



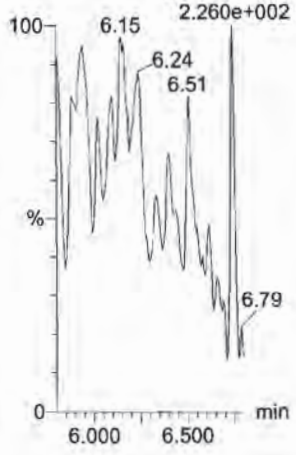
13C2-PFTeDA



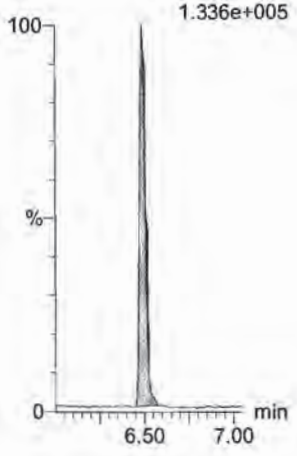
13C2-PFTeDA



d5-N-ETFOSA



13C2-PFHxDA

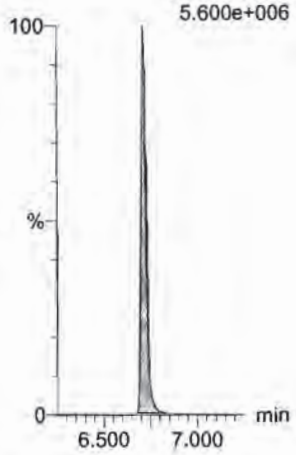


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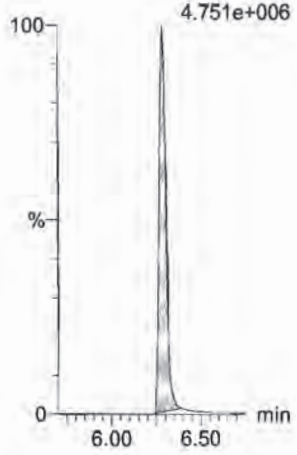
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Name: 171213M1_10, Date: 13-Dec-2017, Time: 20:39:28, ID: ST171213M1-9 PFC CS6 17L0512, Description: PFC CS6 17L0512

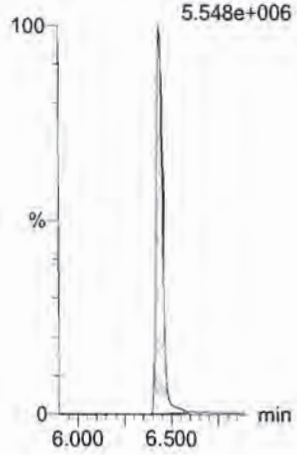
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
5.600e+006



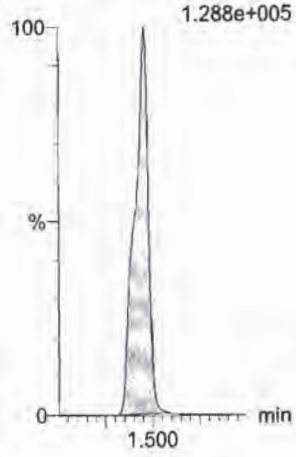
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
4.751e+006



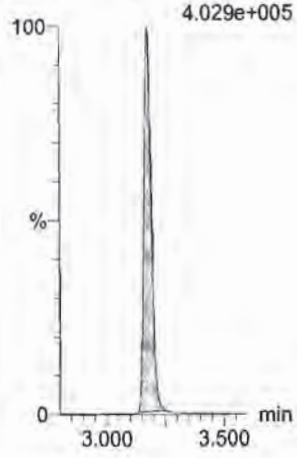
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
5.548e+006



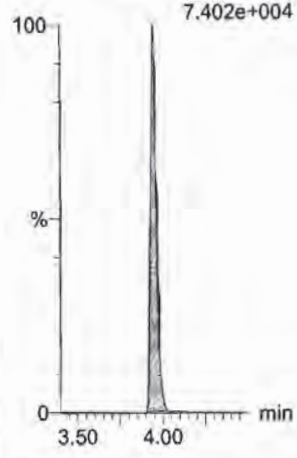
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.288e+005



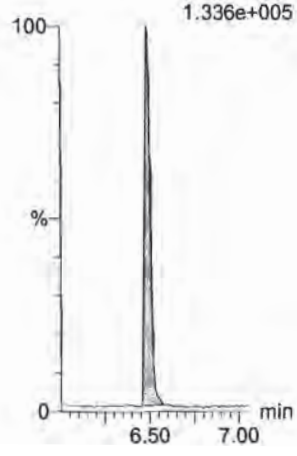
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.029e+005



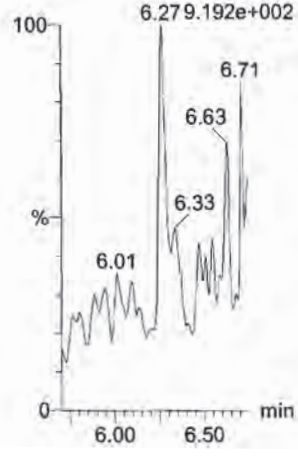
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
7.402e+004



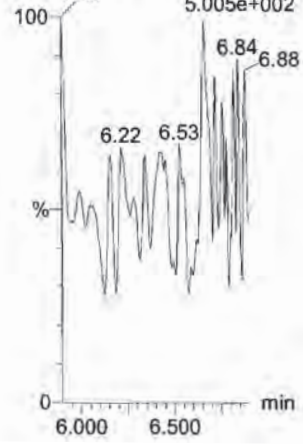
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.336e+005



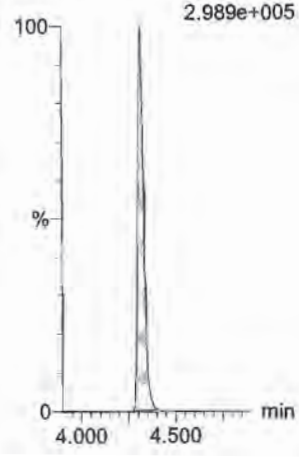
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
6.27 9.192e+002



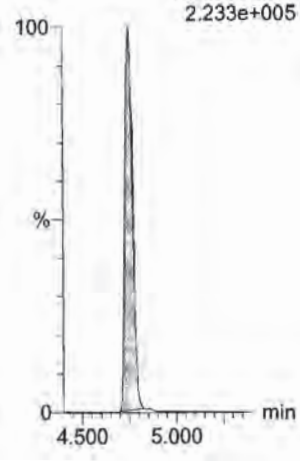
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
5.005e+002



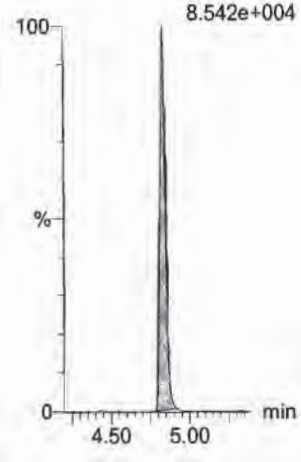
13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
2.989e+005



13C9-PFNA
F26:MRM of 1 channel,ES-
472.2 > 426.9
2.233e+005



13C4-PFOS
F30:MRM of 1 channel,ES-
503 > 79.9
8.542e+004

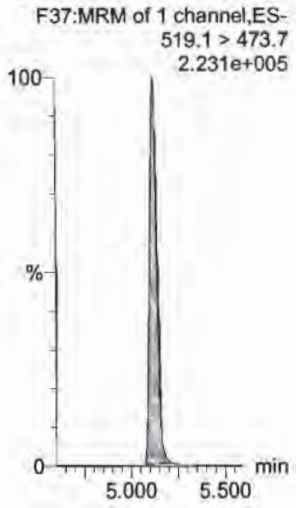


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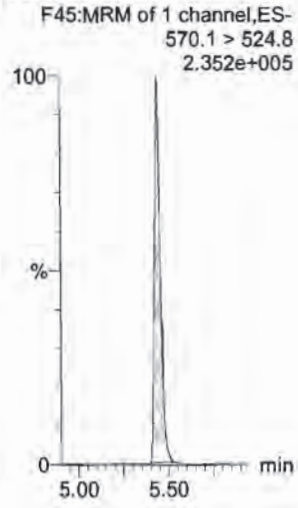
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Printed: Thursday, December 14, 2017 09:35:37 Pacific Standard Time

Name: 171213M1_10, Date: 13-Dec-2017, Time: 20:39:28, ID: ST171213M1-9 PFC CS6 17L0512, Description: PFC CS6 17L0512

13C6-PFDA



13C7-PFUdA



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN945 SCN960**
Vista Analytical Laboratory

Dataset: U:\Q4.PRO\results\171213M1\171213M1-13.qld

Last Altered: Thursday, December 14, 2017 10:15:51 Pacific Standard Time
Printed: Thursday, December 14, 2017 10:17:33 Pacific Standard Time

(A) No Sec. source available.
(B) PFTrDA > 130%.

AC 12/14/17

✓ JA. 12/14/2017

Method: U:\Q4.PRO\MethDB\PFAS_FULL_80C_121317.mdb 14 Dec 2017 08:34:51
Calibration: U:\Q4.PRO\CurveDB\C18_VAL-PFAS_Q4_12-13-17_NEWRS.cdb 14 Dec 2017 09:31:10

Name: 171213M1_13, Date: 13-Dec-2017, Time: 21:13:00, ID: ICV171213M1-1 PFC ICV 17L0503, Description: PFC ICV 17L0503

	#	Name	Trace	Area	IS Area	wt/vol	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBA	213.0 > 168.8	8.88e3	9.80e3	1.0000		1.46	1.46	11.3	9.554	95.5
2	2	PFPeA	263.1 > 218.9	9.94e3	1.28e4	1.0000		2.41	2.41	9.67	9.574	95.7
3	3	PFBS	299.0 > 79.7	2.49e3	1.66e3	1.0000		2.70	2.68	18.8	8.851	88.5
4	4	PFHxA	313.2 > 268.9	1.32e4	4.74e3	1.0000		3.18	3.17	13.9	10.286	102.9
5	5	PFHpA	363.0 > 318.9	1.09e4	9.30e3	1.0000		3.80	3.80	14.7	9.987	99.9
6	6	L-PFHxS	398.9 > 79.6	2.04e3	1.29e3	1.0000		4.00	3.95	19.8	8.592	85.9
7	7	Br-PFHxS	398.9 > 79.6		1.29e3	1.0000		3.90				AC 12/14/17
8	8	6:2 FTS	427.1 > 407	2.14e3	2.68e3	1.0000		4.26	4.26	9.99	10.886	108.9
9	9	L-PFOA	413 > 368.7	9.78e3	1.28e4	1.0000		4.32	4.32	9.56	9.252	92.5
10	10	Br-PFOA	413 > 368.7		1.28e4	1.0000		4.25				
11	11	PFHpS	449 > 80.0	2.29e3	1.28e4	1.0000		4.43	4.43	2.23	9.254	92.5
12	12	PFNA	463.0 > 418.8	1.24e4	1.19e4	1.0000		4.78	4.75	13.1	9.599	96.0
13	13	PFOSA	498.1 > 77.8	3.05e3	4.02e3	1.0000		4.81	4.81	9.48	9.718	97.2
14	14	L-PFOS	499 > 79.9	3.14e3	3.65e3	1.0000		4.83	4.83	10.8	9.544	95.4
15	15	Br-PFOS	499 > 79.9		3.65e3	1.0000		4.70				
16	16	PFDA	513 > 468.8	1.04e4	9.99e3	1.0000		5.12	5.12	13.0	10.496	105.0
17	17	8:2 FTS	527 > 506.9	1.77e3	1.46e3	1.0000		5.09	5.09	15.2	7.228	72.3
18	18	N-MeFOSAA	570.1 > 419	5.99e3	3.93e3	1.0000		5.25	5.27	19.0	9.692	96.9
19	19	N-EtFOSAA	584.2 > 419	4.56e3	5.44e3	1.0000		5.45	5.43	10.5	8.098	81.0
20	20	PFUdA	563.0 > 518.9	1.13e4	1.32e4	1.0000		5.44	5.44	10.7	8.467	84.7
21	21	PFDS	598.8 > 80	3.03e3	1.32e4	1.0000		5.49	5.49	2.88	10.381	103.8
22	22	PFDoA	612.9 > 569.0	1.40e4	8.60e3	1.0000		5.75	5.72	20.3	12.029	120.3
23	23	N-MeFOSA	512.1 > 168.9			1.0000		5.80				(A)
24	24	PFTrDA	662.9 > 618.9	1.62e4	8.60e3	1.0000		5.97	5.97	23.6	13.306	(B) 133.1
25	25	PFTeDA	712.9 > 668.8	1.18e4	7.46e3	1.0000		6.20	6.18	19.8	11.448	114.5
26	26	N-EtFOSA	526.1 > 168.9			1.0000		6.16				(A)
27	27	PFHxDA	813.1 > 768.6	6.27e1	4.55e3	1.0000		6.50	6.50	0.0689		
28	28	PFODA	913.1 > 868.8		4.55e3	1.0000		6.75				
29	29	N-MeFOSE	616.1 > 58.9			1.0000		6.30				
30	30	N-EtFOSE	630.1 > 58.9			1.0000		6.42				
31	31	[illegible]	216.1 > 171.8	9.80e3	1.04e4	1.0000	0.947	1.46	1.46	11.8	12.461	99.2

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Dataset: U:\Q4.PRO\results\171213M1\171213M1-13.qld

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Name: 171213M1_13, Date: 13-Dec-2017, Time: 21:13:00, ID: ICV171213M1-1 PFC ICV 17L0503, Description: PFC ICV 17L0503

	# Name	Trace	Area	IS Area	wt/vol	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
32	32 13C3-PFPeA	266. > 221.8	1.28e4	1.49e4	1.0000	0.849	2.41	2.41	10.7	12.669	101.4
33	33 13C3-PFBS	302. > 98.8	1.66e3	1.49e4	1.0000	0.117	2.70	2.68	1.39	11.885	95.1
34	34 13C2-PFHxA	315 > 269.8	4.74e3	1.49e4	1.0000	0.779	3.18	3.18	3.97	5.096	101.9
35	35 13C4-PFHpA	367.2 > 321.8	9.30e3	1.49e4	1.0000	0.640	3.80	3.80	7.79	12.175	97.4
36	36 18O2-PFHxS	403.0 > 102.6	1.29e3	3.47e3	1.0000	0.452	4.00	3.95	4.65	10.283	82.3
37	37 13C2-6:2 FTS	429.1 > 408.9	2.68e3	1.15e4	1.0000	0.245	4.26	4.26	2.91	11.879	95.0
38	38 13C2-PFOA	414.9 > 369.7	1.28e4	1.15e4	1.0000	1.218	4.32	4.32	13.9	11.379	91.0
39	39 13C5-PFNA	468.2 > 422.9	1.19e4	1.12e4	1.0000	1.017	4.78	4.75	13.3	13.054	104.4
40	40 13C8-PFOSA	506.1 > 77.7	4.02e3	1.15e4	1.0000	0.309	4.81	4.81	4.38	14.181	113.4
41	41 13C8-PFOS	507.0 > 79.9	3.65e3	3.16e3	1.0000	1.053	4.83	4.83	14.4	13.713	109.7
42	42 13C2-PFDA	515.1 > 469.9	9.99e3	8.77e3	1.0000	1.214	5.12	5.12	14.2	11.727	93.8
43	43 13C2-8:2 FTS	529.1 > 508.7	1.46e3	1.49e4	1.0000	0.103	5.09	5.10	1.22	11.864	94.9
44	44 d3-N-MeFOSAA	573.3 > 419	3.93e3	1.15e4	1.0000	0.329	5.25	5.27	4.28	13.011	104.1
45	45 d5-N-EtFOSAA	589.3 > 419	5.44e3	1.15e4	1.0000	0.394	5.45	5.42	5.92	15.020	120.2
46	46 13C2-PFUdA	565 > 519.8	1.32e4	1.15e4	1.0000	1.109	5.44	5.45	14.3	12.912	103.3
47	47 13C2-PFDoA	615.0 > 569.7	8.60e3	1.15e4	1.0000	0.851	5.75	5.72	9.35	10.989	87.9
48	48 d3-N-MeFOSA	515.2 > 168.9		1.15e4	1.0000	0.002	5.80				
49	49 13C2-PFTeDA	714.8 > 669.6	7.46e3	1.15e4	1.0000	0.643	6.20	6.18	8.12	12.633	101.1
50	50 d5-N-ETFOSA	531.1 > 168.9		1.15e4	1.0000		6.16				
51	51 13C2-PFHxDA	815 > 769.7	4.55e3	1.15e4	1.0000	0.919	6.50	6.49	4.95	5.387	107.7
52	52 d7-N-MeFOSE	623.1 > 58.9		1.15e4	1.0000		6.30				
53	53 d9-N-EtFOSE	639.2 > 58.8		1.15e4	1.0000		6.42				
54	54 13C4-PFBA	217. > 171.8	1.04e4	1.04e4	1.0000	1.000	1.46	1.46	12.5	12.500	100.0
55	55 13C5-PFHxA	318 > 272.9	1.49e4	1.49e4	1.0000	1.000	3.18	3.18	12.5	12.500	100.0
56	56 13C3-PFHxS	401.9 > 79.9	3.47e3	3.47e3	1.0000	1.000	4.00	3.95	12.5	12.500	100.0
57	57 13C8-PFOA	421.3 > 376	1.15e4	1.15e4	1.0000	1.000	4.32	4.31	12.5	12.500	100.0
58	58 13C9-PFNA	472.2 > 426.9	1.12e4	1.12e4	1.0000	1.000	4.78	4.75	12.5	12.500	100.0
59	59 13C4-PFOS	503 > 79.9	3.16e3	3.16e3	1.0000	1.000	4.83	4.83	12.5	12.500	100.0
60	60 13C6-PFDA	519.1 > 473.7	8.77e3	8.77e3	1.0000	1.000	5.12	5.12	12.5	12.500	100.0
61	61 13C7-PFUdA	570.1 > 524.8	1.15e4	1.15e4	1.0000	1.000	5.44	5.44	12.5	12.500	100.0

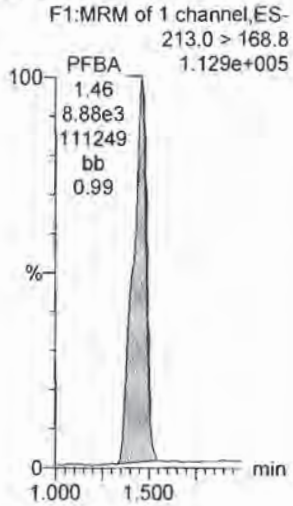
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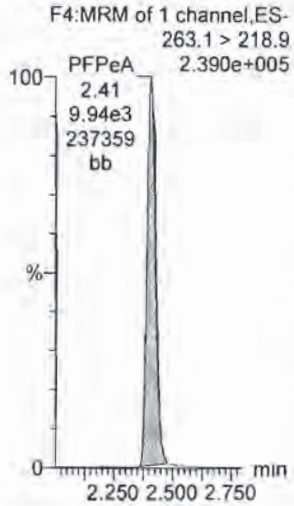
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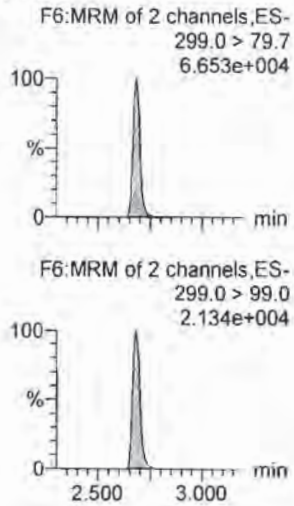
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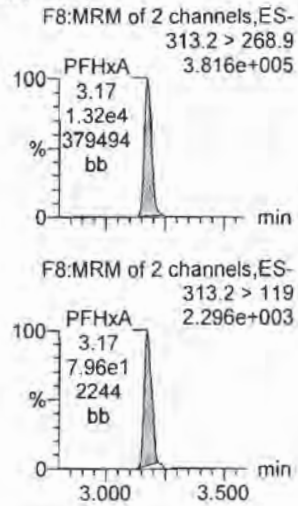
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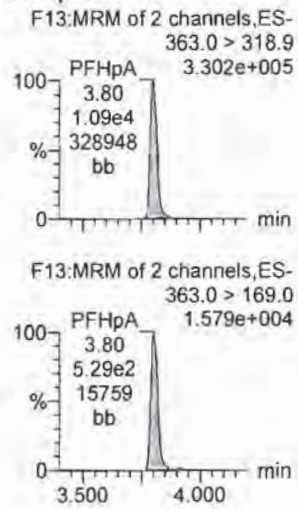
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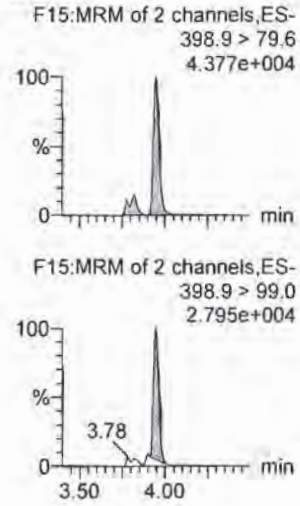
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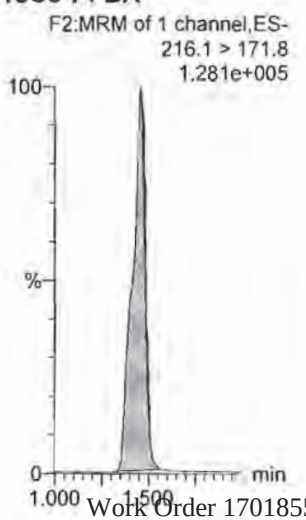
PFHpA



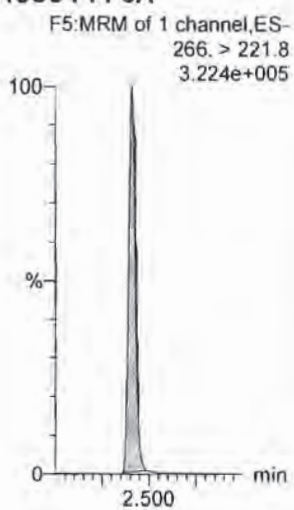
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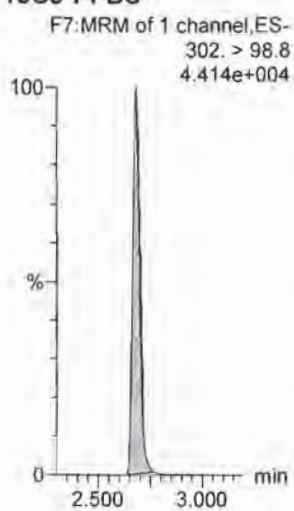
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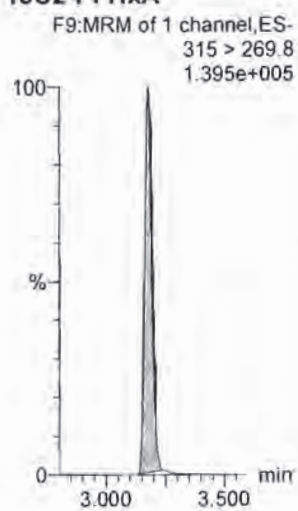
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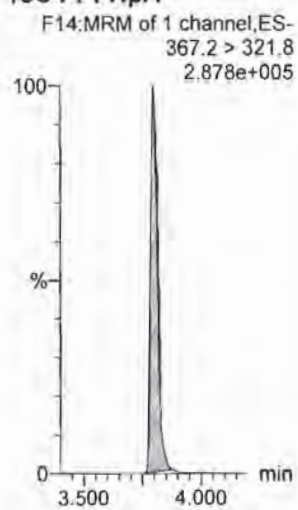
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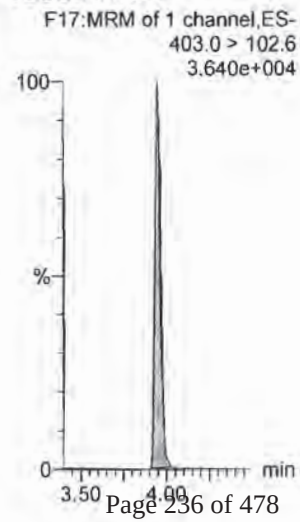
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13C4-PFHpA



18O2-PFHxS

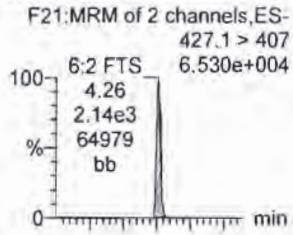


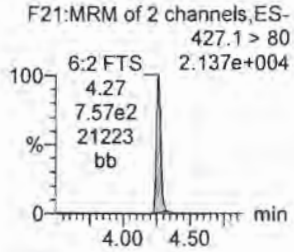
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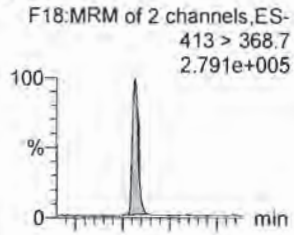
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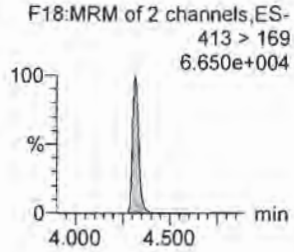
6:2 FTS



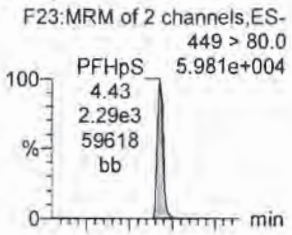


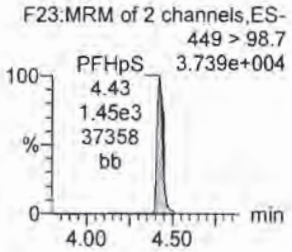
L-PFOA



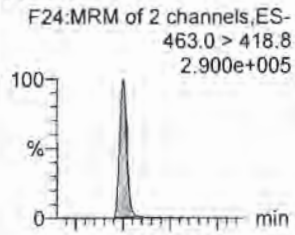


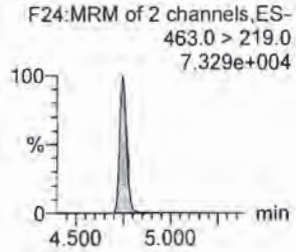
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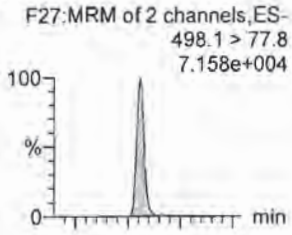


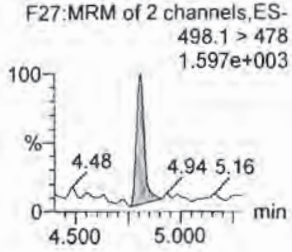
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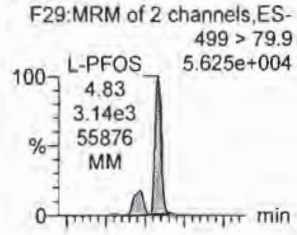


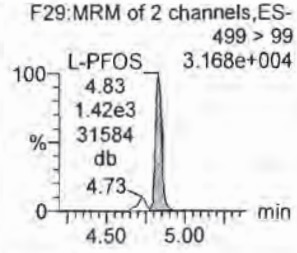
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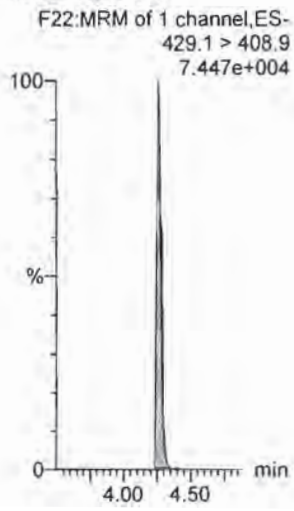


L-PFOS

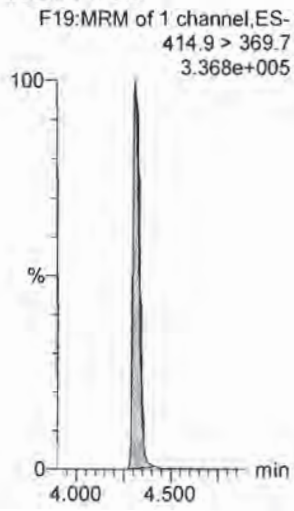




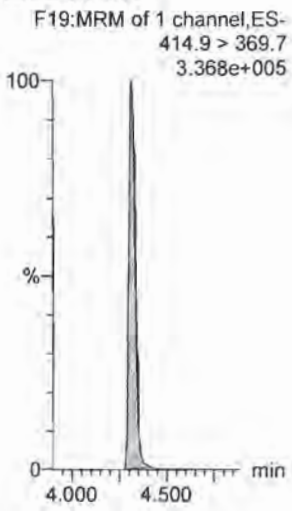
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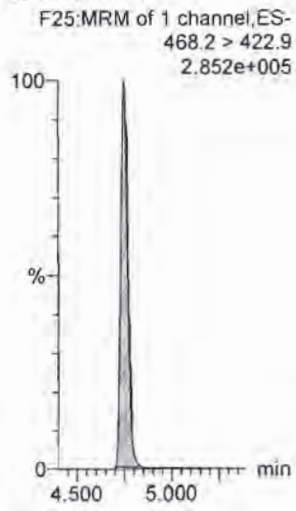
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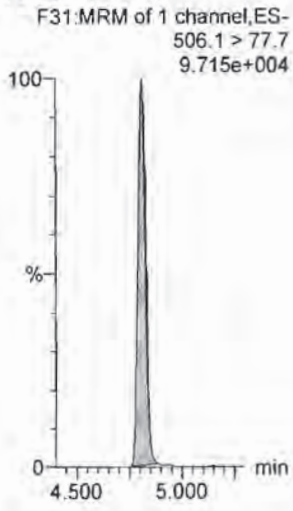
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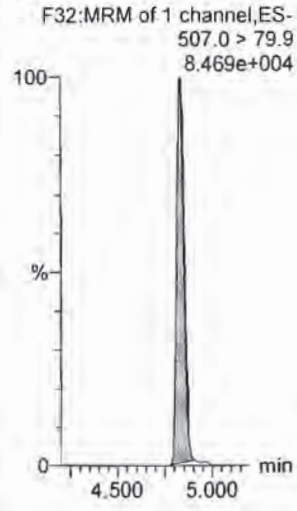
13C5-PFNA



13C8-PFOSA



13C8-PFOS



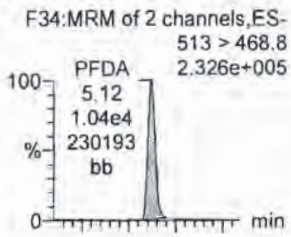
Vista Analytical Laboratory

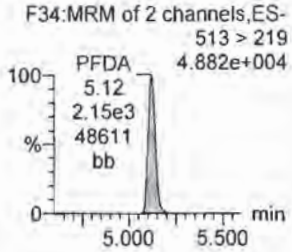
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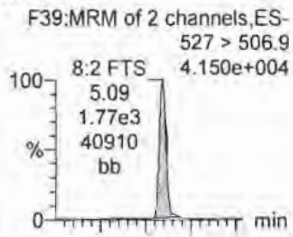
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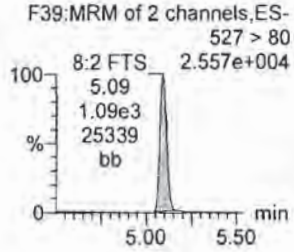
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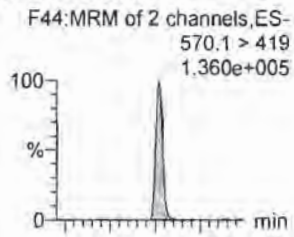


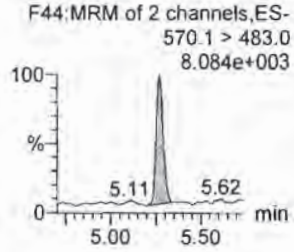
8:2 FTS



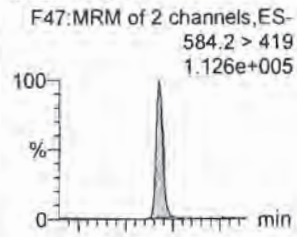


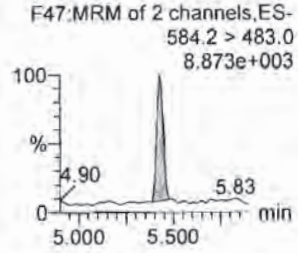
N-MeFOSAA



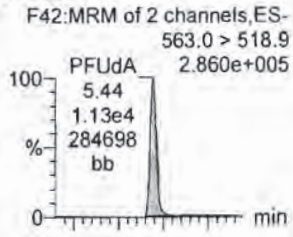


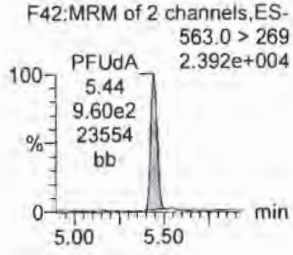
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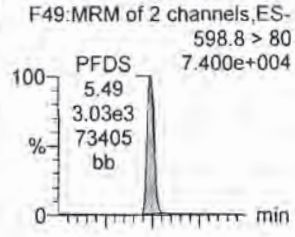


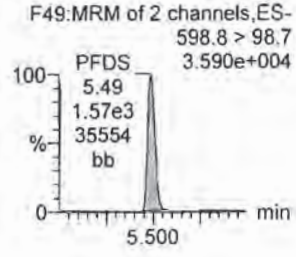
PFUdA



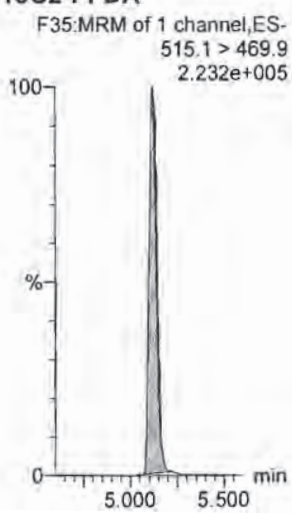


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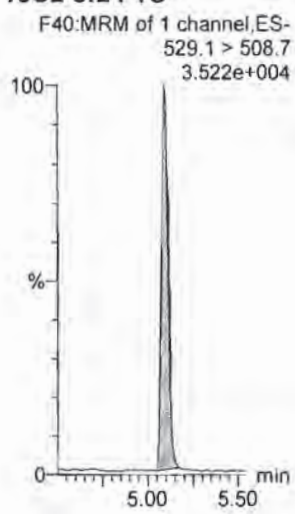




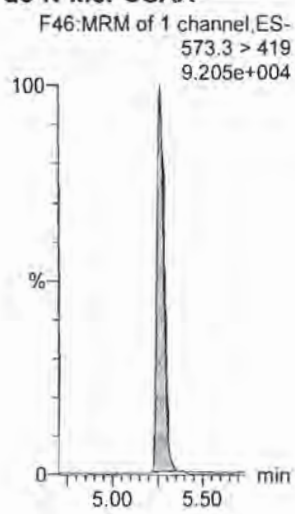
13C2-PFDA



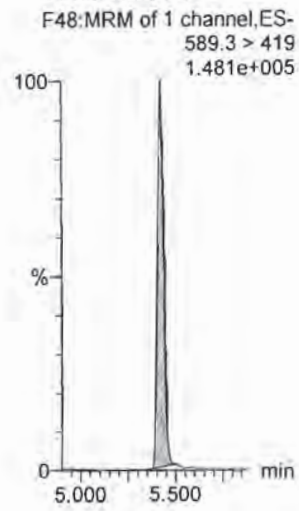
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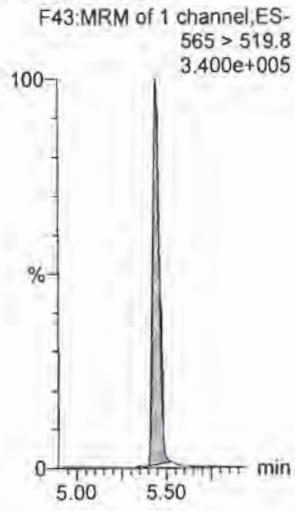
d3-N-MeFOSAA



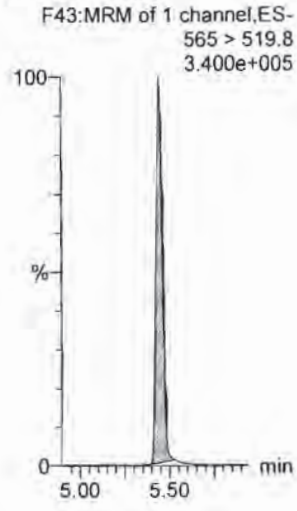
d5-N-EtFOSAA



13C2-PFUdA



13C2-PFUdA

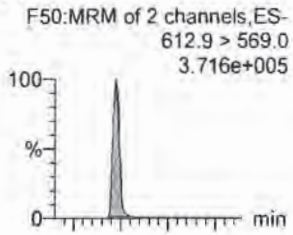


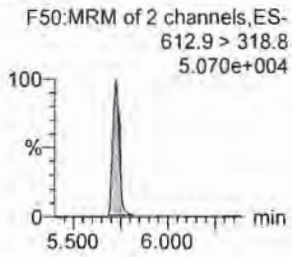
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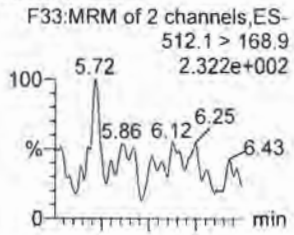
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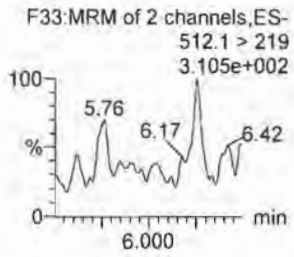
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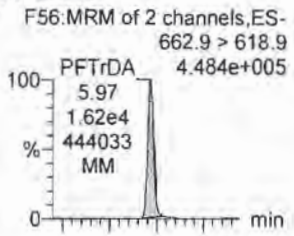


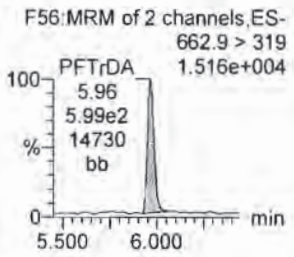
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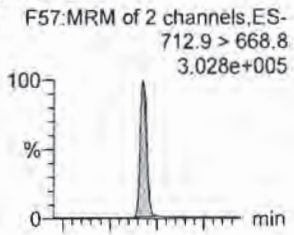


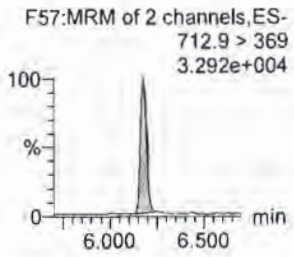
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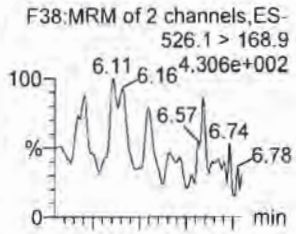


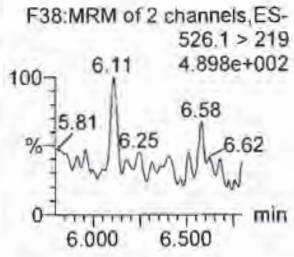
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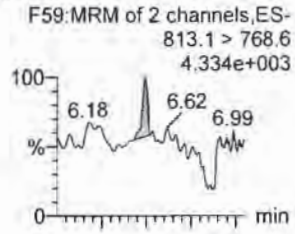


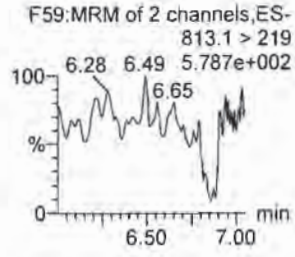
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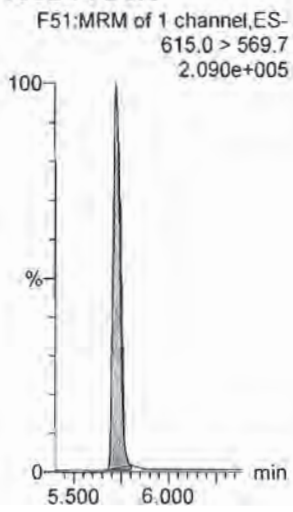


PFHxDA

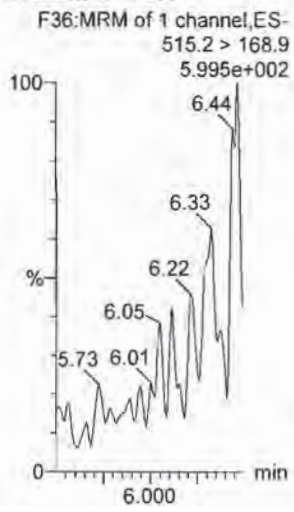




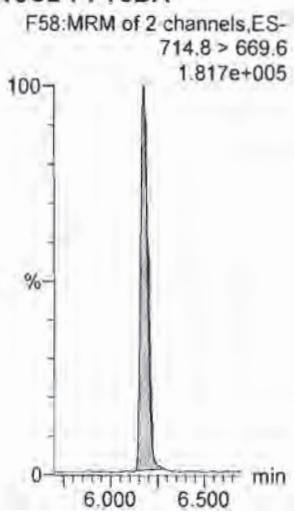
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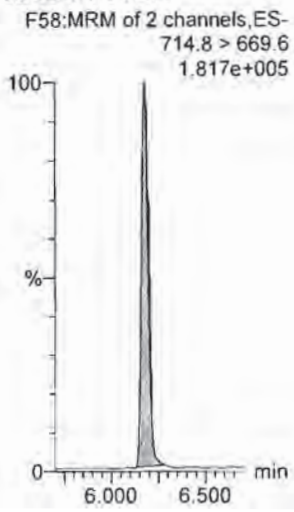
d3-N-MeFOSA



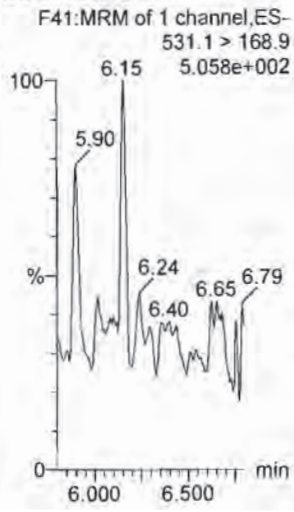
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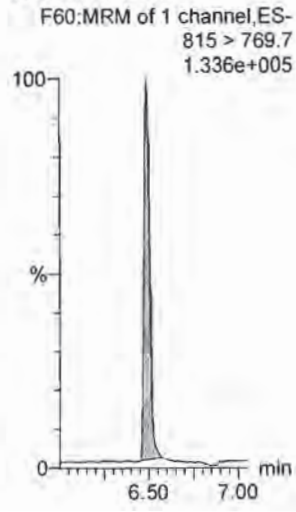
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d5-N-ETFOSA



13C2-PFHxDA

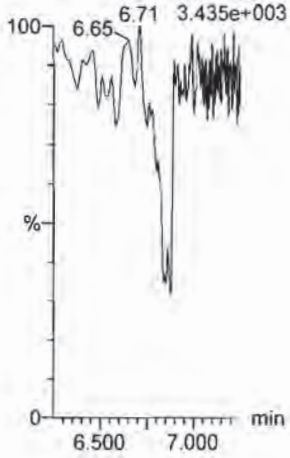


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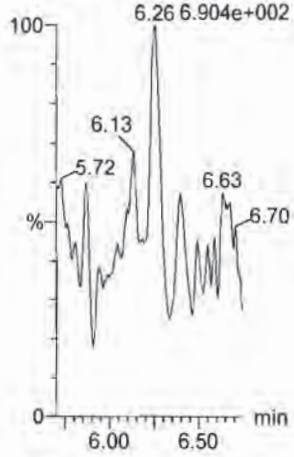
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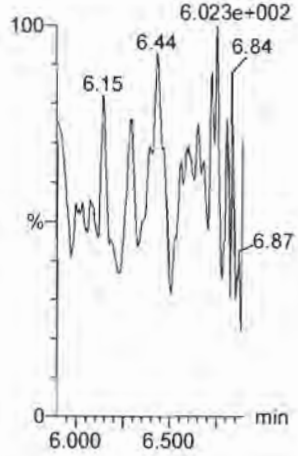
PFODA
F61:MRM of 1 channel,ES-
913.1 > 868.8
3.435e+003



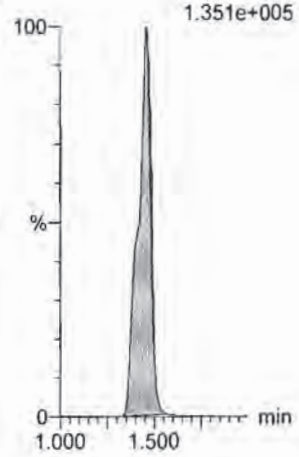
N-MeFOSE
F52:MRM of 1 channel,ES-
616.1 > 58.9
6.26 6.904e+002



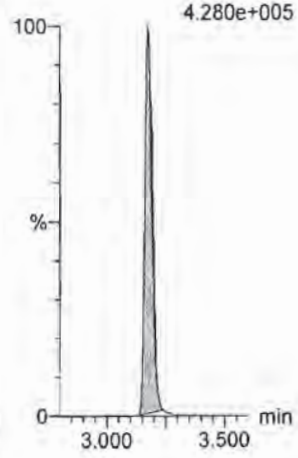
N-EtFOSE
F54:MRM of 1 channel,ES-
630.1 > 58.9
6.023e+002



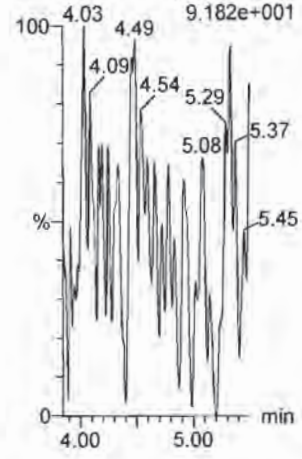
13C4-PFBA
F3:MRM of 1 channel,ES-
217. > 171.8
1.351e+005



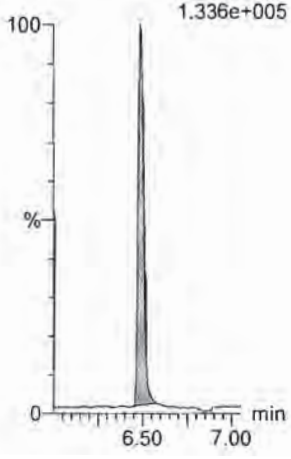
13C5-PFHxA
F10:MRM of 1 channel,ES-
318 > 272.9
4.280e+005



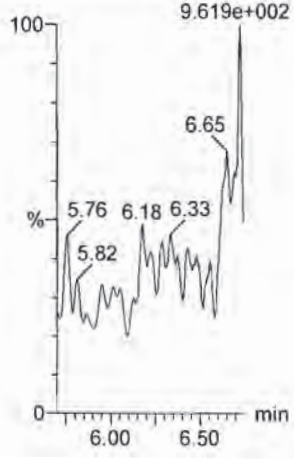
TCDA
F28:MRM of 3 channels,ES-
498.3 > 106.9
9.182e+001



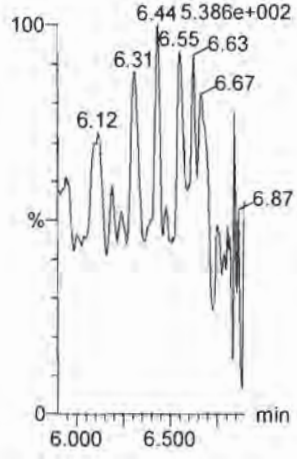
13C2-PFHxDA
F60:MRM of 1 channel,ES-
815 > 769.7
1.336e+005



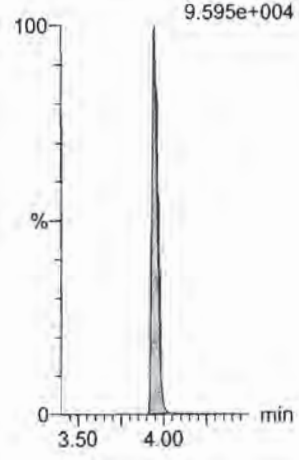
d7-N-MeFOSE
F53:MRM of 1 channel,ES-
623.1 > 58.9
9.619e+002



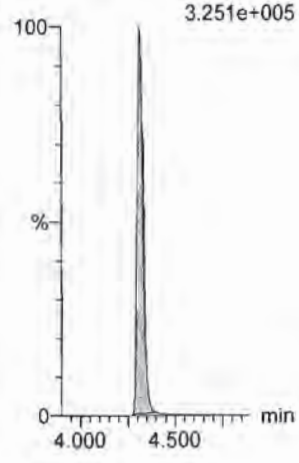
d9-N-EtFOSE
F55:MRM of 1 channel,ES-
639.2 > 58.8
6.44 5.386e+002



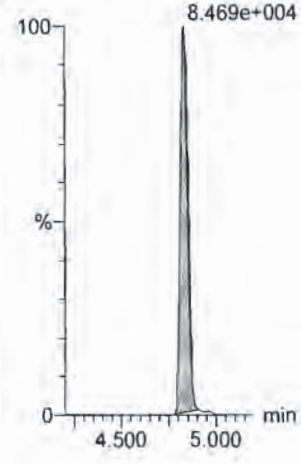
13C3-PFHxS
F16:MRM of 1 channel,ES-
401.9 > 79.9
9.595e+004



13C8-PFOA
F20:MRM of 1 channel,ES-
421.3 > 376
3.251e+005



13C8-PFOS
F32:MRM of 1 channel,ES-
507.0 > 79.9
8.469e+004

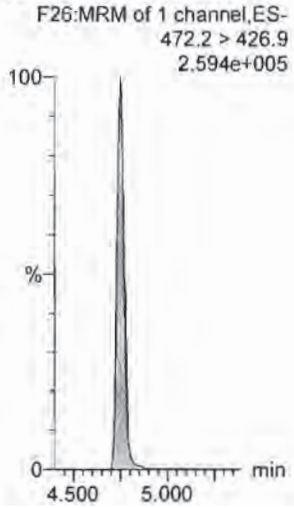


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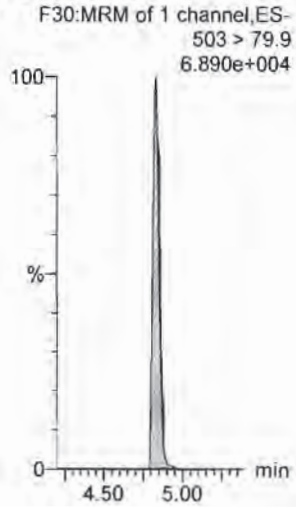
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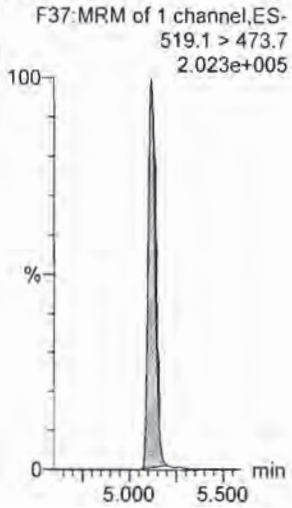
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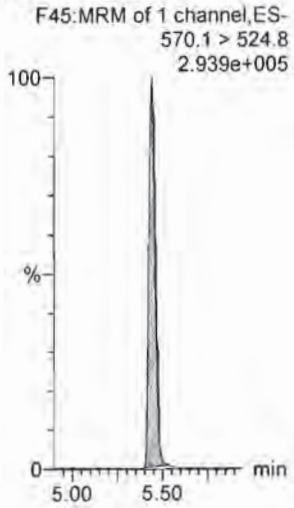
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Vista Analytical Laboratory

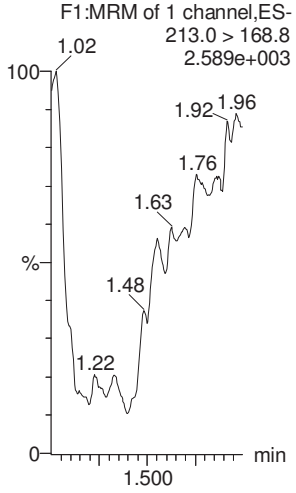
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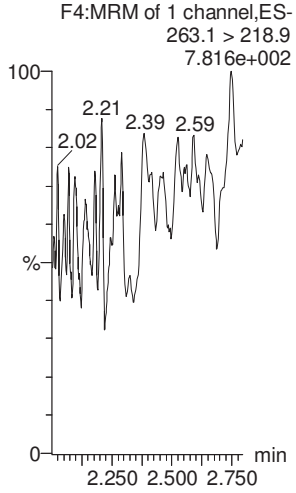
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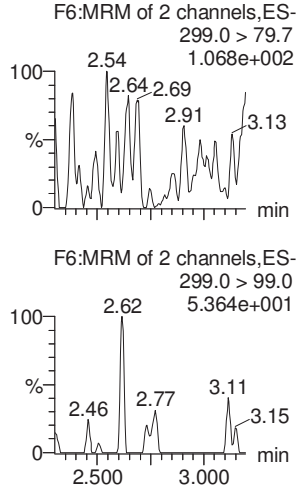
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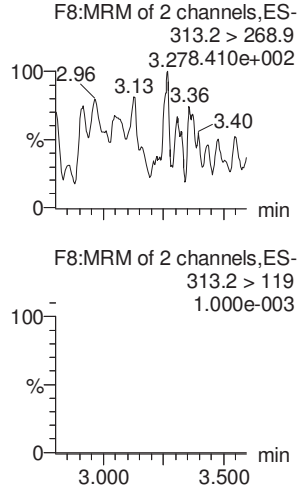
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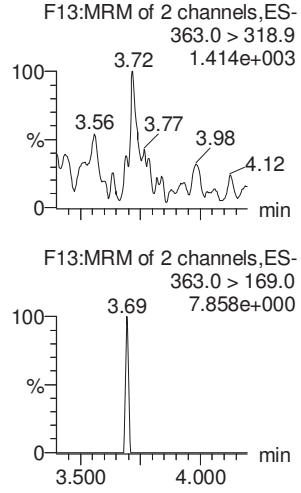
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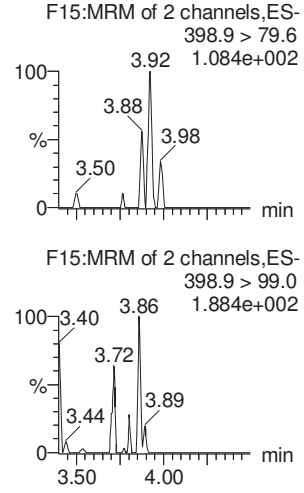
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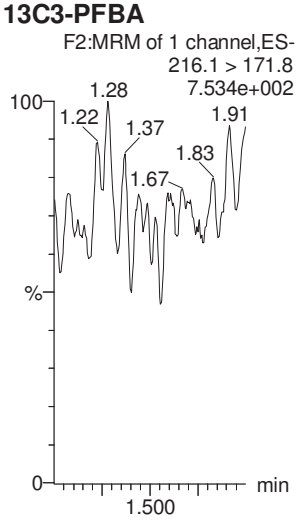
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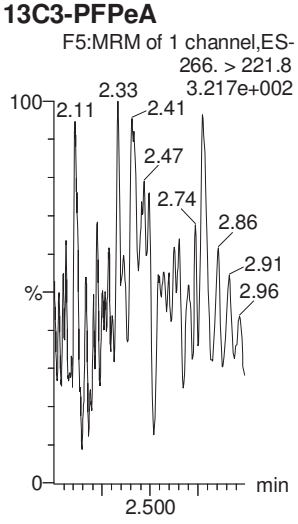
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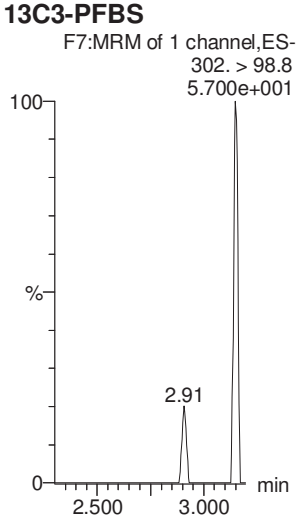
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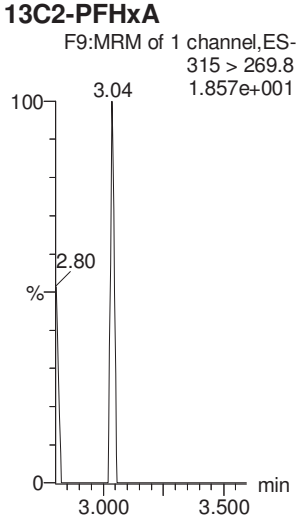
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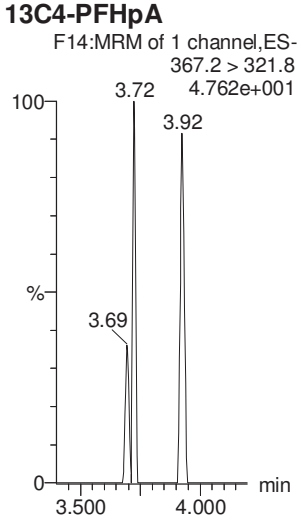
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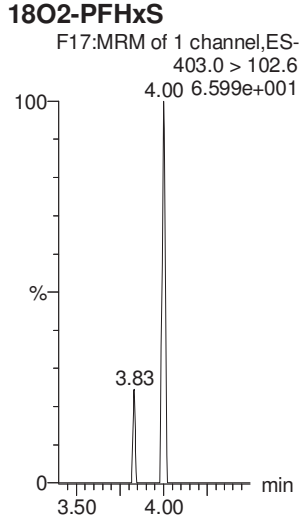
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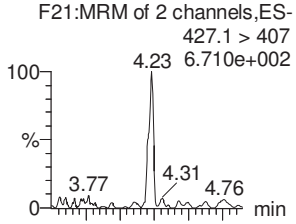
Vista Analytical Laboratory

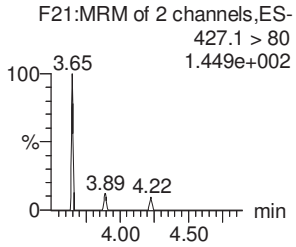
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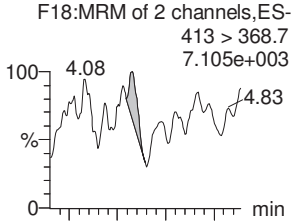
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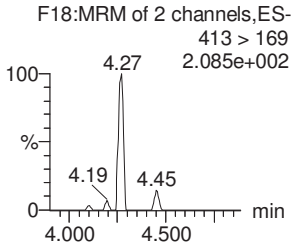
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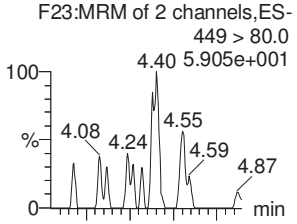


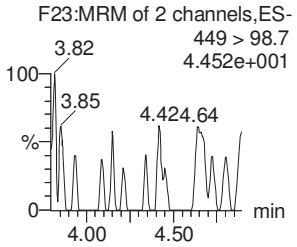
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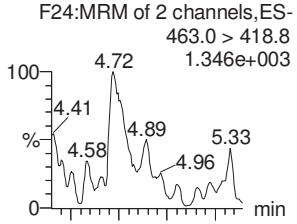


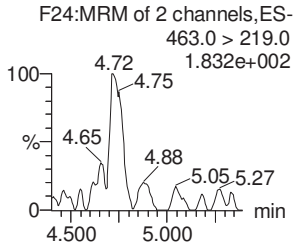
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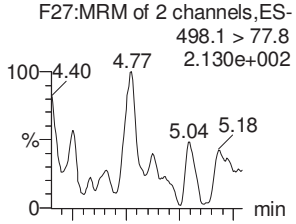


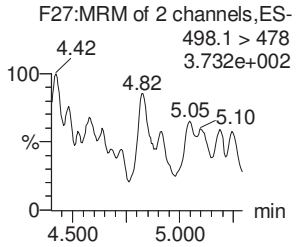
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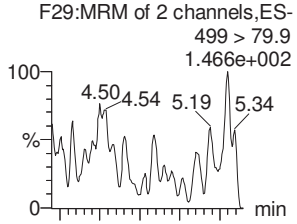


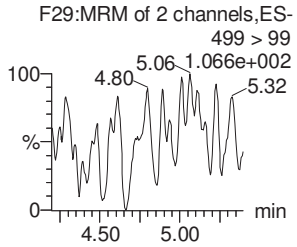
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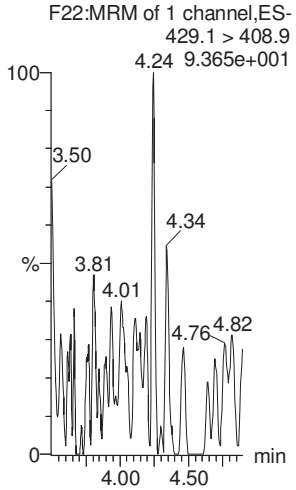


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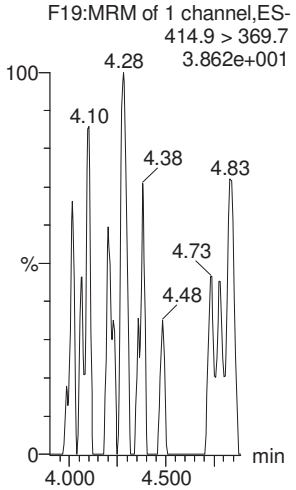




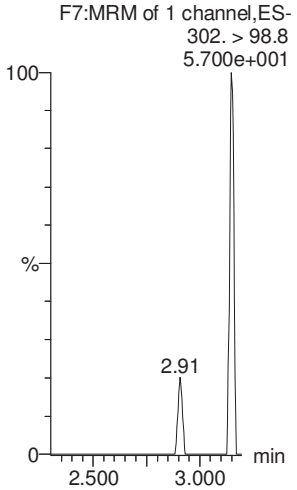
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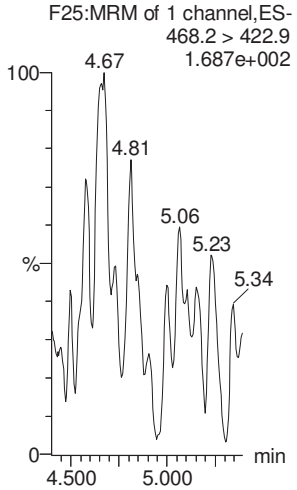
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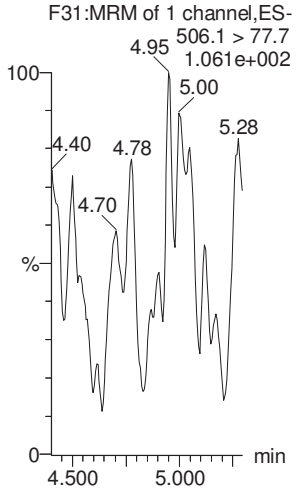
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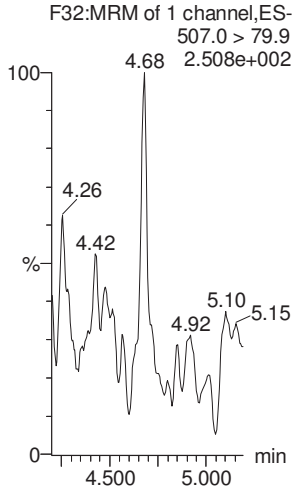
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13C8-PFOSA



13C8-PFOS



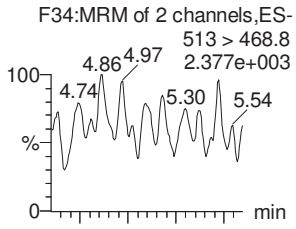
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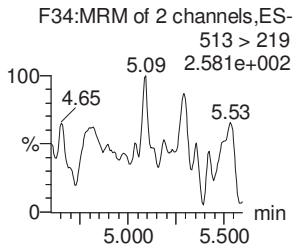
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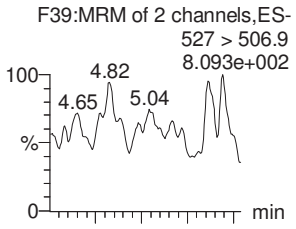
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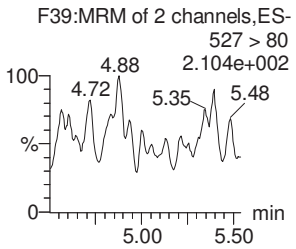
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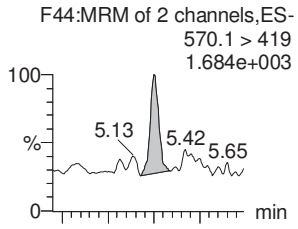


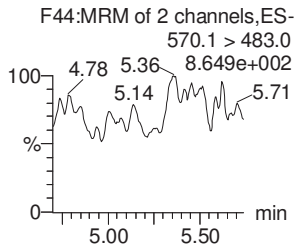
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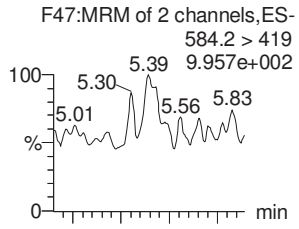


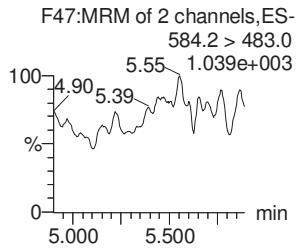
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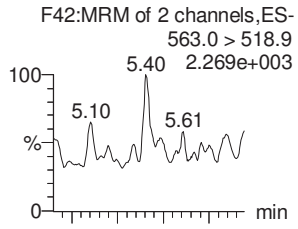


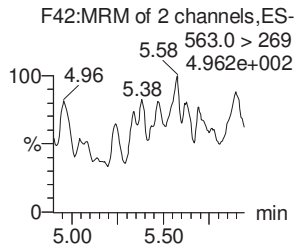
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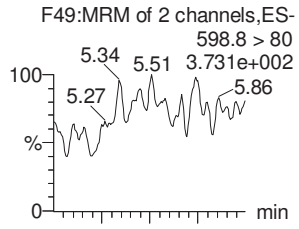


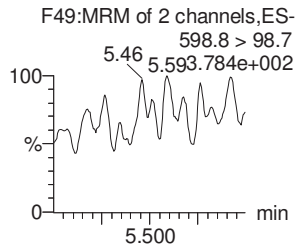
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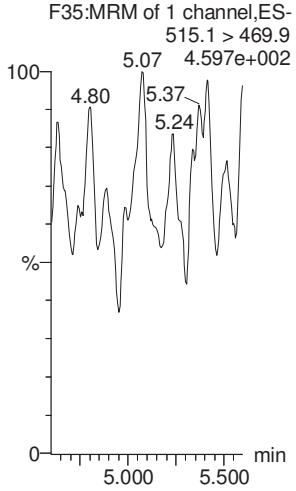


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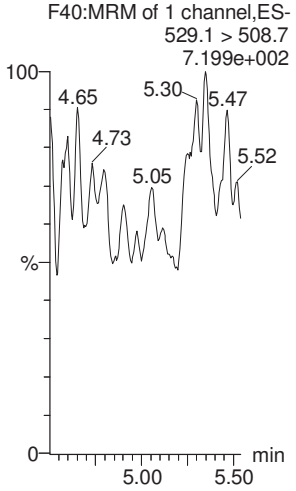




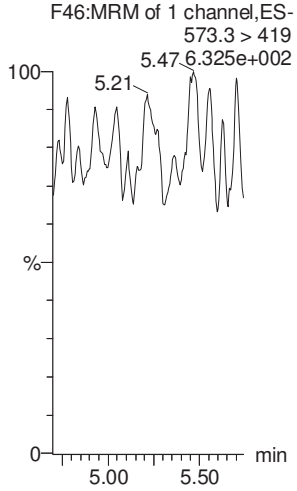
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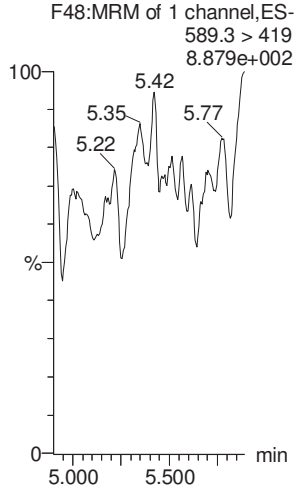
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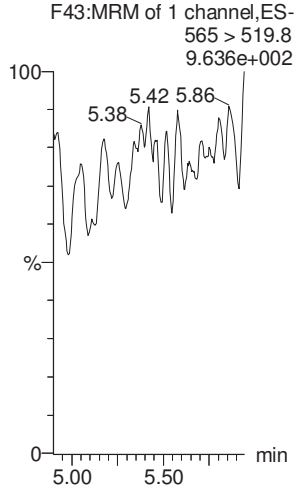
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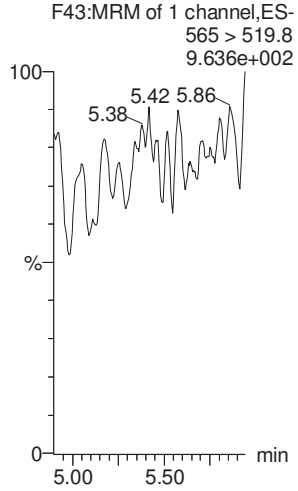
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13C2-PFUdA



13C2-PFUdA



AC 12/14/17

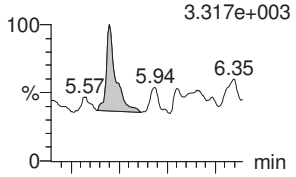
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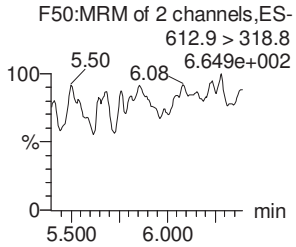
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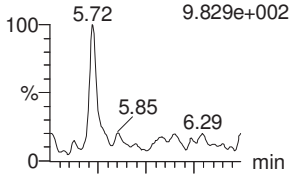
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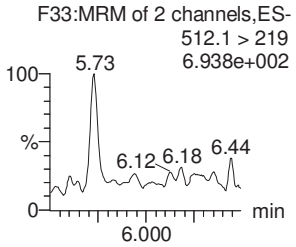
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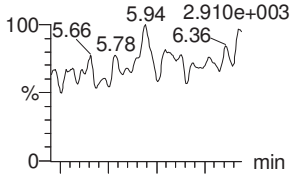


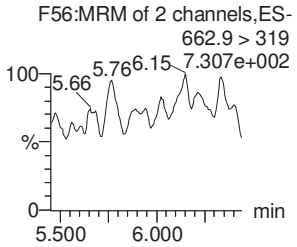
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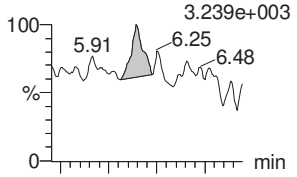


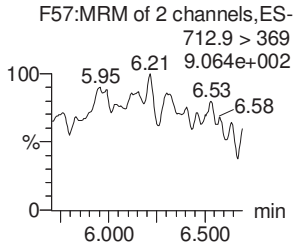
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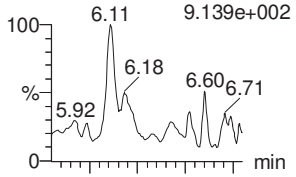


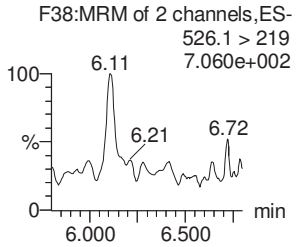
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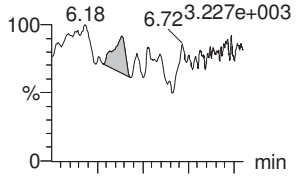


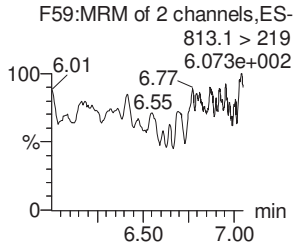
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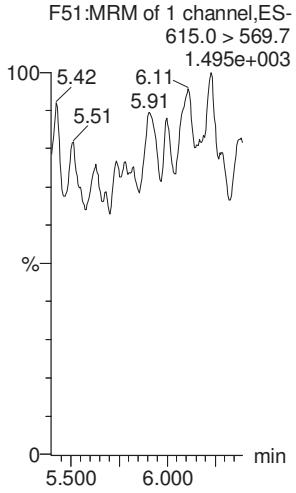


PFHxDA

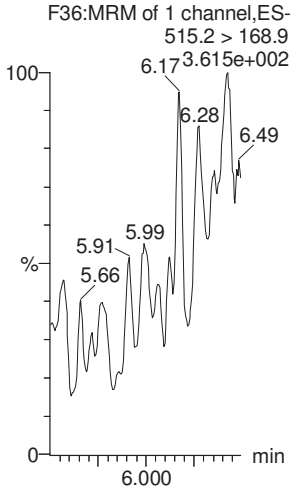




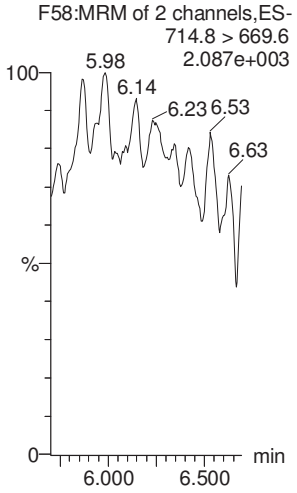
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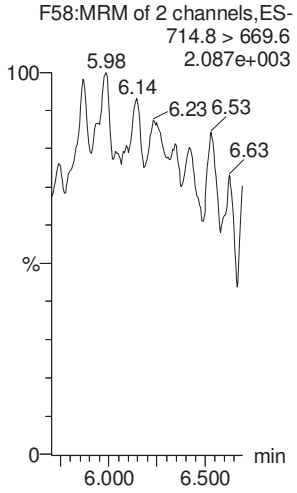
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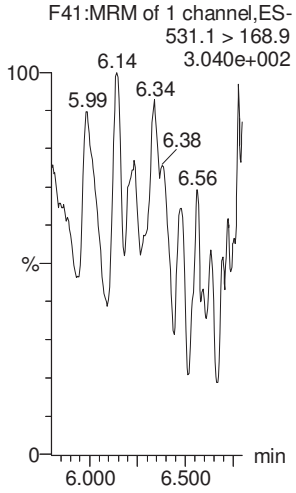
13C2-PFTeDA



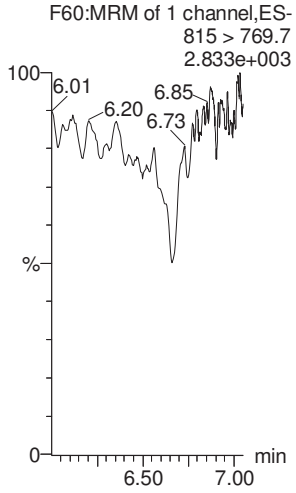
13C2-PFTeDA



d5-N-ETFOSA



13C2-PFHxDA



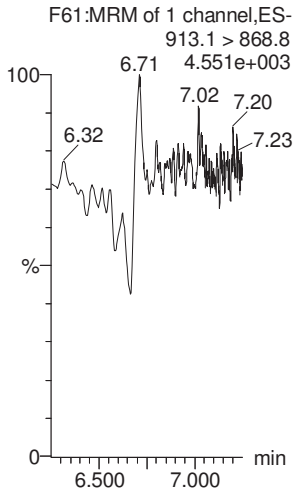
AC 12/14/17

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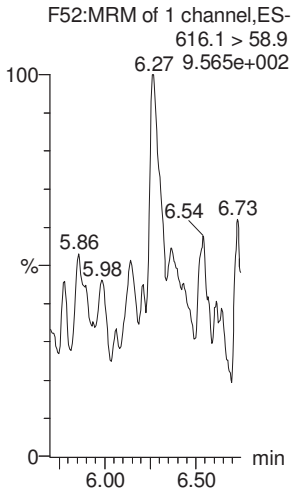
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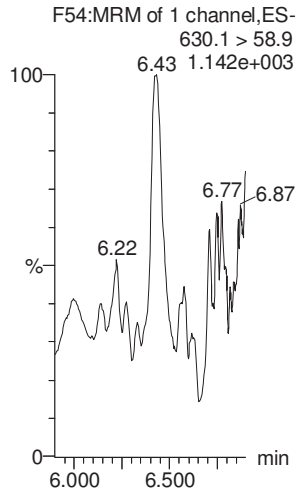
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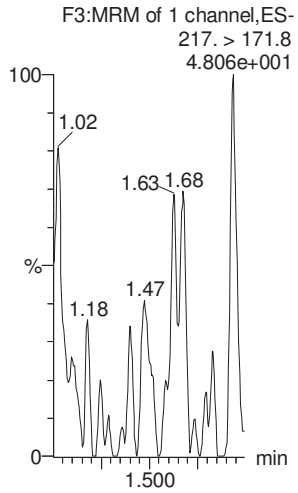
N-MeFOSE



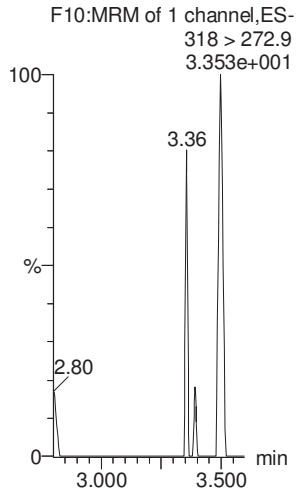
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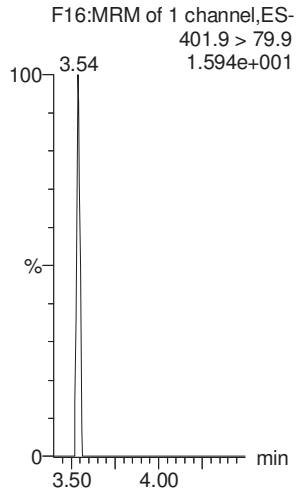
13C4-PFBA



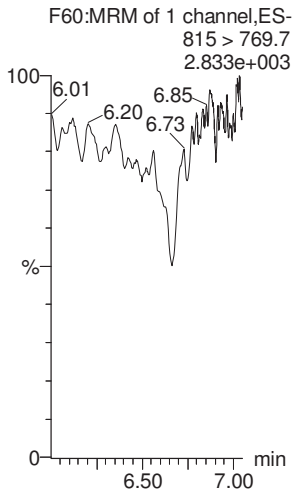
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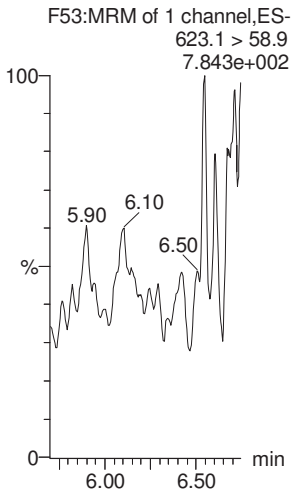
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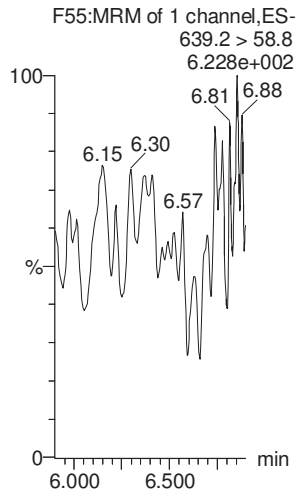
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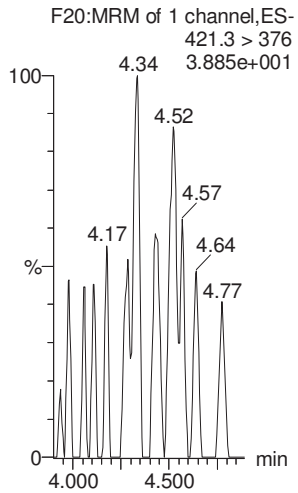
d7-N-MeFOSE



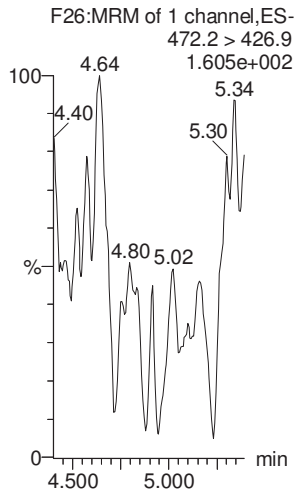
d9-N-EtFOSE



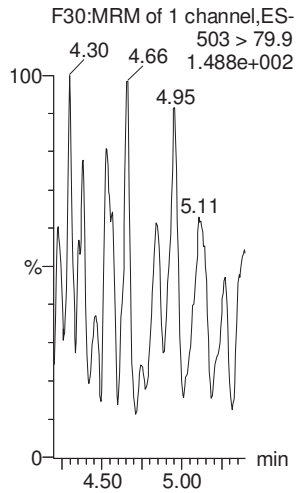
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13C9-PFNA



13C4-PFOS



AC 12/14/17

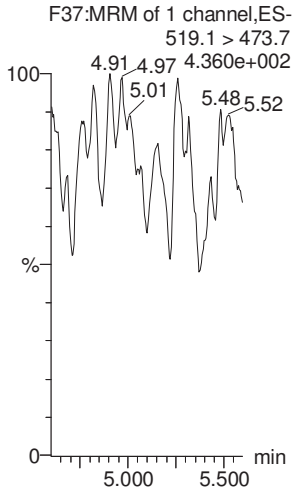
Vista Analytical Laboratory

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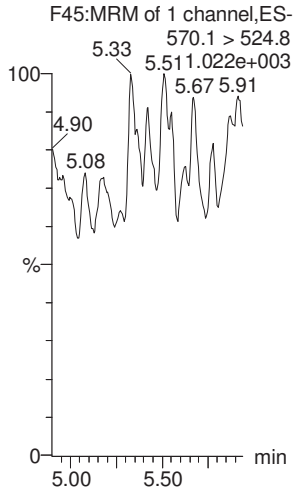
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13C6-PFDA



13C7-PFUdA



AC 12/14/17

Analytical Standard Record

Vista Analytical Laboratory

17J1820

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
16G1221	br-PFOSK anion	12-Jul-16	** Vendor **	14-Oct-20	19-Oct-17 08:16 by INJ	0.431
17G1209	FOSA-I	12-Jul-17	** Vendor **	30-Sep-21	13-Jul-17 09:08 by INJ	0.4
17G1312	PFTeDA	13-Jul-17	** Vendor **	30-Sep-21	17-Jul-17 16:23 by INJ	0.4
17G1313	PFTrDA	13-Jul-17	** Vendor **	02-May-22	17-Jul-17 16:22 by INJ	0.4
17G1323	br-PFHxSK	13-Jul-17	** Vendor **	04-Jan-22	17-Jul-17 16:16 by INJ	0.44
17G1325	L-PFDS	13-Jul-17	** Vendor **	17-Feb-22	17-Jul-17 16:11 by INJ	0.415
17G1326	L-PFHpS	13-Jul-17	** Vendor **	18-Oct-21	17-Jul-17 16:08 by INJ	0.42
17G1805	PFDA	18-Jul-17	** Vendor **	31-May-21	18-Jul-17 12:37 by INJ	0.4
17G1806	PFHxA	18-Jul-17	** Vendor **	02-Dec-21	18-Jul-17 12:37 by INJ	0.4
17G1807	MeFOSAA	18-Jul-17	** Vendor **	11-Jan-22	18-Jul-17 12:37 by INJ	0.4
17G1808	EtFOSAA	18-Jul-17	** Vendor **	11-Jan-22	18-Jul-17 12:37 by INJ	0.4
17G1809	PFBA	18-Jul-17	** Vendor **	29-May-22	18-Jul-17 12:37 by INJ	0.4
17G1810	PFODA	18-Jul-17	** Vendor **	29-Apr-21	18-Jul-17 12:37 by INJ	0.4
17G1811	L-PFBS	18-Jul-17	** Vendor **	02-Dec-21	18-Jul-17 12:37 by INJ	0.454
17G1812	8:2FTS	18-Jul-17	** Vendor **	12-Dec-21	18-Jul-17 12:37 by INJ	0.418
17G1813	6:2FTS	18-Jul-17	** Vendor **	20-Apr-22	18-Jul-17 12:36 by INJ	0.422
17H0820	PFDoA	08-Aug-17	** Vendor **	31-May-21	08-Aug-17 11:02 by INJ	0.4
17H0821	PFNA	08-Aug-17	** Vendor **	30-Sep-21	08-Aug-17 11:03 by INJ	0.4
17H0822	PFPeA	08-Aug-17	** Vendor **	14-Jun-22	08-Aug-17 11:05 by INJ	0.4
17H0823	PFOA	08-Aug-17	** Vendor **	17-Feb-22	08-Aug-17 11:06 by INJ	0.4
17H0824	PFUdA	08-Aug-17	** Vendor **	18-Oct-21	08-Aug-17 11:08 by INJ	0.4
17H0825	PFHxDA	08-Aug-17	** Vendor **	25-May-21	08-Aug-17 11:09 by INJ	0.4
17H0826	PFHpA	08-Aug-17	** Vendor **	02-Dec-21	08-Aug-17 11:12 by INJ	0.4
17H0827	N-EtFOSA-M	08-Aug-17	** Vendor **	05-Jul-22	08-Aug-17 11:13 by INJ	2
17H0828	N-MeFOSA-M	08-Aug-17	** Vendor **	05-Jul-22	08-Aug-17 11:15 by INJ	2
17H0829	N-EtFOSE-M	08-Aug-17	** Vendor **	24-Apr-22	08-Aug-17 11:16 by INJ	2
17H0830	N-MeFOSE-M	08-Aug-17	** Vendor **	24-Apr-22	08-Aug-17 11:17 by INJ	2

Description:	PFC NS Stock	Expires:	18-Oct-19
Standard Type:	Analyte Spike	Prepared:	18-Oct-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	19-Oct-17 08:19 by INJ

PFOS and PFHxS linear and branched components

Analyte	CAS Number	Concentration	Units
L-PFDS		1	ug/mL
6:2 FTS	27619-97-2	1	ug/mL
L-PFTeDA		1	ug/mL
L-PFPeA		1	ug/mL
L-PFOSA		1	ug/mL
L-PFOS		0.789	ug/mL
L-PFODA		1	ug/mL
L-PFOA		1	ug/mL
L-PFNA		1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

17J1820

Description:	PFC NS Stock	Expires:	18-Oct-19
Standard Type:	Analyte Spike	Prepared:	18-Oct-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	19-Oct-17 08:19 by INJ

PFOS and PFHxS linear and branched components

Analyte	CAS Number	Concentration	Units
L-PFHxS		0.812	ug/mL
L-PFHxDA		1	ug/mL
L-PFHxA		1	ug/mL
L-PFUnA		1	ug/mL
L-PFHpA		1	ug/mL
MeFOSA	31506-32-8	5	ug/mL
L-PFDoA		1	ug/mL
L-PFDA		1	ug/mL
L-PFBS		1	ug/mL
L-PFBA		1	ug/mL
L-8:2FTS		1	ug/mL
L-6:2 FTS		1	ug/mL
EtFOSE	1691-99-2	5	ug/mL
EtFOSAA	2991-50-6	1	ug/mL
EtFOSA	4151-50-2	5	ug/mL
Br-PFHxS	3871-99-6	0.189	ug/mL
8:2 FTS	39108-34-4	1	ug/mL
L-PFHpS		1	ug/mL
PFHxS	355-46-4	1	ug/mL
Total PFHxS		1	ug/mL
Total PFHpS		1	ug/mL
Total PFDS		1	ug/mL
Total 6:2 FTS		1	ug/mL
PFUnA	2058-94-8	1	ug/mL
PFTrDA	72629-94-8	1	ug/mL
PFTeDA	376-06-7	1	ug/mL
PFPeA	2706-90-3	1	ug/mL
PFOSA	754-91-6	1	ug/mL
PFOS	1763-23-1	1	ug/mL
PFODA	16517-11-6	1	ug/mL
L-PFTrDA		1	ug/mL
PFNA	375-95-1	1	ug/mL
Total PFUnA		1	ug/mL
PFHxDA	67905-19-5	1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

17J1820

Description:	PFC NS Stock	Expires:	18-Oct-19
Standard Type:	Analyte Spike	Prepared:	18-Oct-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	19-Oct-17 08:19 by INJ

PFOS and PFHxS linear and branched components

Analyte	CAS Number	Concentration	Units
PFHxA	307-24-4	1	ug/mL
PFHpS	375-92-8	1	ug/mL
PFHpA	375-85-9	1	ug/mL
PFDS	335-77-3	1	ug/mL
PFDoA	307-55-1	1	ug/mL
PFDA	335-76-2	1	ug/mL
PFBS	375-73-5	1	ug/mL
PFBA	375-22-4	1	ug/mL
MeFOSE	24448-09-7	5	ug/mL
MeFOSAA	2355-31-9	1	ug/mL
PFOA	335-67-1	1	ug/mL

1681221

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK1015
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)	10/13/2015
LAST TESTED: (mm/dd/yyyy)	10/14/2015
EXPIRY DATE: (mm/dd/yyyy)	10/14/2020
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

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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.

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.

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.

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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:

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.

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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

ANAB ACCREDITED

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

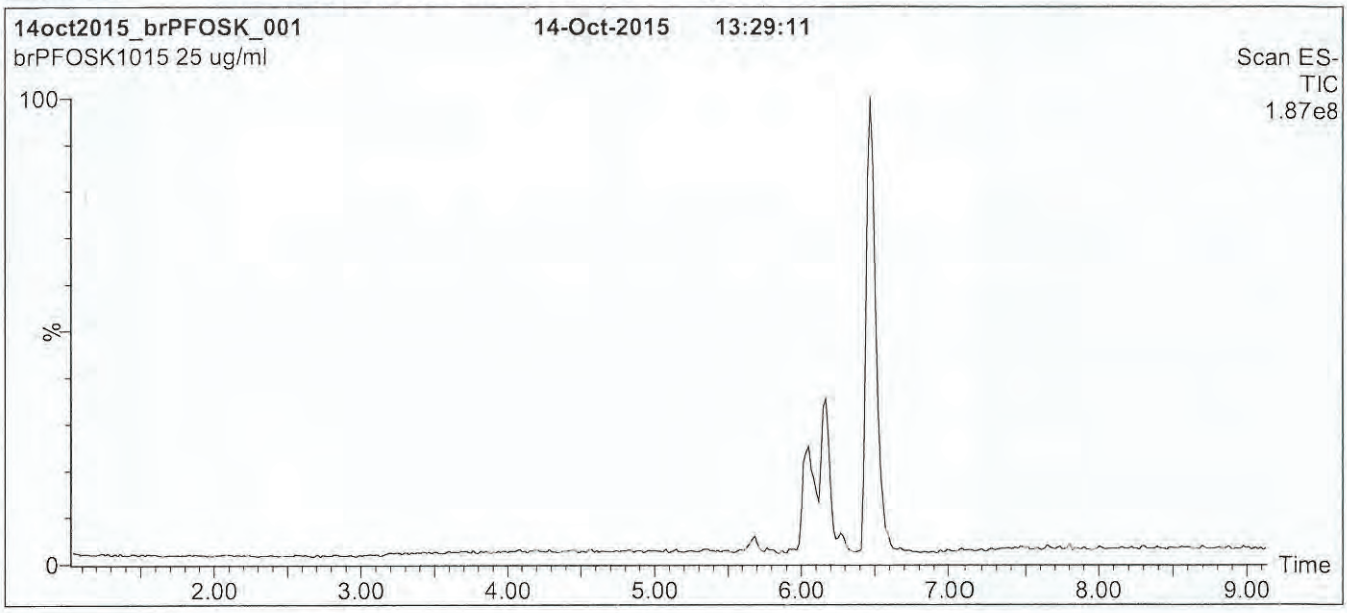
Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

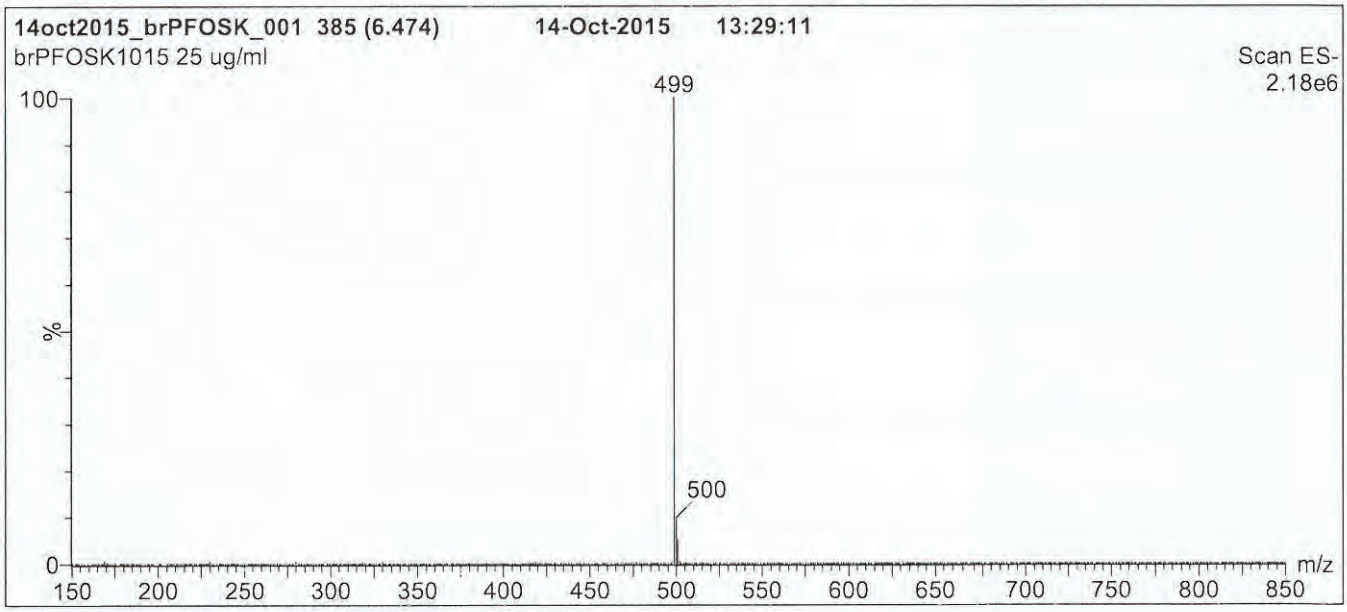
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	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	$CF_3-C(CF_3)(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2-C(CF_3)(CF_3)-CF_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF(CF_3)-CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF_2-CF(CF_3)-CF_2CF_2SO_3^-K^+$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 10/15/2015
B.G. Chittim (mm/dd/yyyy)

Figure 1: br-PFOSK; 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: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 12 min and hold for 2 min.
Return to initial conditions over 0.5 min.
Time: 16 min

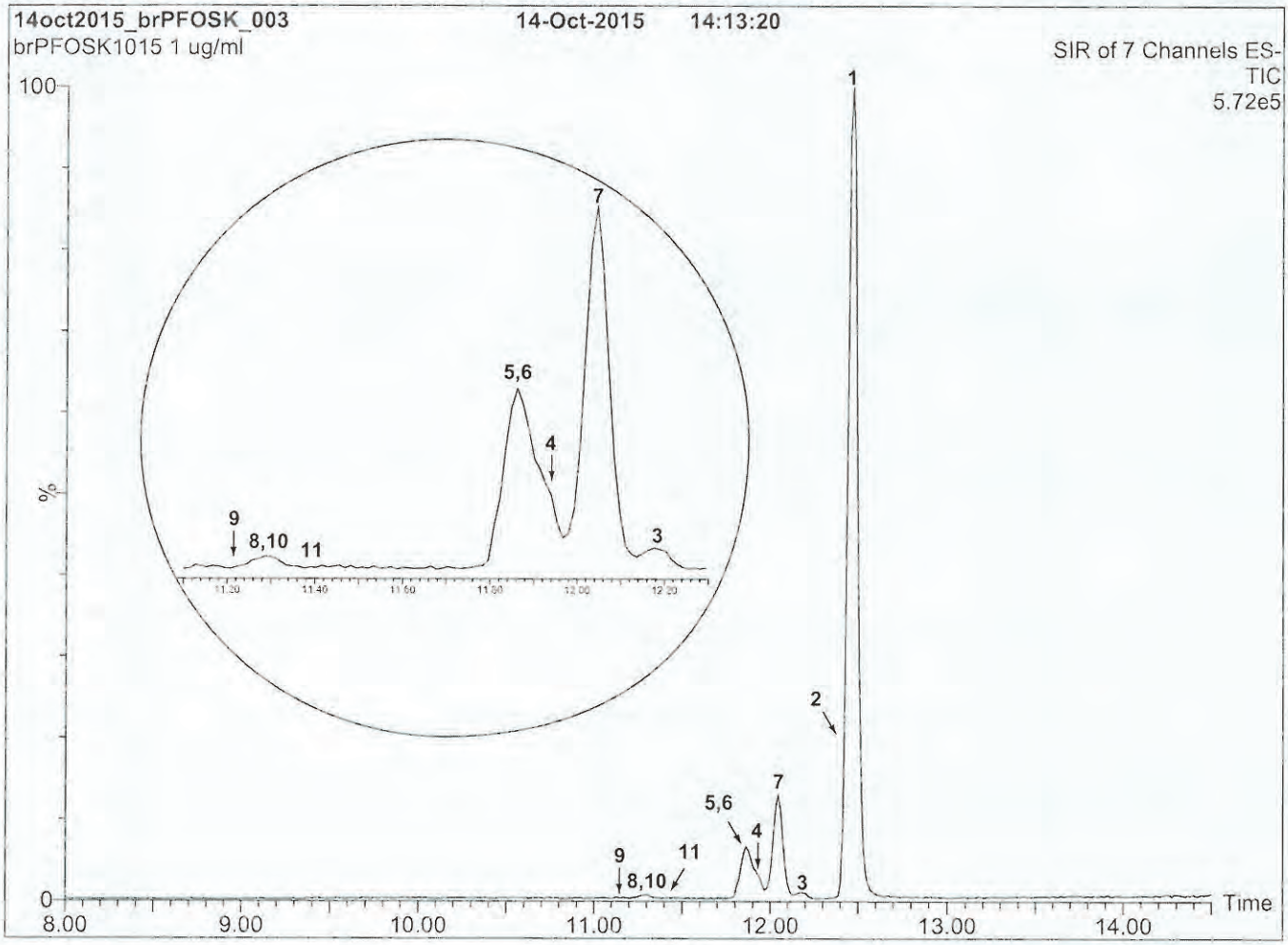
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-PFOSK; LC/MS Data (SIR)**



Conditions for Figure 2:

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)

Injection: 1.0 µg/ml of br-PFOSK

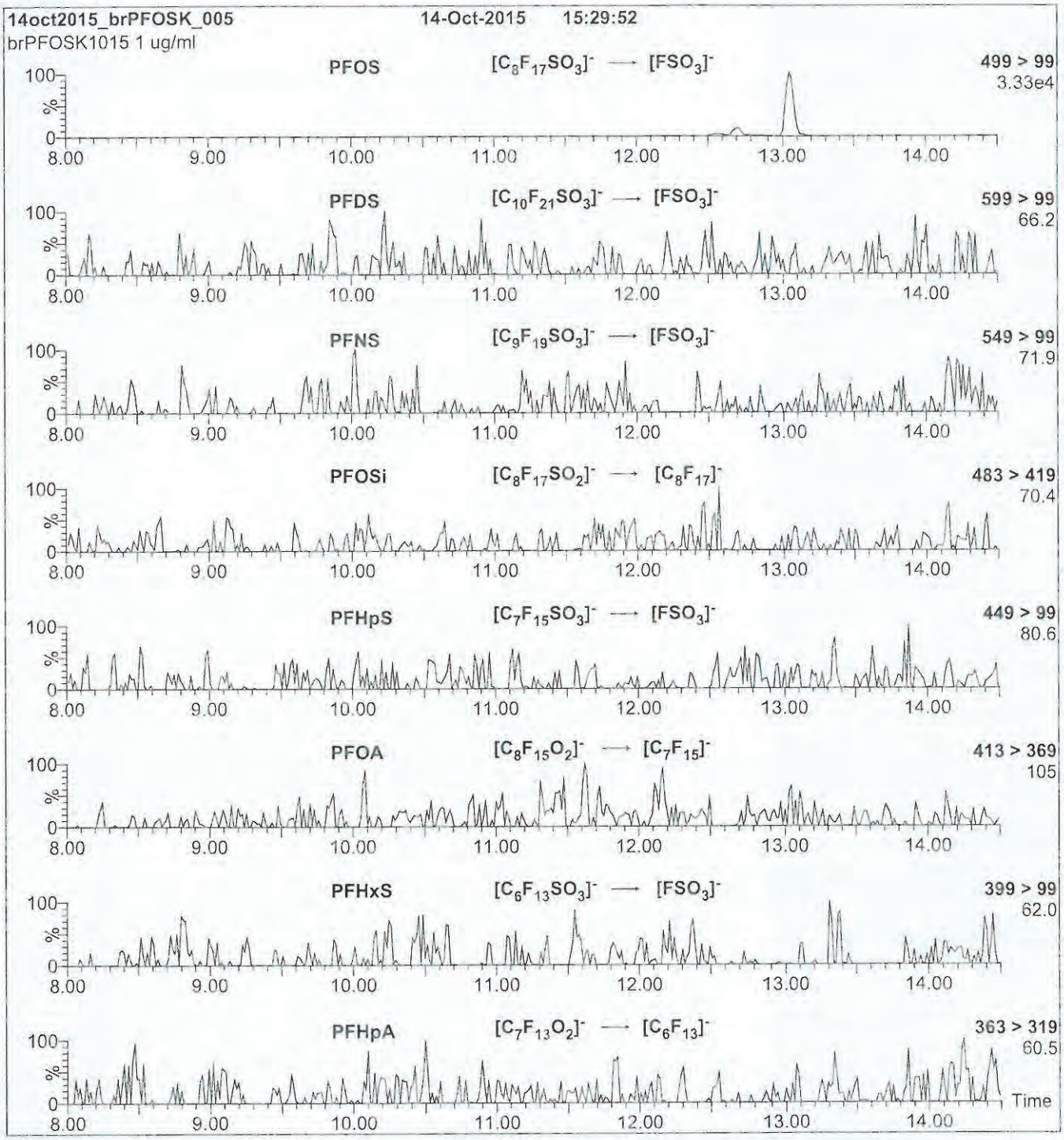
Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min

Flow: 300 µl/min

MS Conditions:

SIR (ES^-)
Source = 110 °C
Desolvation = 325 °C
Cone Voltage = 60V

Figure 3: **br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.06e-3
Collision Energy (eV) = 11-50 (variable)

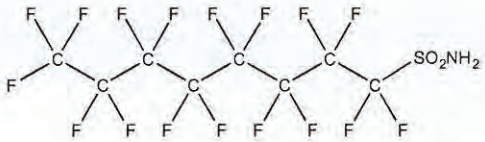
17G1209

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide
LOT NUMBER: FOSA0916I

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)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1209

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:

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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.

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.

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TRACEABILITY:

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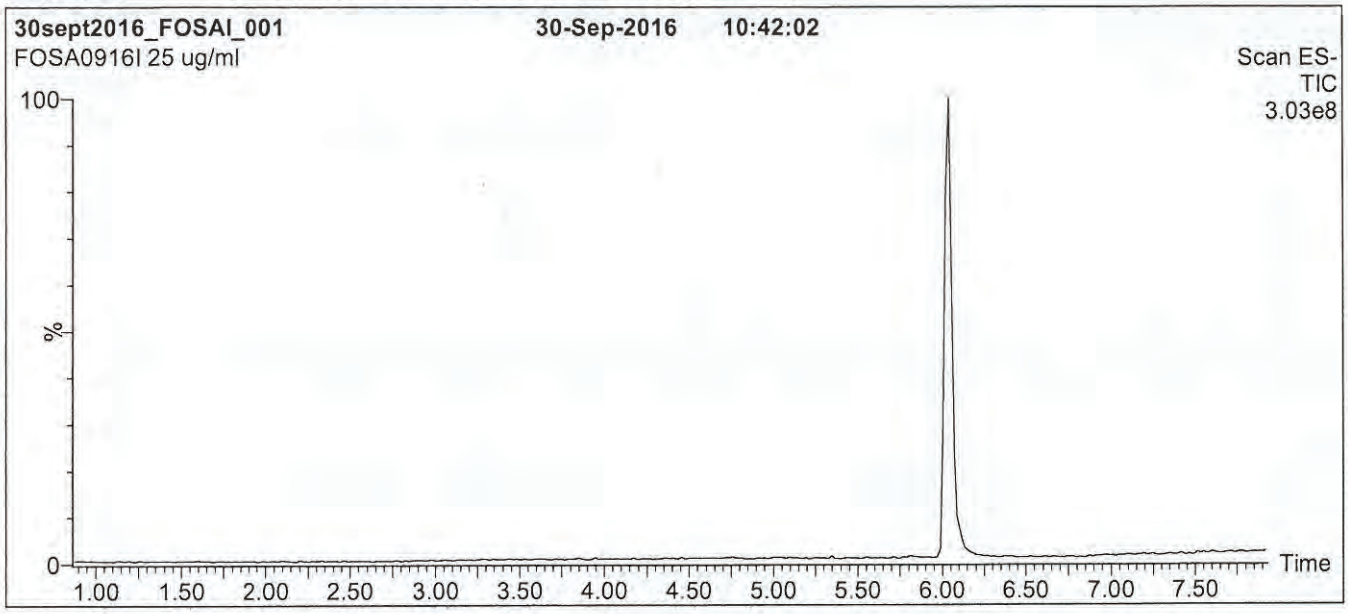
CALA

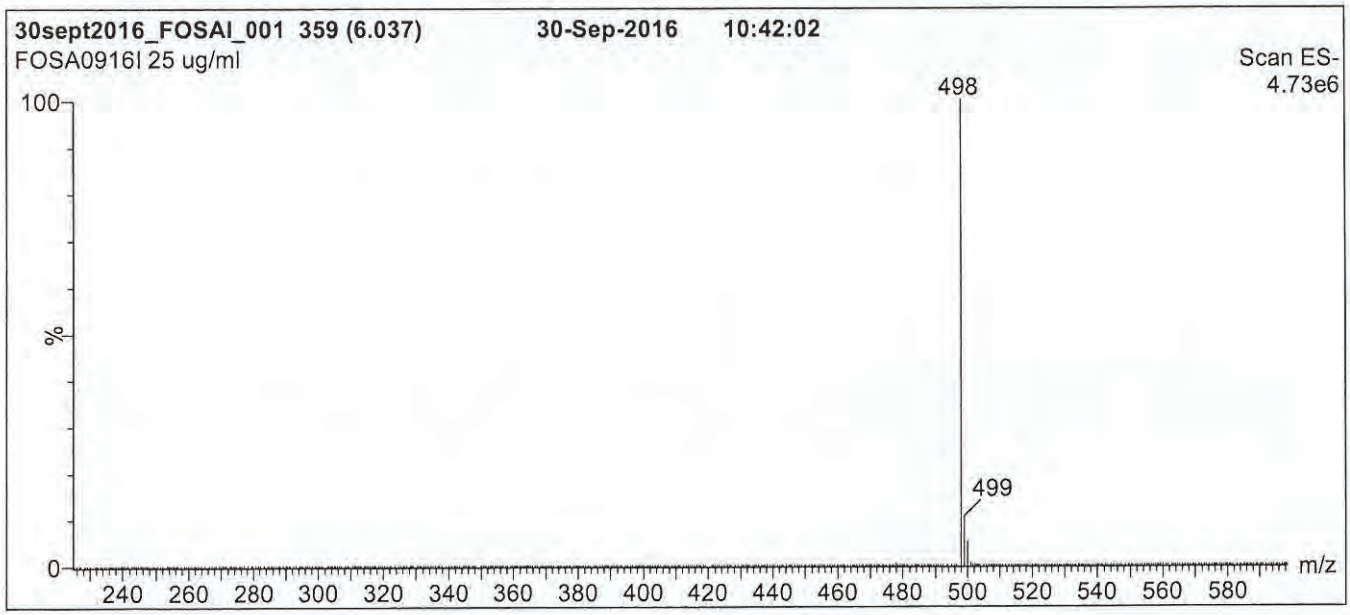
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1761209

Figure 1: **FOSA-I; 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: 50% (80:20 MeOH:ACN) / 50% 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

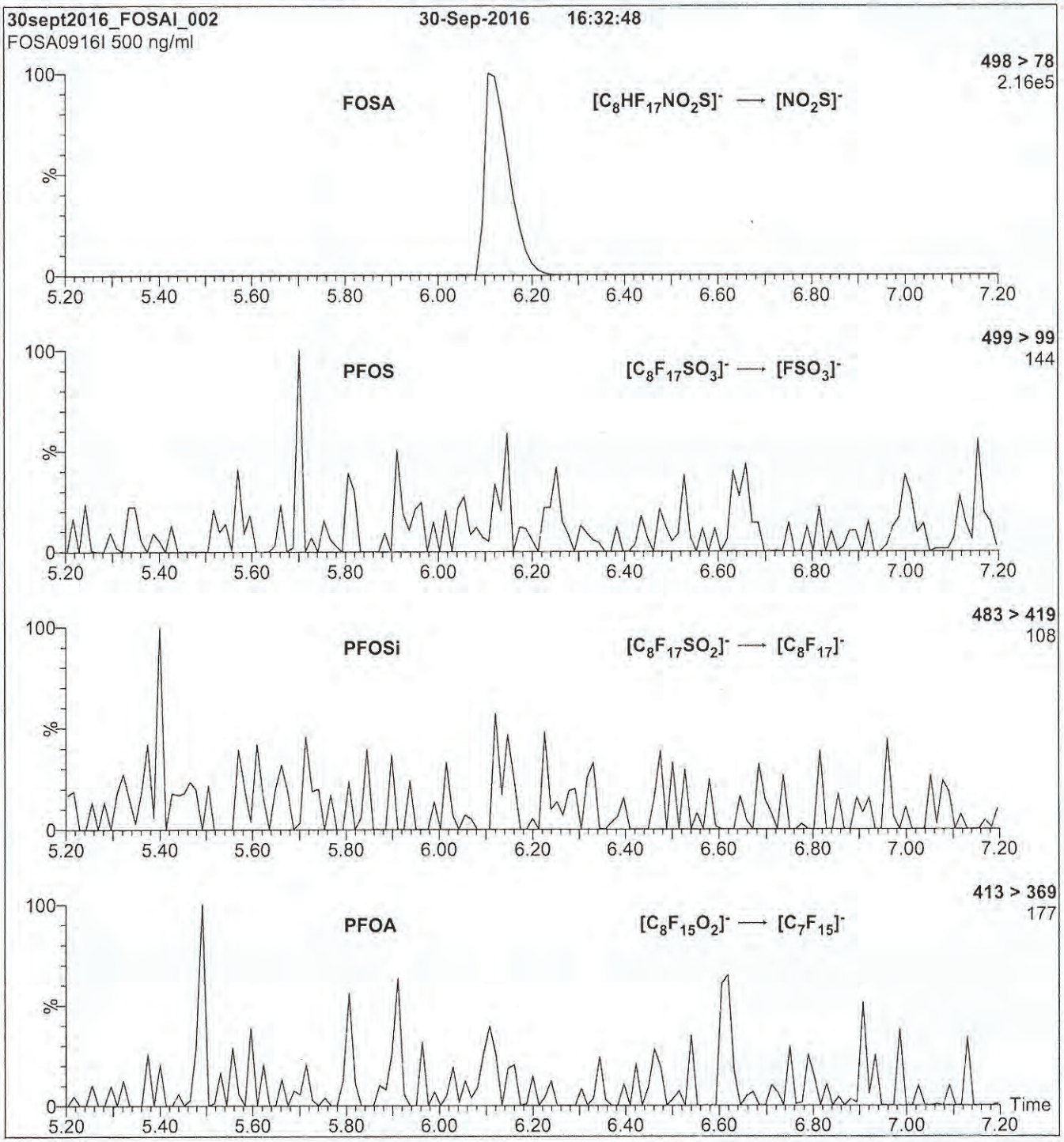
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1209

Figure 2: **FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml FOSA-I)

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) = 3.20e-3
Collision Energy (eV) = 30

17G1312

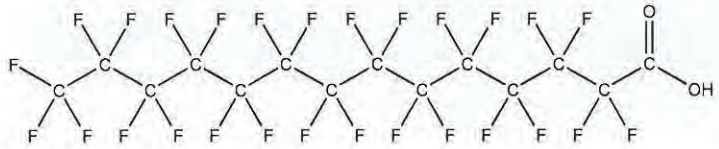
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA ✓ **LOT NUMBER:** PFTeDA0916 ✓

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) 09/30/2016

EXPIRY DATE: (mm/dd/yyyy) 09/30/2021

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 PFDoA ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/05/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1312

INTENDED USE:

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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:

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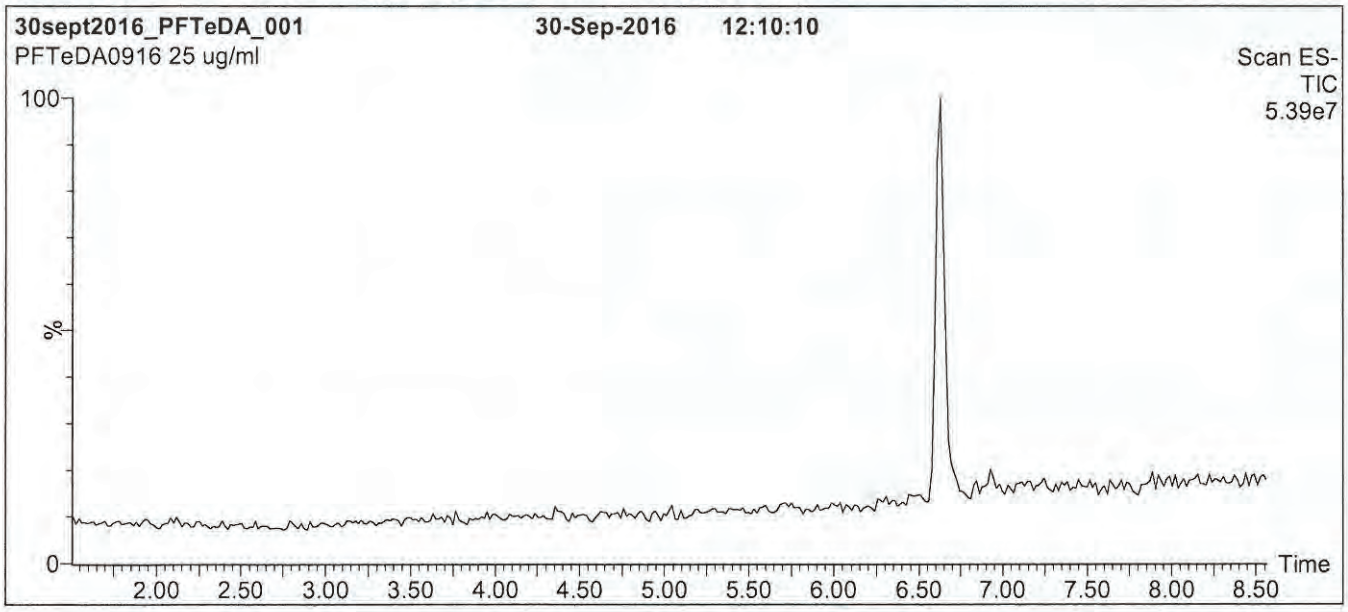
CALA

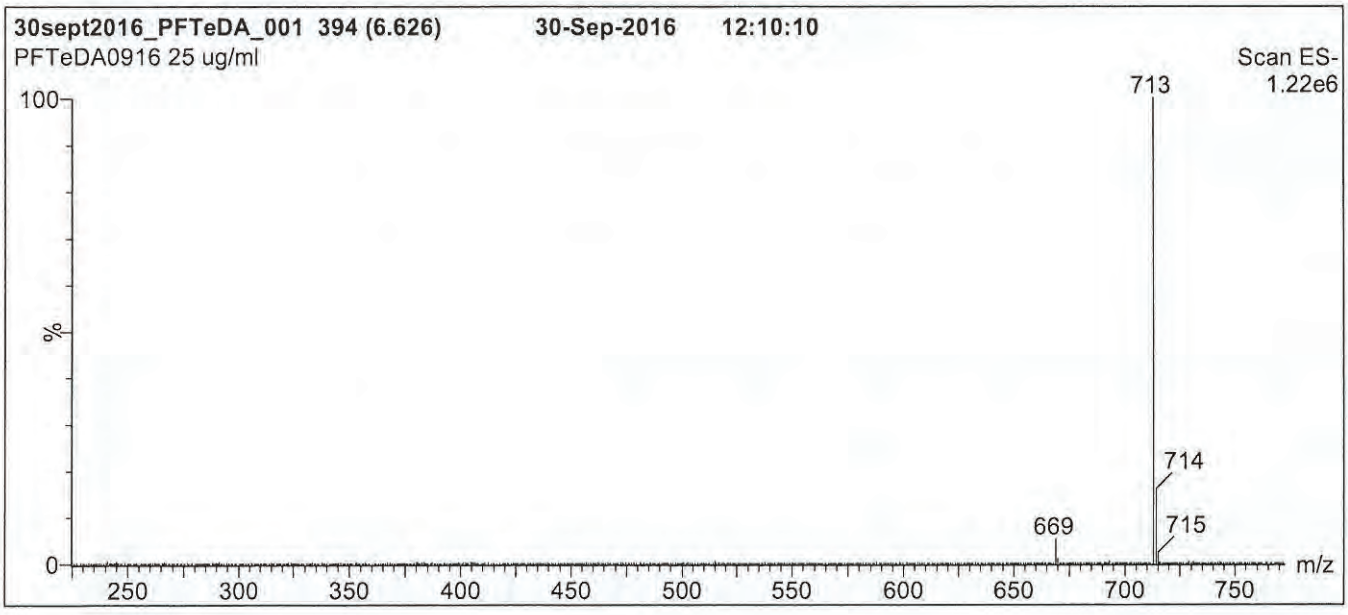
ANAB ACCREDITED

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17G1312

Figure 1: **PFTeDA; 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: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

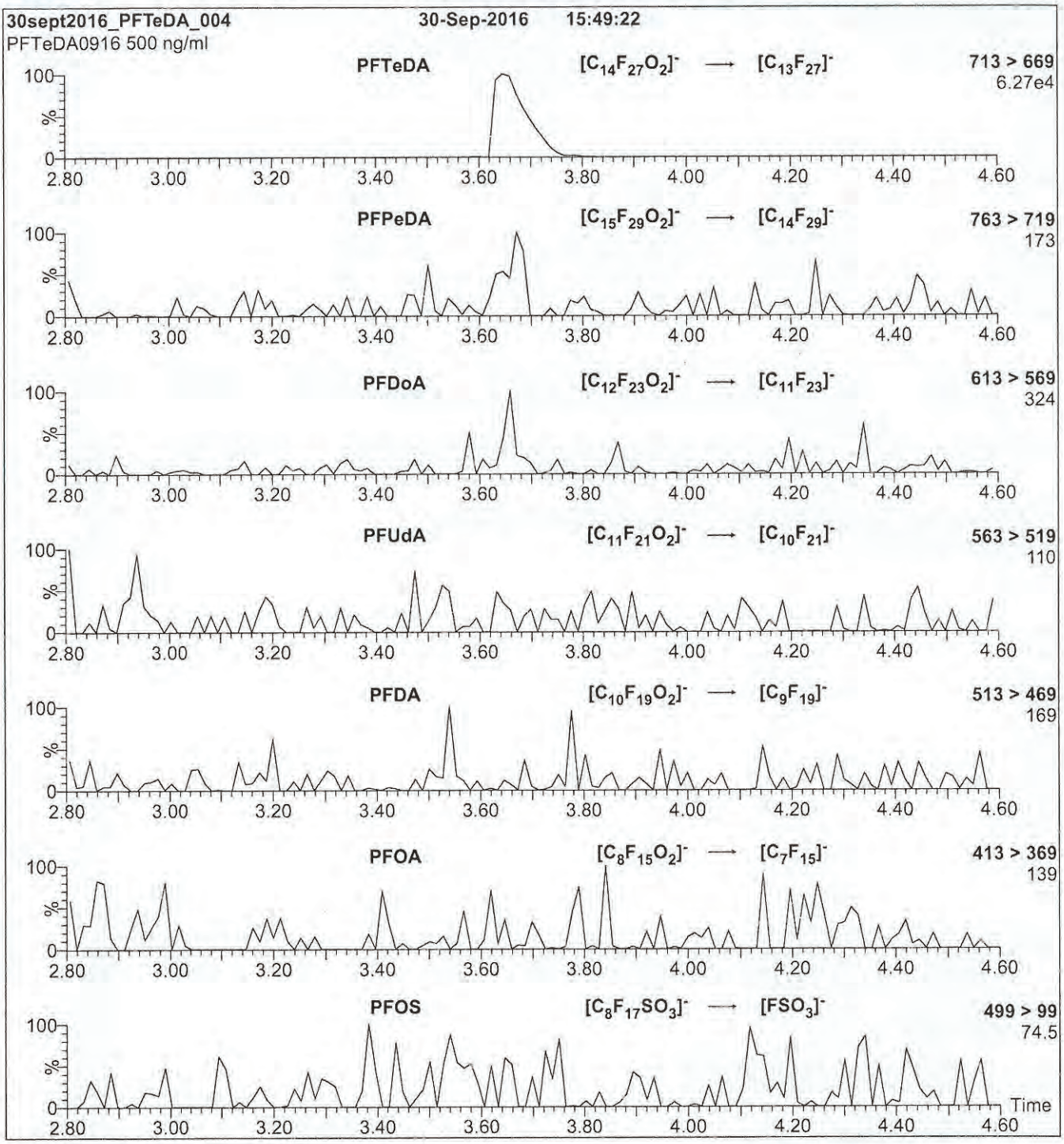
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17G1312

Figure 2: **PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTeDA)

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) = 3.20e-3
Collision Energy (eV) = 14

17G1313

WELLINGTON LABORATORIES

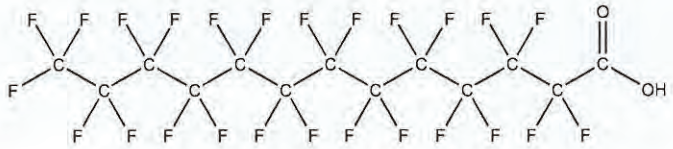
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid

LOT NUMBER: PFTrDA0517

STRUCTURE:

CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 664.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/02/2017
EXPIRY DATE: (mm/dd/yyyy) 05/02/2022
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 ~ 0.1% 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:** 05/04/2017 (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

17G1313

INTENDED USE:

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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 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:

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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 GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

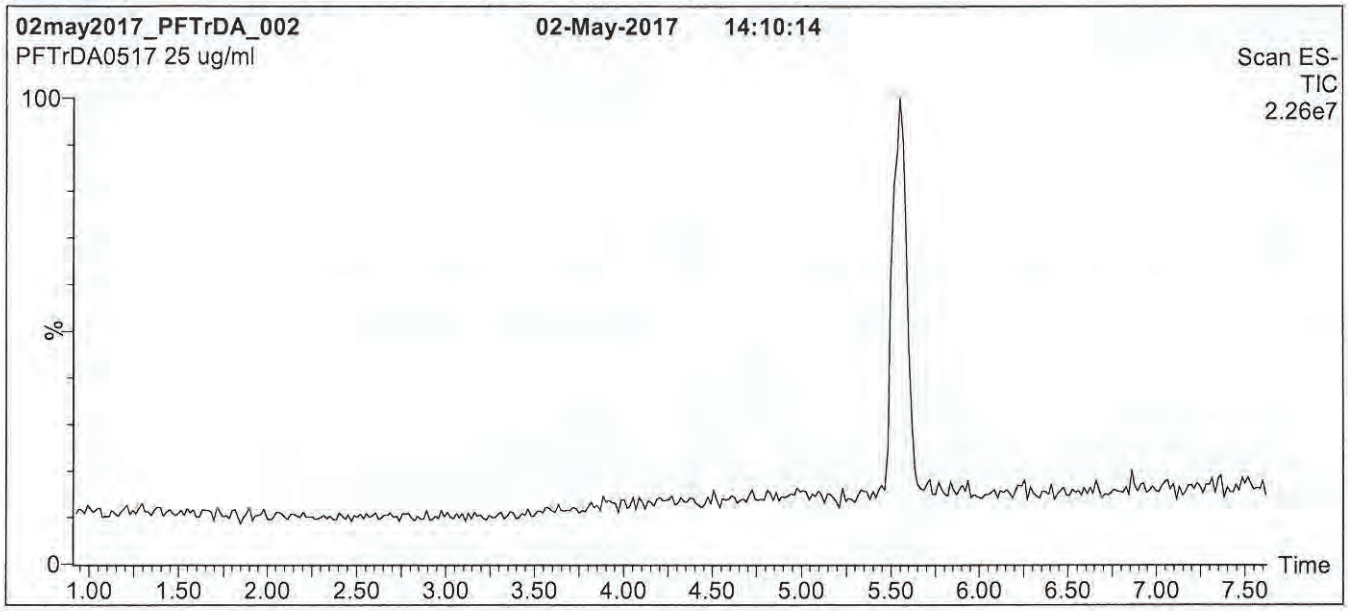
CALA

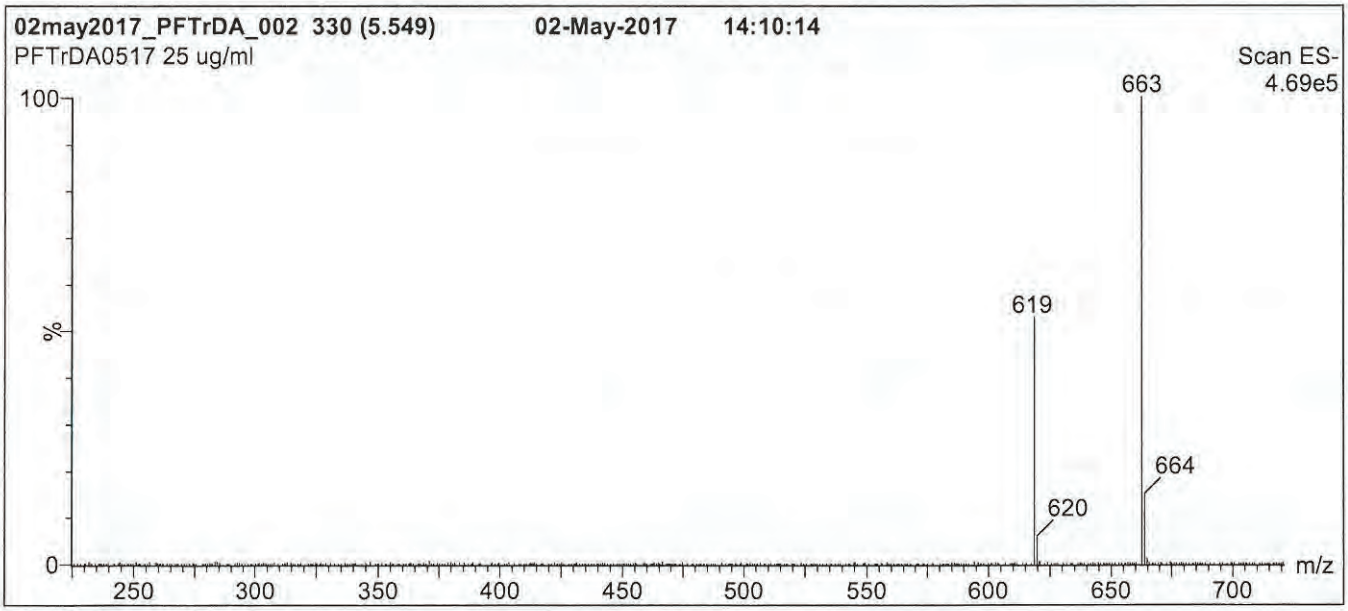
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17G1313

Figure 1: **PFTrDA; 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: 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 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

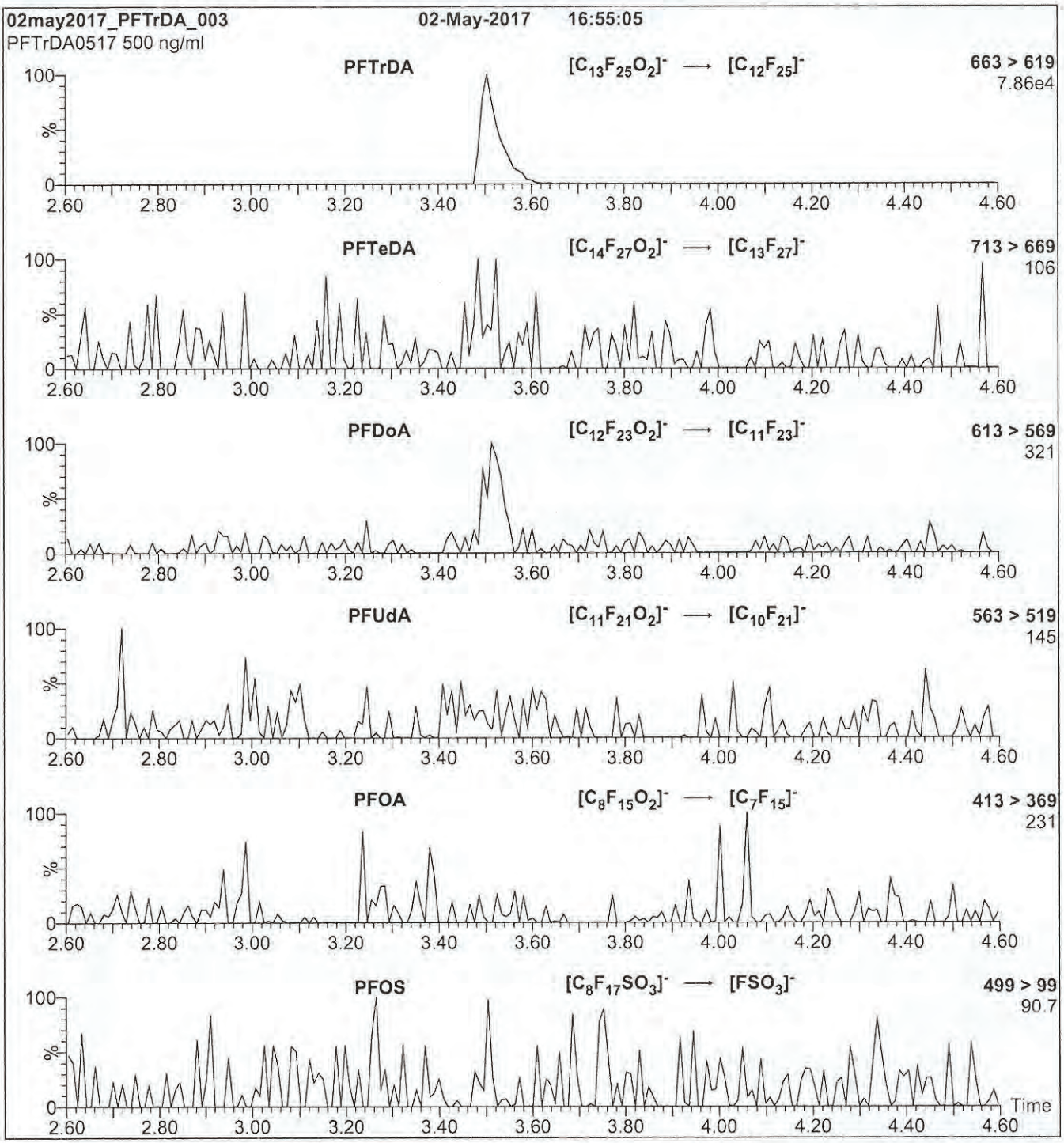
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

17G1313

Figure 2: **PFTrDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTrDA)

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) = 3.17e-3
Collision Energy (eV) = 15

17G 1323

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK0117
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)	01/03/2017
LAST TESTED: (mm/dd/yyyy)	01/04/2017
EXPIRY DATE: (mm/dd/yyyy)	01/04/2022
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 ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1323

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.

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:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED

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17G1323

Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

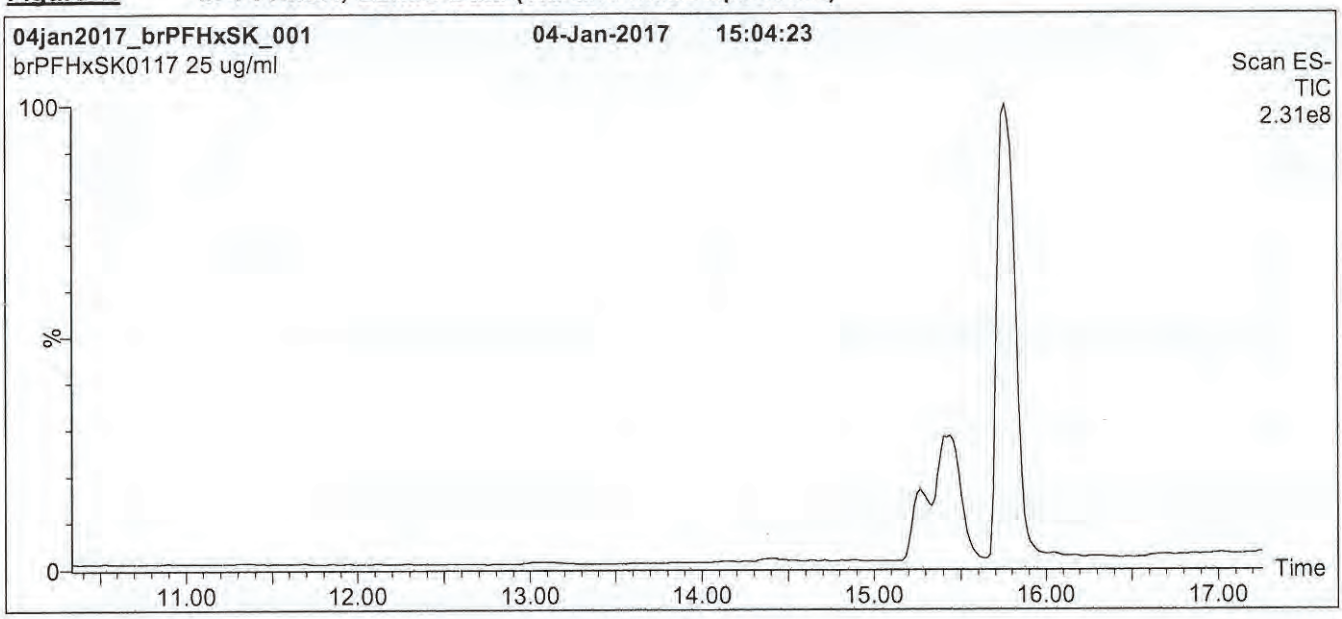
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)_2CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

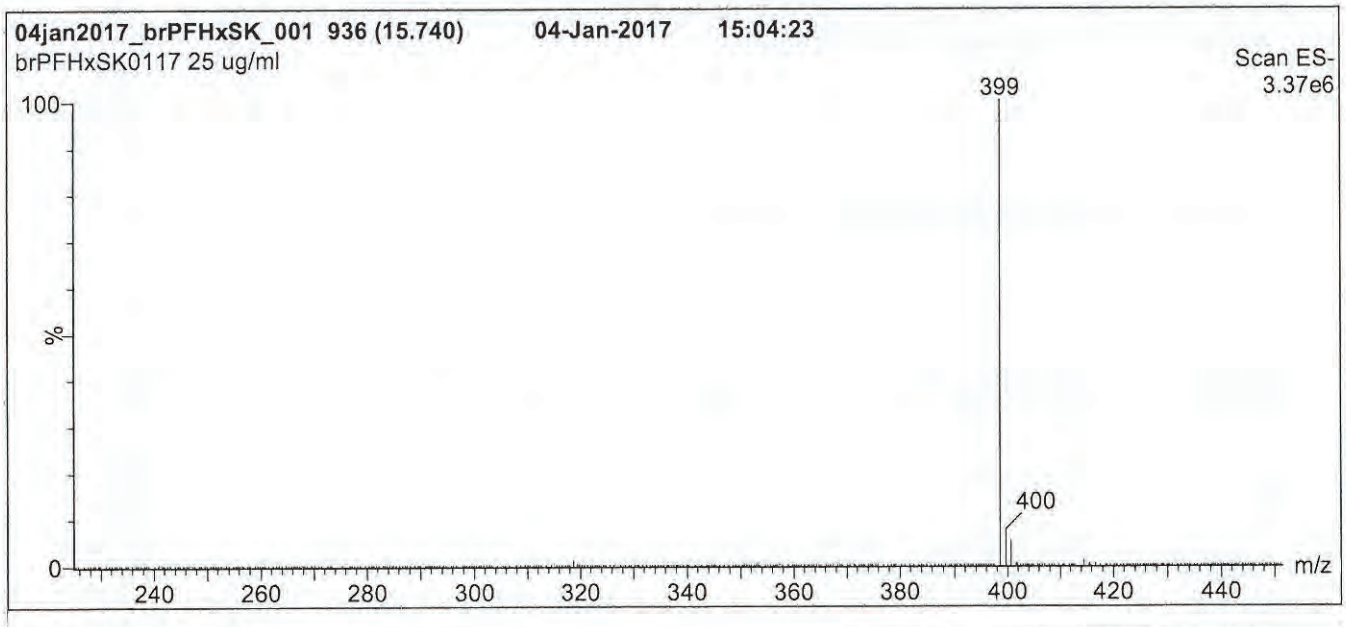
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 01/20/2017 (mm/dd/yyyy)

17G1323

Figure 1: **br-PFHxSK; 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: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

Flow: 300 µl/min

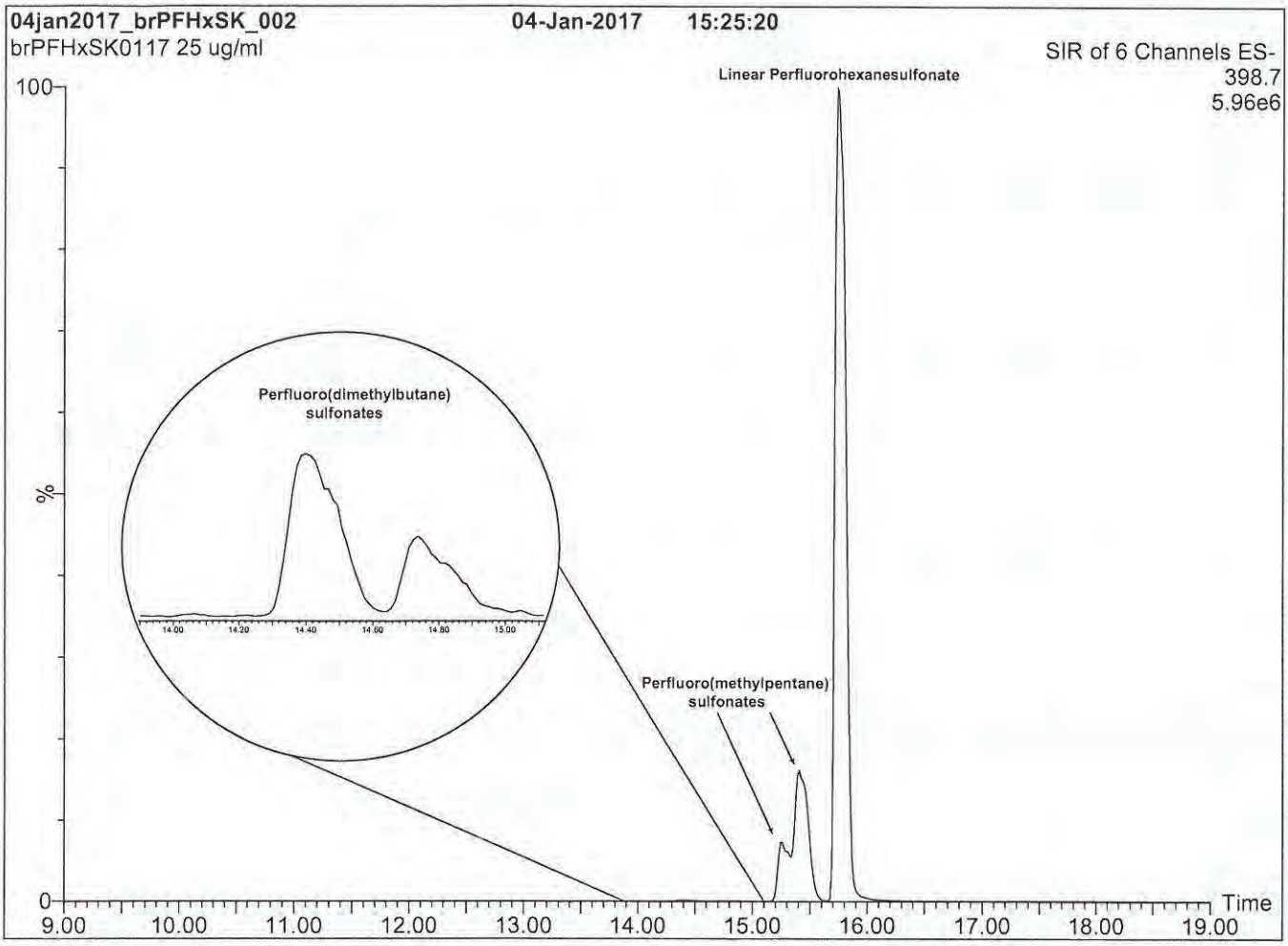
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17G1323

Figure 2: **br-PFHxSK; LC/MS Data (SIR)**



Conditions for Figure 2:

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: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

Flow: 300 µl/min

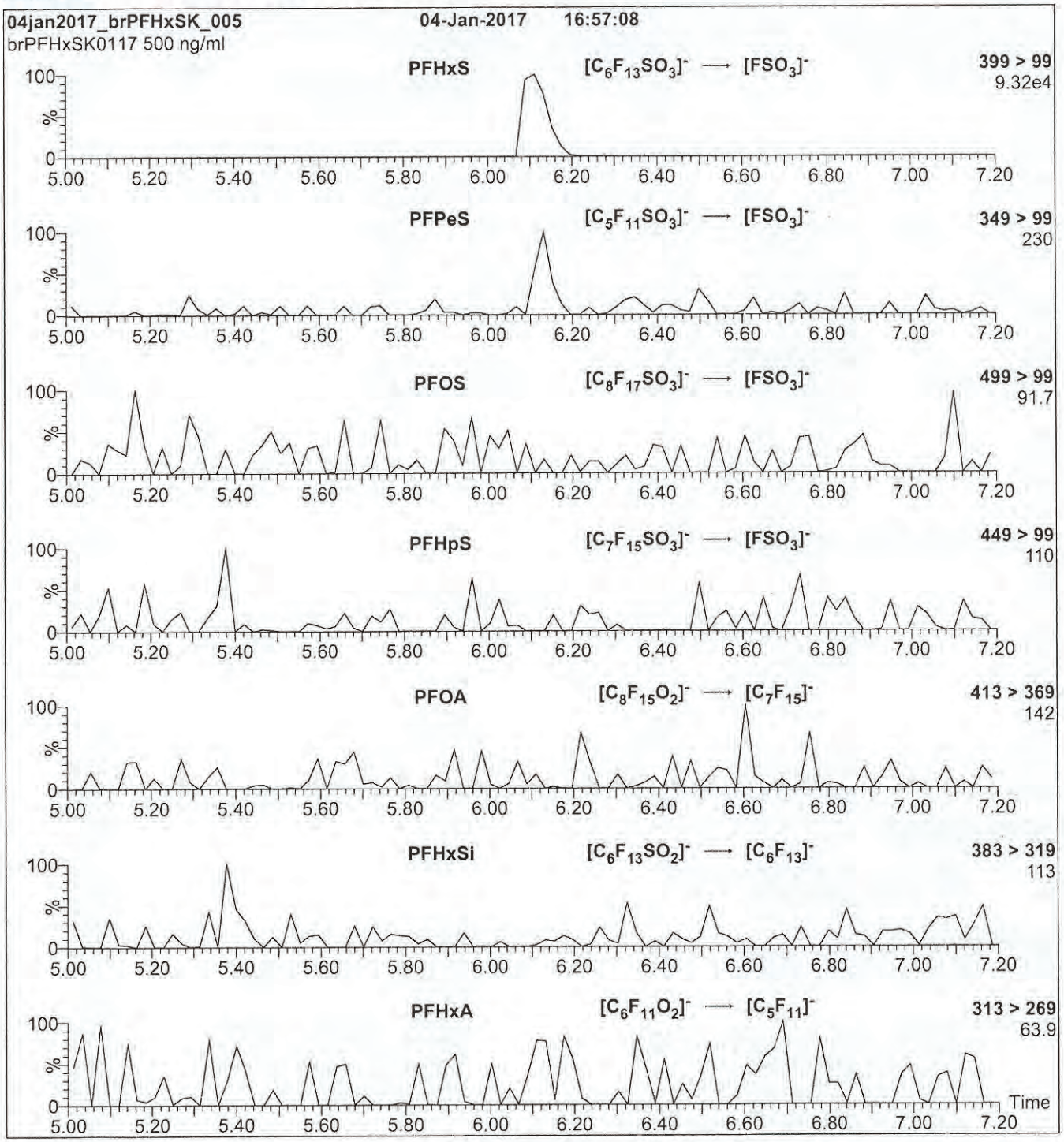
MS Parameters

Experiment: SIR (6 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (15-62)
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17G1323

Figure 3: **br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml br-PFHxSK)

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) = 3.35e-3
Collision Energy (eV) = 30

17G1325

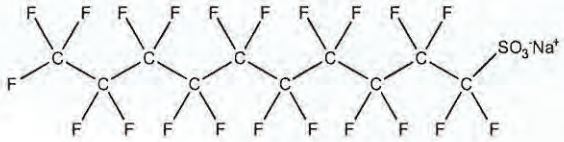
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFDS
COMPOUND: Sodium perfluoro-1-decanesulfonate
LOT NUMBER: LPFDS0217

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)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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 ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/22/2017 (mm/dd/yyyy)

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17G1325

INTENDED USE:

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HAZARDS:

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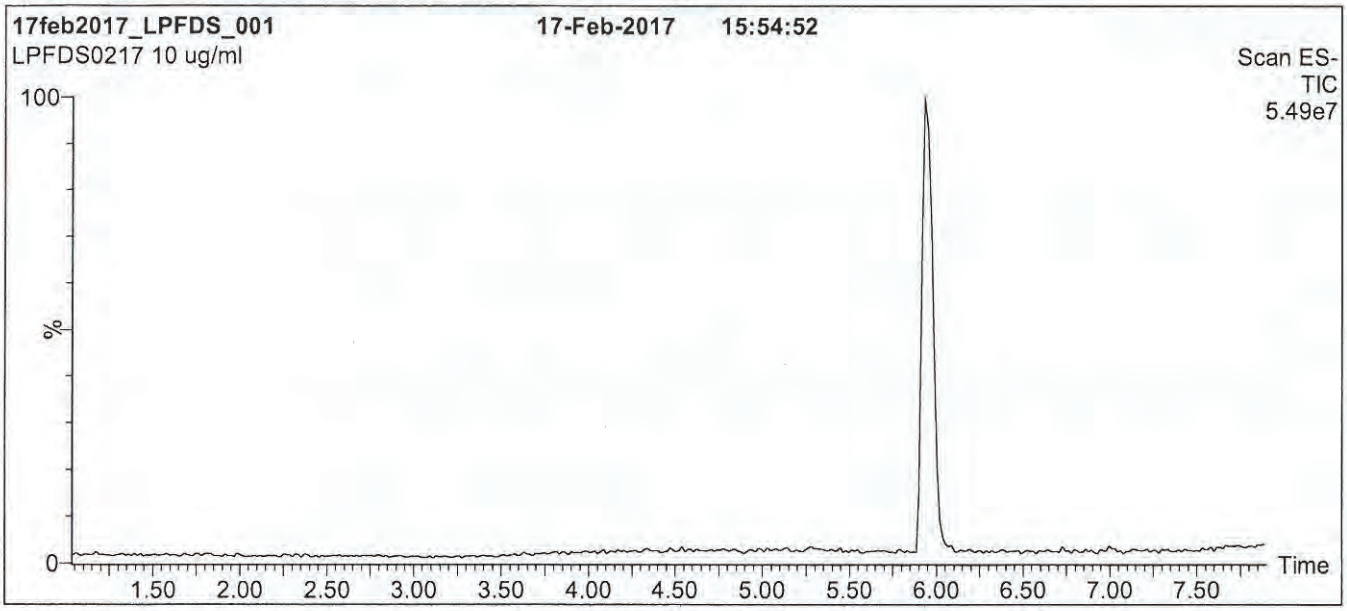
CALA Testing

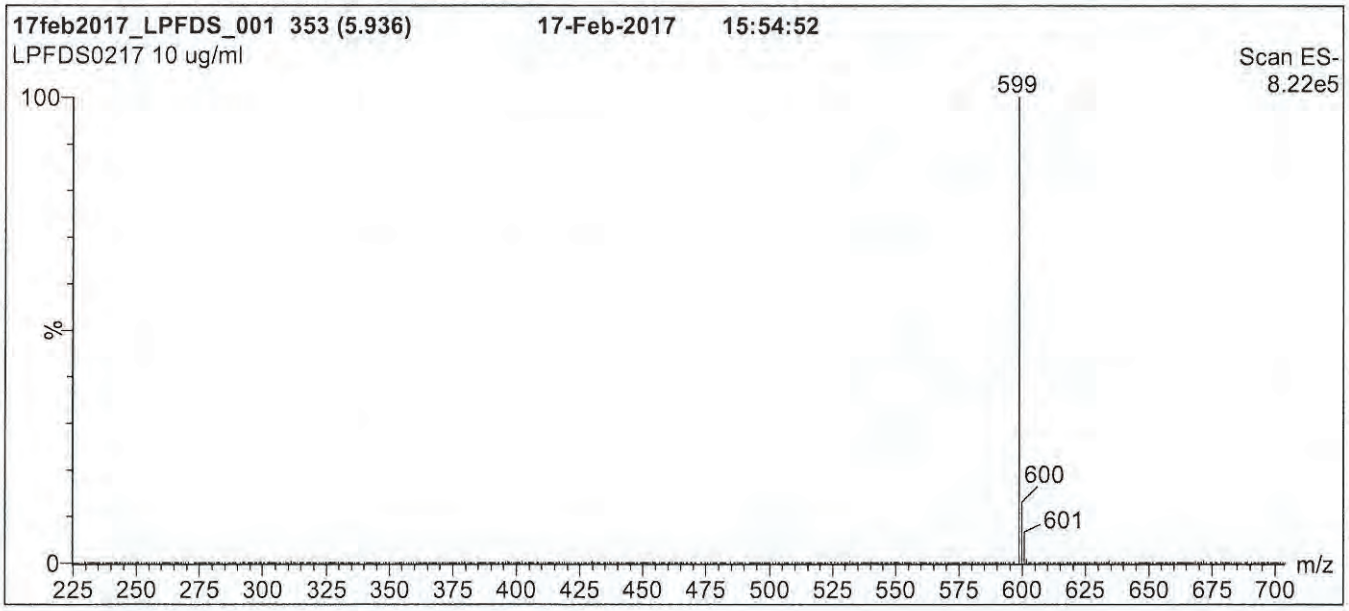
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

17G1325

Figure 1: **L-PFDS; 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: 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
1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

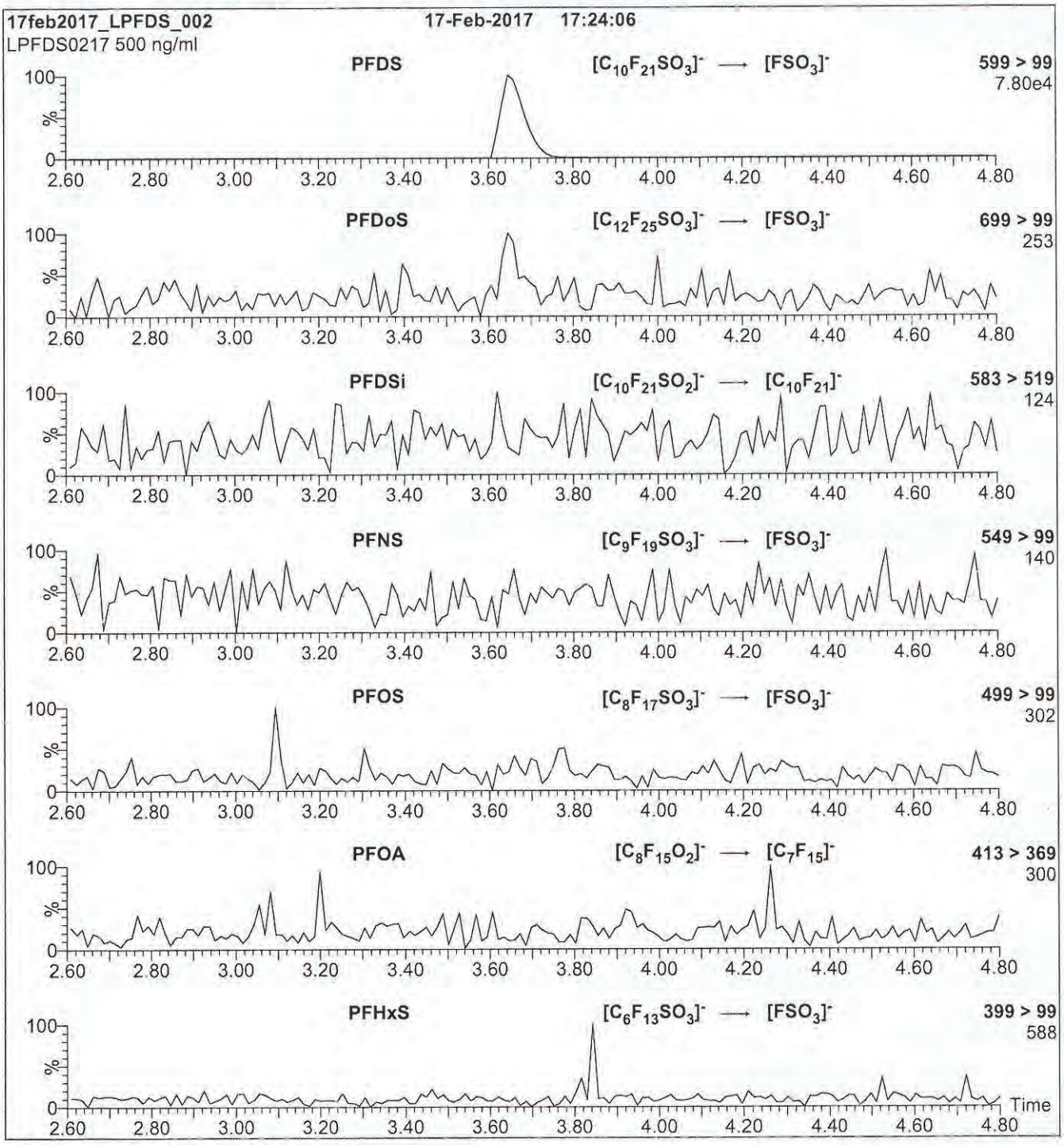
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 70.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1325

Figure 2: **L-PFDS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFDS)

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) = 3.28e-3
Collision Energy (eV) = 50

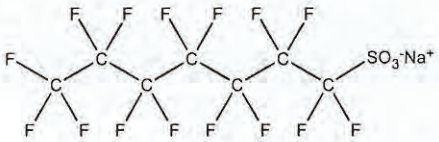
17G1326

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate
LOT NUMBER: LPFHpS1016

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA:	$C_7F_{15}SO_3Na$
MOLECULAR WEIGHT:	472.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.6 ± 2.4 µg/ml (PFHpS anion)
SOLVENT(S):	Methanol
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	10/18/2016
EXPIRY DATE: (mm/dd/yyyy)	10/18/2021
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 L-PFHxS ($C_6F_{13}SO_3Na$) and ~ 0.1% of L-PFOS ($C_8F_{17}SO_3Na$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/20/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1326

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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.

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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.

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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:

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).

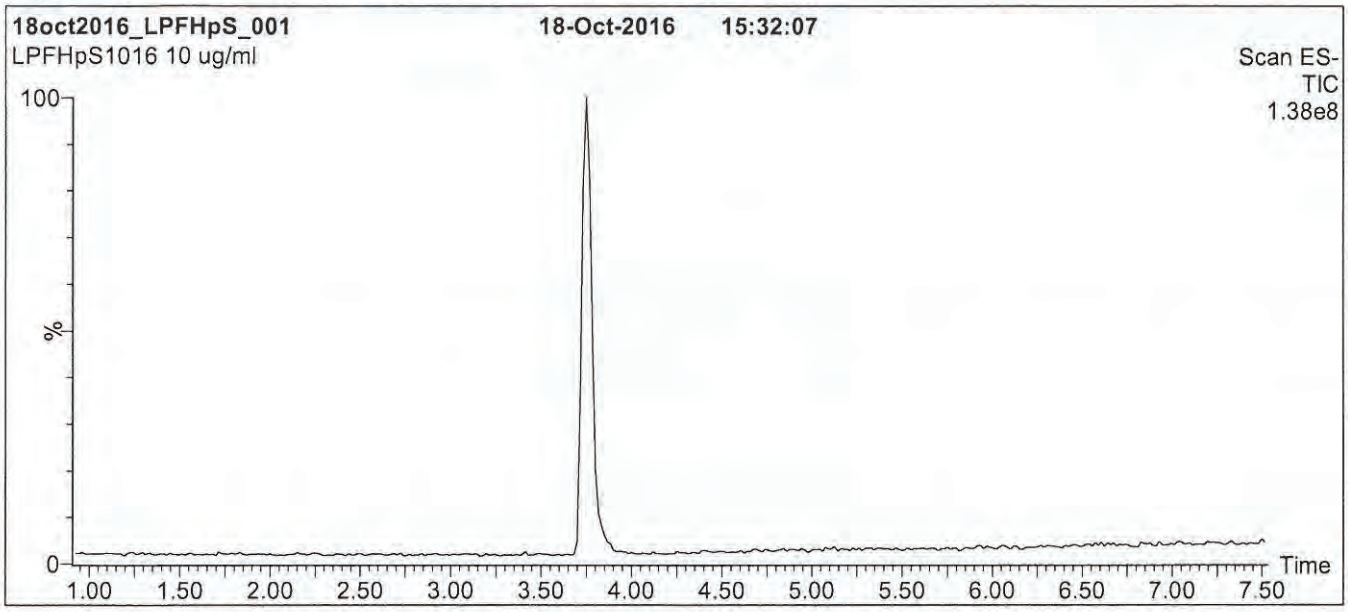
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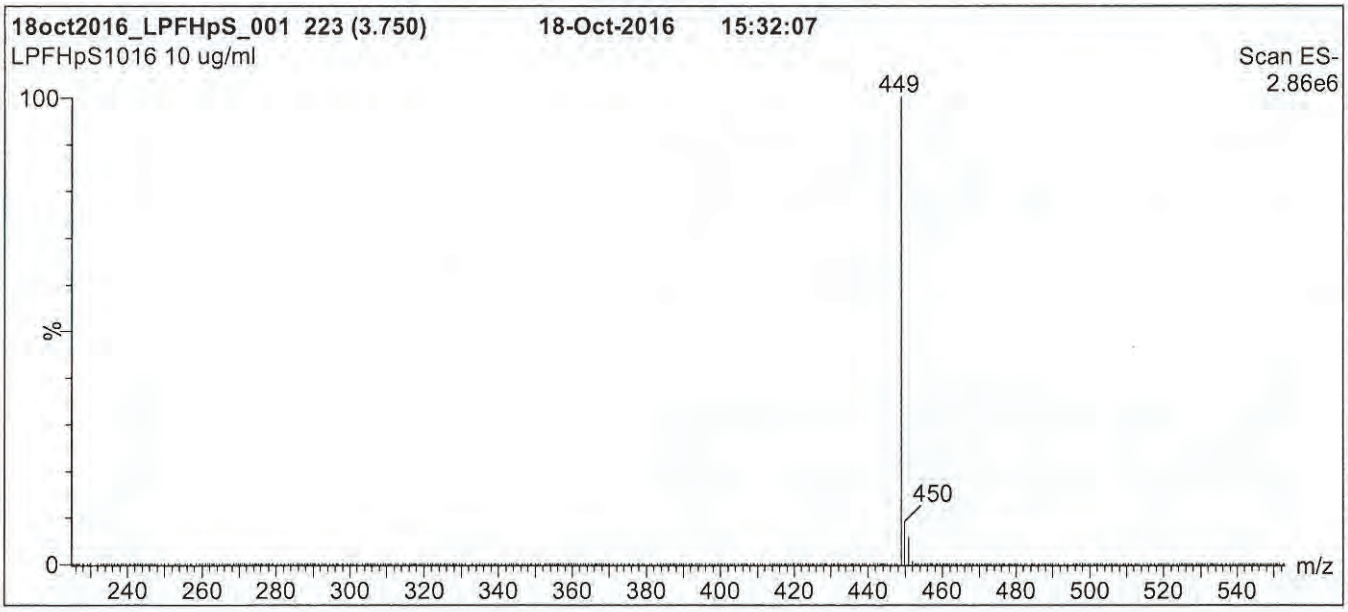
ANAB ACCREDITED

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17G1326

Figure 1: **L-PFHpS; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold
for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

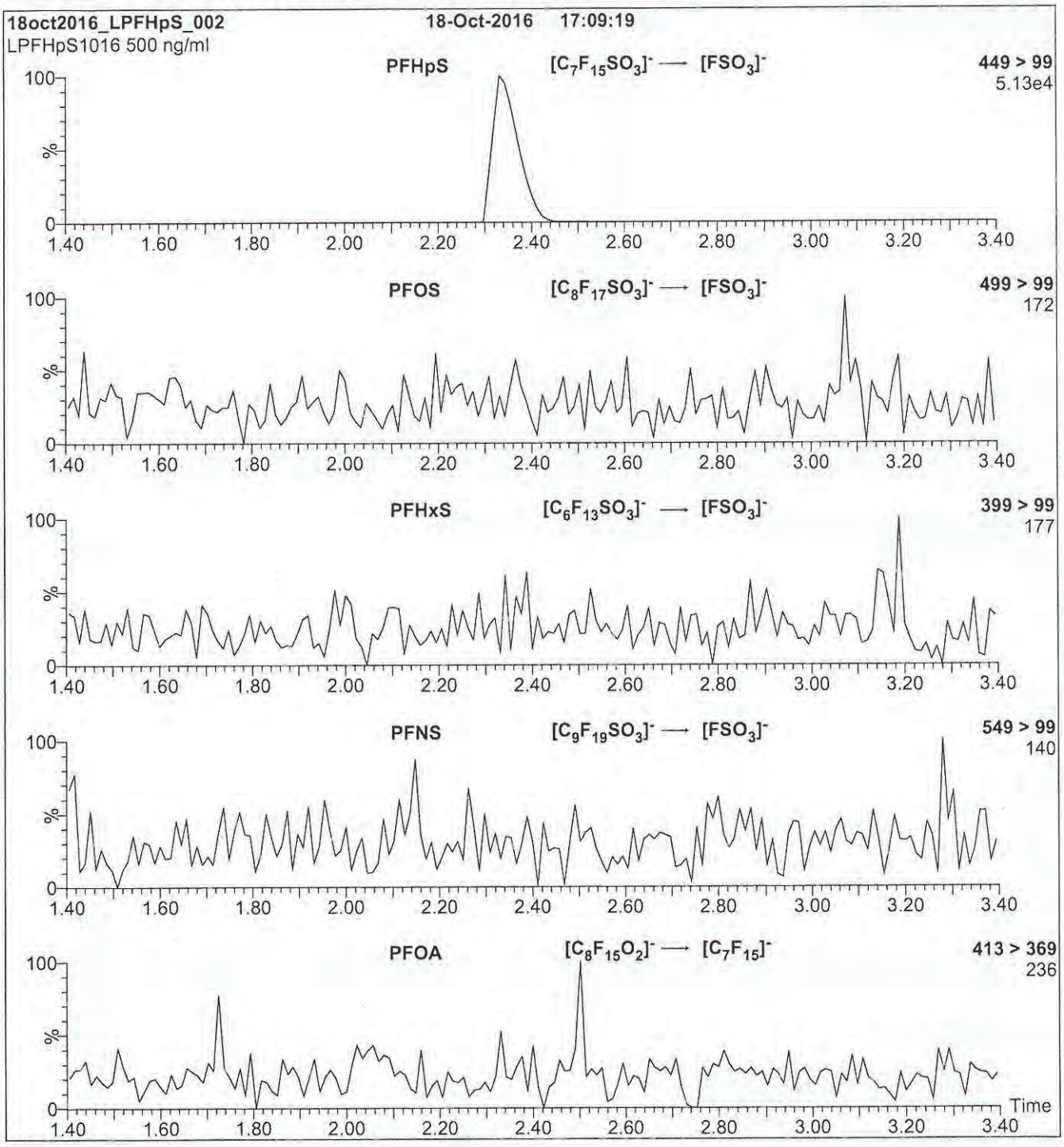
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17G1326

Figure 2: **L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFHpS)

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) = 35

17G1805

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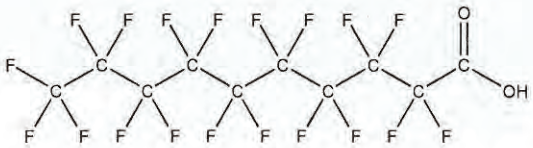
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA0516

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) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
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: B.G. Chittim **Date:** 06/13/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1805

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.

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LIMITED WARRANTY:

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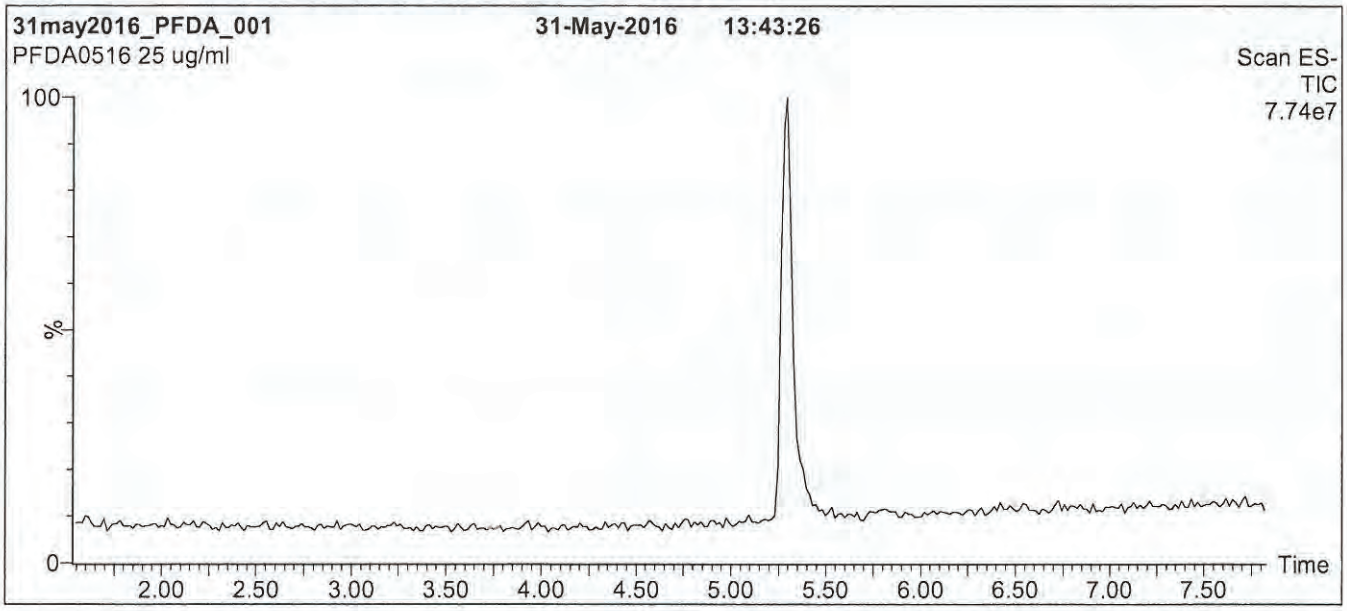
CALA

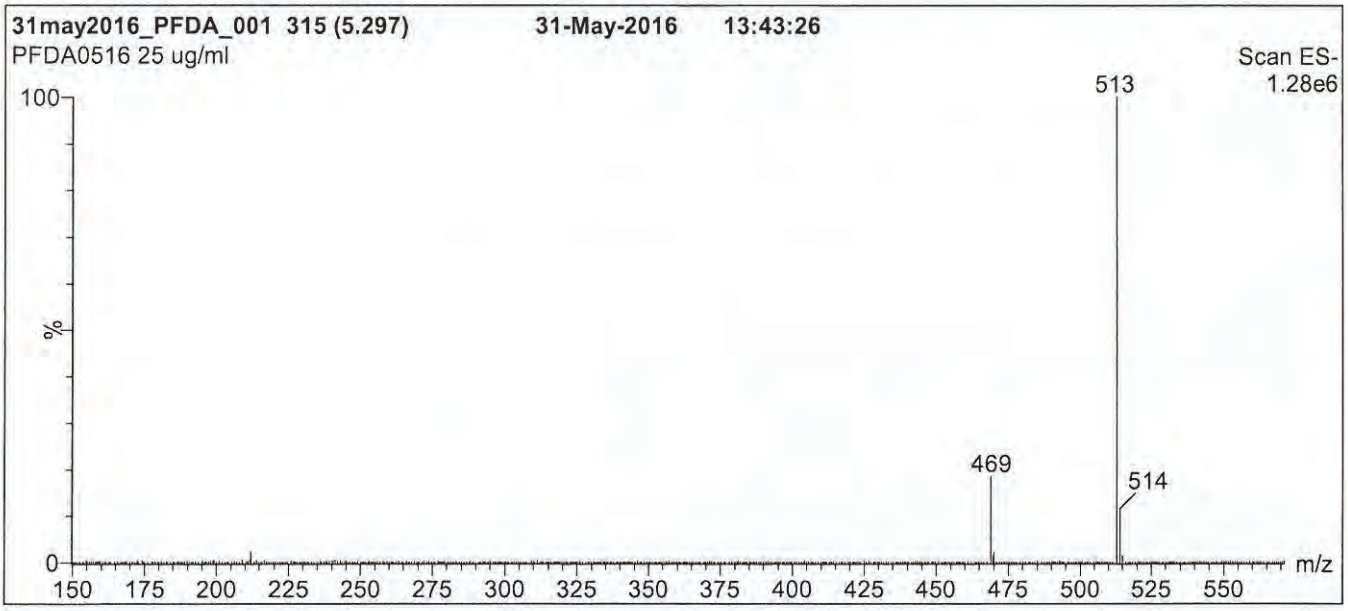
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For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

17G1805

Figure 1: **PFDA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

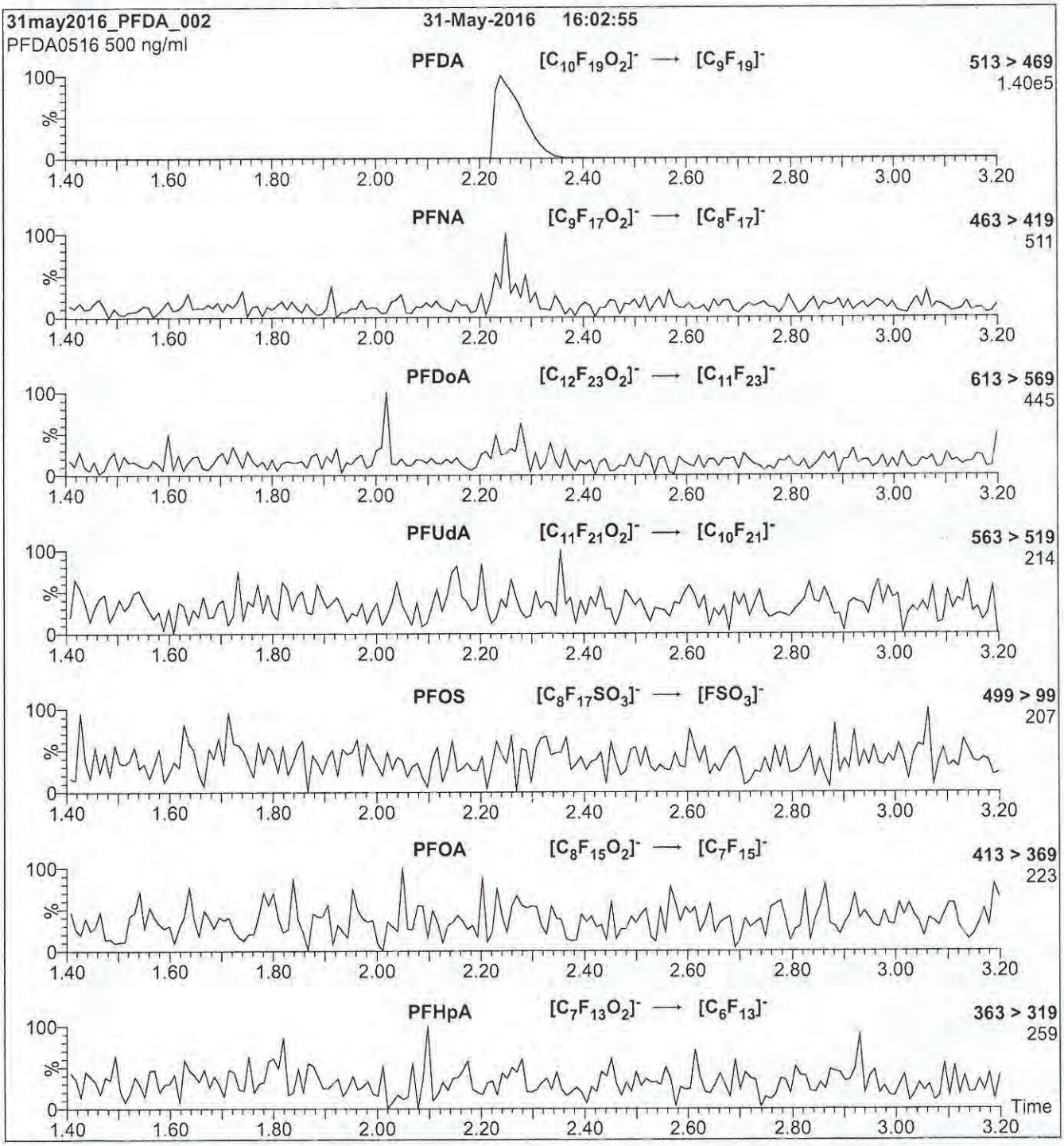
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1805

Figure 2: **PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDA)

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) = 13

17G1806

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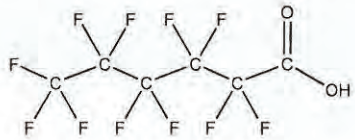
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA1216

STRUCTURE:

CAS #: 307-24-4



MOLECULAR FORMULA: $C_6HF_{11}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 314.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/02/2016
EXPIRY DATE: (mm/dd/yyyy) 12/02/2021
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: B.G. Chittim **Date:** 12/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1806

INTENDED USE:

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HAZARDS:

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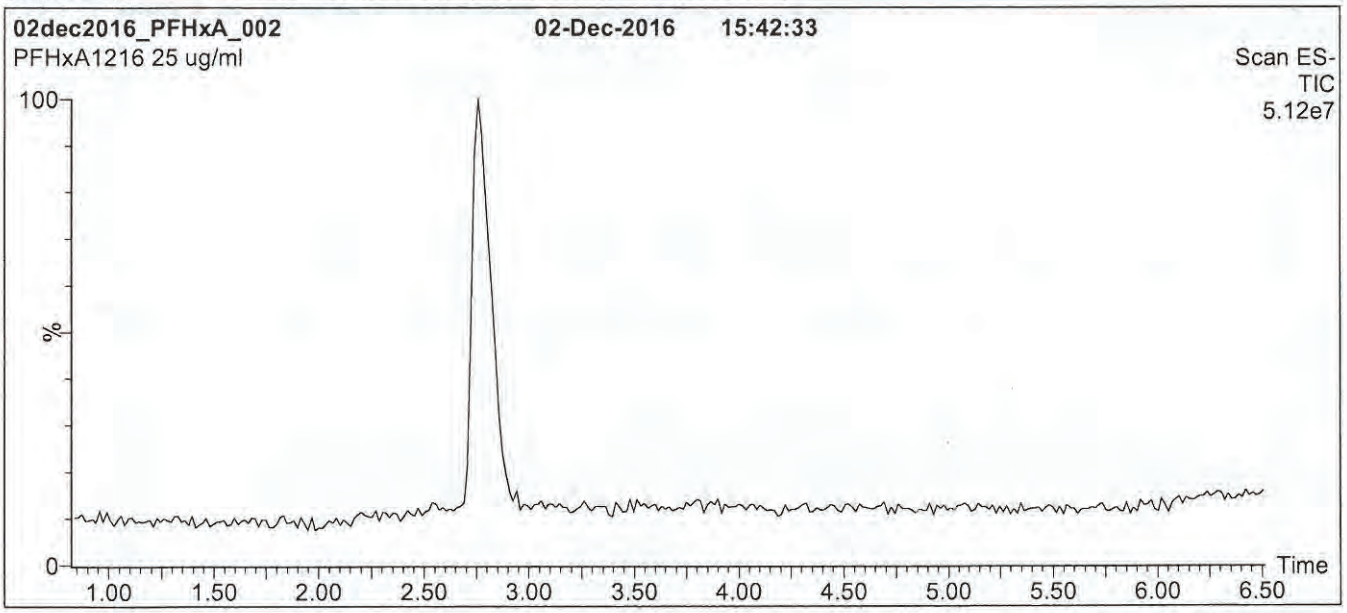
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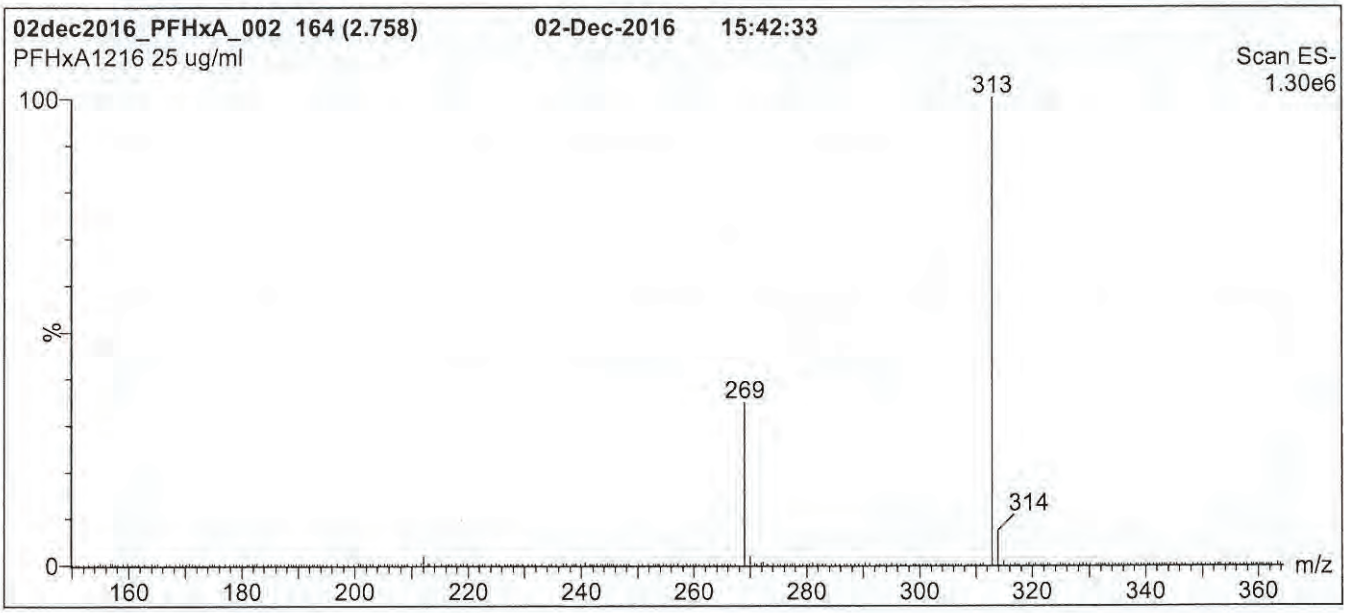
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17G1806

Figure 1: **PFHxA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

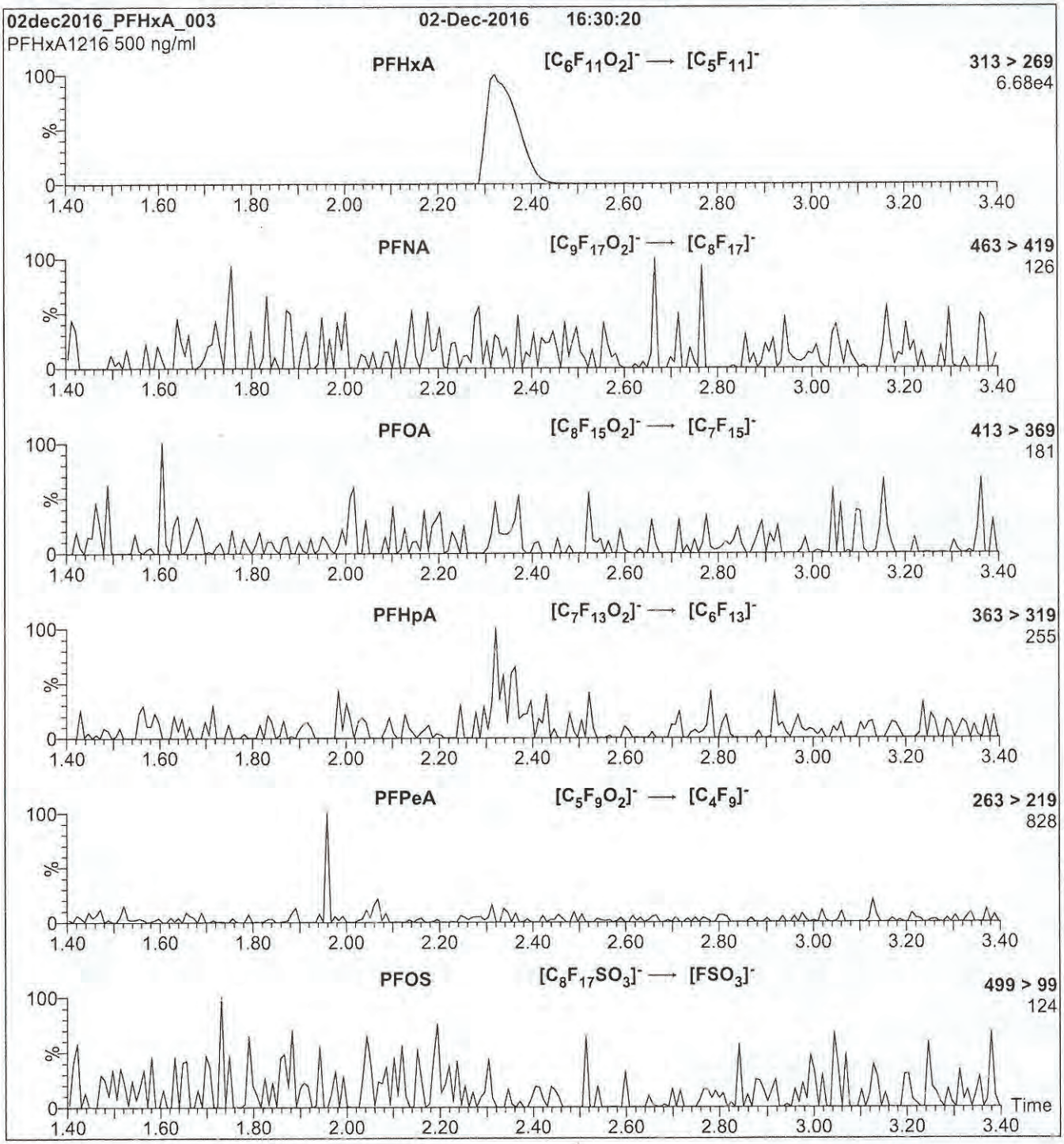
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17G1806

Figure 2: **PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxA)

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) = 3.46e-3
Collision Energy (eV) = 10

17G1807

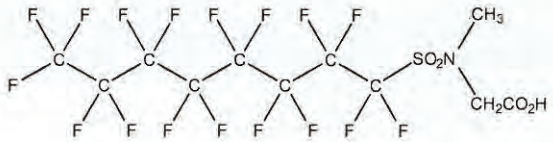
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSAA
LOT NUMBER: NMeFOSAA0117
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #: 2355-31-9



MOLECULAR FORMULA: $C_{11}H_6F_{17}NO_4S$
MOLECULAR WEIGHT: 571.21
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/11/2017
EXPIRY DATE: (mm/dd/yyyy) 01/11/2022
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.
- 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: B.G. Chittim **Date:** 01/12/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1867

INTENDED USE:

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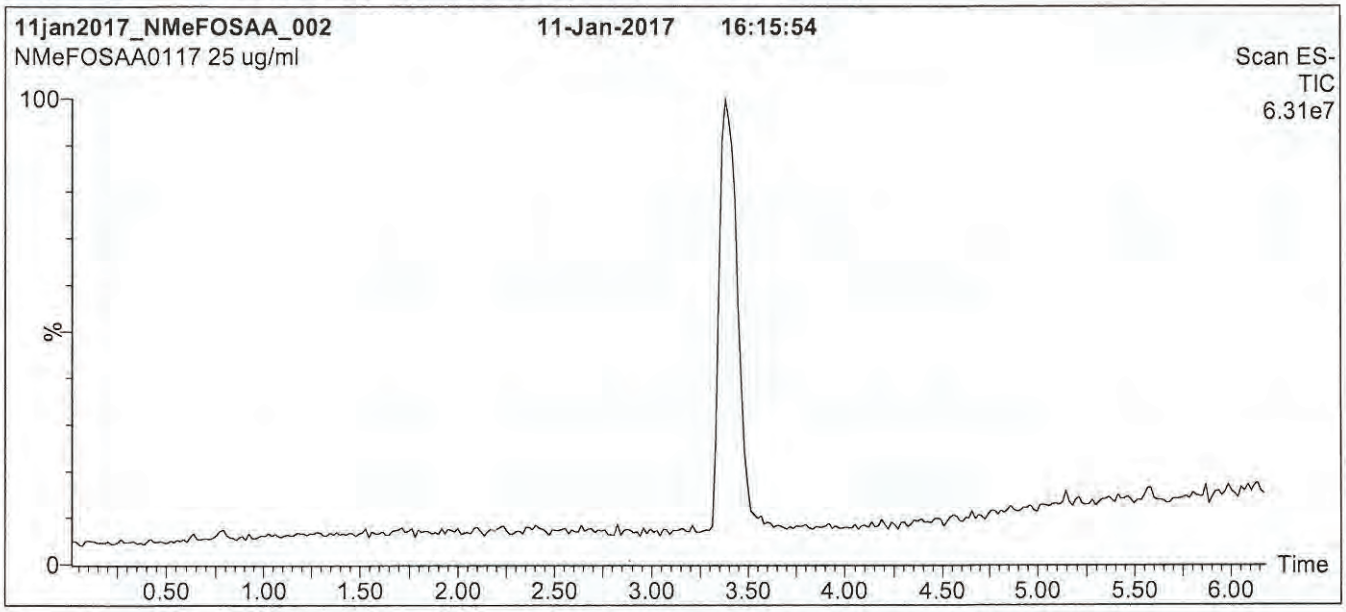
CALA

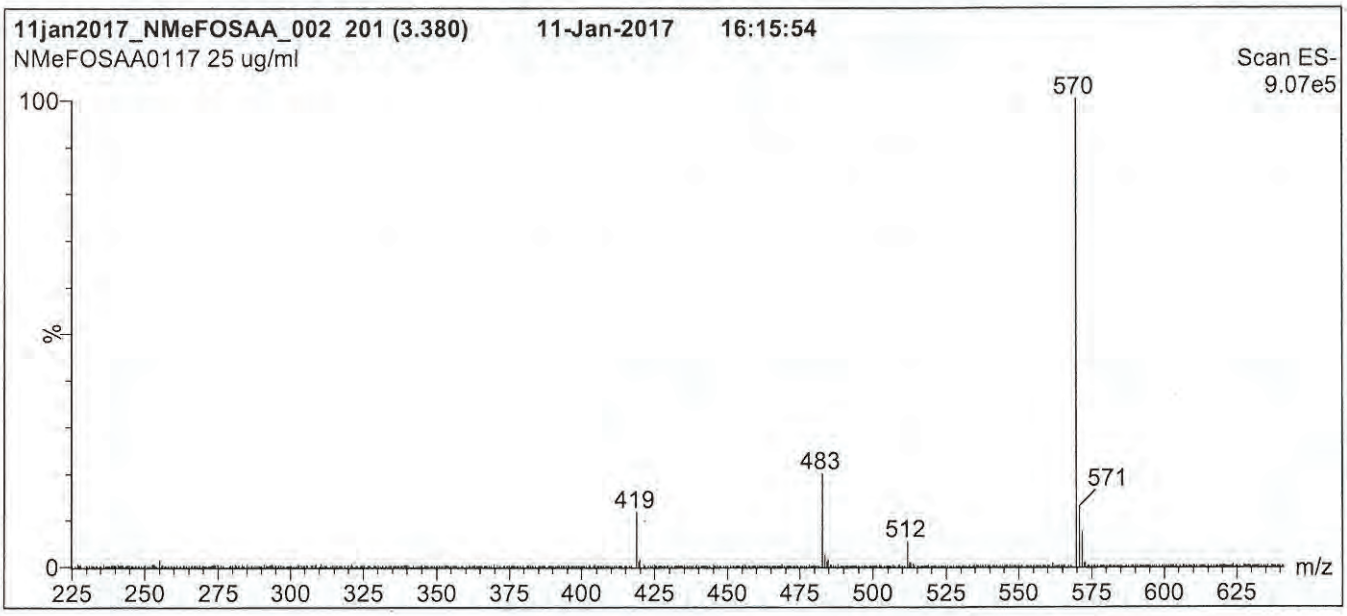
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17G1807

Figure 1: **N-MeFOSAA; 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: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

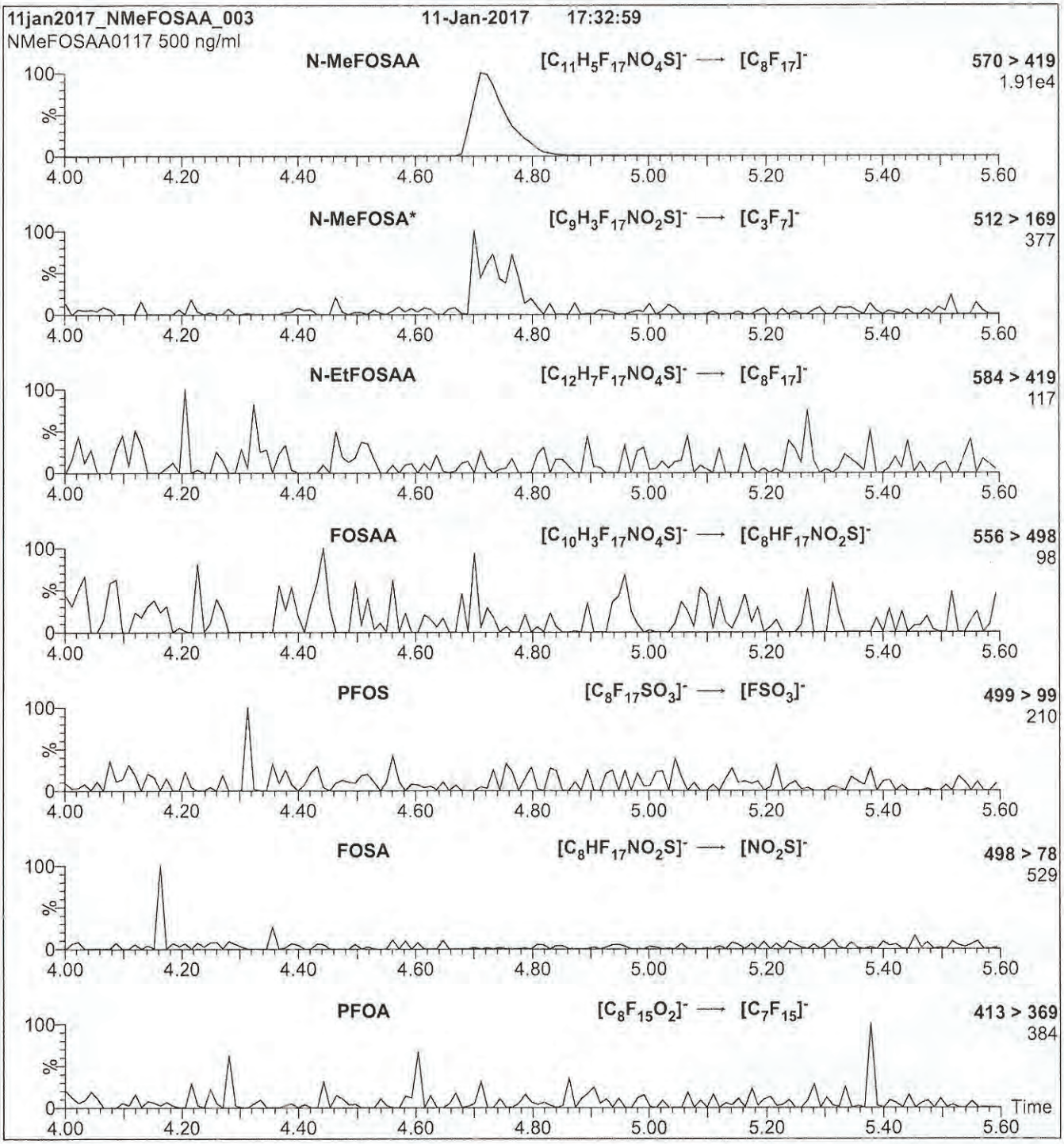
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1807

Figure 2: **N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSAA)

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) = 20

17G1808

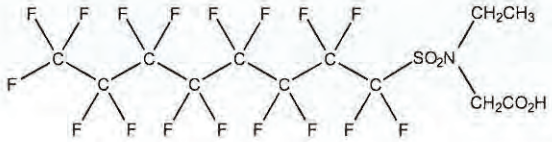
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSAA **LOT NUMBER:** NEtFOSAA0117

COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2991-50-6



MOLECULAR FORMULA: $C_{12}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 585.23

CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 01/11/2017

EXPIRY DATE: (mm/dd/yyyy) 01/11/2022

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.
- 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: B.G. Chittim **Date:** 01/12/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17G1808

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HAZARDS:

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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:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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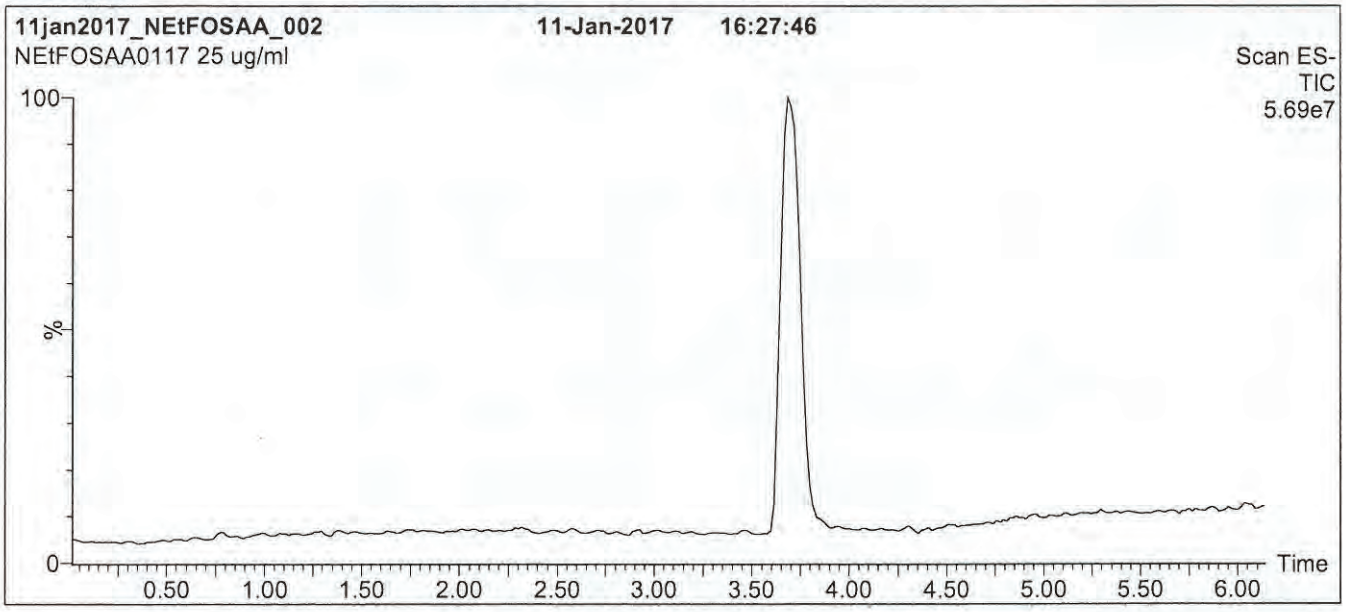
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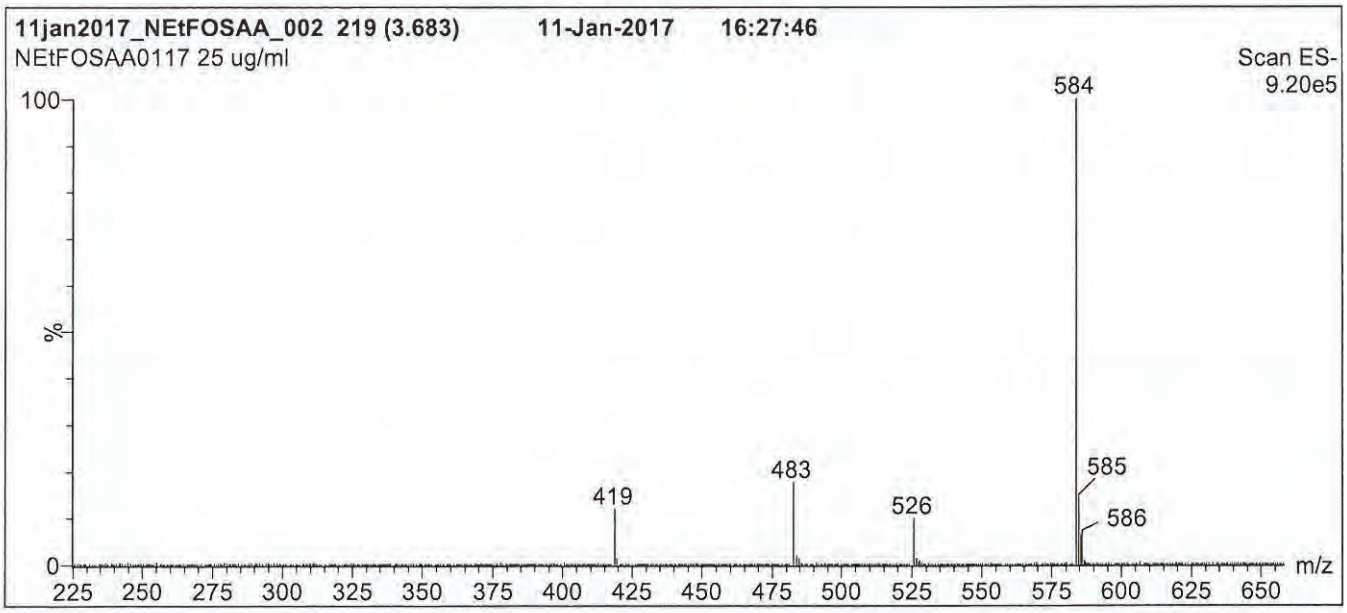
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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17G1808

Figure 1: **N-EtFOSAA; 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: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

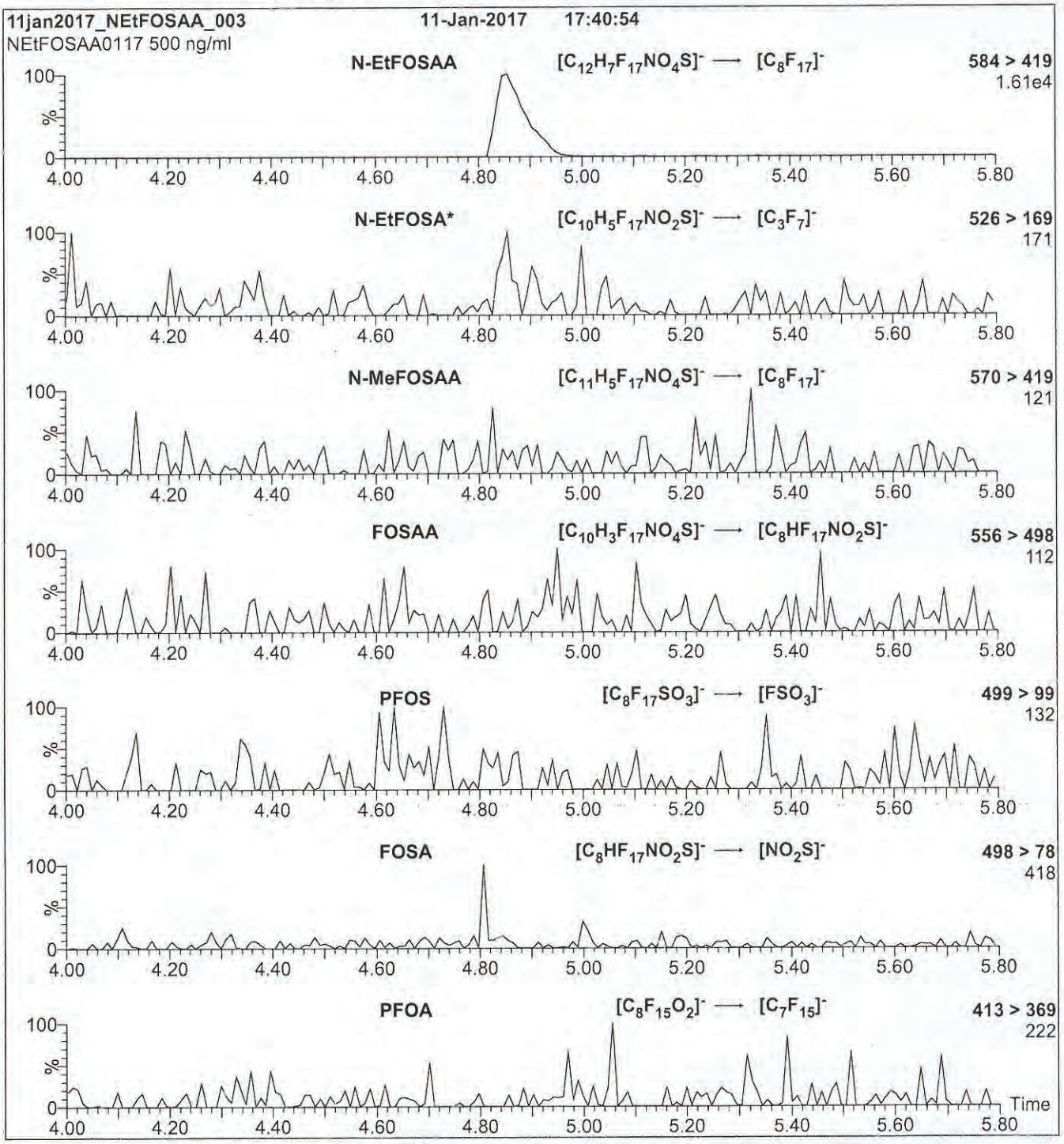
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1808

Figure 2: **N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Note: N-EtFOSA is formed by fragmentation of N-EtFOSAA.

Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSAA)

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) = 3.28e-3
Collision Energy (eV) = 20

17G1809

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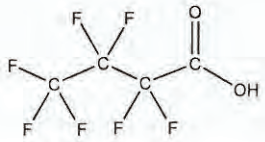
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanoic acid

LOT NUMBER: PFBA0517

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: $C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 214.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/29/2017
EXPIRY DATE: (mm/dd/yyyy) 05/29/2022
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2017 (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

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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:

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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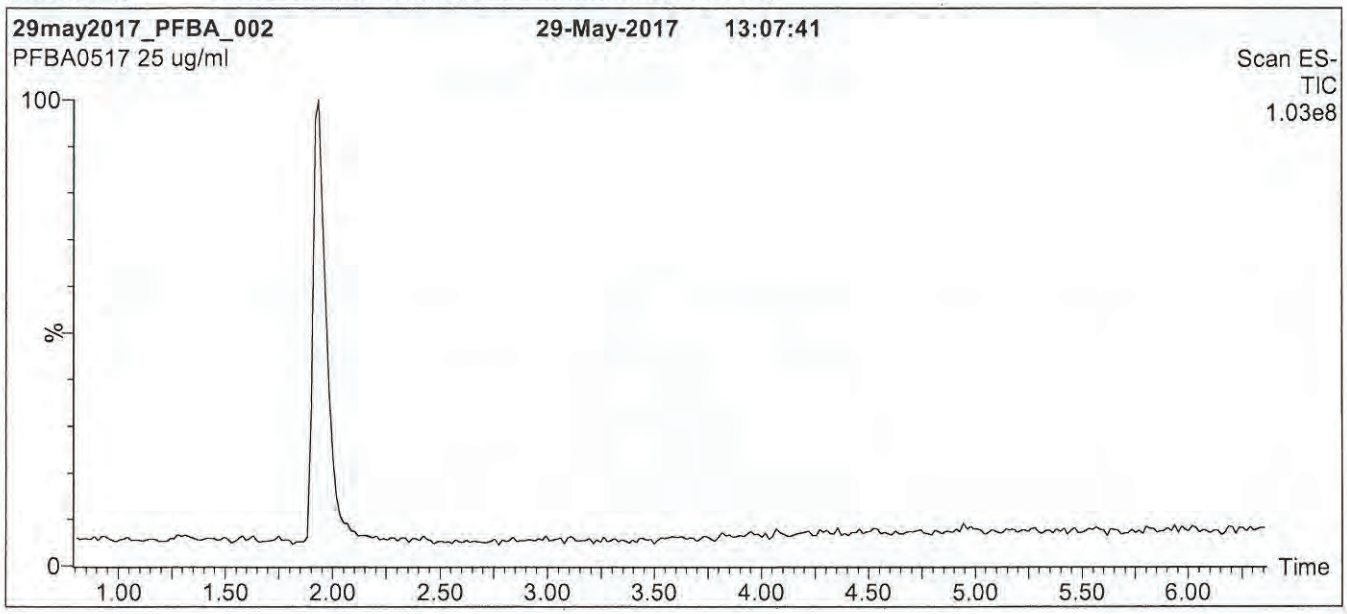
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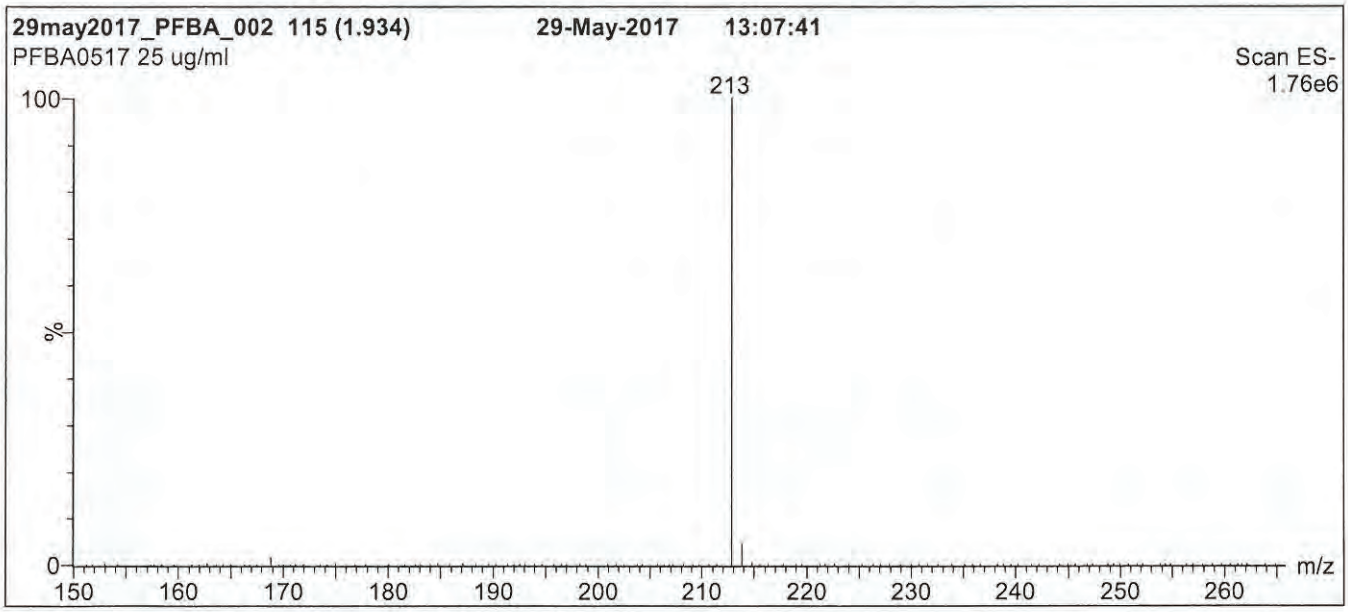
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17G1809

Figure 1: **PFBA; 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

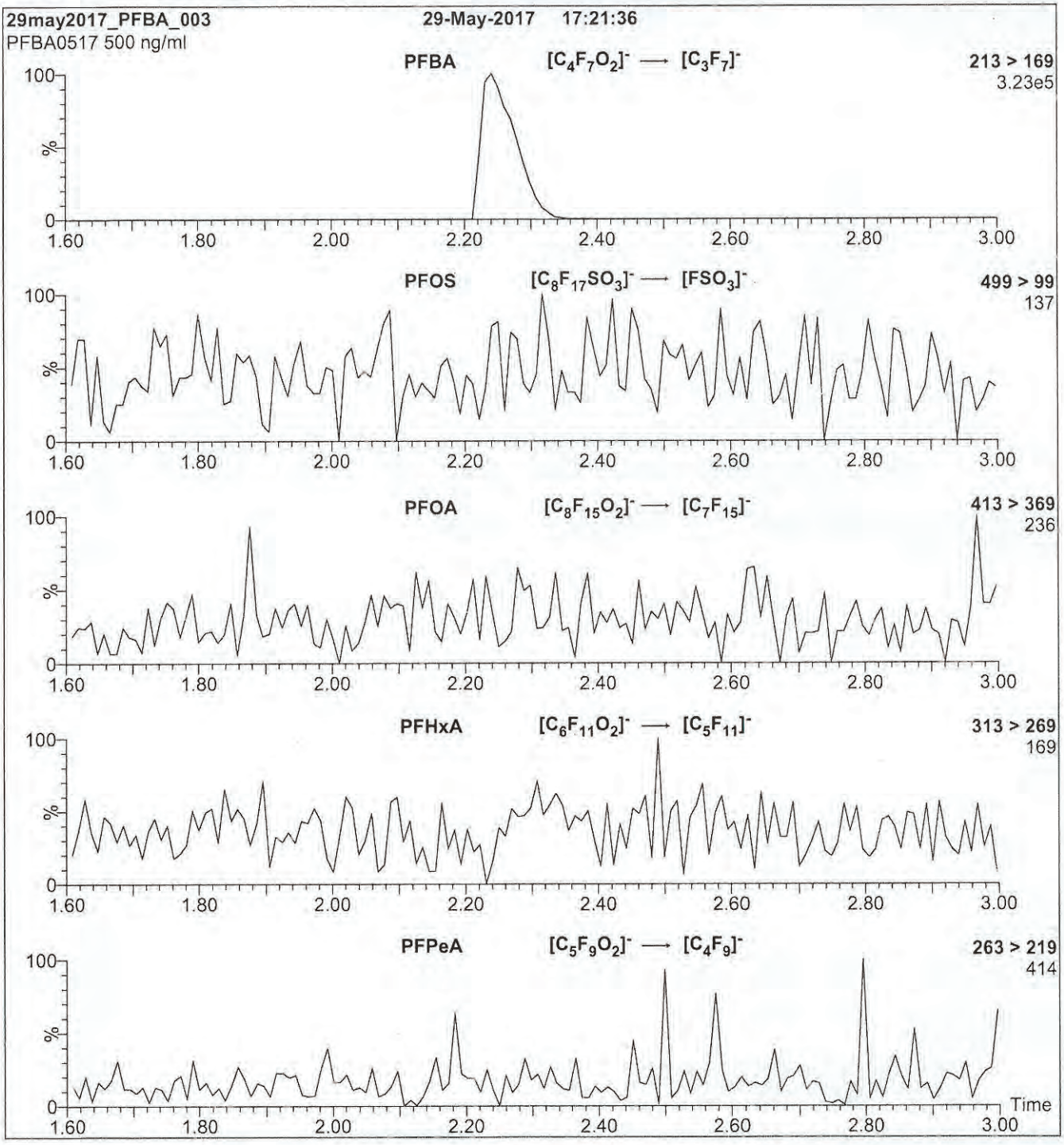
MS Parameters

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

17G1809

Figure 2: **PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFBA)

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

17G1810

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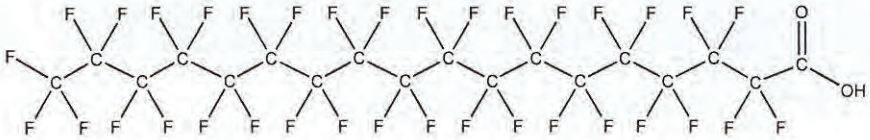
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFODA
COMPOUND: Perfluoro-n-octadecanoic acid

LOT NUMBER: PFODA0416

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) 04/29/2016
EXPIRY DATE: (mm/dd/yyyy) 04/29/2021
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: B.G. Chittim **Date:** 05/20/2016 (mm/dd/yyyy)

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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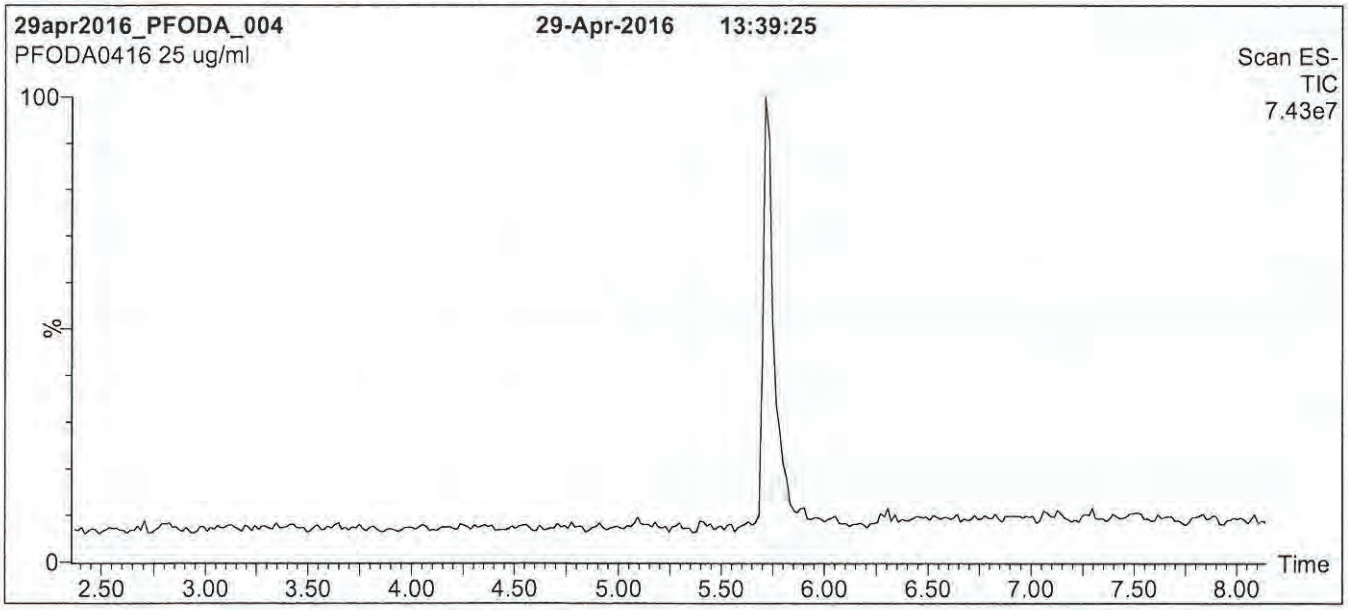
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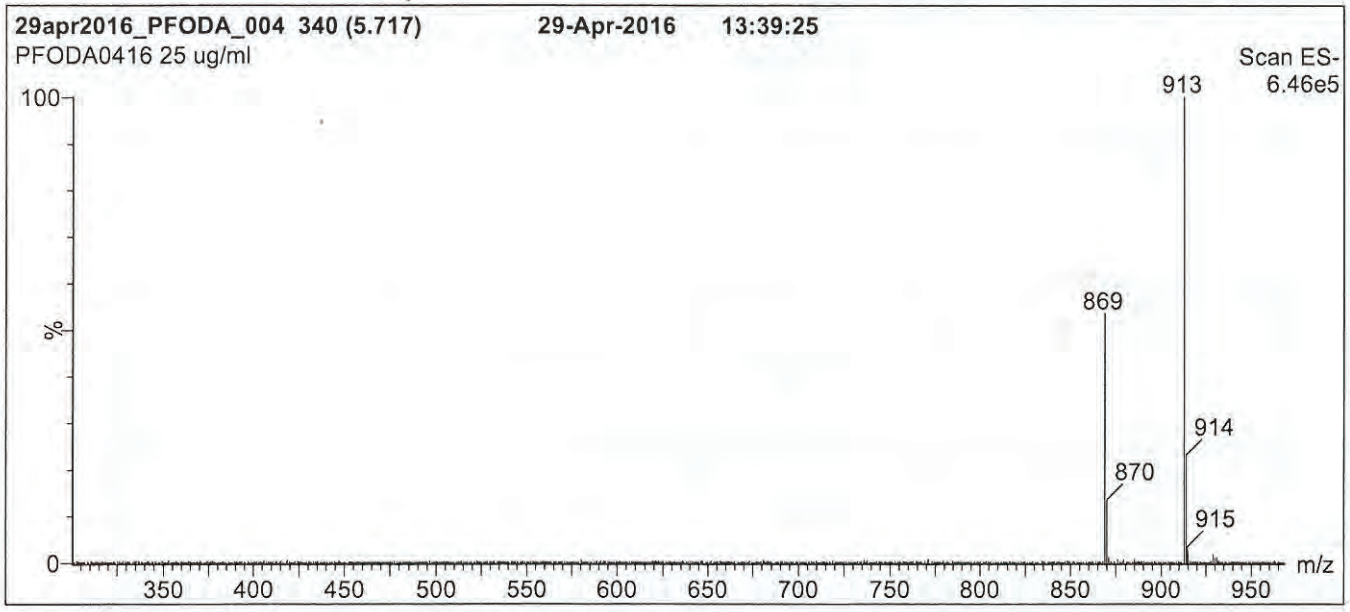
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1761810

Figure 1: **PFODA; 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: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 95% organic over 6 min and hold for
2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

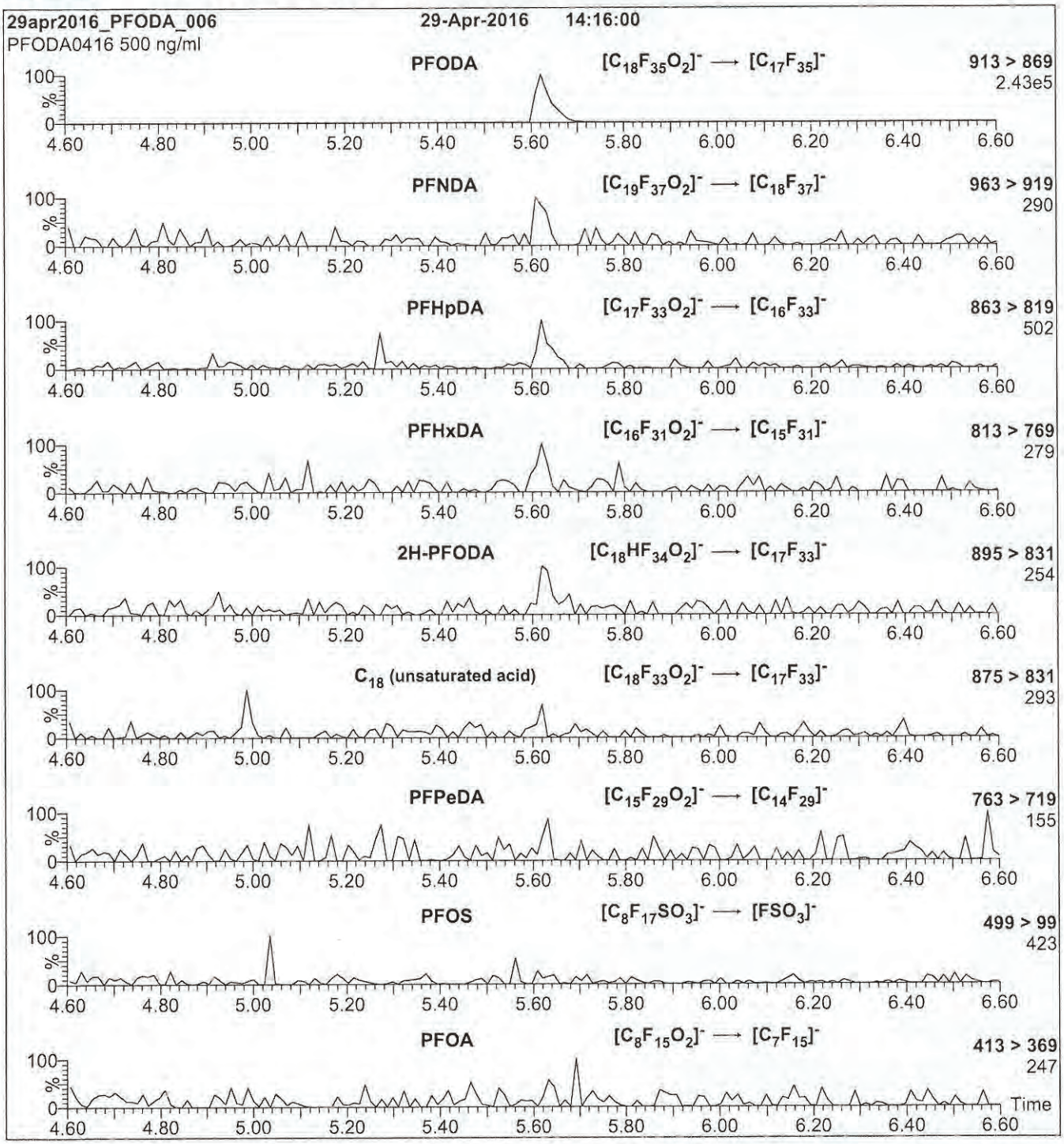
MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1810

Figure 2: **PFODA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

17G1811

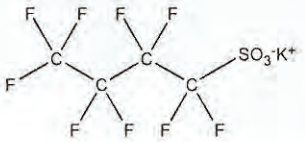
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate
LOT NUMBER: LPFBS1116

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)	12/02/2016		
EXPIRY DATE: (mm/dd/yyyy)	12/02/2021		
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: B.G. Chittim **Date:** 12/05/2016 (mm/dd/yyyy)

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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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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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).

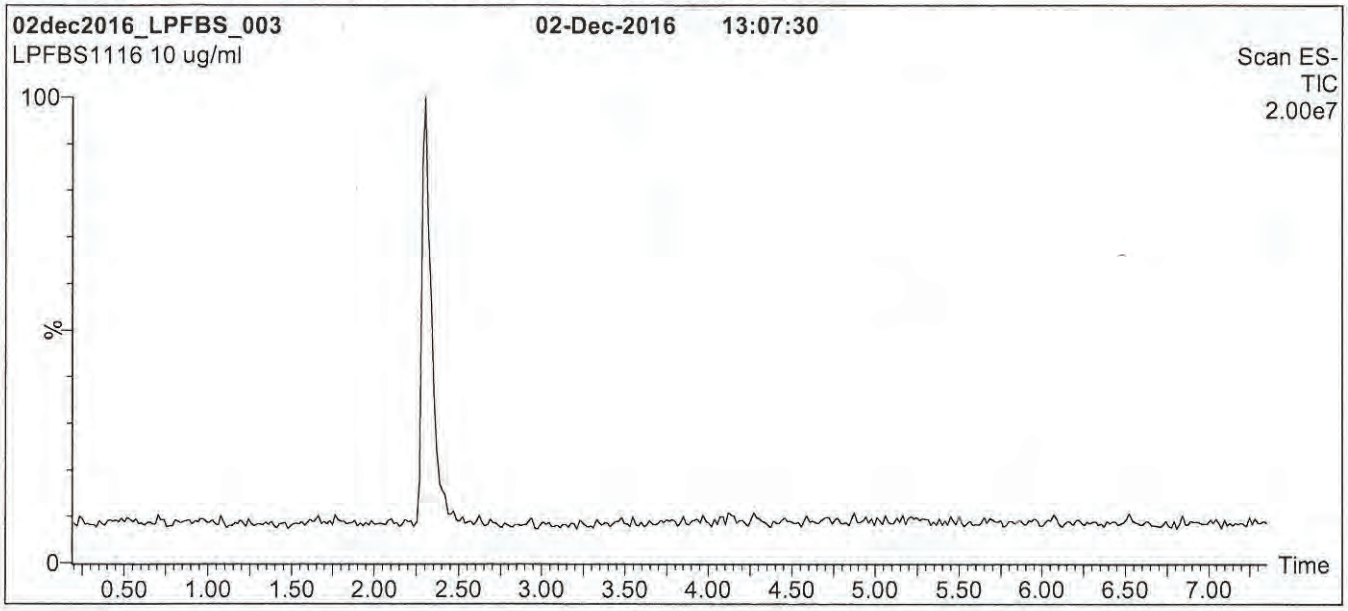
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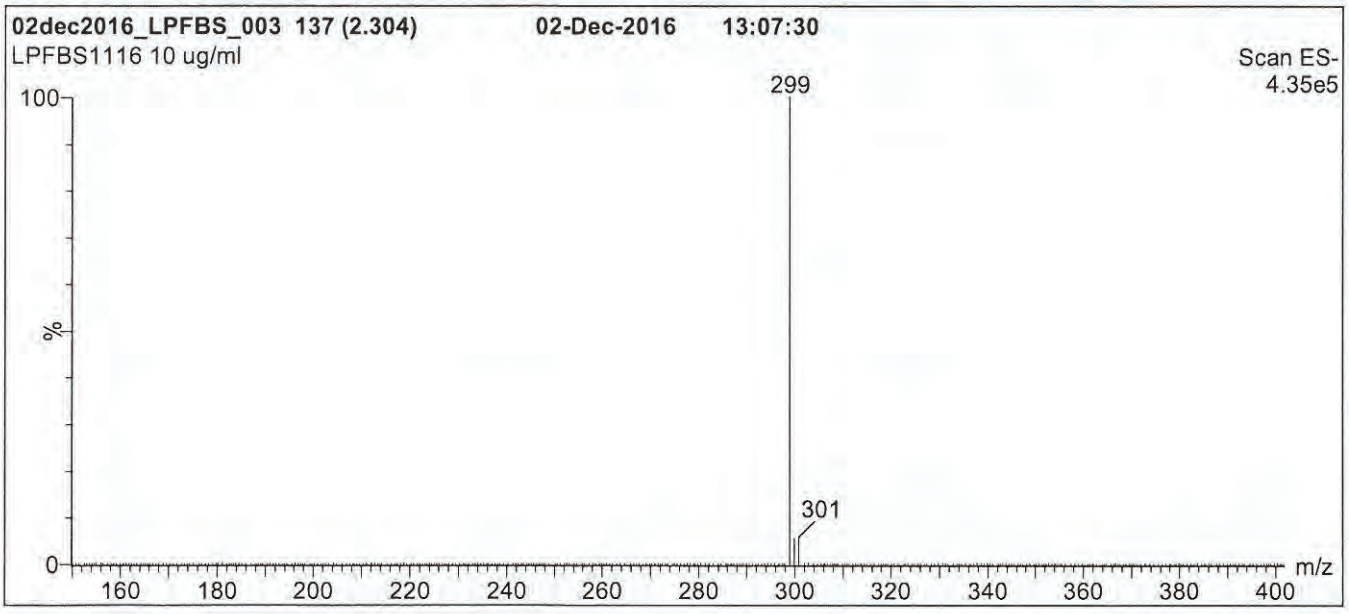
ANAB ACCREDITED

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

17G1811

Figure 1: **L-PFBS; 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: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

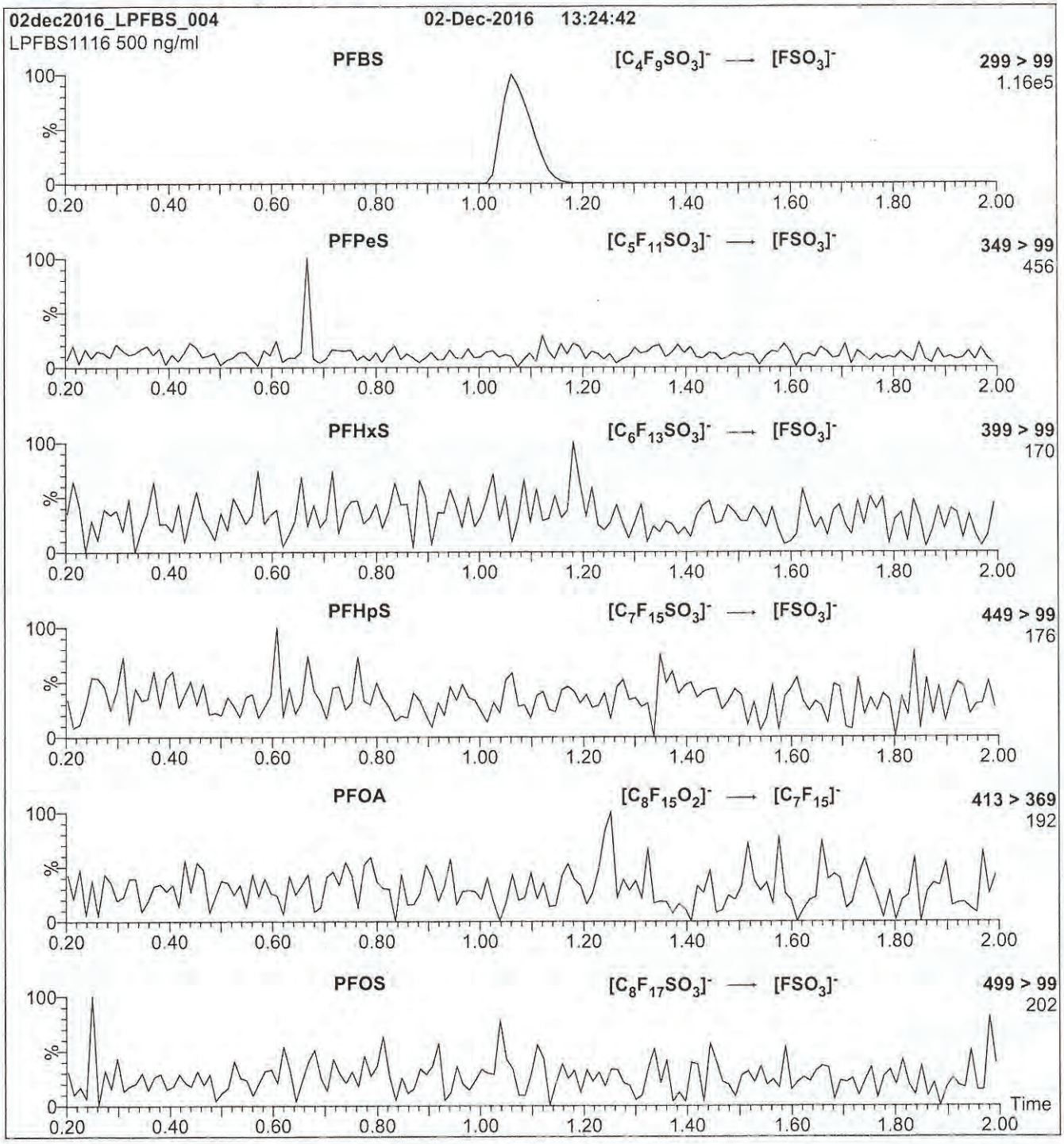
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1811

Figure 2: **L-PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFBS)

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) = 3.28e-3
Collision Energy (eV) = 25

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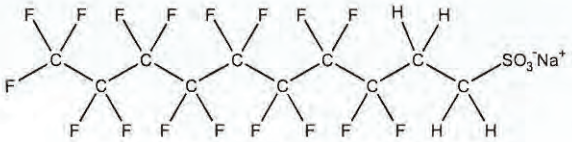
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS1216

COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** Not available



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)	12/12/2016			
EXPIRY DATE: (mm/dd/yyyy)	12/12/2021			
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/21/2016 (mm/dd/yyyy)

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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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).

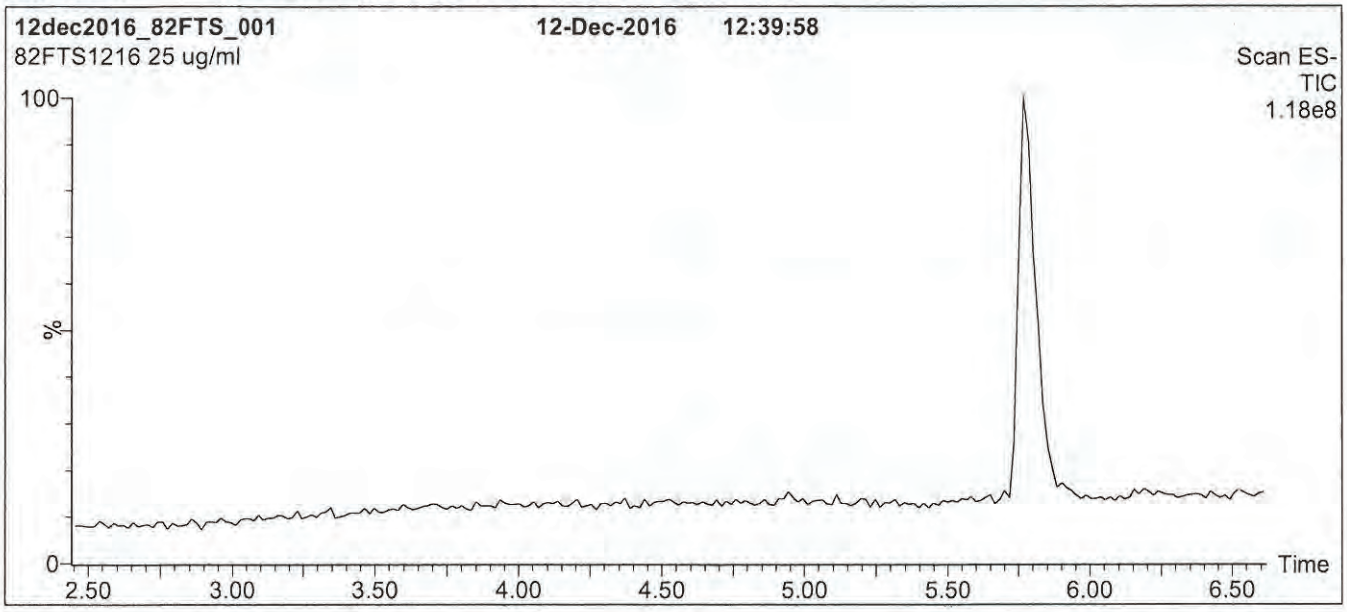
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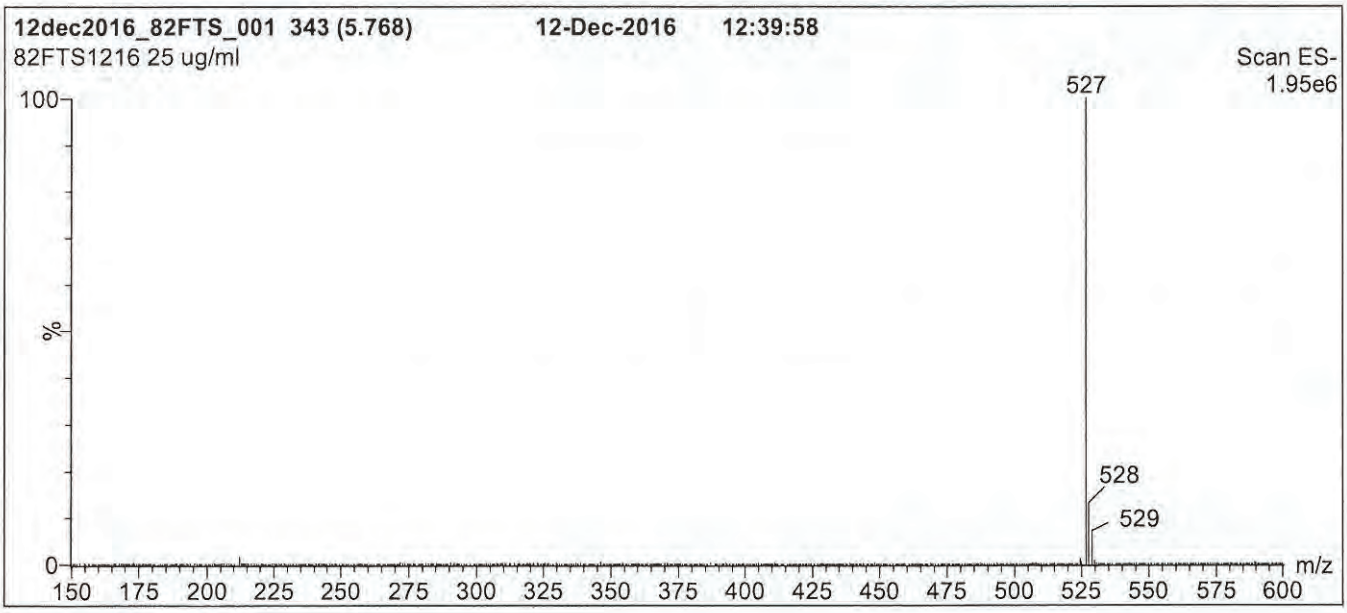
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17G1812

Figure 1: **8:2FTS; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

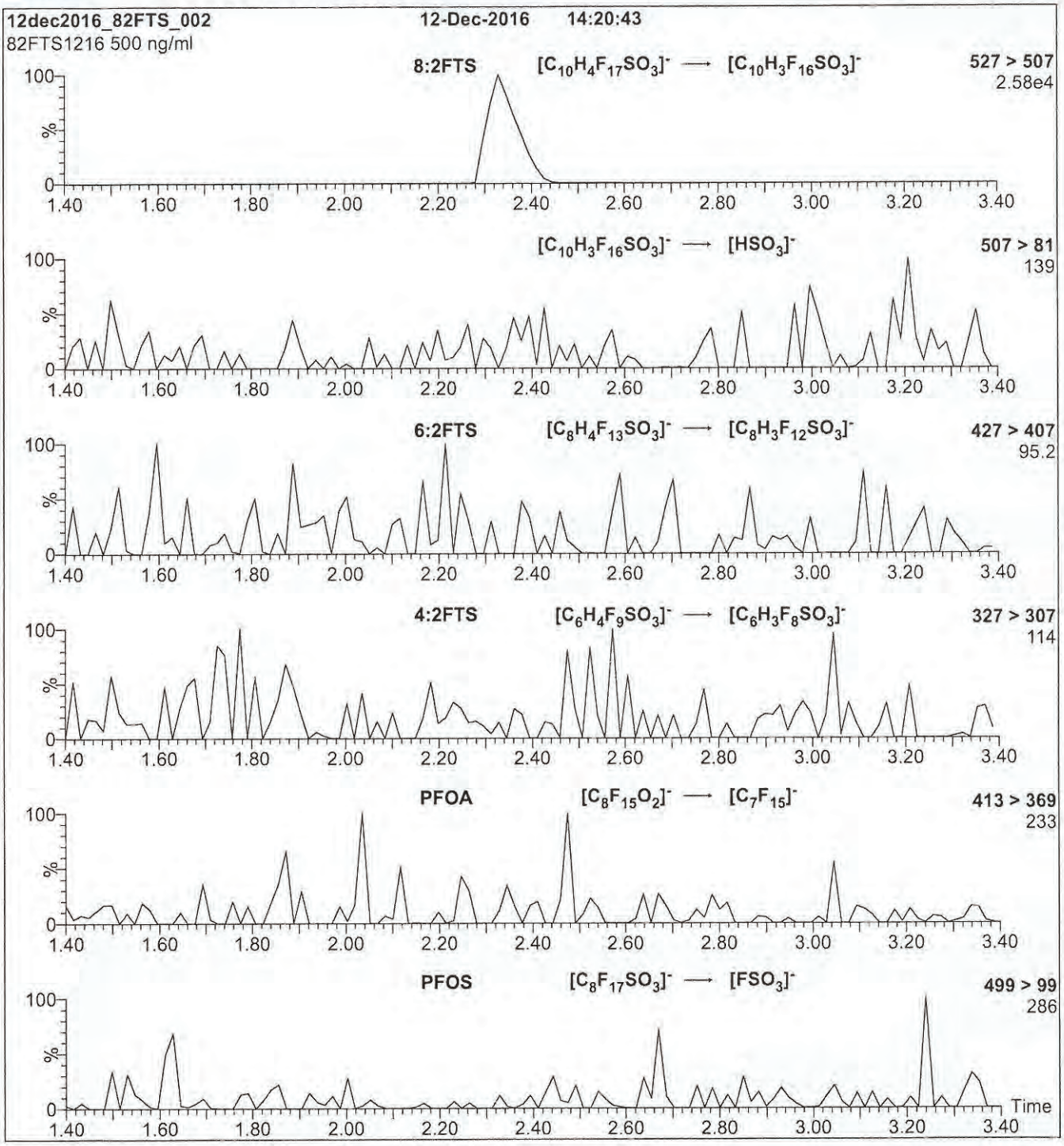
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17G1812

Figure 2: **8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 8:2FTS)

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) = 3.28e-3
Collision Energy (eV) = 30

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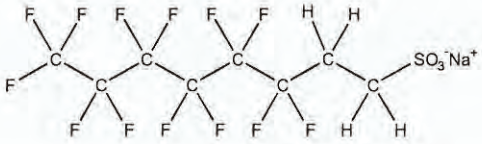
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0417

COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE: **CAS #:** Not available



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)	04/20/2017			
EXPIRY DATE: (mm/dd/yyyy)	04/20/2022			
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/24/2017 (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

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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:

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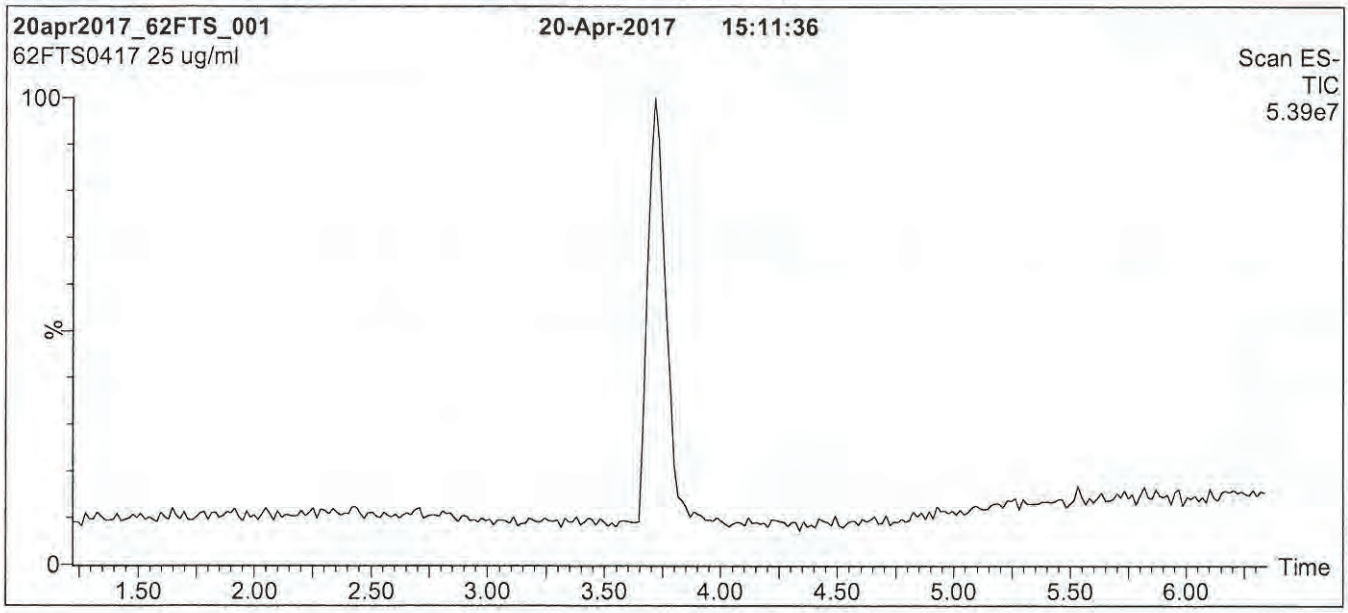
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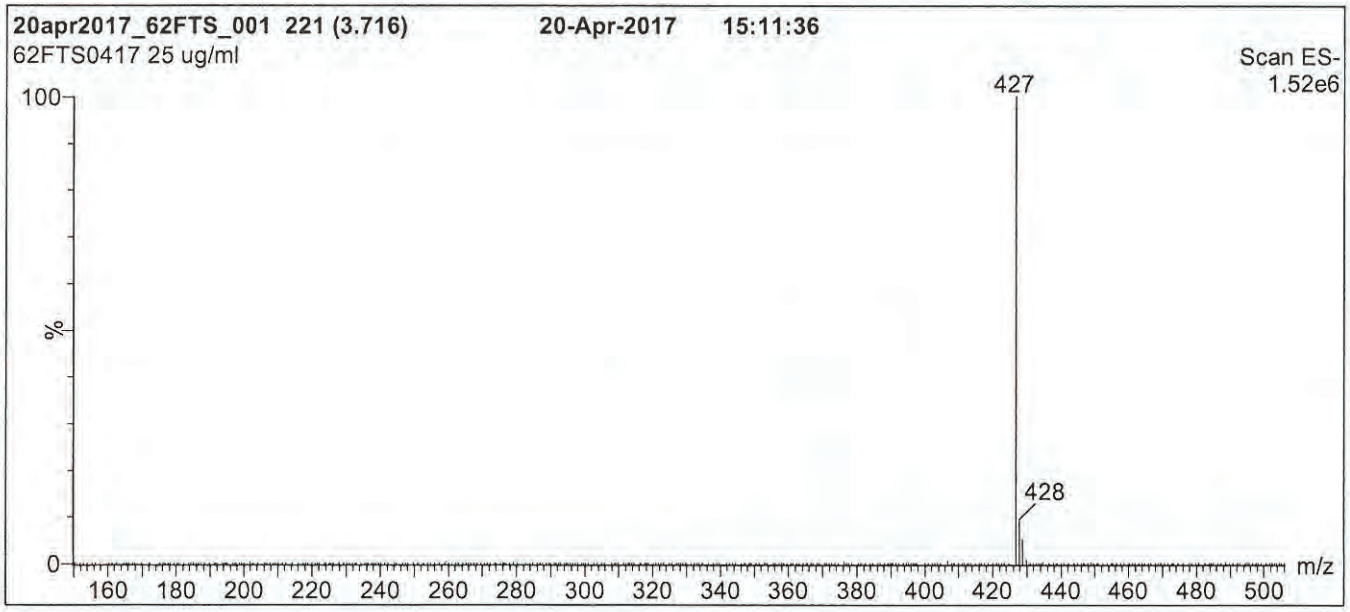
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17G1813

Figure 1: **6:2FTS; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

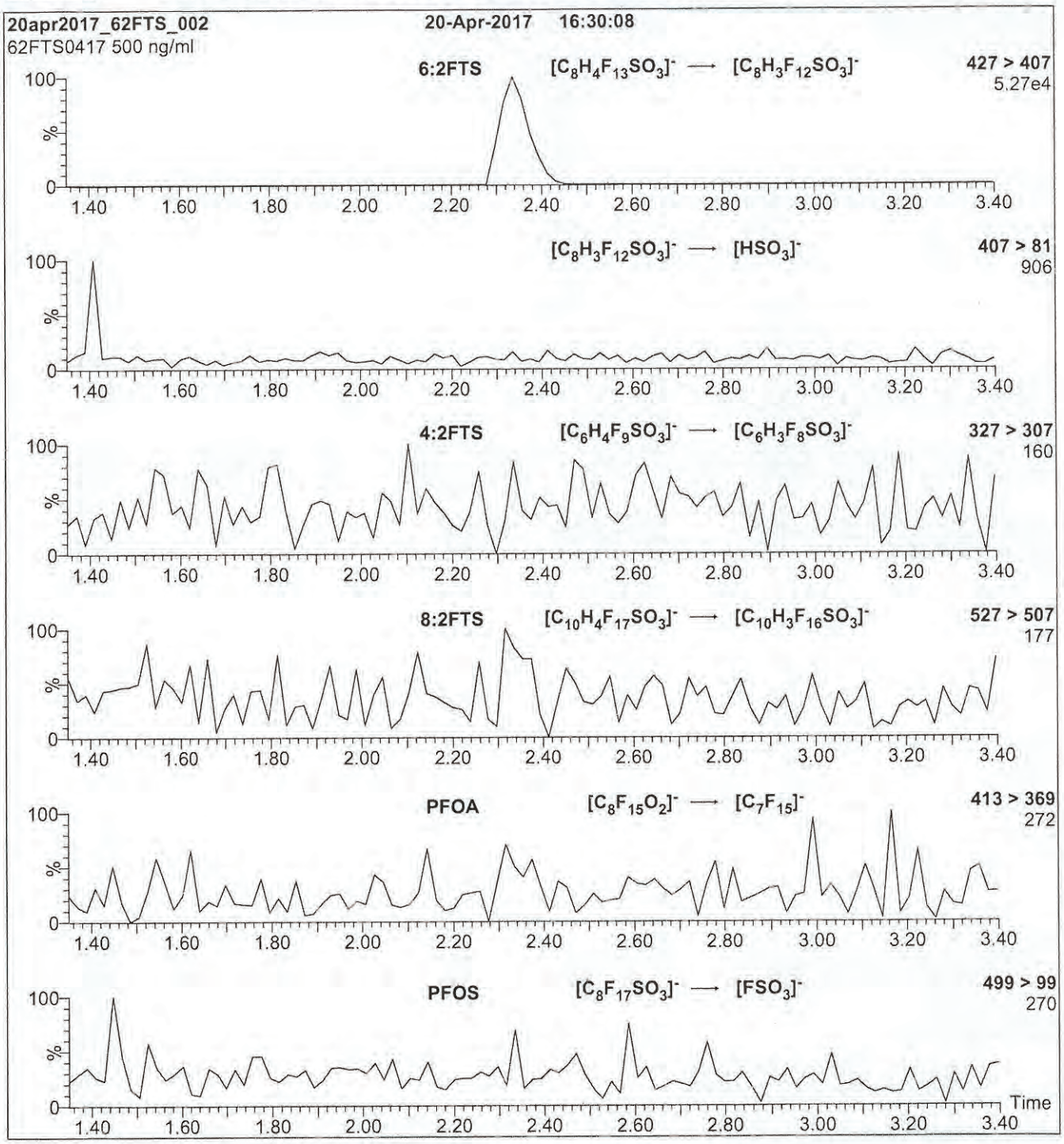
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17G1813

Figure 2: **6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 6:2FTS)

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) = 3.35e-3
Collision Energy (eV) = 25

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WELLINGTON LABORATORIES

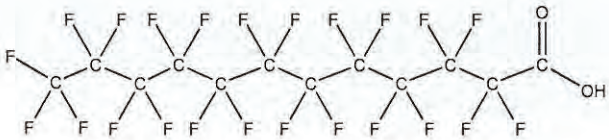
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid

LOT NUMBER: PFDoA0516

STRUCTURE:

CAS #: 307-55-1



MOLECULAR FORMULA: $C_{12}HF_{23}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 614.10
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
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: B.G. Chittim **Date:** 06/02/2016 (mm/dd/yyyy)

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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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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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:

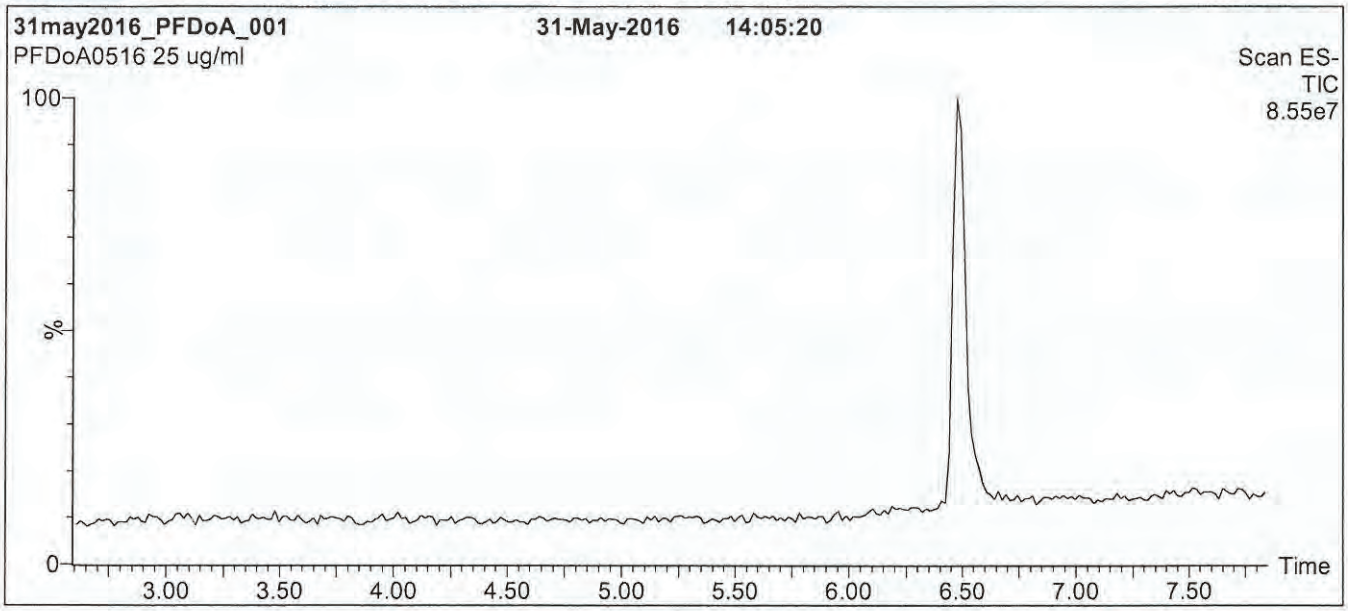
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

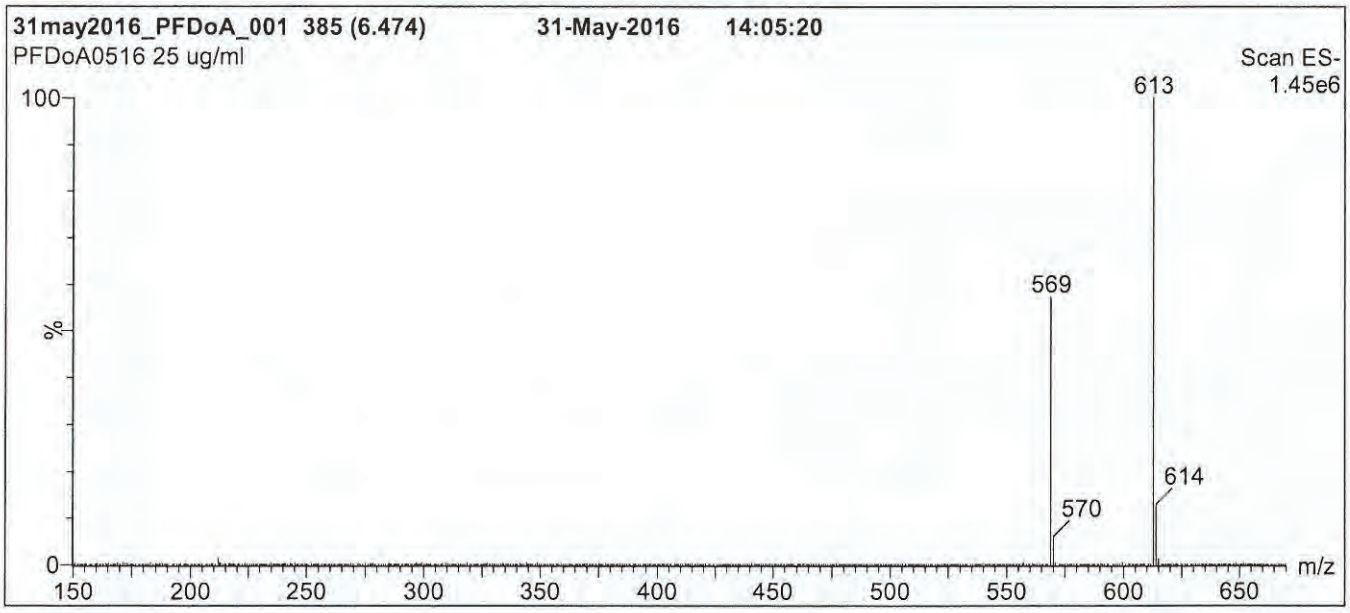
CALA

ANAB ACCREDITED

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: **PFDoA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

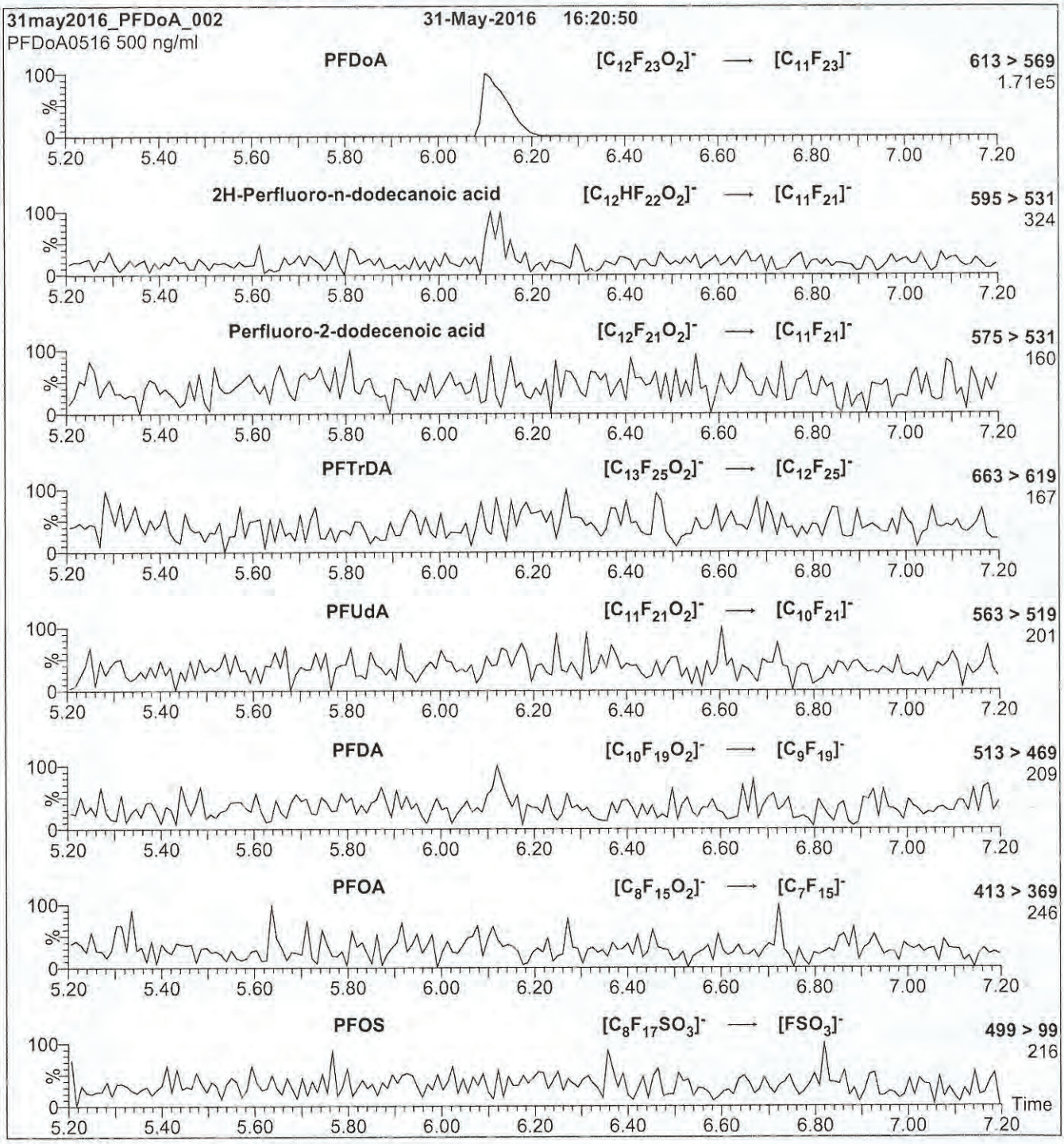
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml PFDoA)	**MS Parameters**
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)	Collision Gas (mbar) = 3.39e-3 Collision Energy (eV) = 13
Flow:	300 µl/min	

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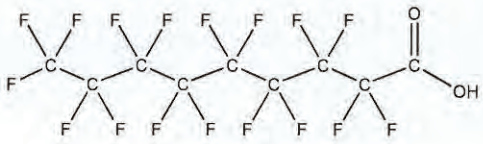
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid

LOT NUMBER: PFNA0916

STRUCTURE:

CAS #: 375-95-1



MOLECULAR FORMULA: $C_9HF_{17}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 464.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/30/2016
EXPIRY DATE: (mm/dd/yyyy) 09/30/2021
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-octanoic acid (PFOA) and < 0.1% of perfluoro-n-heptanoic acid (PFHpA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/11/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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.

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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:

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:

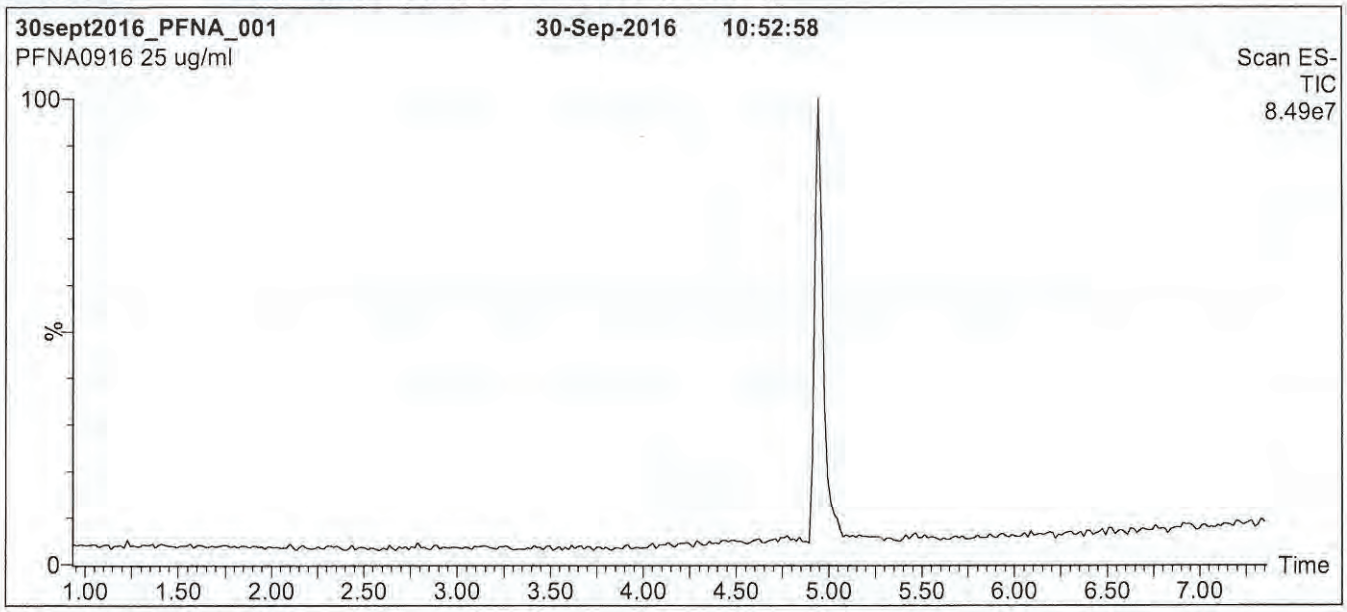
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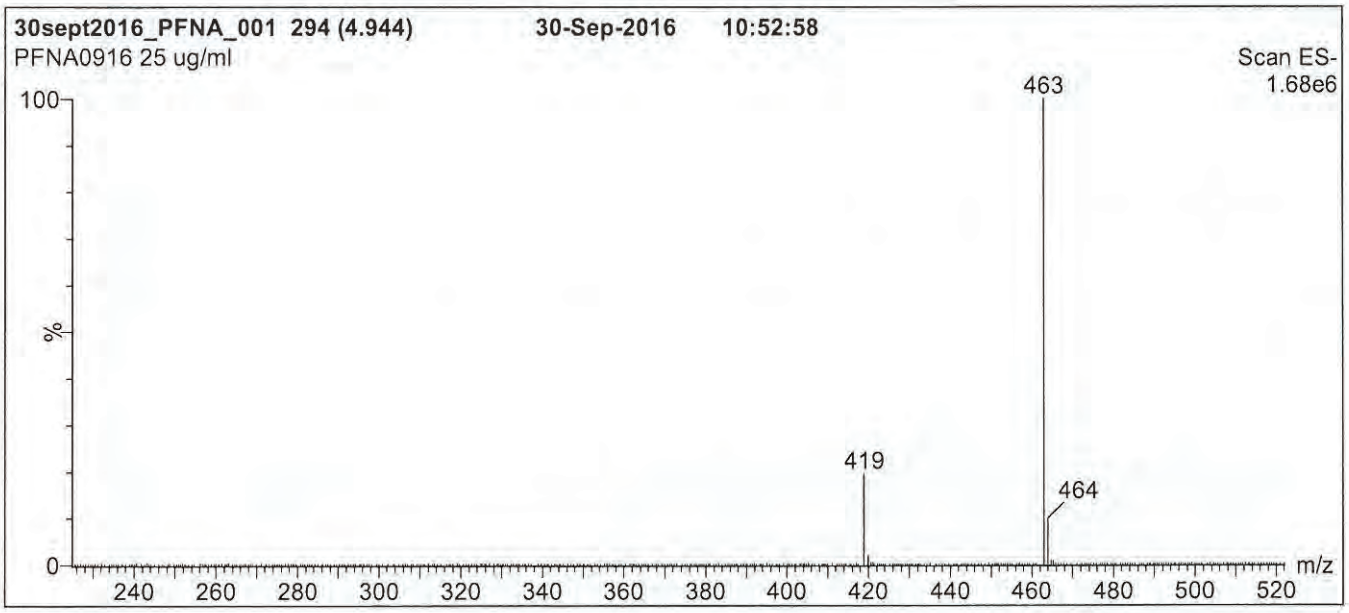
CALA Testing

ANAB ACCREDITED

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Figure 1: **PFNA; 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: 50% (80:20 MeOH:ACN) / 50% 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

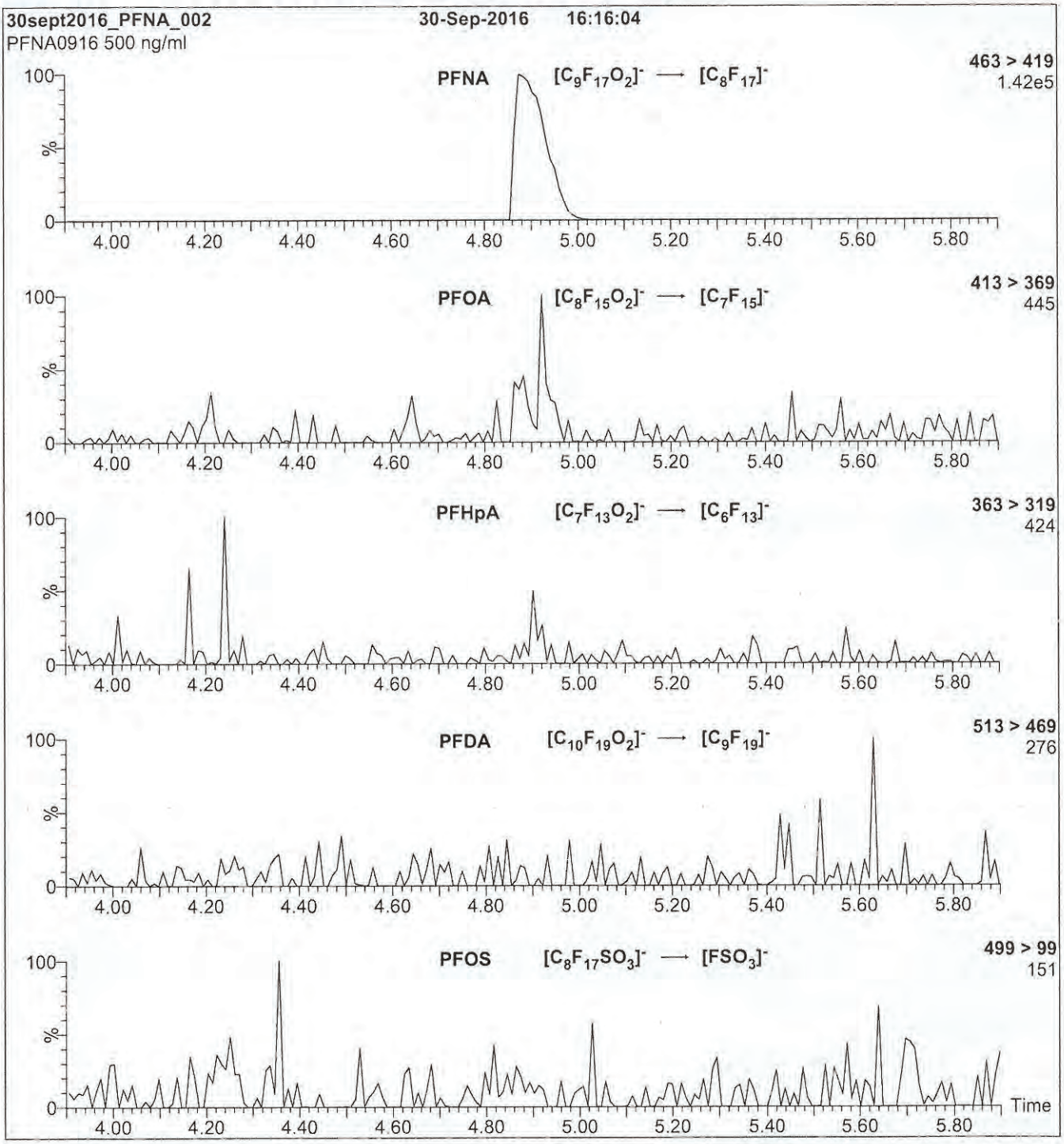
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFNA)

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) = 3.24e-3
Collision Energy (eV) = 11

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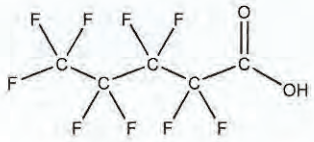
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0617

STRUCTURE:

CAS #: 2706-90-3



MOLECULAR FORMULA: $C_5HF_9O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 264.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 06/14/2017
EXPIRY DATE: (mm/dd/yyyy) 06/14/2022
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 ~ 0.3% 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:** 06/16/2017 (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

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UNCERTAINTY:

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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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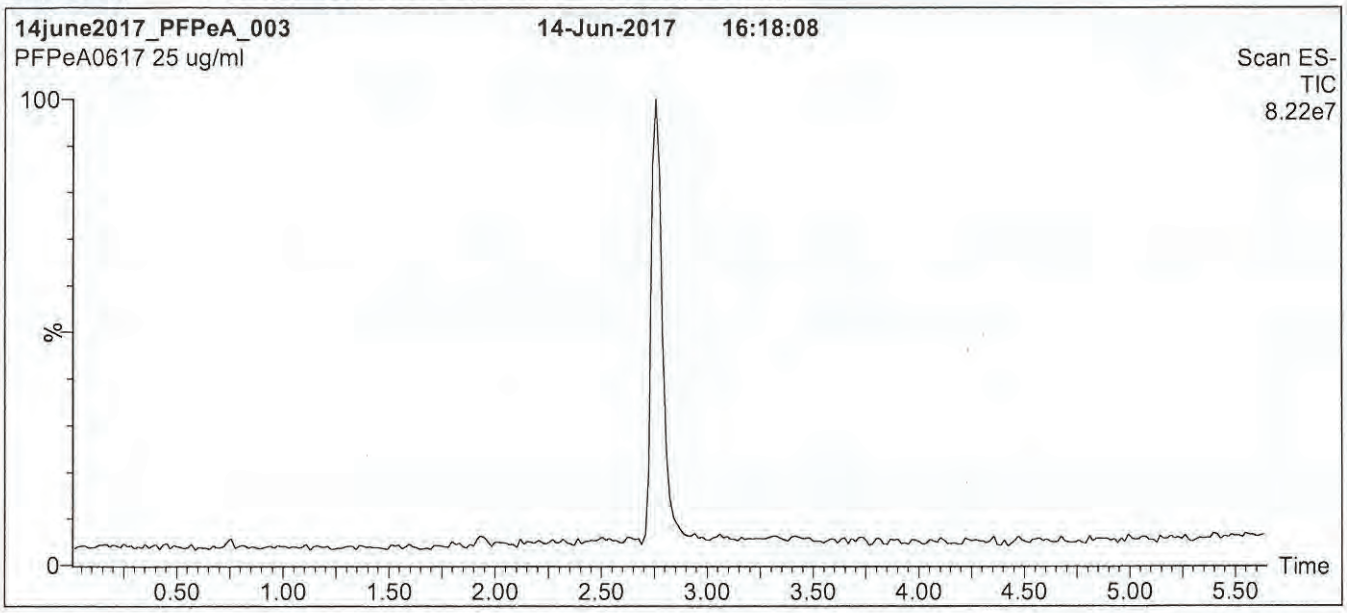
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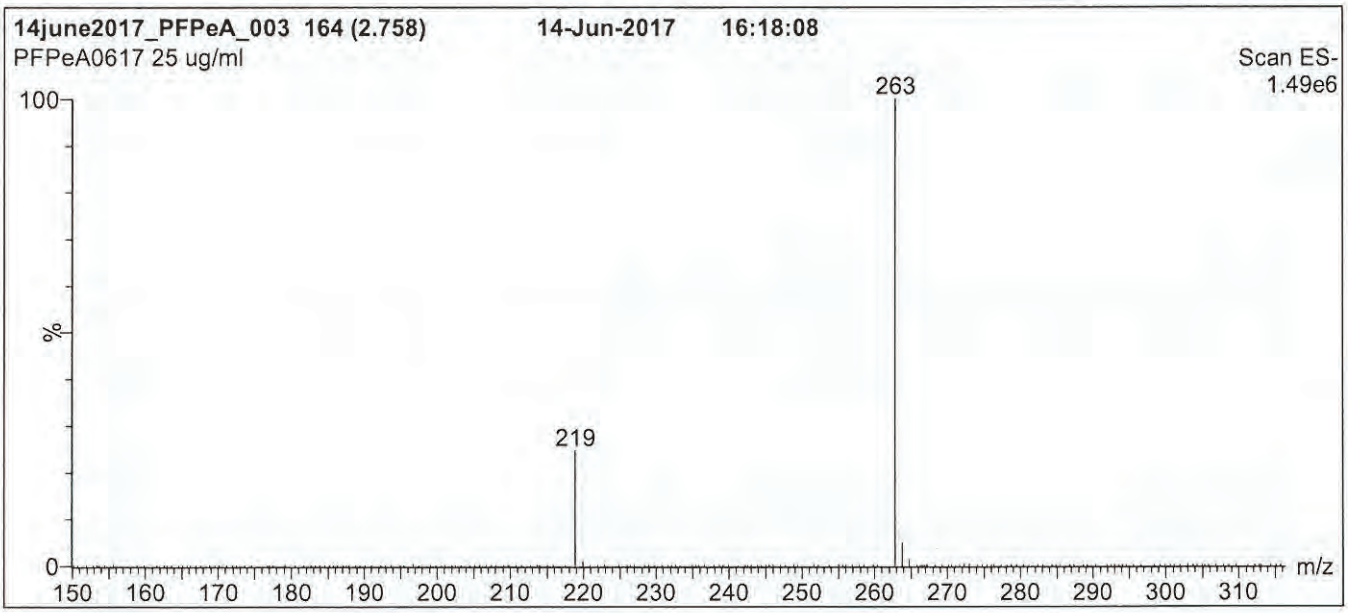
CALA

ANAB ACCREDITED

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Figure 1: **PFPeA; 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

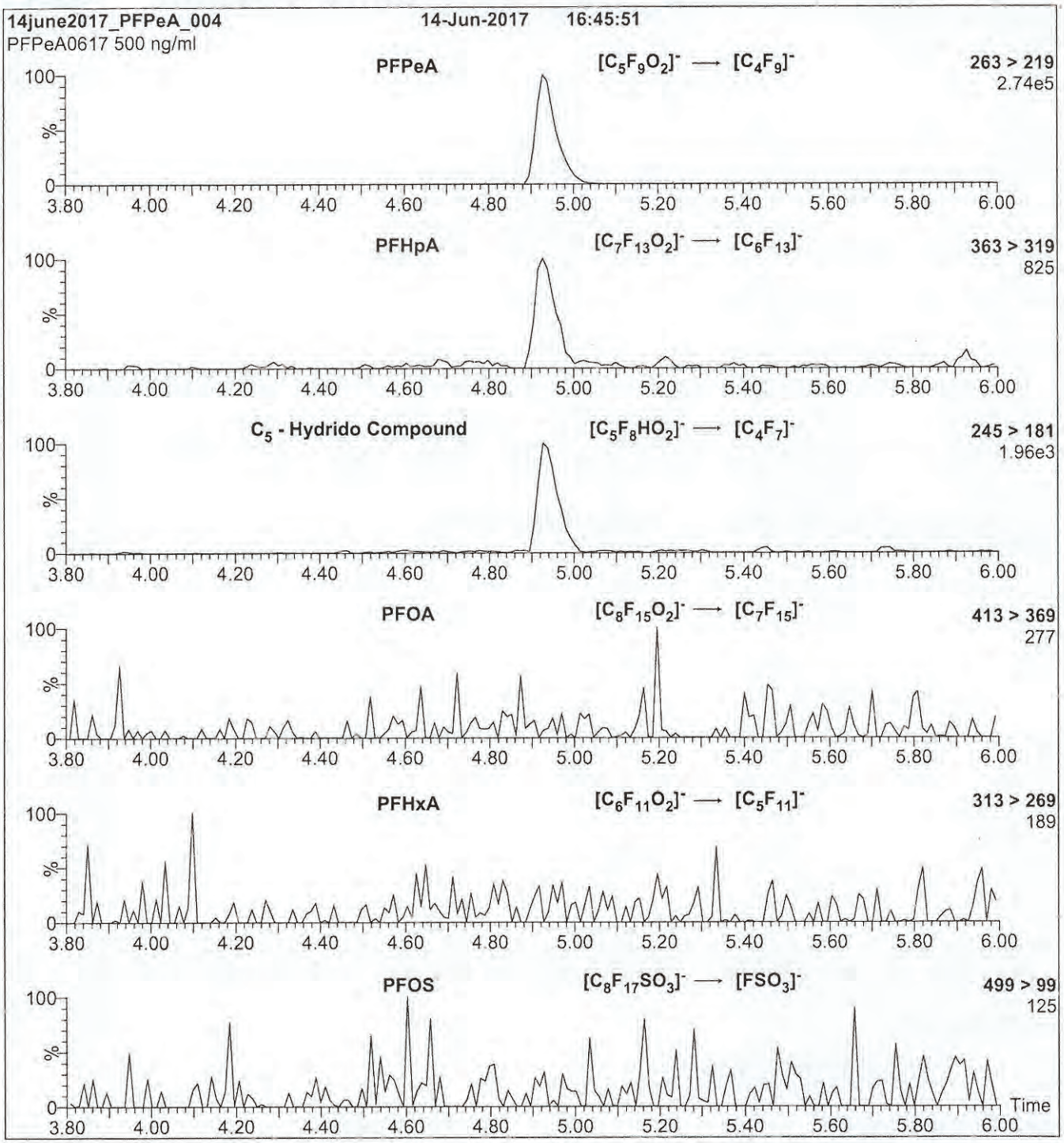
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFPeA)

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) = 3.62e-3
Collision Energy (eV) = 9

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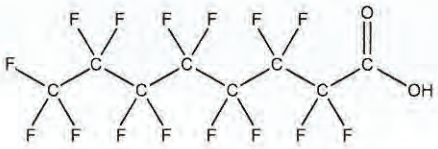
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFOA ✓
COMPOUND: Perfluoro-n-octanoic acid

LOT NUMBER: PFOA0217

STRUCTURE:

CAS #: 335-67-1



MOLECULAR FORMULA: $C_8HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 414.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/17/2017
EXPIRY DATE: (mm/dd/yyyy) 02/17/2022
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/22/2017 (mm/dd/yyyy)
B.G. Chittim

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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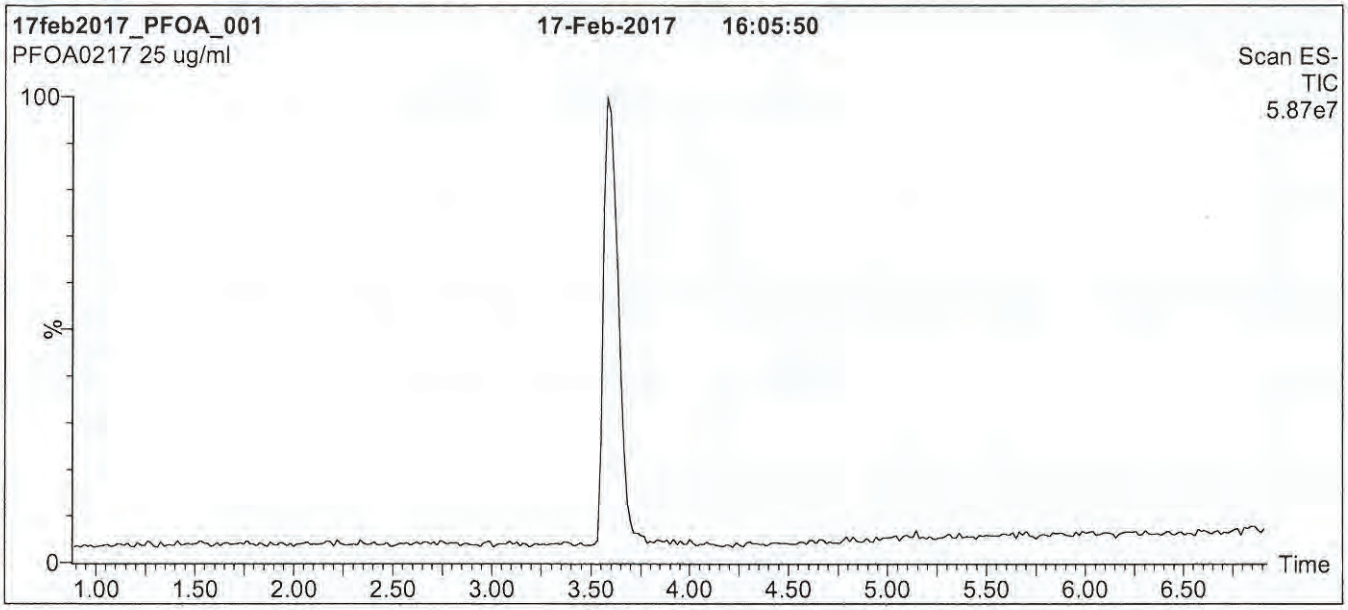
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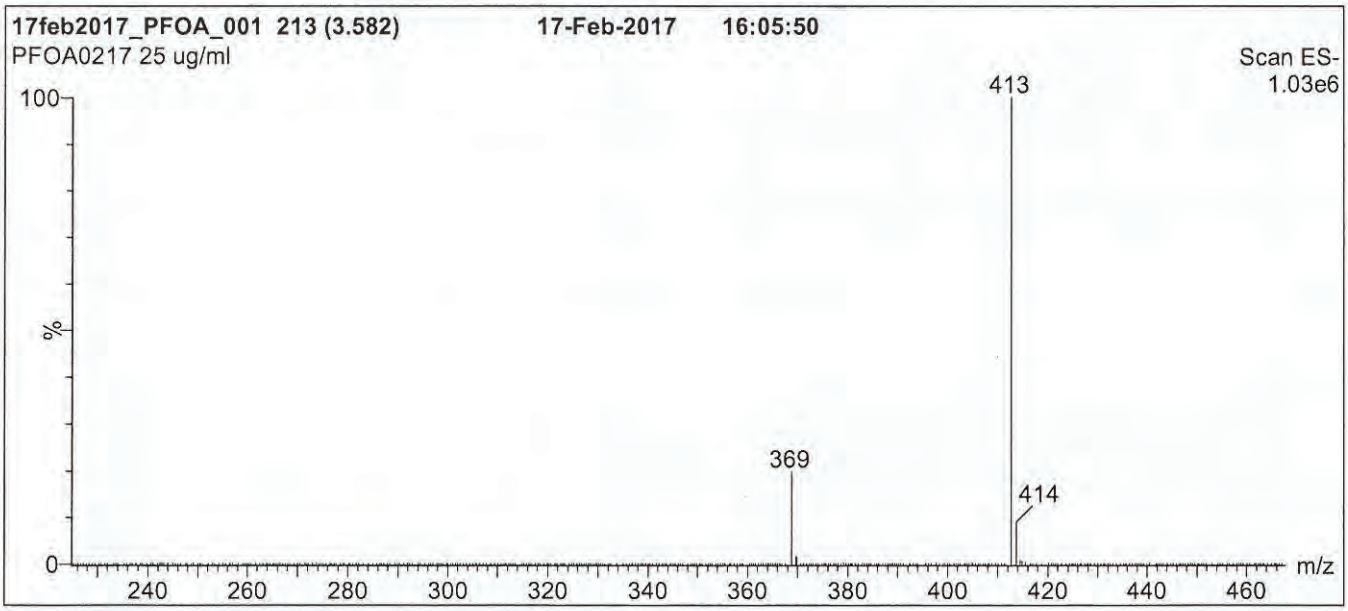
CALA

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Figure 1: **PFOA; 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: 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
1 min before returning to initial conditions in 0.5 min.
Time: 10 min

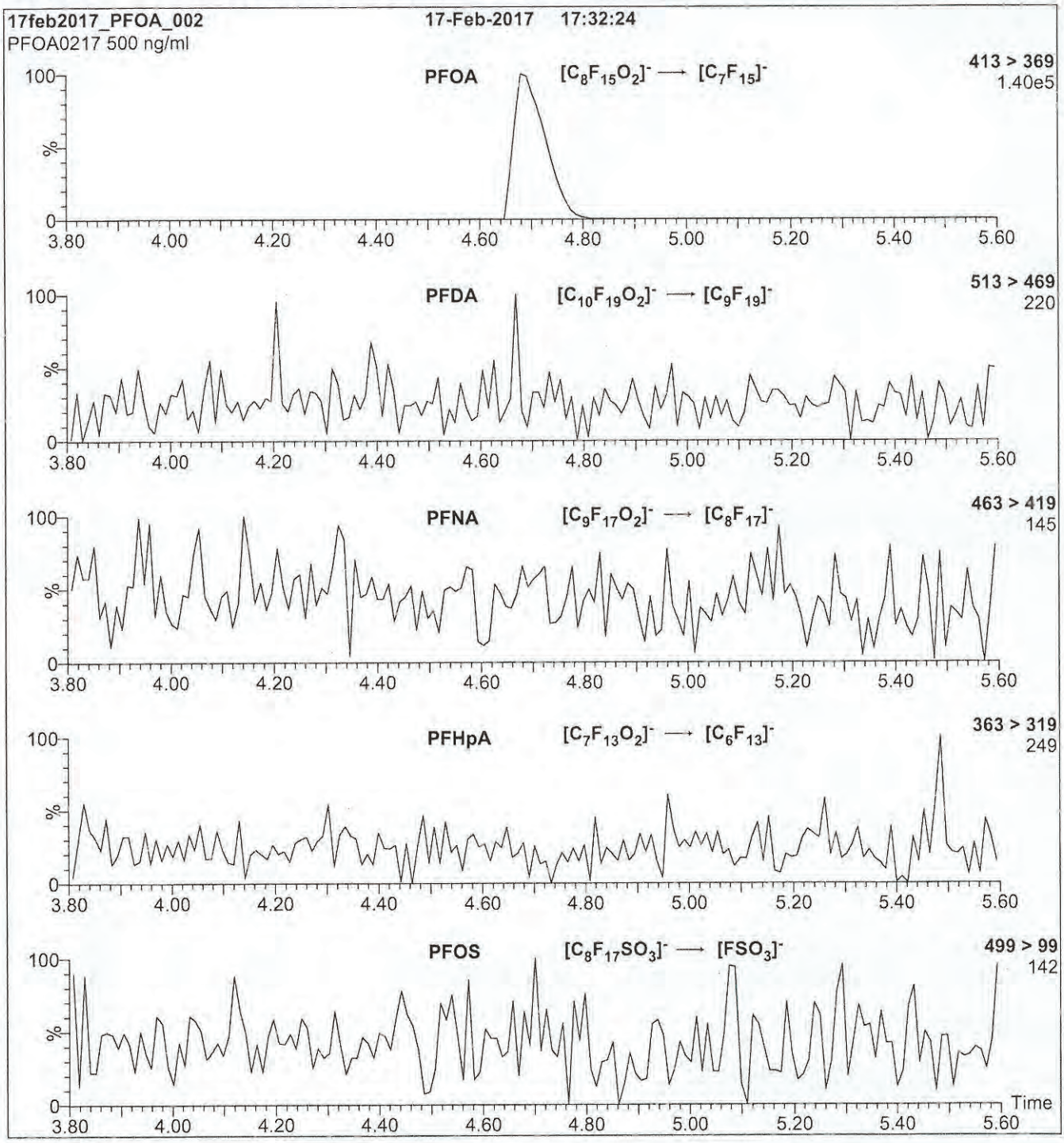
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFOA)

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

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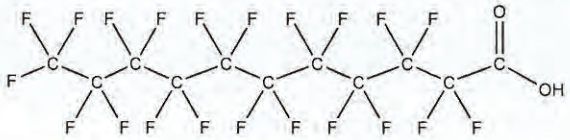
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid

LOT NUMBER: PFUdA1016

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)	10/18/2016		
EXPIRY DATE: (mm/dd/yyyy)	10/18/2021		
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: B.G. Chittim **Date:** 10/19/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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.

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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,...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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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:

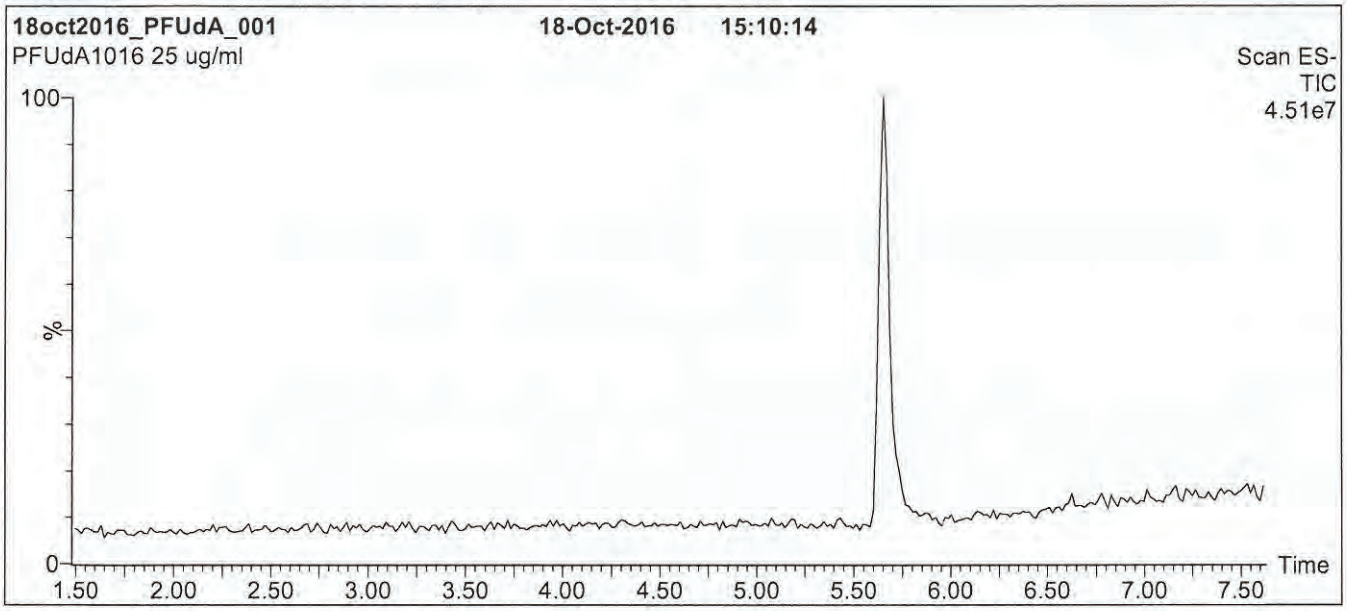
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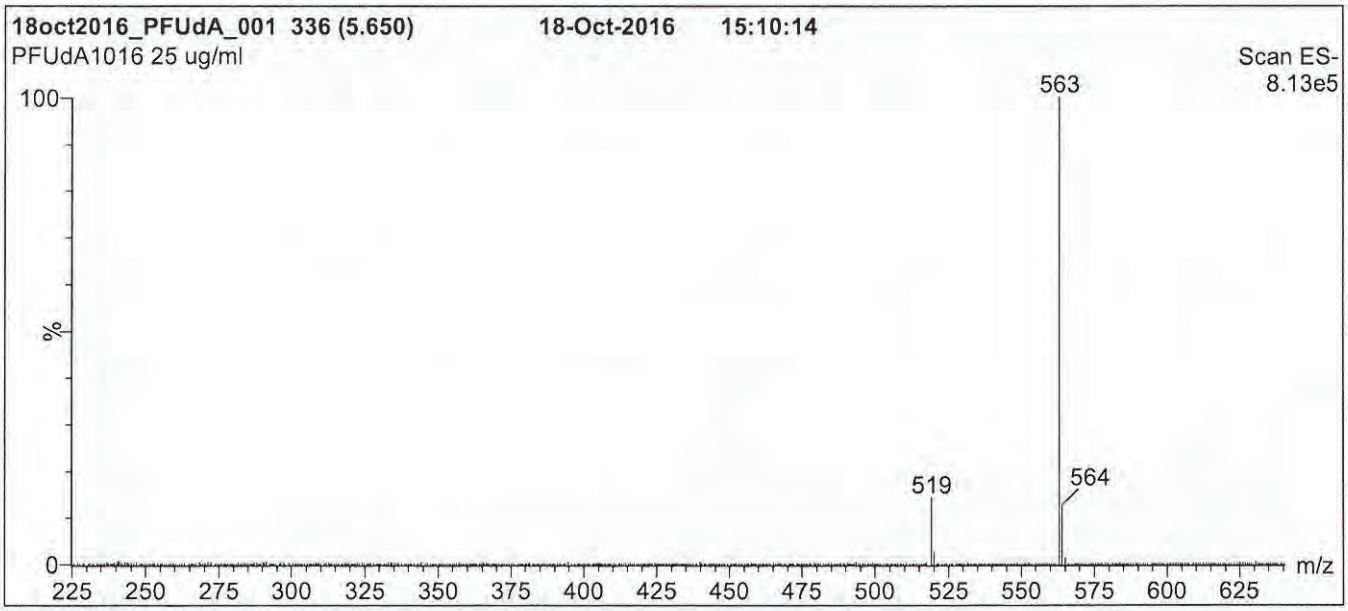
CALA

ANAB ACCREDITED

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Figure 1: **PFUdA; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

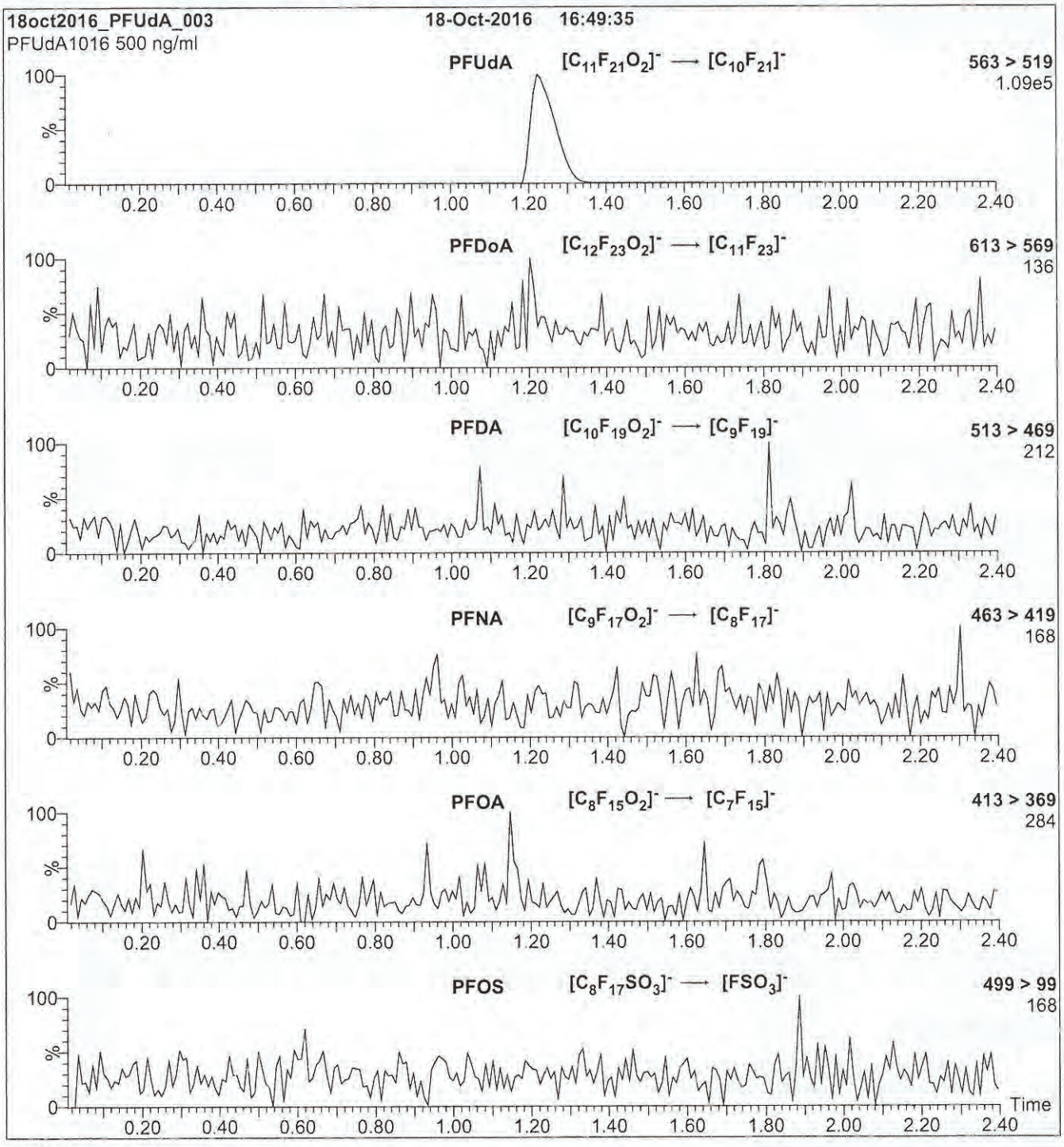
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFUdA)

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) = 3.24e-3
Collision Energy (eV) = 11

17H0825

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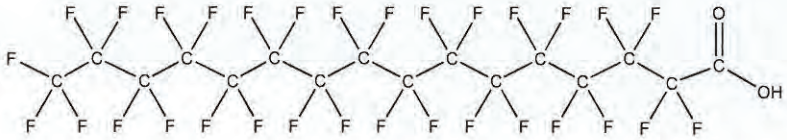
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxDA ✓
COMPOUND: Perfluoro-n-hexadecanoic acid

LOT NUMBER: PFHxDA0516

STRUCTURE:

CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 814.13
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/25/2016
EXPIRY DATE: (mm/dd/yyyy) 05/25/2021
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 ~ 0.4% of PFODA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/27/2016 (mm/dd/yyyy)

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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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:

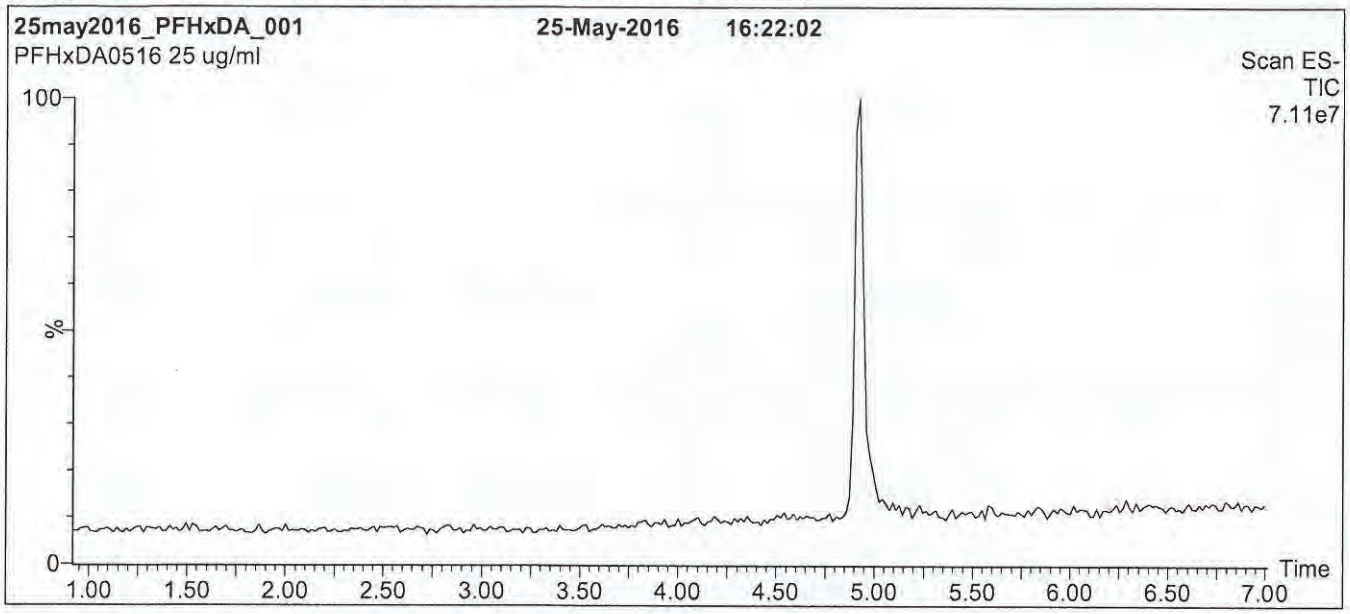
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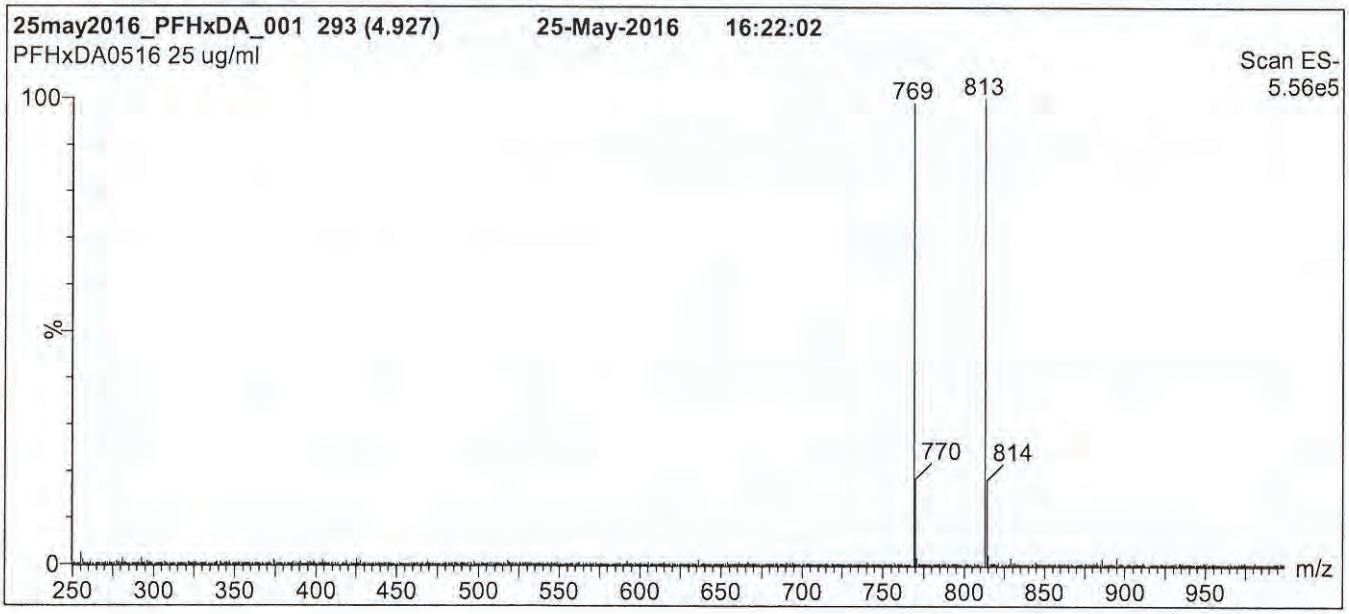
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Figure 1: **PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





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: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

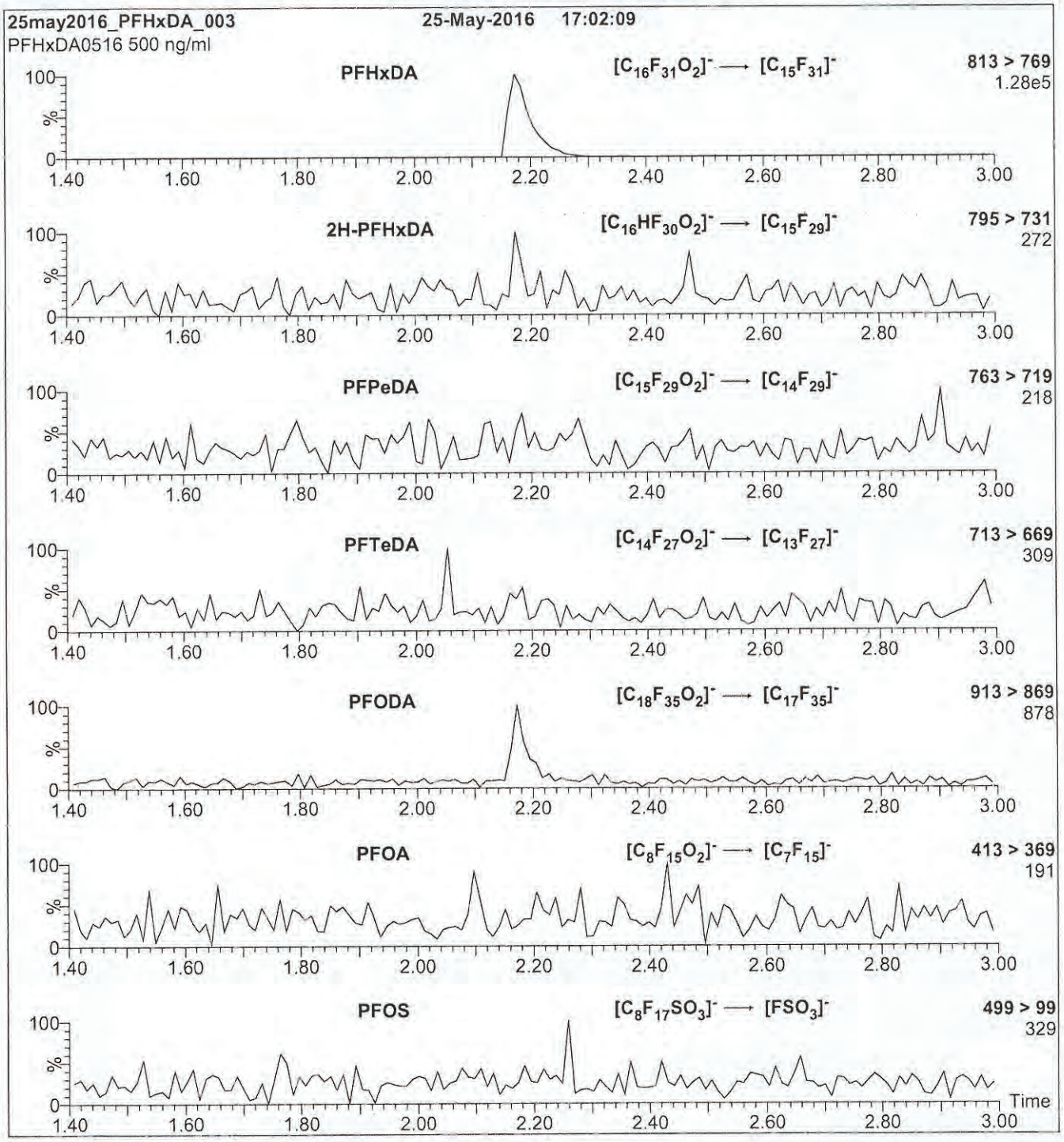
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxDA)

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) = 3.66e-3
Collision Energy (eV) = 15

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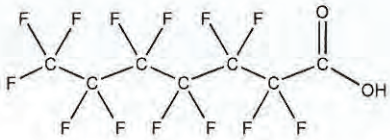
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA ✓
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA1216

STRUCTURE:

CAS #: 375-85-9



MOLECULAR FORMULA: $C_7HF_{13}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 364.06
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/02/2016
EXPIRY DATE: (mm/dd/yyyy) 12/02/2021
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.

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Certified By: B.G. Chittim **Date:** 12/12/2016 (mm/dd/yyyy)

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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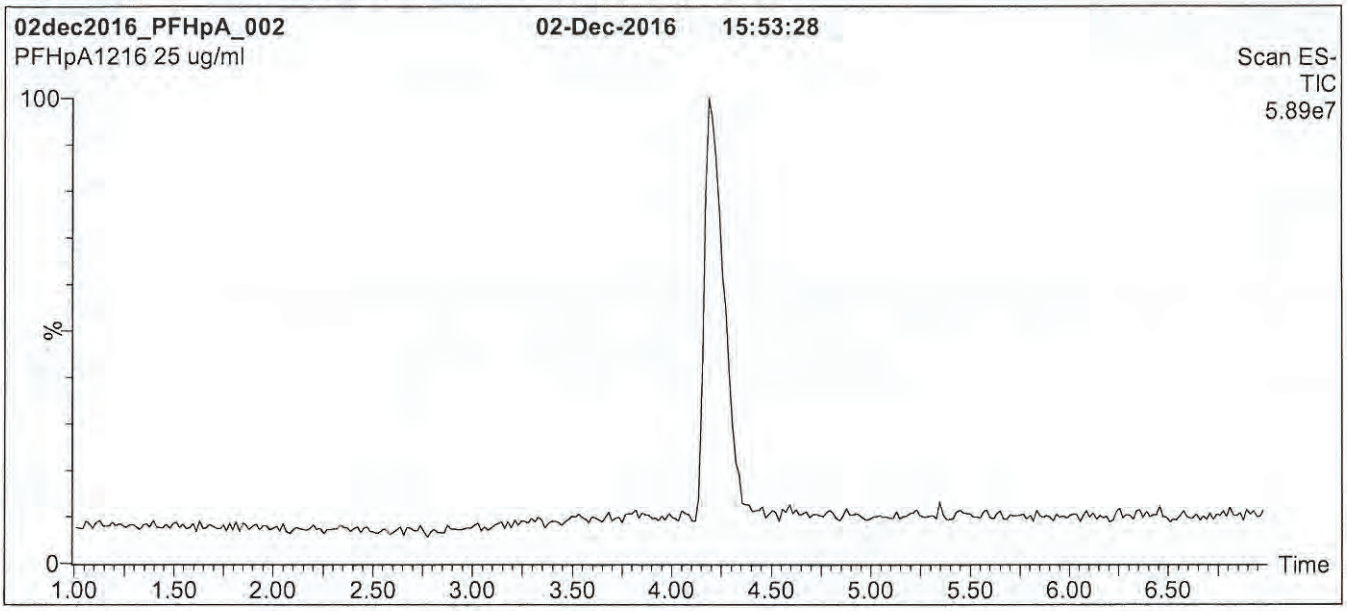
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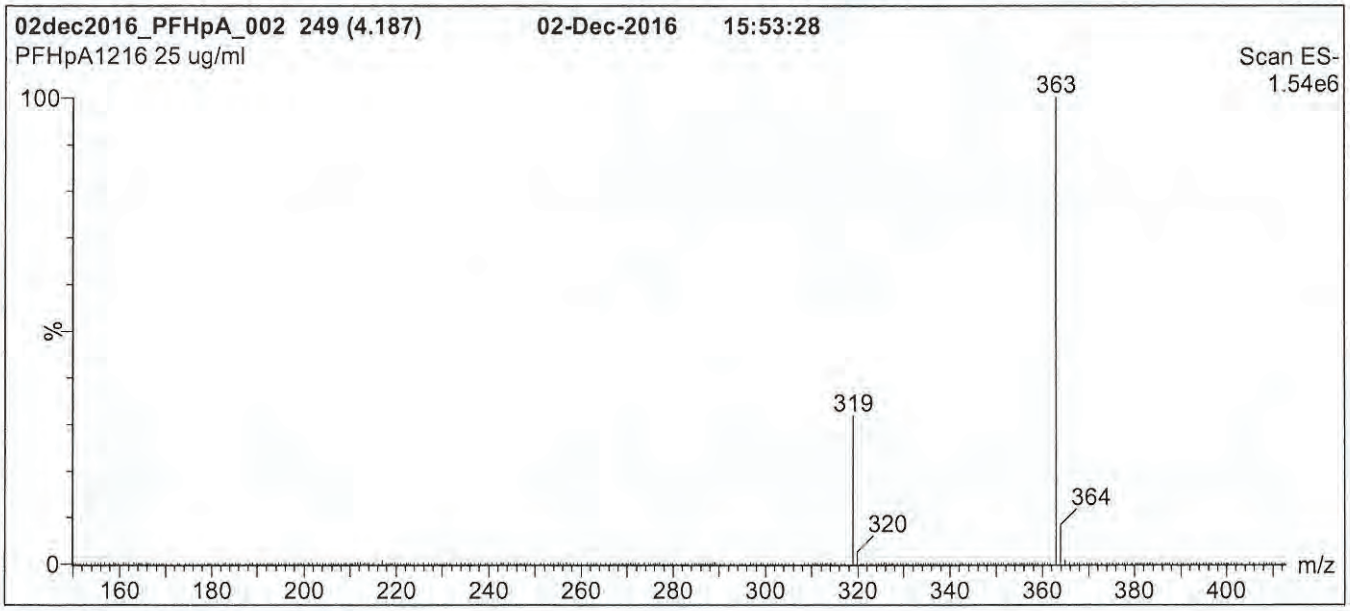
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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Figure 1: **PFHpA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

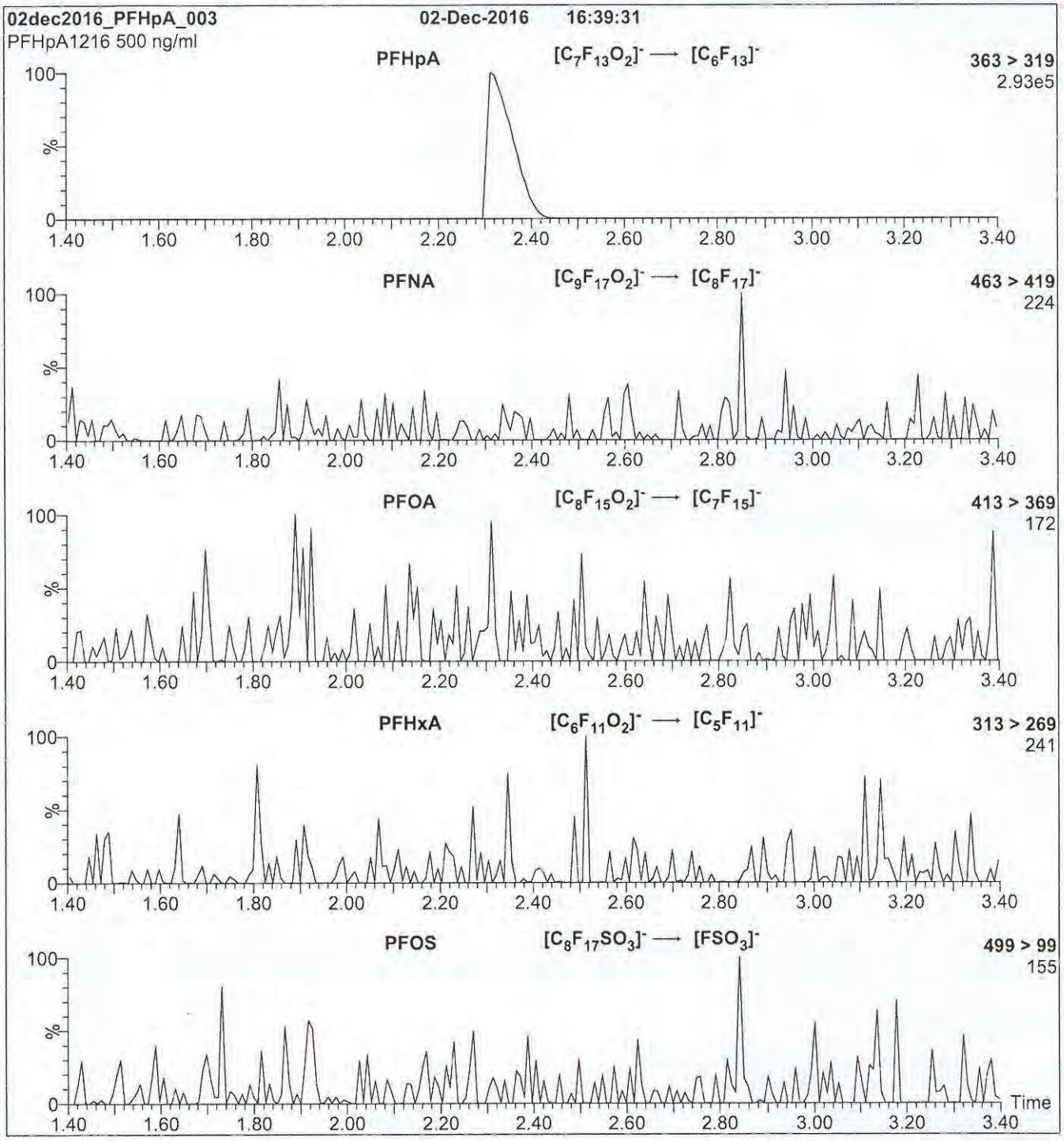
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHpA)

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) = 3.50e-3
Collision Energy (eV) = 11

17H0827

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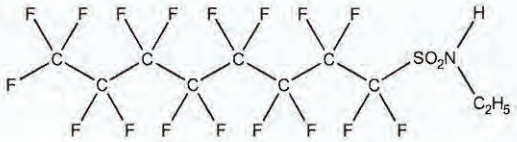
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0717M

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)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
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:** 07/18/2017 (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

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:

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 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:

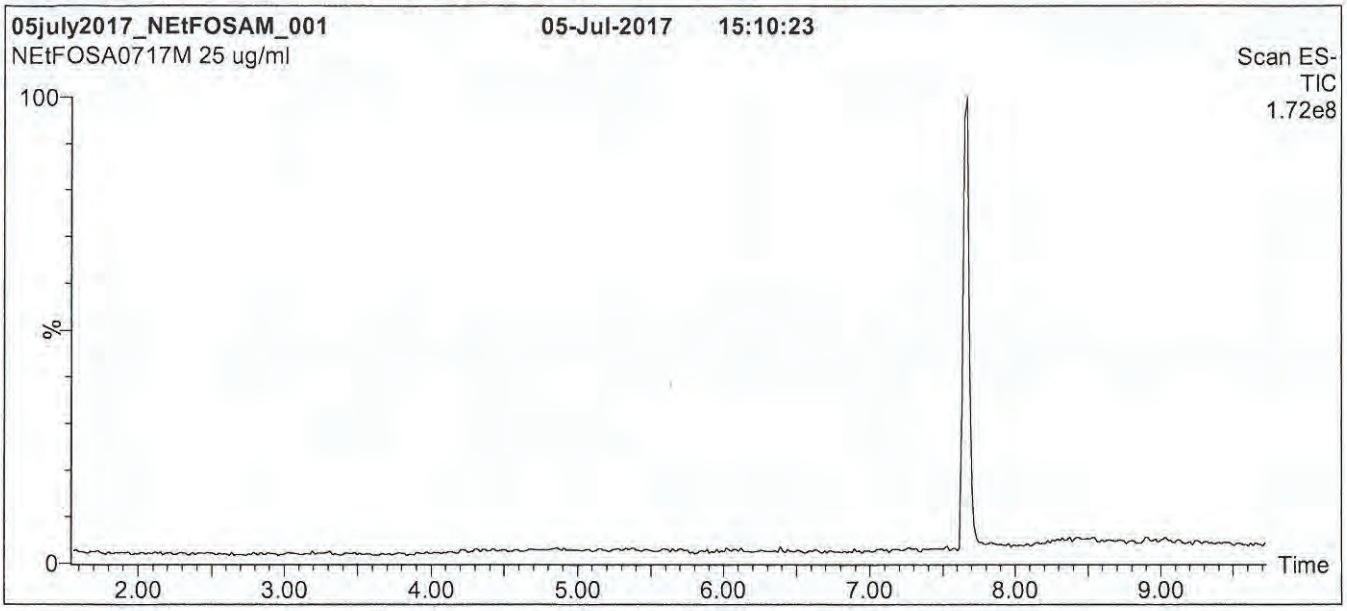
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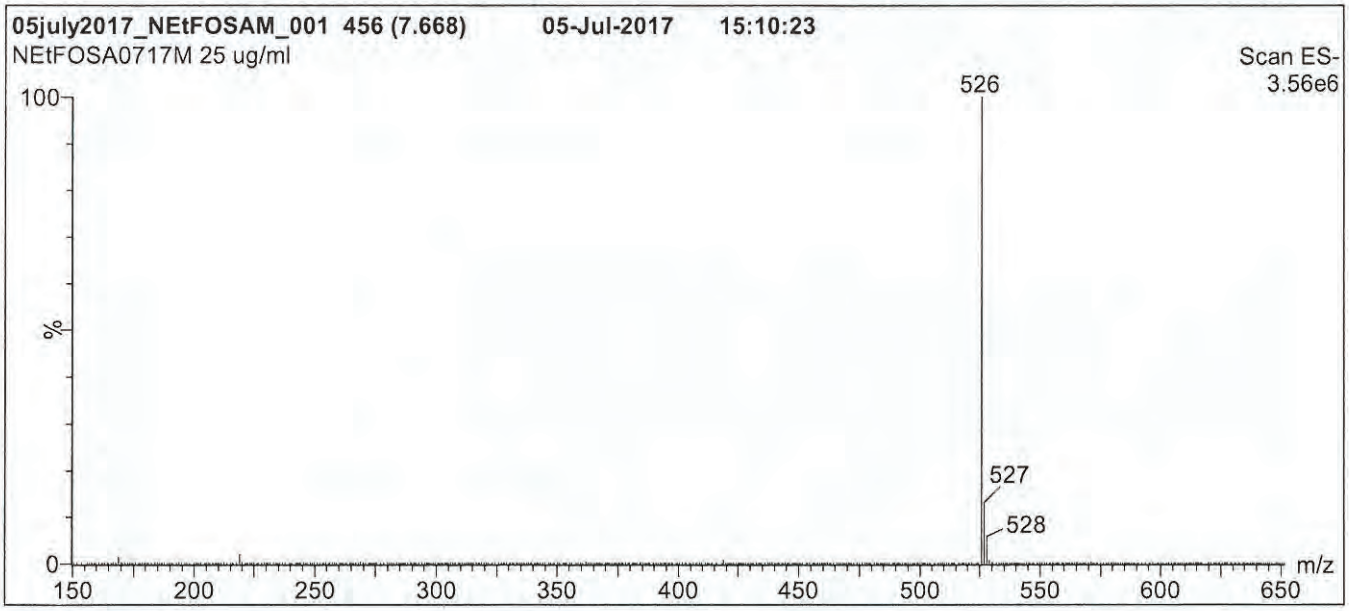
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ANAB ACCREDITED

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Figure 1: **N-EtFOSA-M; 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: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

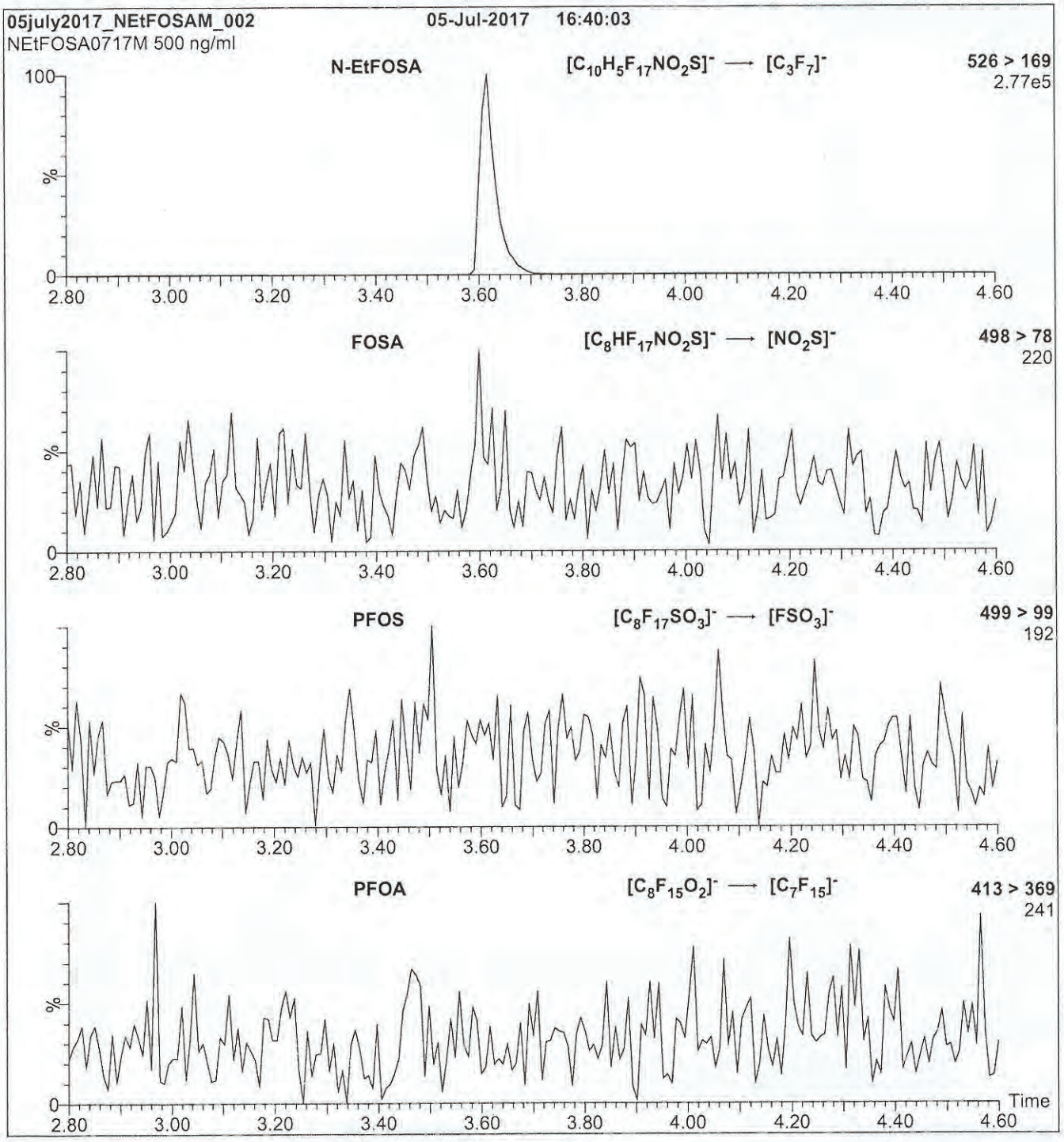
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSA-M)

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) = 30

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WELLINGTON LABORATORIES

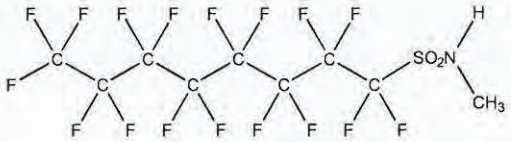
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M ✓
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0717M

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)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
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:** 07/10/2017 (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

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

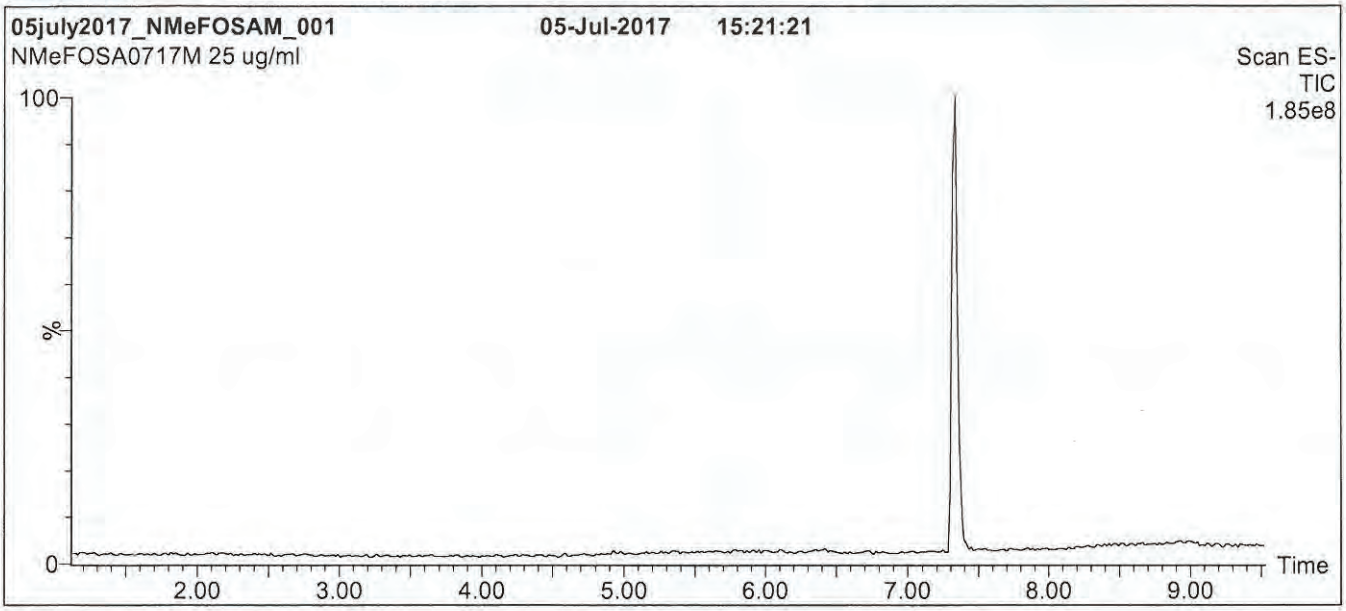
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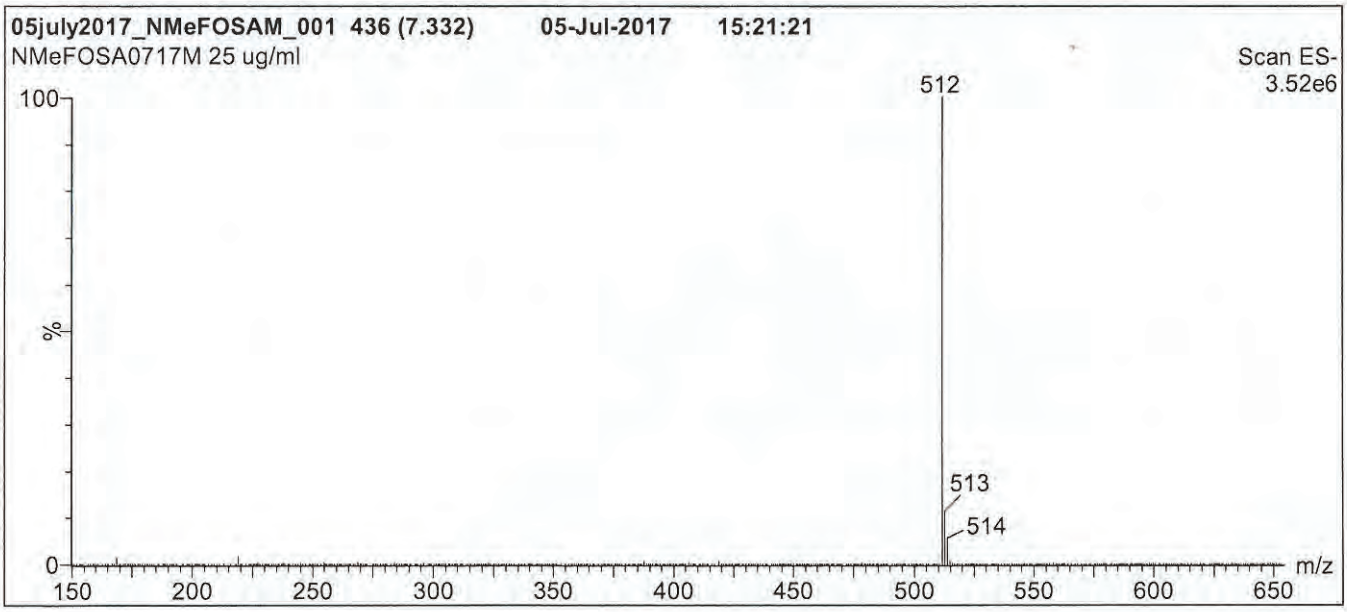
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ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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Figure 1: **N-MeFOSA-M; 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: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

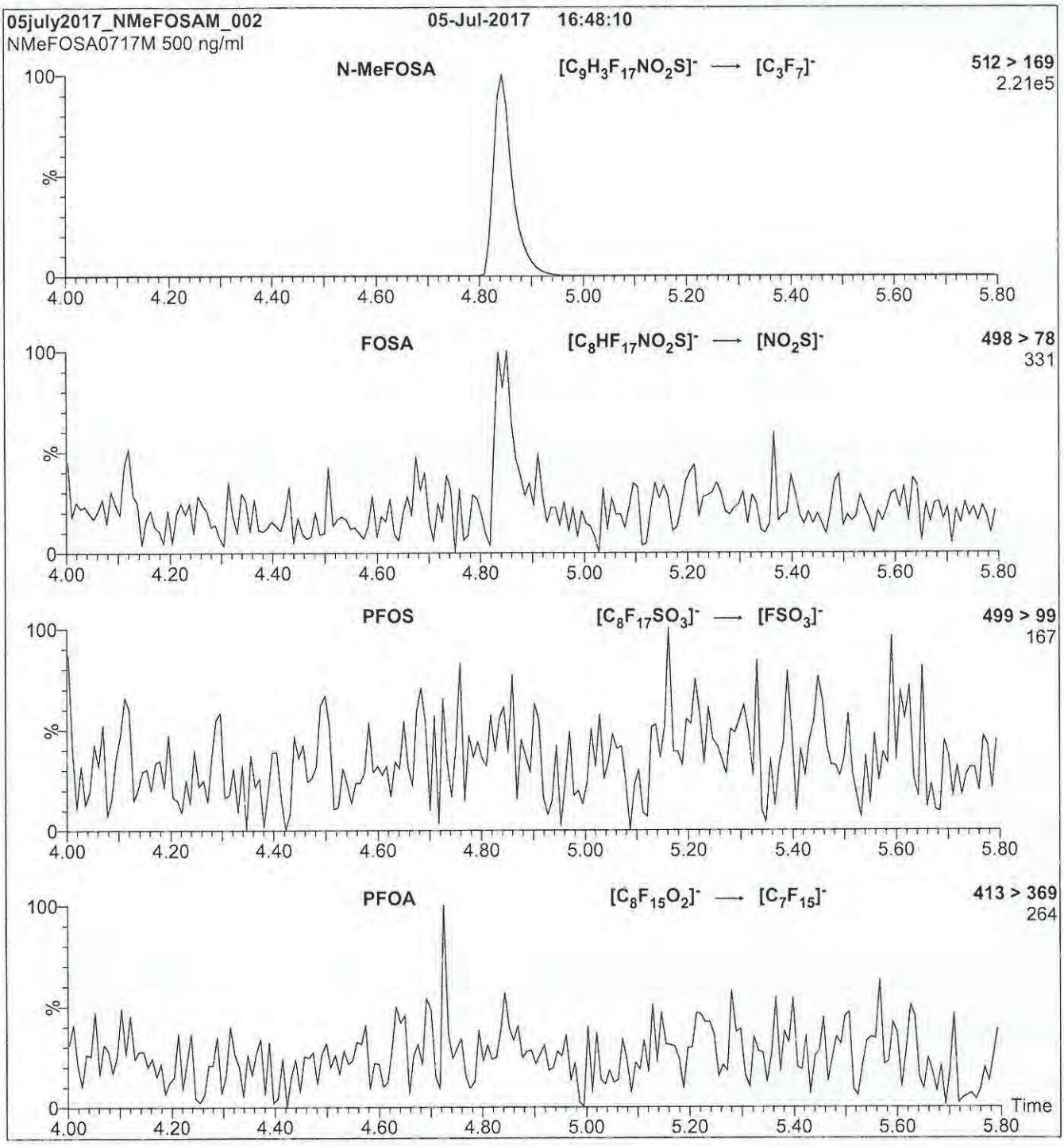
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSA-M)

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) = 3.31e-3
Collision Energy (eV) = 30

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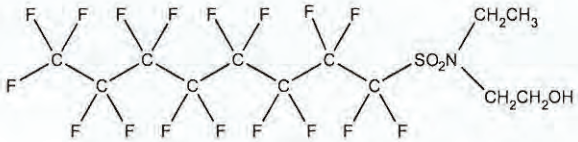
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M ✓ **LOT NUMBER:** NEtFOSE0417M

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)	04/24/2017 (HRGC/LRMS) 04/21/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	04/24/2022		
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:** 04/26/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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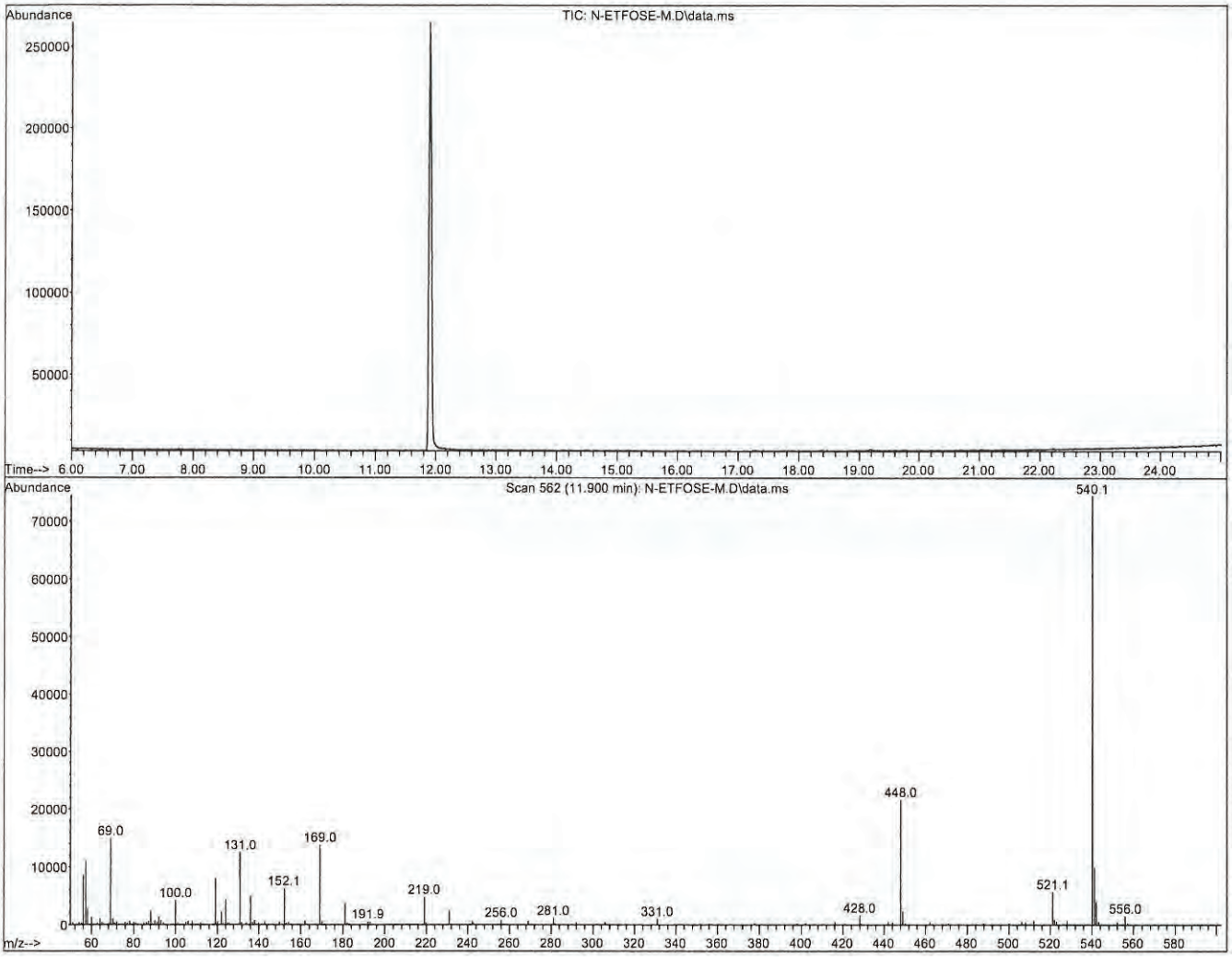
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ANAB ACCREDITED

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Figure 1: **N-EtFOSE-M; HRGC/LRMS Data (TIC and Mass Spectrum)**



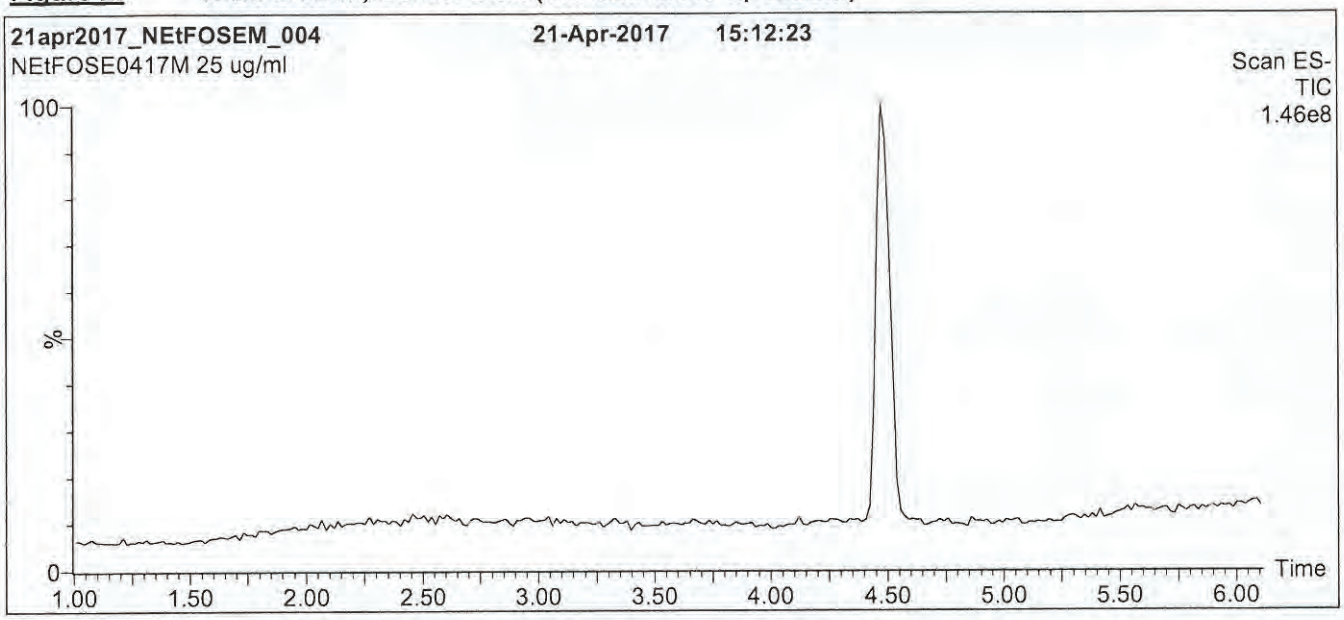
HRGC/LRMS:

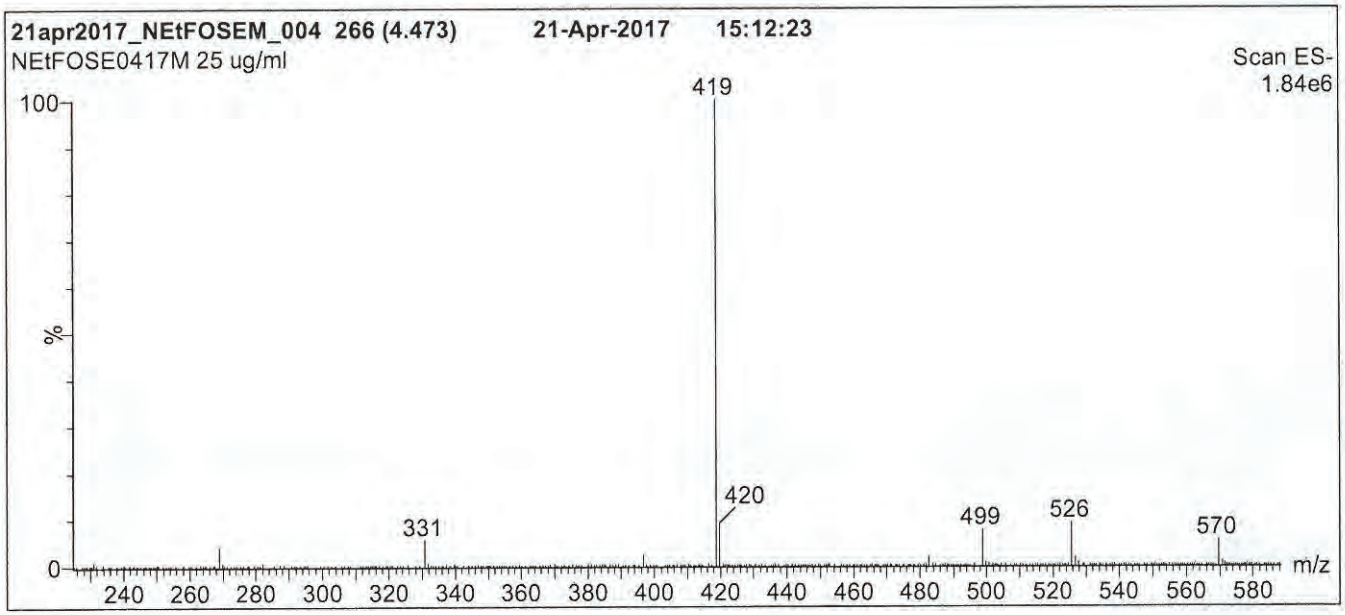
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

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)

Figure 2: **N-EtFOSE-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 2:

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: 60% MeOH / 40% H_2O
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

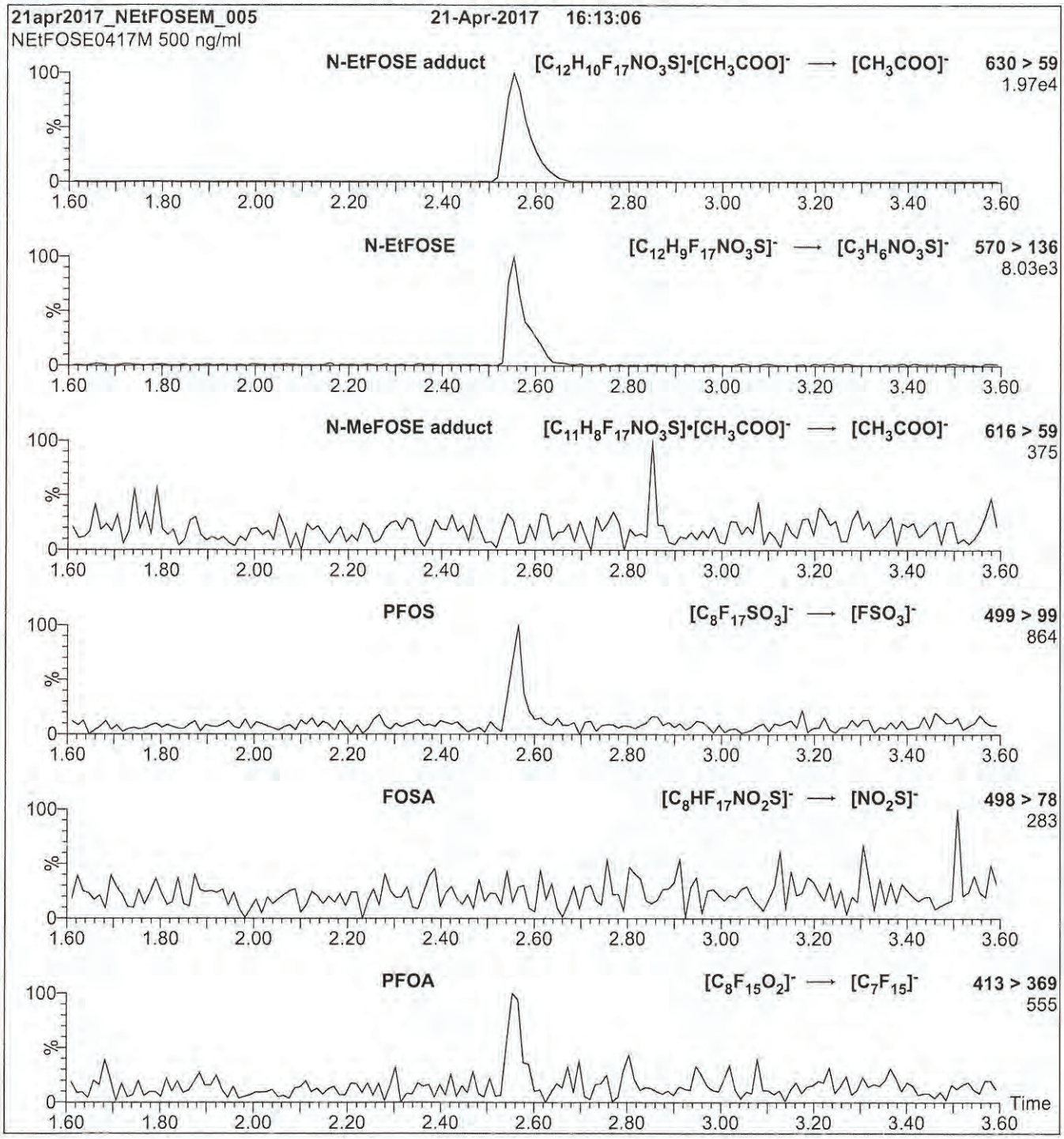
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 3: **N-EtFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSE-M)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 33

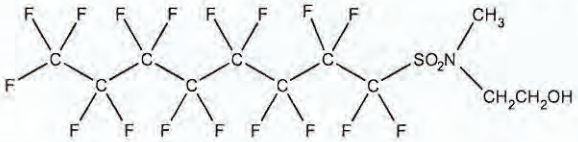
17H0830

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0417M
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) 04/24/2017 (HRGC/LRMS)
04/21/2017 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 04/24/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
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Certified By: _____ **Date:** 05/05/2017 (mm/dd/yyyy)
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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

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:

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 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:

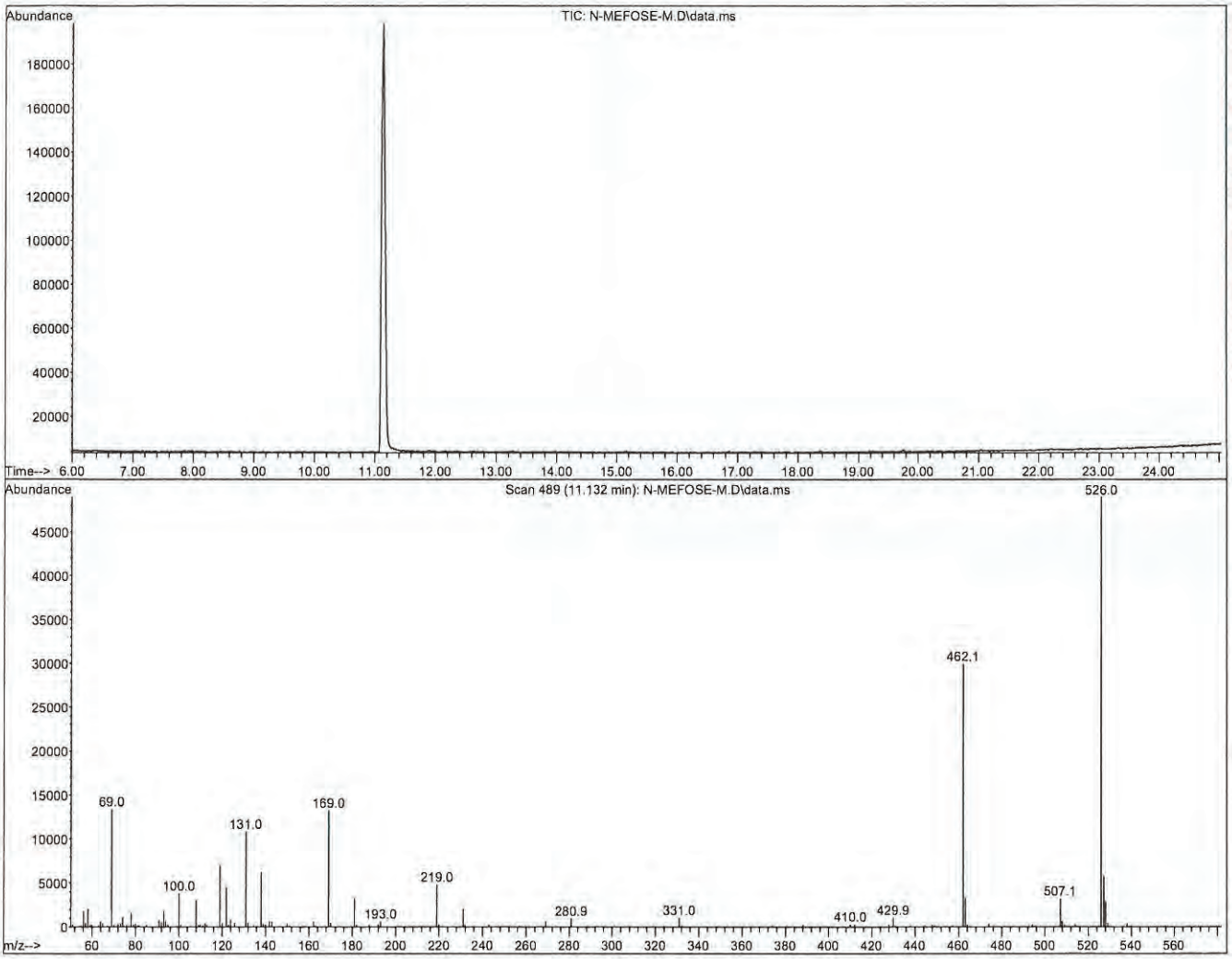
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing

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: **N-MeFOSE-M; HRGC/LRMS Data (TIC and Mass Spectrum)**



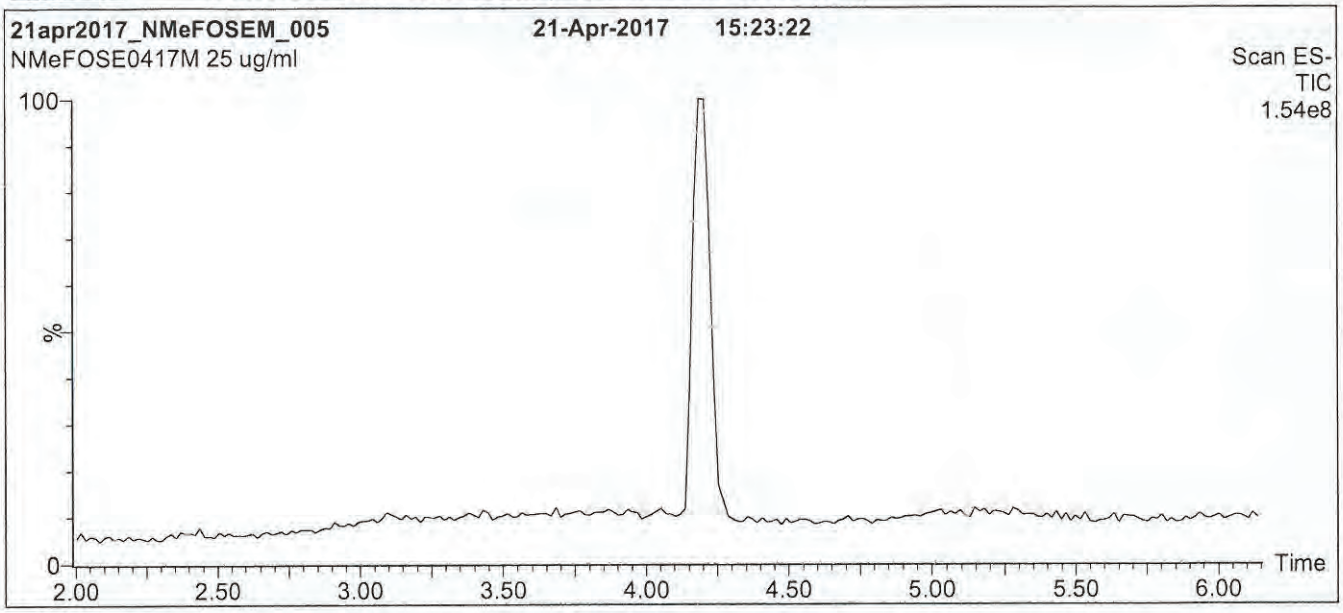
HRGC/LRMS:

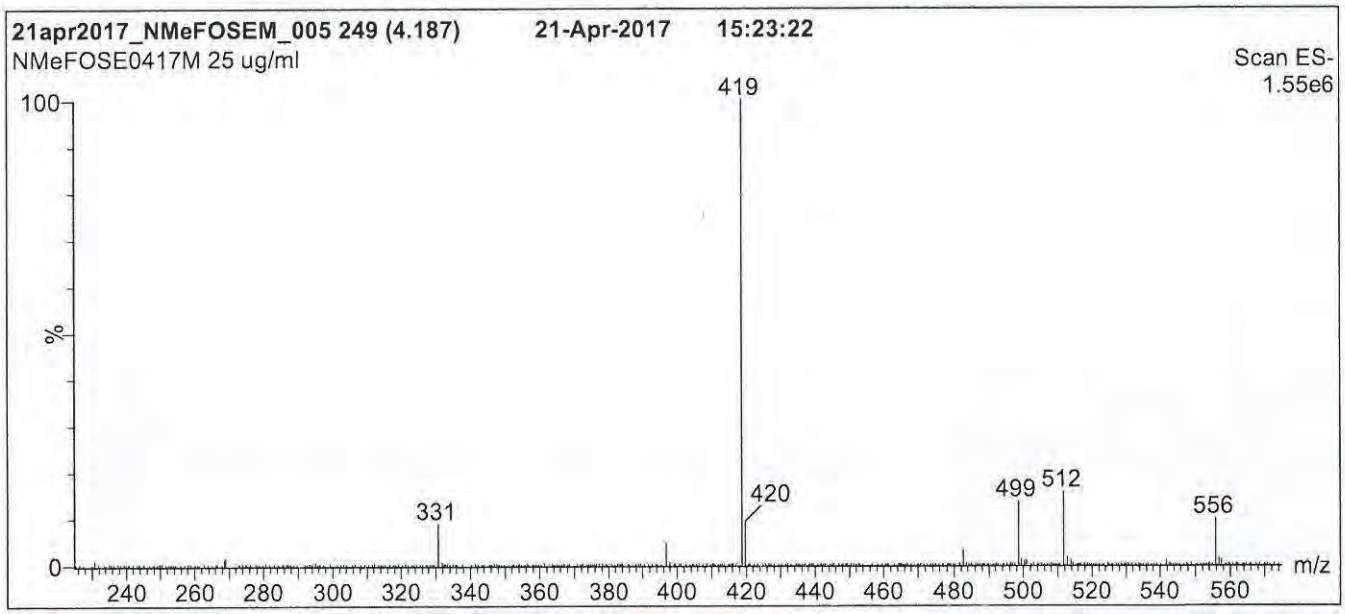
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

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)

Figure 2: **N-MeFOSE-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 2:

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: 60% MeOH / 40% H_2O
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

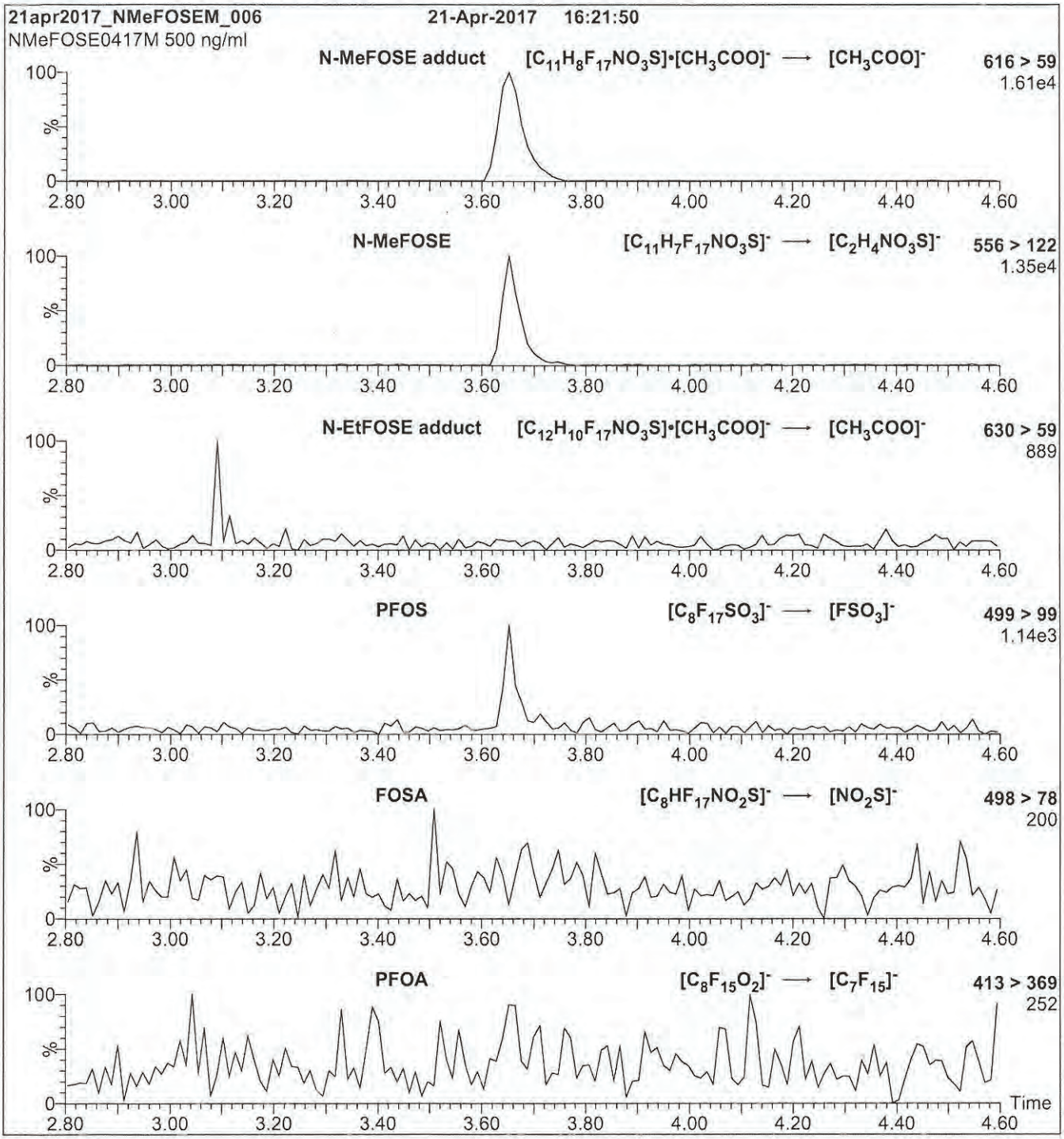
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 3: **N-MeFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSE-M)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 35

Analytical Standard Record

Vista Analytical Laboratory

17K0822

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
17E1716	13C2-PFHxA	17-May-17	** Vendor **	22-Nov-21	0.2
17H0801	13C2-PFHxDA	08-Aug-17	** Vendor **	07-Jan-21	0.2
17H2507	13C2-PFDA	25-Aug-17	** Vendor **	13-Jul-22	0.5
17H2508	13C8-FOSA-I	25-Aug-17	** Vendor **	20-Apr-22	0.5
17H2509	13C2-PFOA	25-Aug-17	** Vendor **	12-Feb-21	0.5
17H2510	13C3-PFPeA	25-Aug-17	** Vendor **	20-Apr-22	0.5
17K0802	d3-N-Me-FOSAA	08-Nov-17	** Vendor **	19-May-22	0.5
17K0803	d5-N-EtFOSAA	08-Nov-17	** Vendor **	22-Nov-21	0.5
17K0804	13C3-PFBA	08-Nov-17	** Vendor **	27-May-21	0.5
17K0805	13C2-8:2 FTS	08-Nov-17	** Vendor **	05-Jul-22	0.522
17K0807	13C2-6:2 FTS	08-Nov-17	** Vendor **	17-Feb-22	0.526
17K0810	13C5-PFNA	08-Nov-17	** Vendor **	30-Sep-21	0.5
17K0812	13C2-PFTeDA	08-Nov-17	** Vendor **	01-Mar-22	0.5
17K0813	13C2-PFUdA	08-Nov-17	** Vendor **	22-Nov-21	0.5
17K0814	13C4-PFHpA	08-Nov-17	** Vendor **	03-May-22	0.5
17K0816	13C2-PFDoA	08-Nov-17	** Vendor **	23-May-22	0.5
17K0818	18O2-PFHxS	08-Nov-17	** Vendor **	17-Feb-22	0.529
17K0819	13C8-PFOS	08-Nov-17	** Vendor **	30-Sep-21	0.539
17K0821	13C3-PFBS	08-Nov-17	** Vendor **	24-May-22	0.538

Description:	PFC - IS	Expires:	08-Nov-19
Standard Type:	Reagent	Prepared:	08-Nov-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	12-Dec-17 09:51 by AEW

Analyte	CAS Number	Concentration	Units
13C3-PFBS		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		0.5	ug/mL
13C2-PFHxDA		0.5	ug/mL
13C2-PFOA		1.25	ug/mL
13C2-PFTeDA		1.25	ug/mL
13C2-6:2 FTS		1.25	ug/mL
13C3-PFBA		1.25	ug/mL
d5-EtFOSAA		1.25	ug/mL
13C3-PFPeA		1.25	ug/mL
13C4-PFHpA		1.25	ug/mL
13C5-PFNA		1.25	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

17K0822

Description:	PFC - IS	Expires:	08-Nov-19
Standard Type:	Reagent	Prepared:	08-Nov-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
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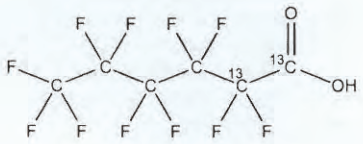
Analyte	CAS Number	Concentration	Units
13C8-PFOS		1.25	ug/mL
13C8-PFOSA		1.25	ug/mL
18O2-PFHxS		1.25	ug/mL
d3-MeFOSAA		1.25	ug/mL
13C2-PFUnA		1.25	ug/mL

17E1716

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFHxA	**LOT NUMBER:**	MPFHxA1116
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)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
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-hexanoic acid and ~ 0.3% of perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/13/2016 (mm/dd/yyyy)
B.G. Chittim

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17H0801

WELLINGTON LABORATORIES

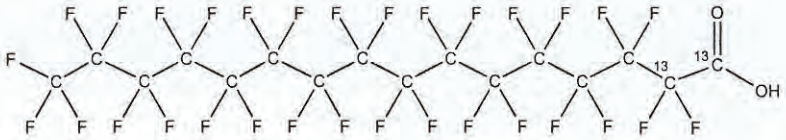
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFHxDA ✓
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexadecanoic acid

LOT NUMBER: M2PFHxDA1112

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)	01/07/2016		
EXPIRY DATE: (mm/dd/yyyy)	01/07/2021		
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 01/11/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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:

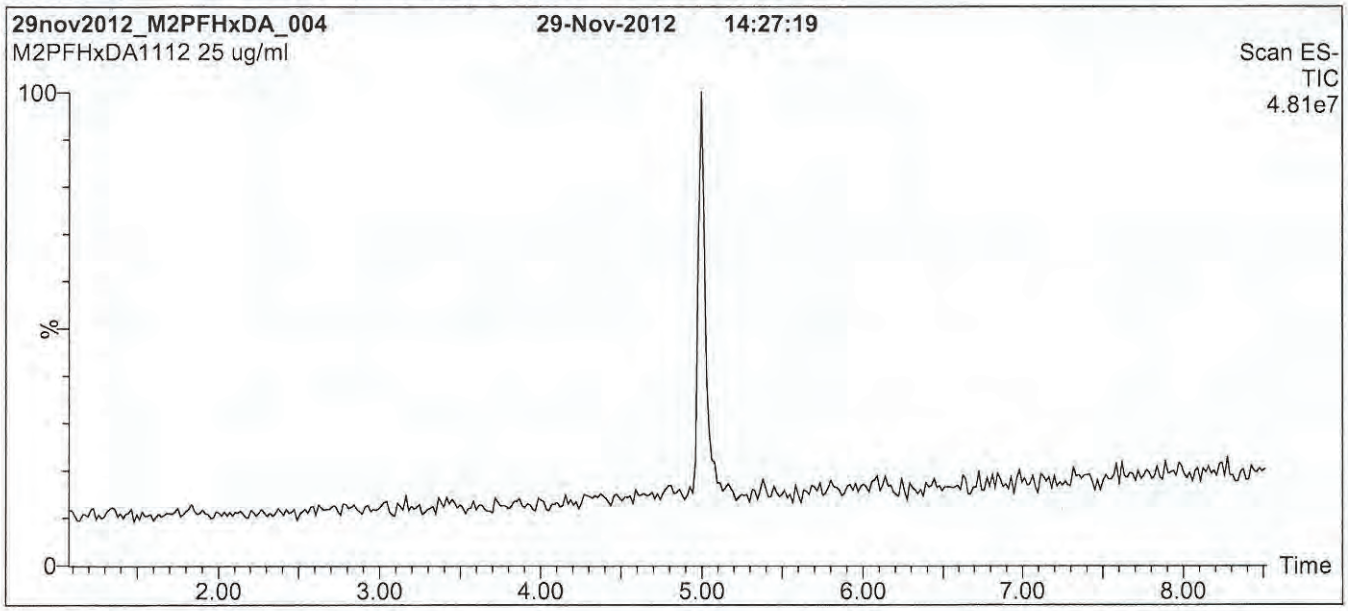
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

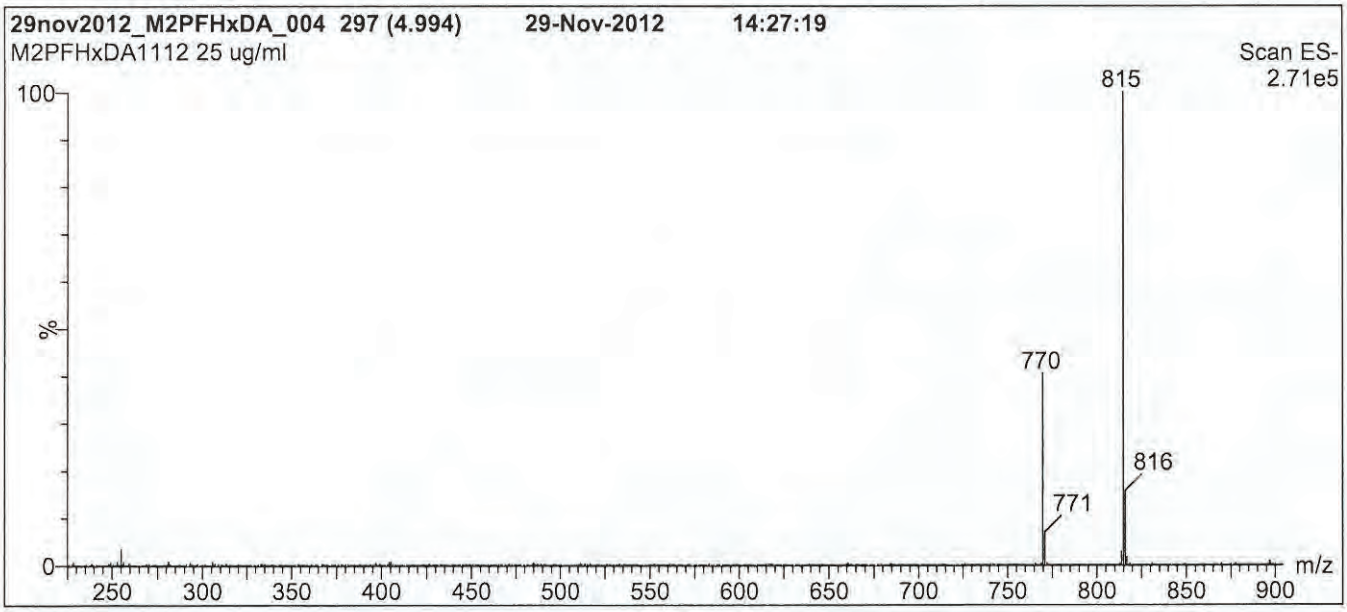
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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Figure 1: **M2PFHxDA; 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: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 100% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

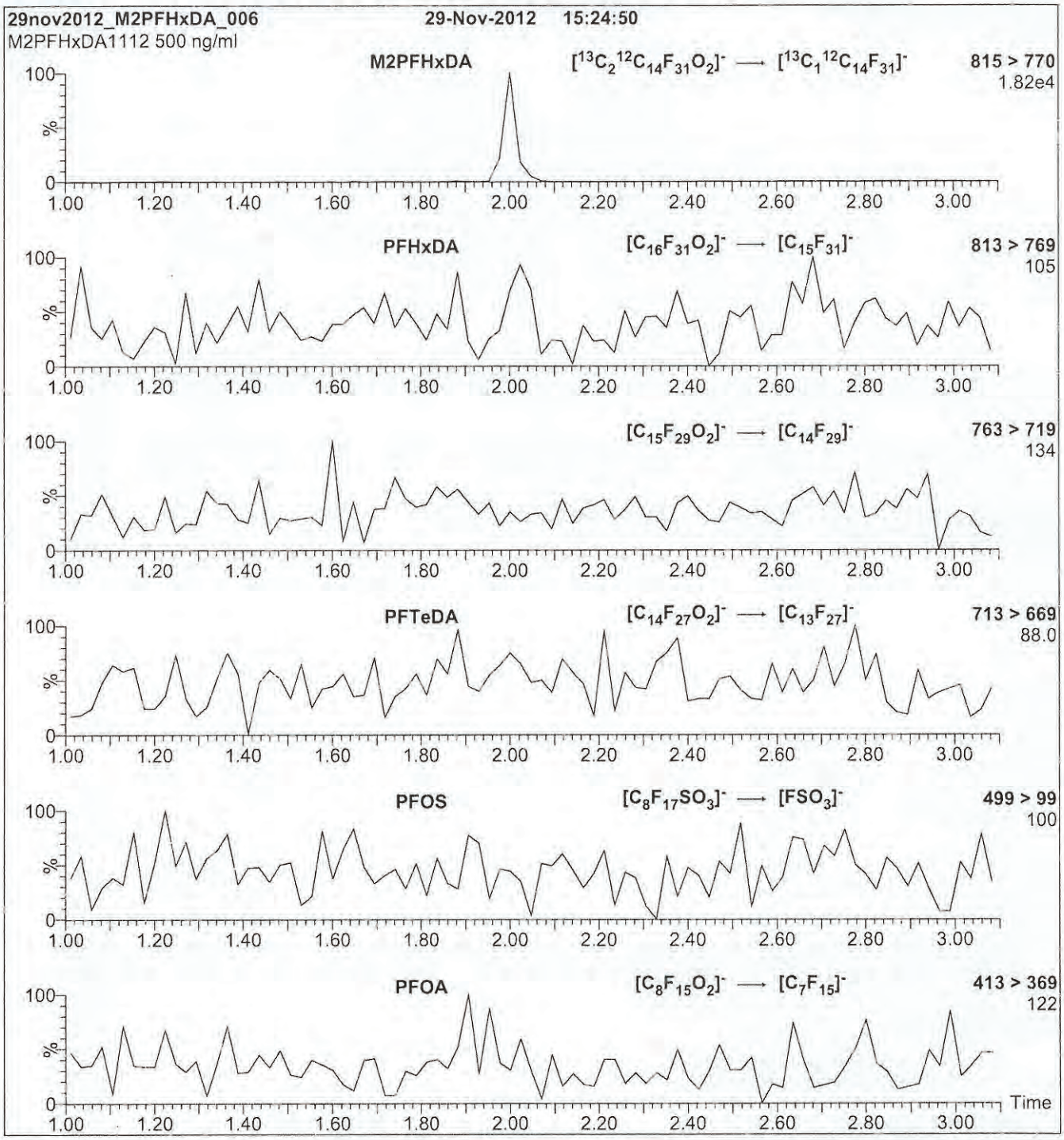
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 1200 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

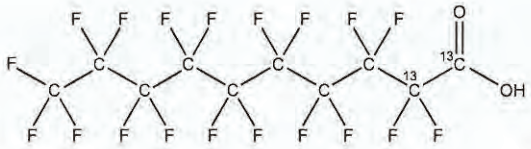
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

17H2507

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0717
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)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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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 $^{13}C_1$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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17H2507

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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 GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

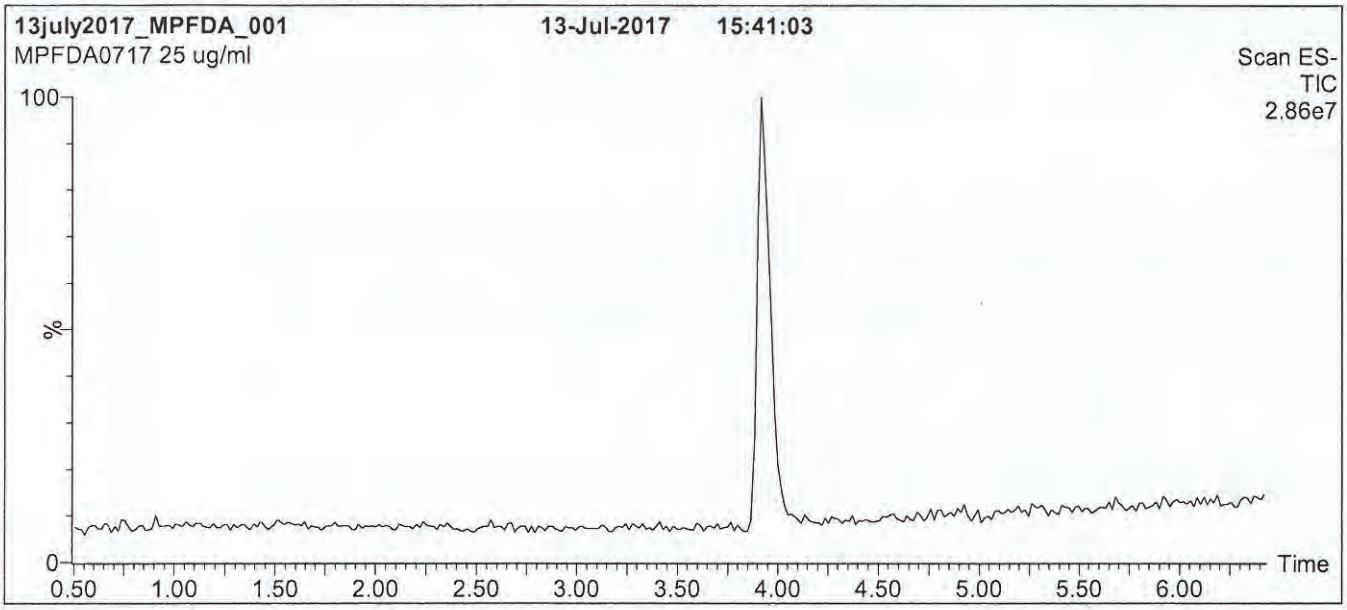
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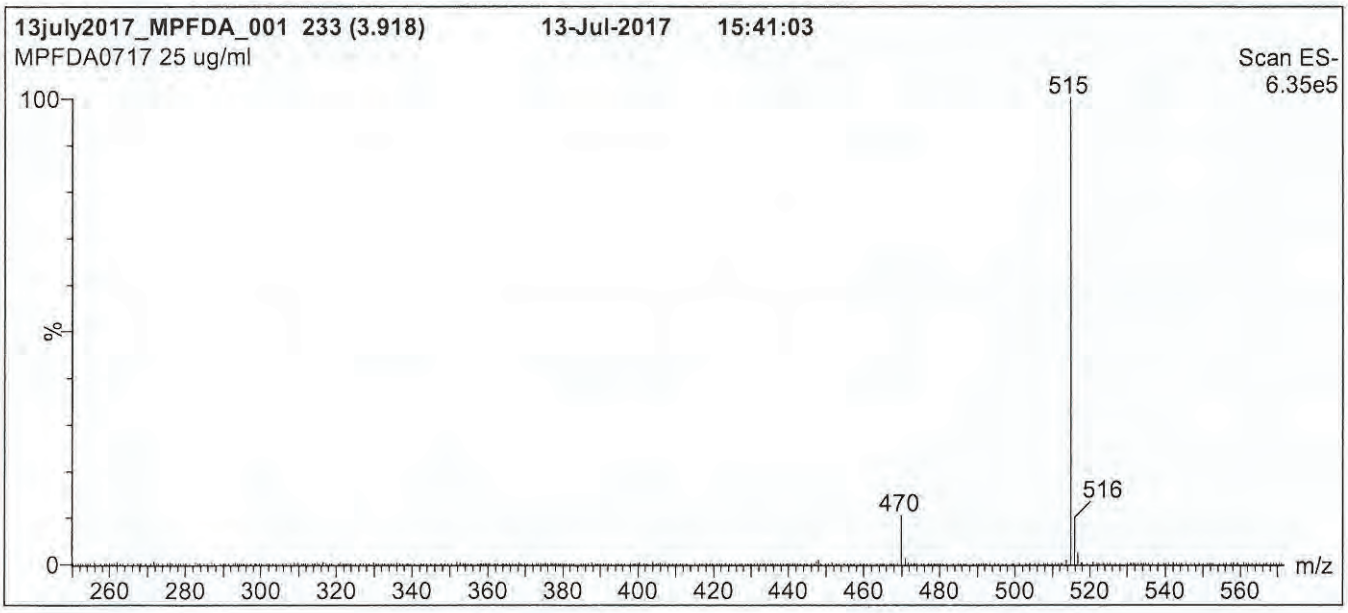
ANAB ACCREDITED

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17-H2507

Figure 1: **MPFDA; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

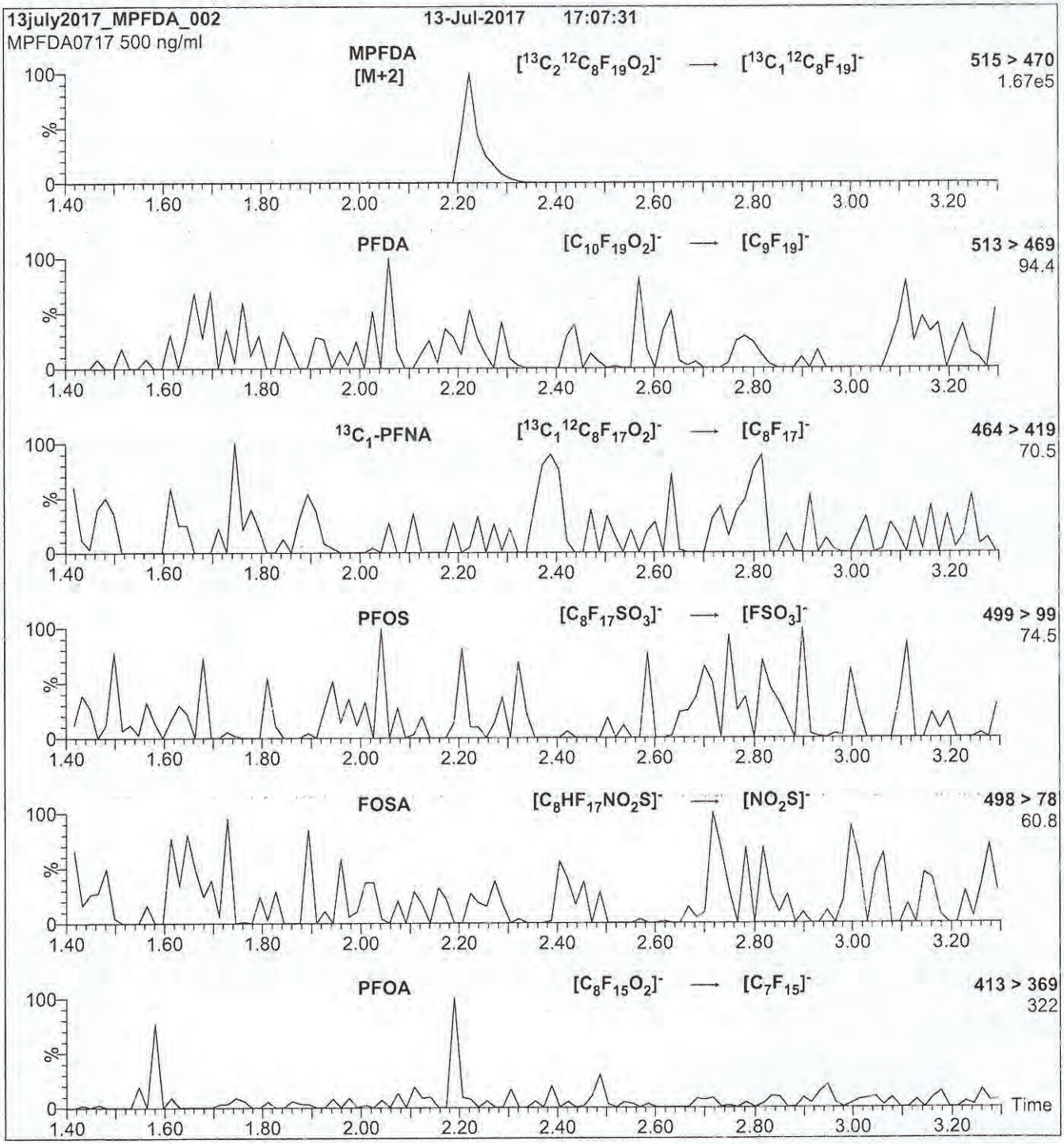
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

1712507

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFDA)

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) = 3.17e-3
Collision Energy (eV) = 13

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WELLINGTON LABORATORIES

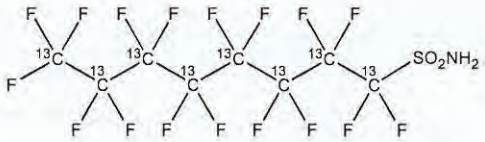
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[$^{13}C_8$]octanesulfonamide

LOT NUMBER: M8FOSA0417I

STRUCTURE:

CAS #: Not available



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)	04/20/2017		
EXPIRY DATE: (mm/dd/yyyy)	04/20/2022		
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 ~ 1.1% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.01% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/04/2017 (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

17H2508

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:

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 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).

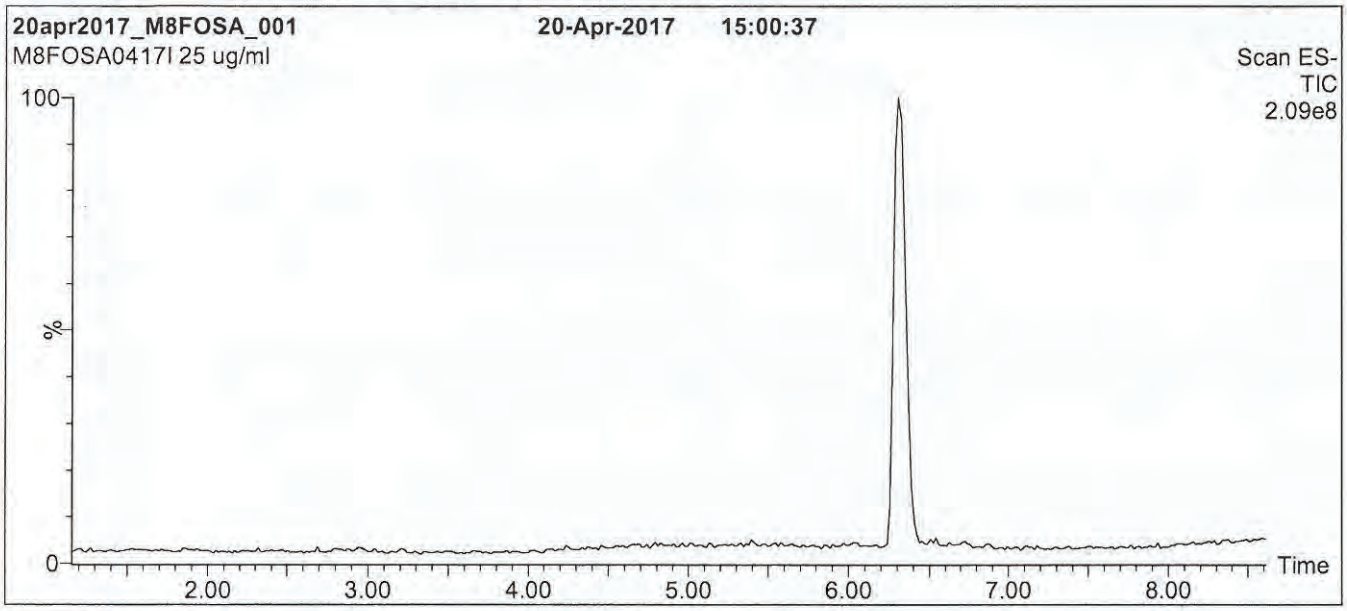
CALA Testing

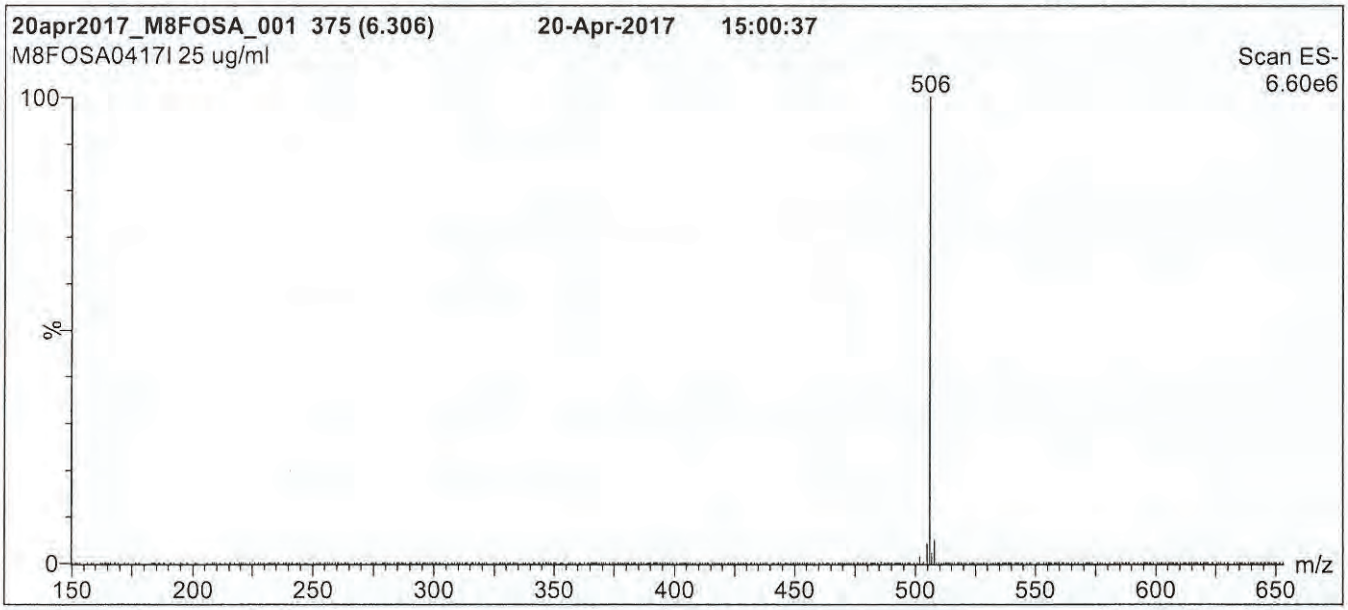
ANAB ACCREDITED Reference Material Producer

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17H2508

Figure 1: **M8FOSA-I; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

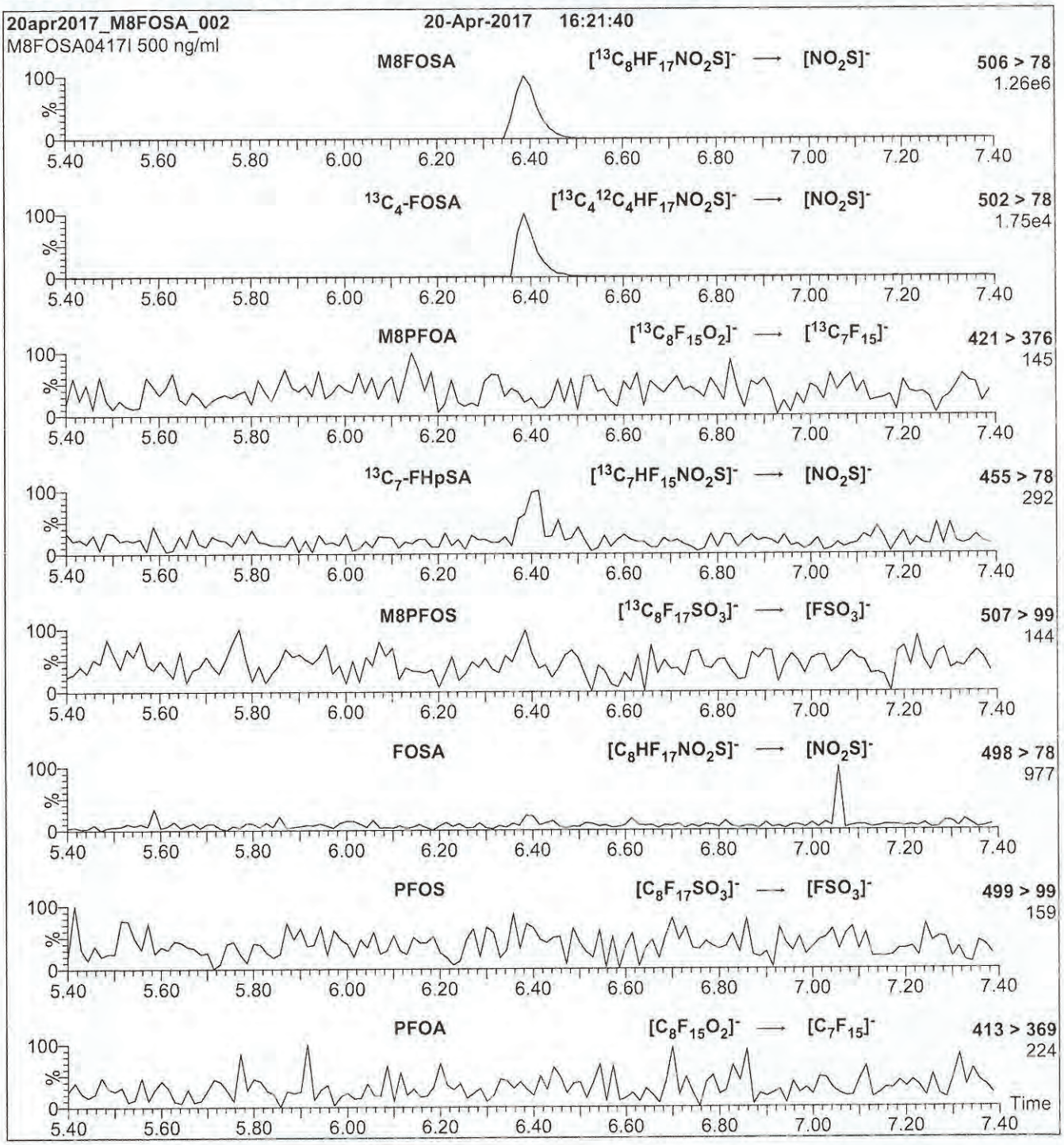
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17H2508

Figure 2: **M8FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

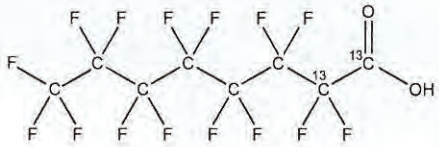
Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 30

17H2509

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0216
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)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
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: B.G. Chittim **Date:** 02/24/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17H2509

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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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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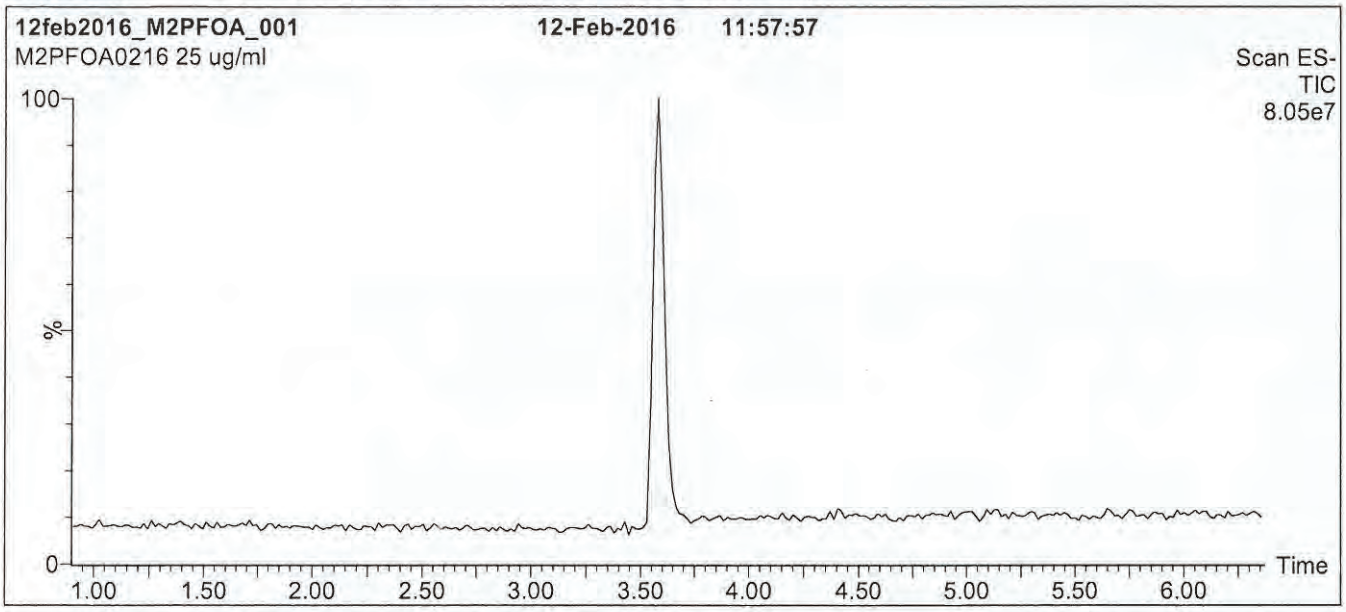
CALA

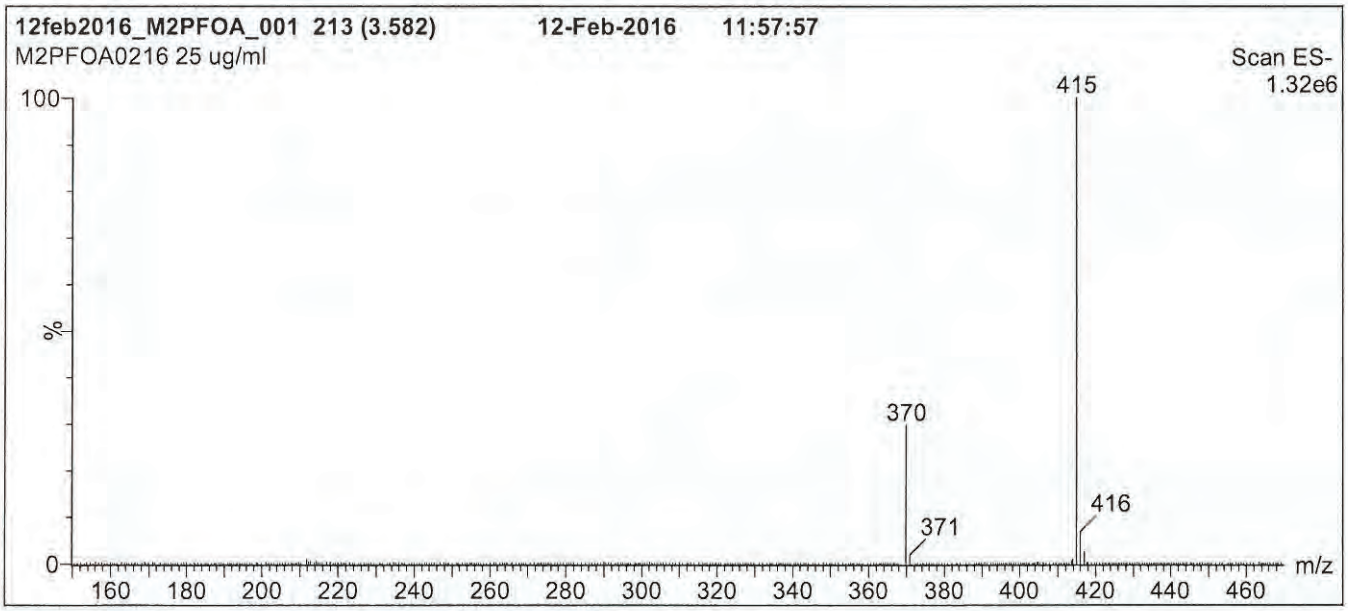
ANAB ACCREDITED

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17H2509

Figure 1: **M2PFOA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

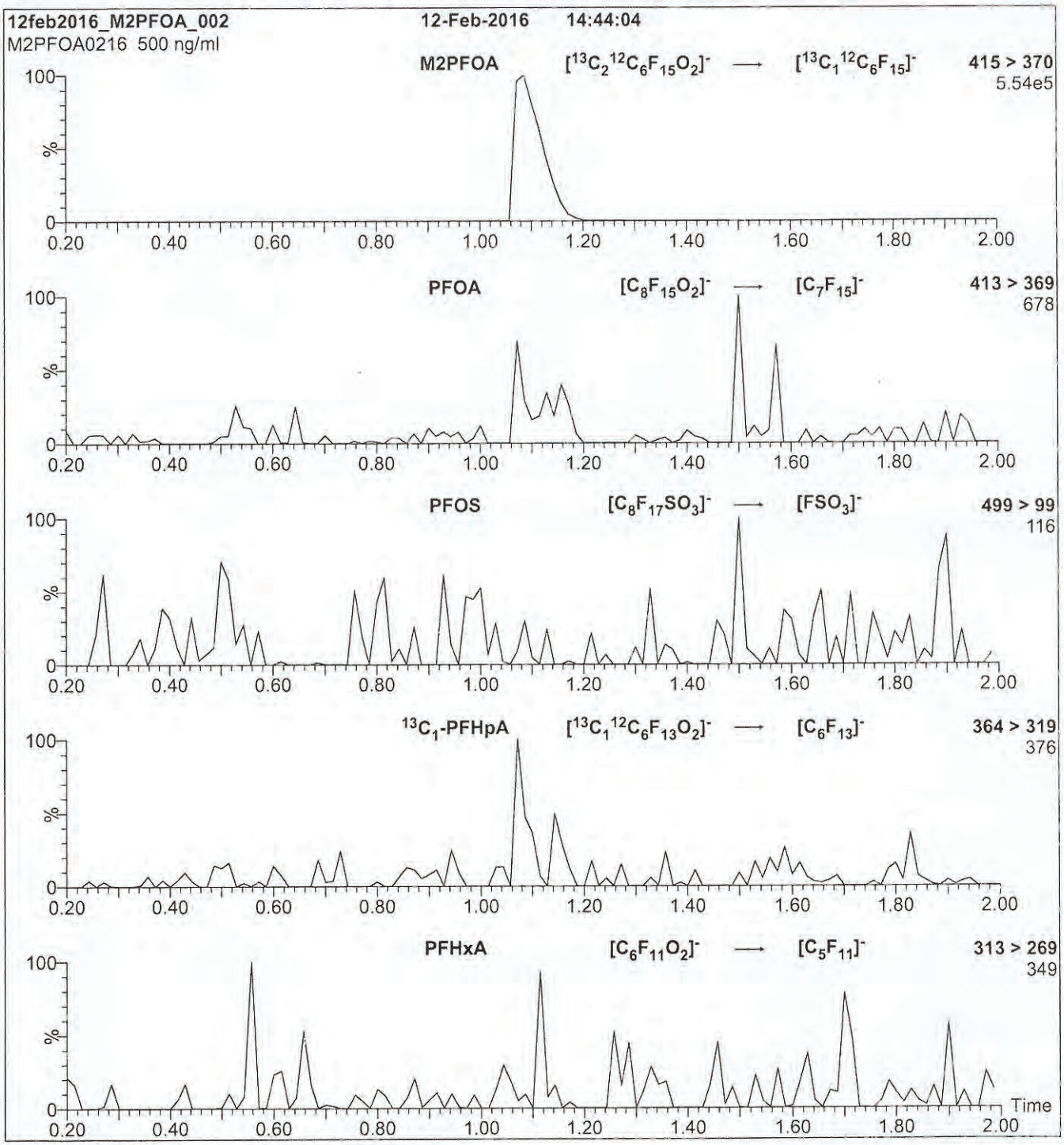
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17H2509

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

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WELLINGTON LABORATORIES

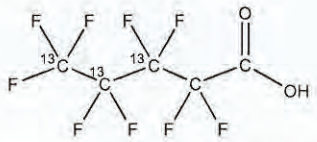
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-[3,4,5-$^{13}C_3$]pentanoic acid

LOT NUMBER: M3PFPeA0417

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 ($3,4,5\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	04/20/2017		
EXPIRY DATE: (mm/dd/yyyy)	04/20/2022		
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 ~ 0.95% 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:** 04/24/2017 (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

1717510

INTENDED USE:

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HAZARDS:

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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 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:

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QUALITY MANAGEMENT:

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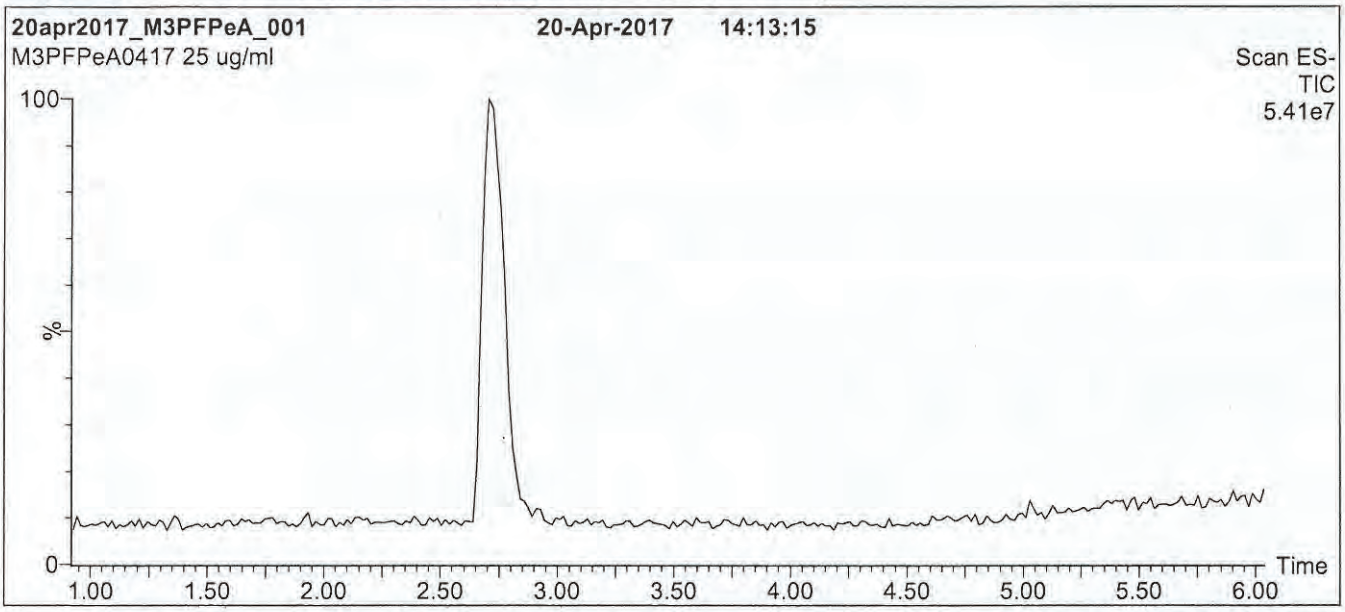
CALA

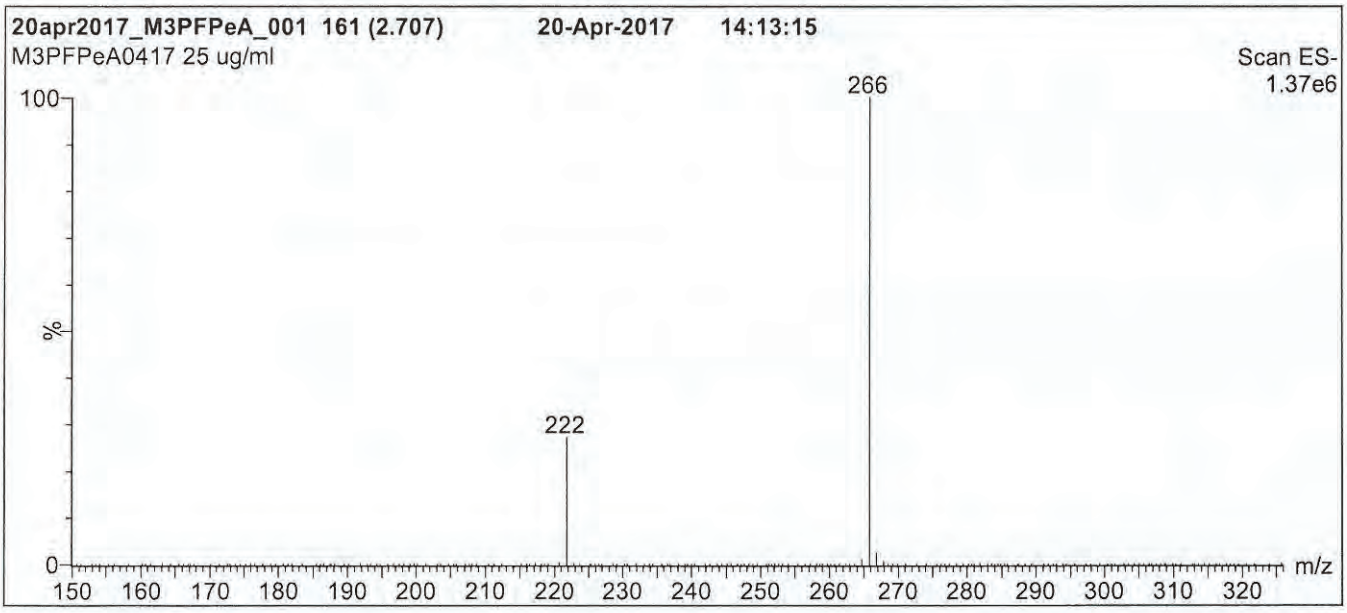
ANAB ACCREDITED

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

1712510

Figure 1: **M3PFPeA; 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: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

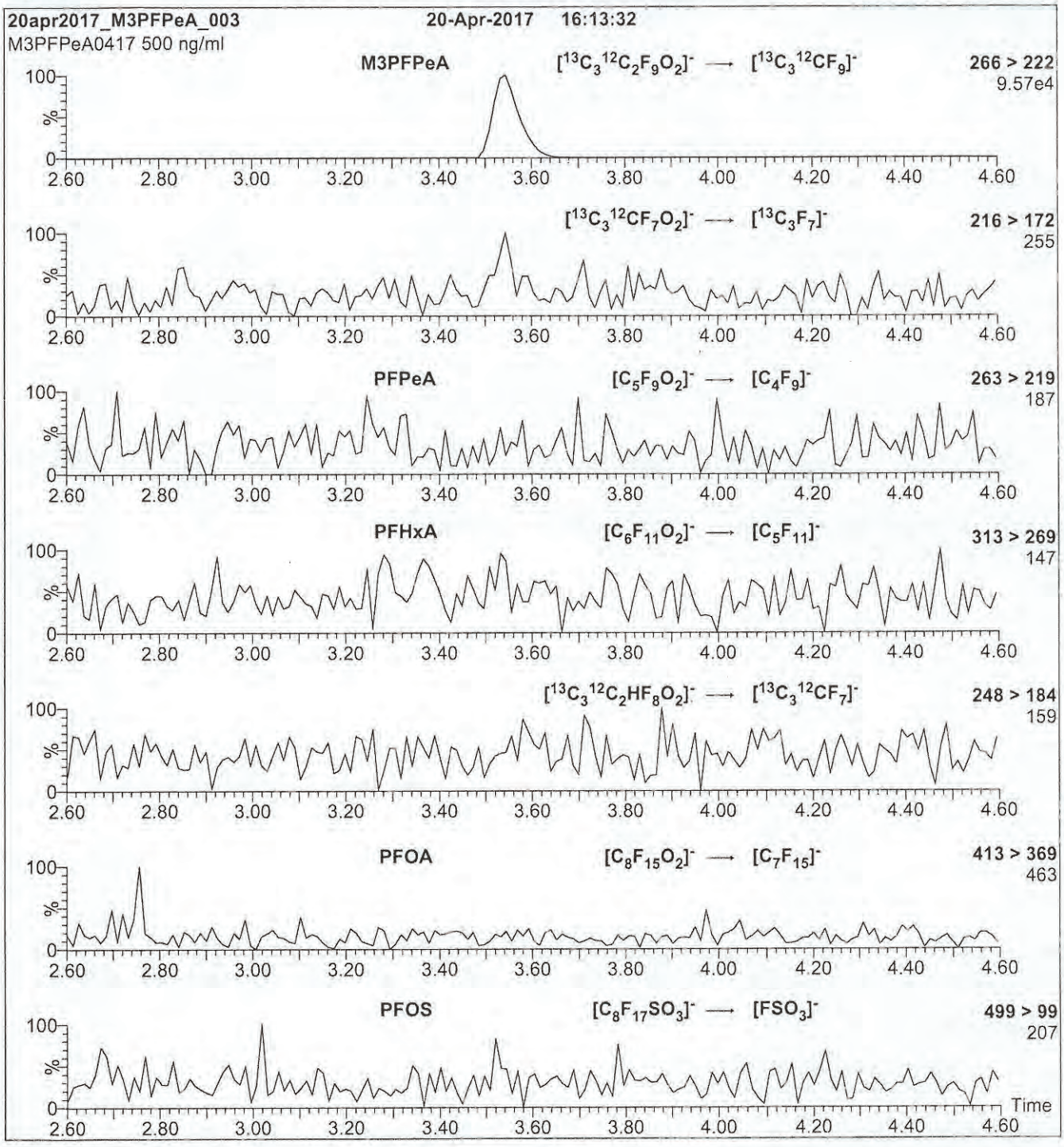
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17H2510

Figure 2: **M3PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFPeA)

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) = 3.31e-3
Collision Energy (eV) = 9

17K0802

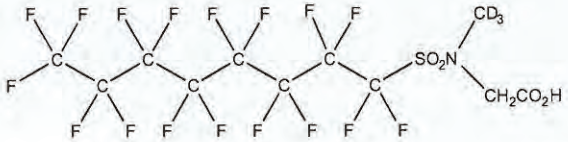
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0517

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



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)	05/19/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/19/2022		
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 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:** 05/31/2017 (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

17K0802

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:

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 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).

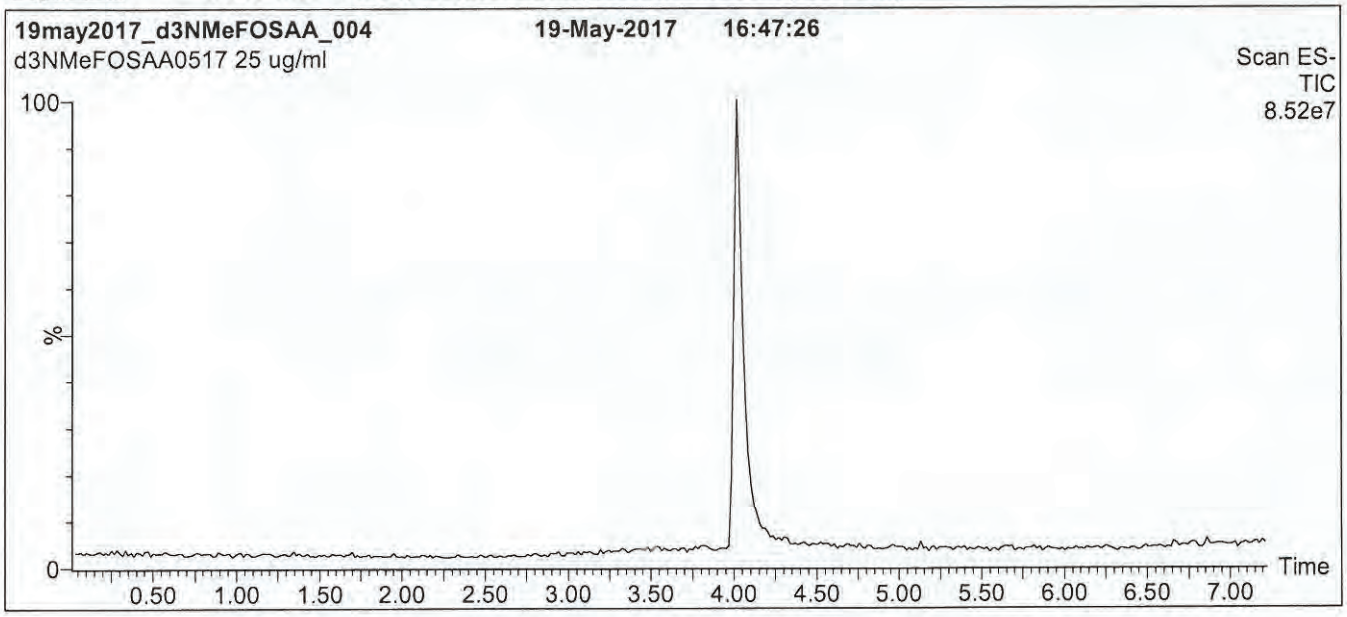
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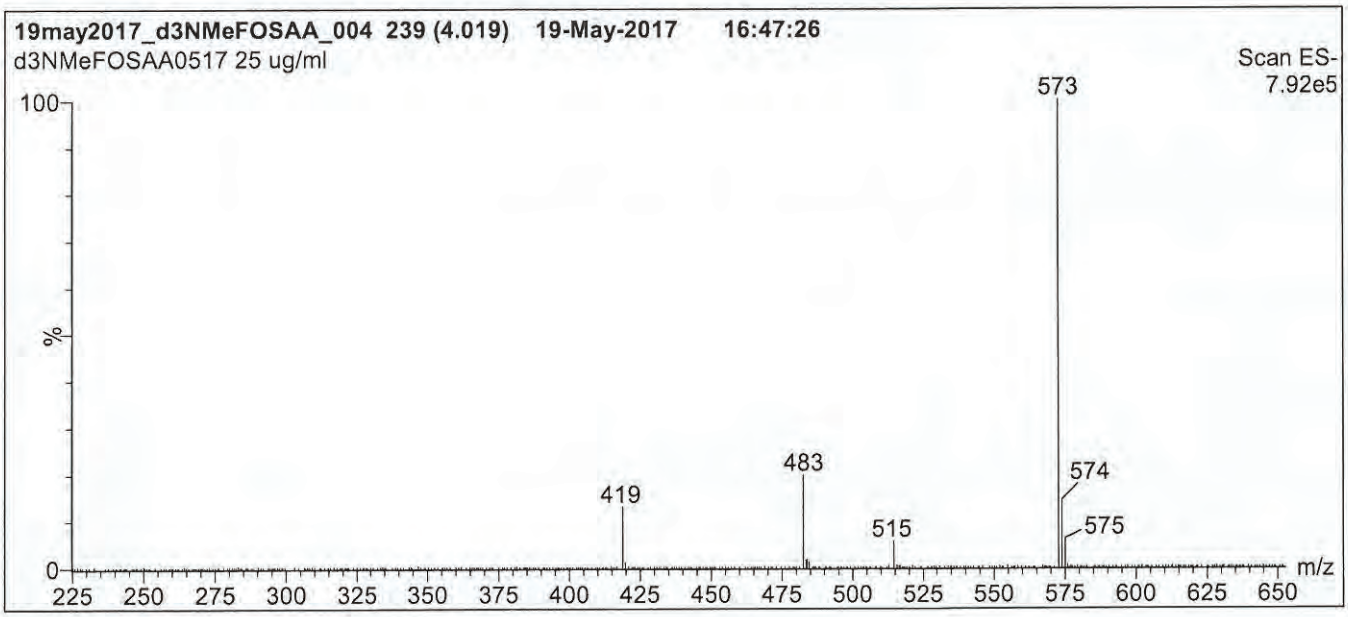
ANAB ACCREDITED Reference Material Producer

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17K0802

Figure 1: **d3-N-MeFOSAA; 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: 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 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

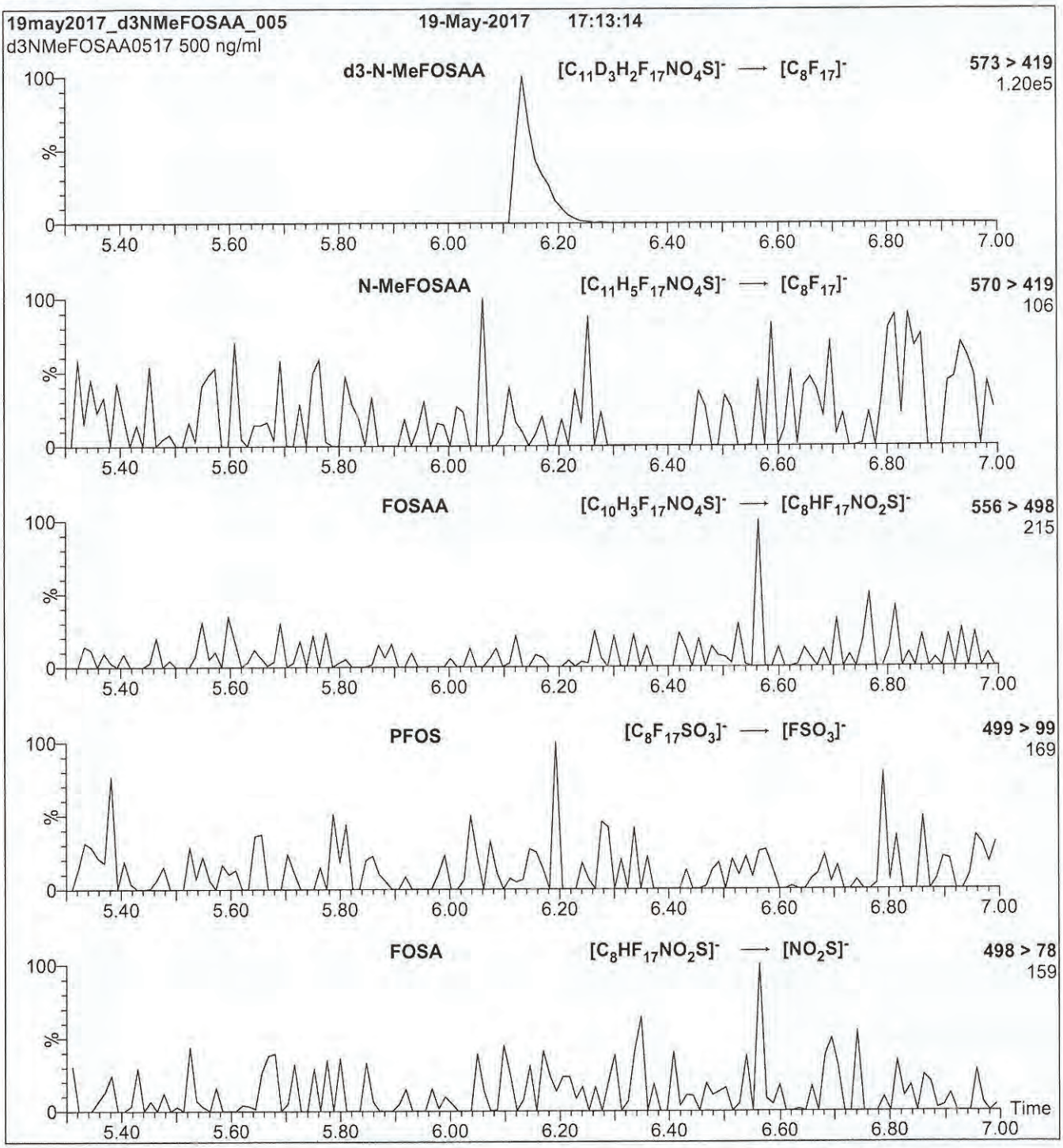
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0802

Figure 2: **d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d3-N-MeFOSAA)

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) = 20

17K0803

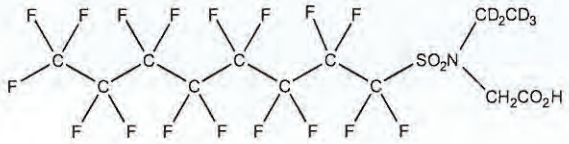
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA1116

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)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
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.
- 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: B.G. Chittim **Date:** 12/01/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0803

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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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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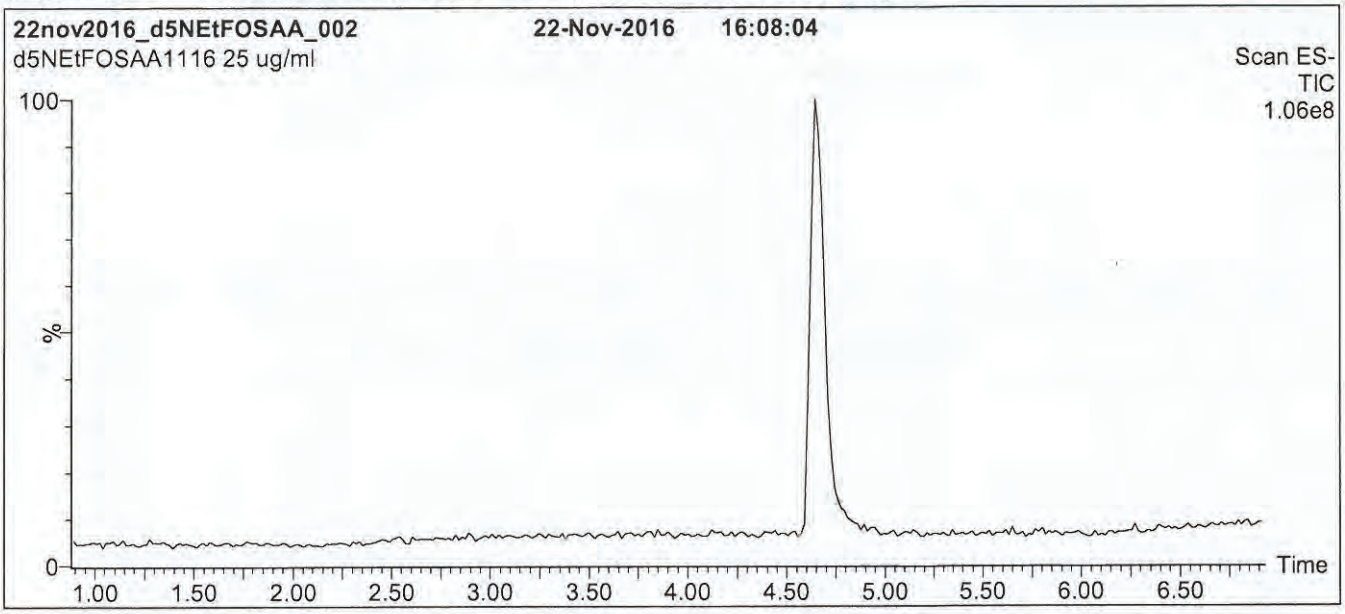
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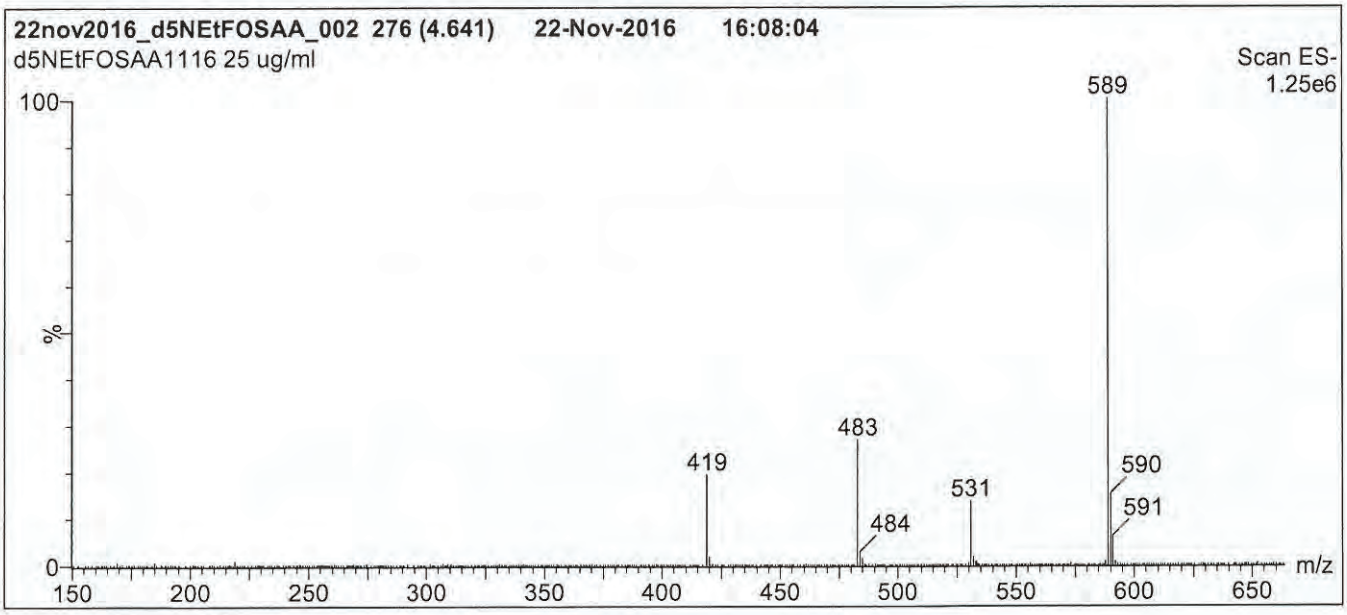
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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17K0803

Figure 1: **d5-N-EtFOSAA; 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: 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 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

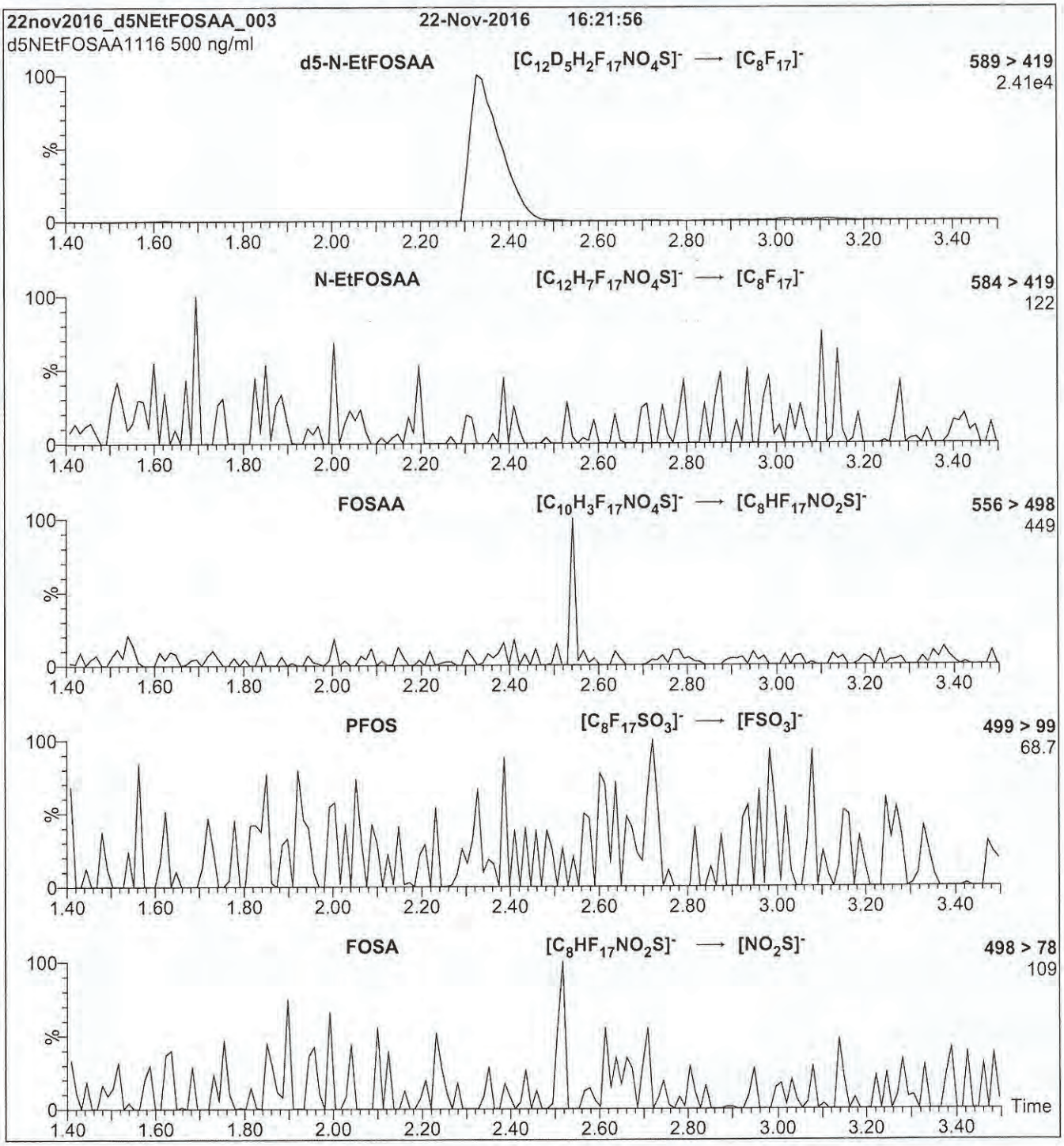
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0803

Figure 2: **d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d5-N-EtFOSAA)

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) = 20

17K0804

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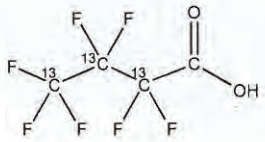
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFBA
COMPOUND: Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid

LOT NUMBER: M3PFBA0516

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 ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	05/27/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/27/2021		
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-[$1,2,3,4\text{-}^{13}C_4$]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: B.G. Chittim **Date:** 07/08/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0804

INTENDED USE:

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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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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.

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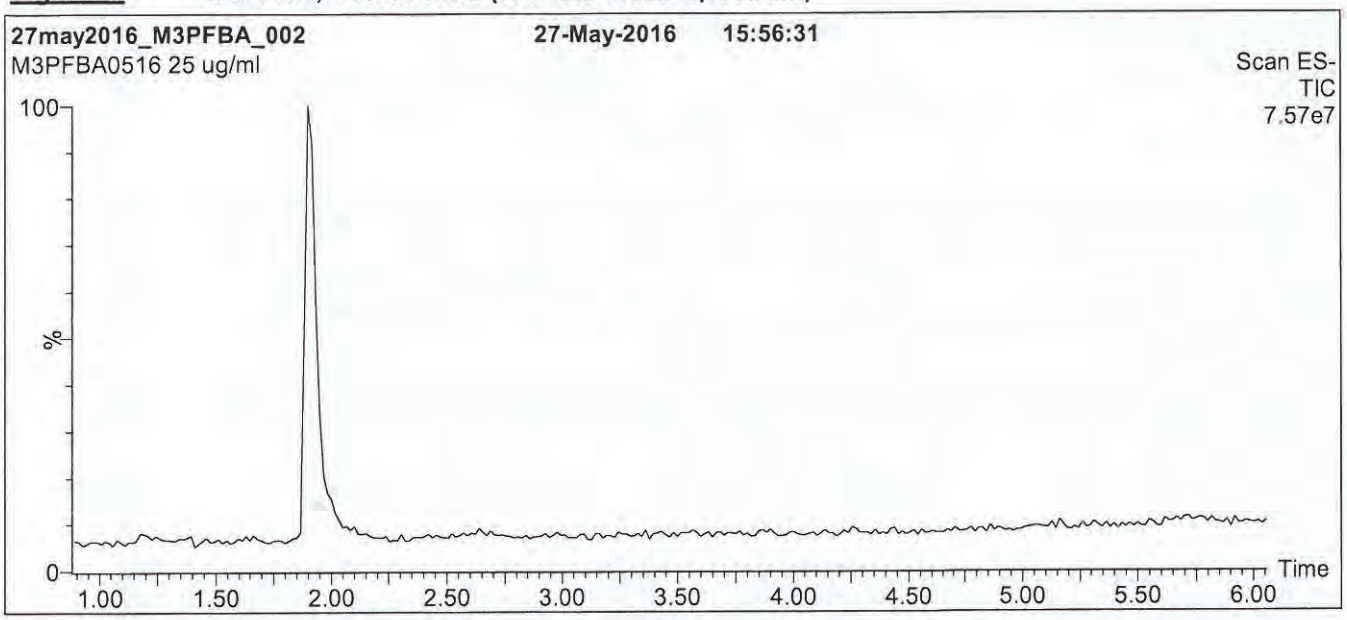
CALA

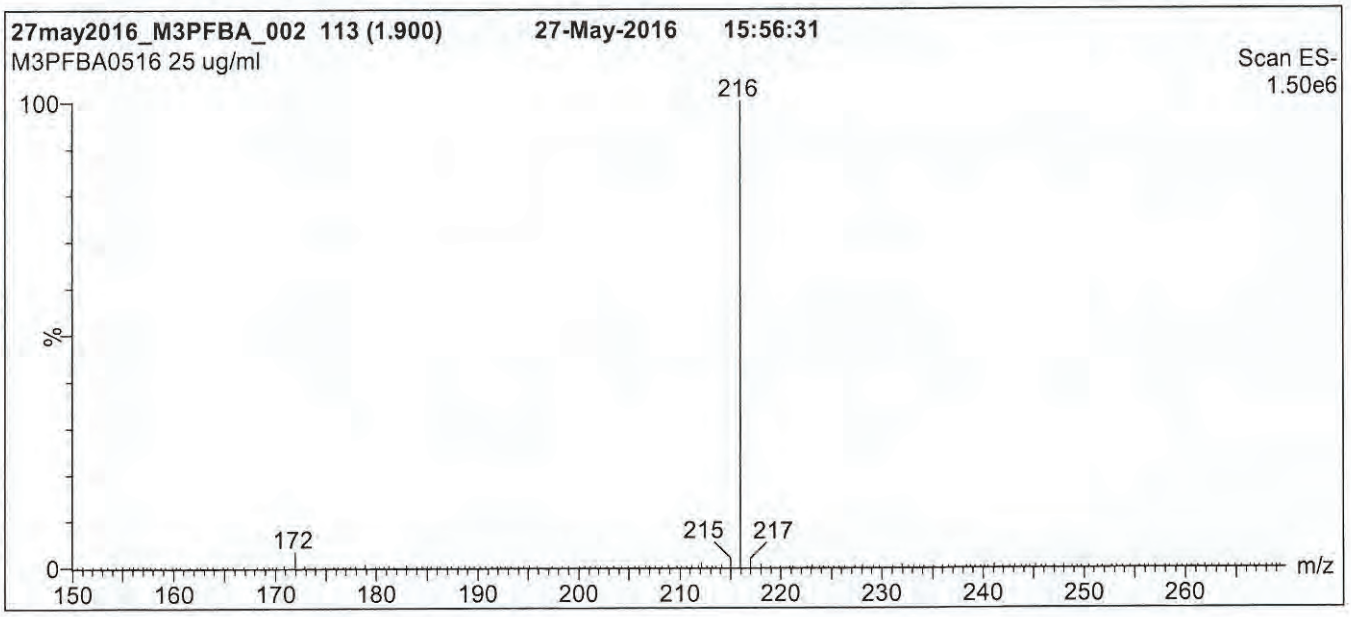
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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17K0804

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

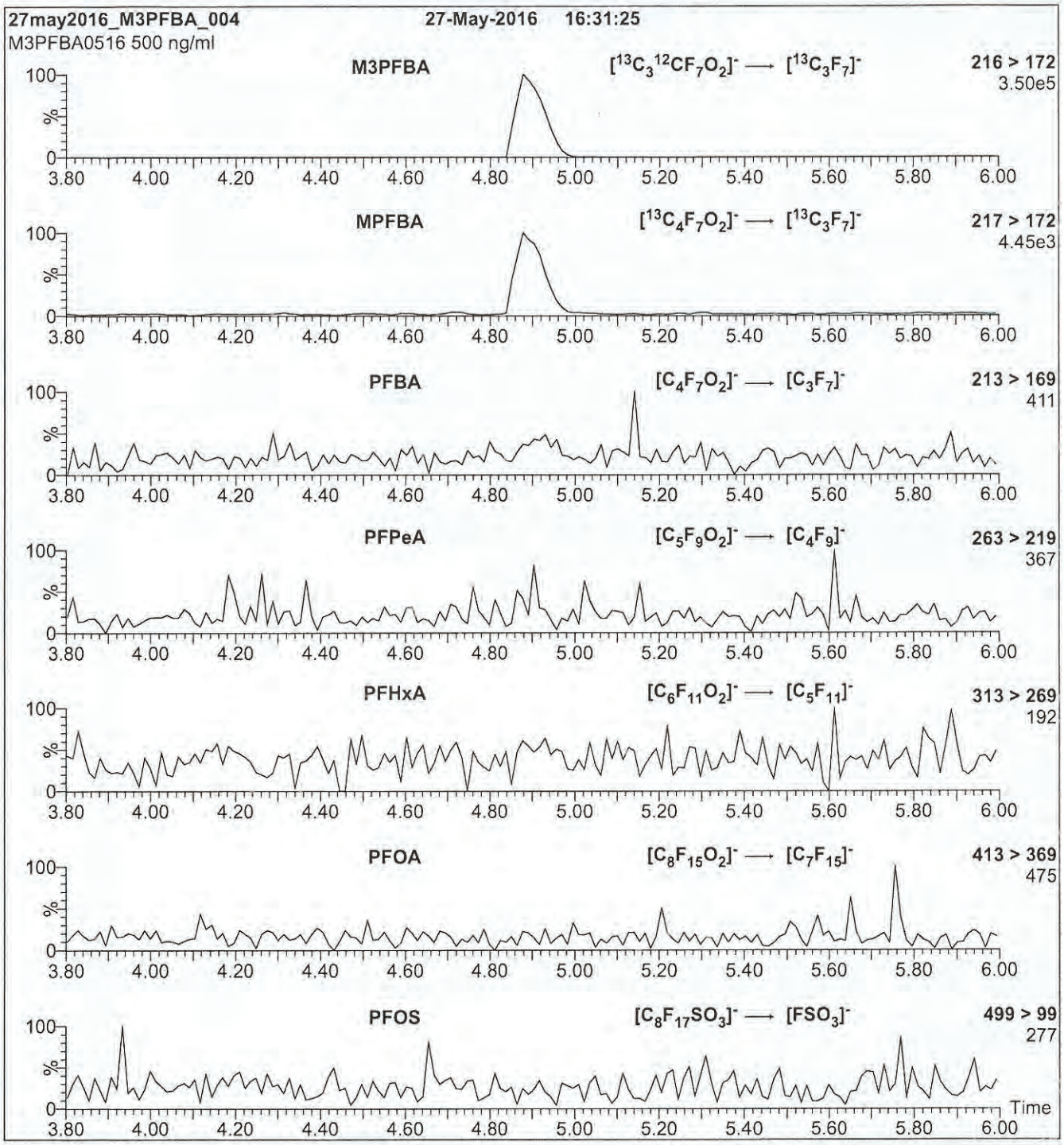
MS Parameters

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

17K0804

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) = 3.62e-3
Collision Energy (eV) = 10

17K0805

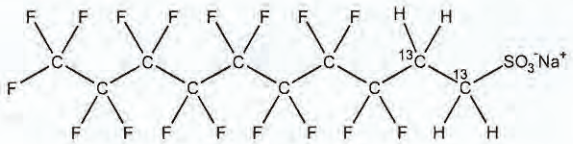
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0717

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)	**SOLVENT(S):**	Methanol
	47.9 ± 2.4 µg/ml (M2-8:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
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.
- 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:** 07/07/2017 (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

17K0805

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:

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 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).

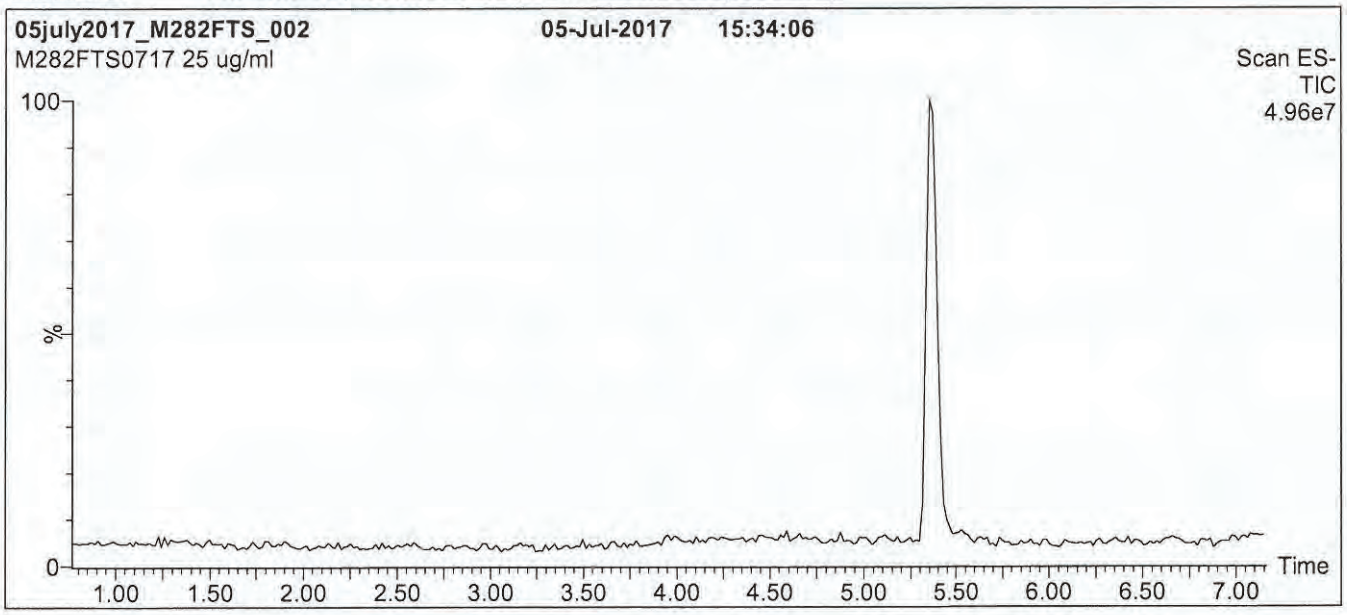
CALA Testing Accreditation No. A 1226

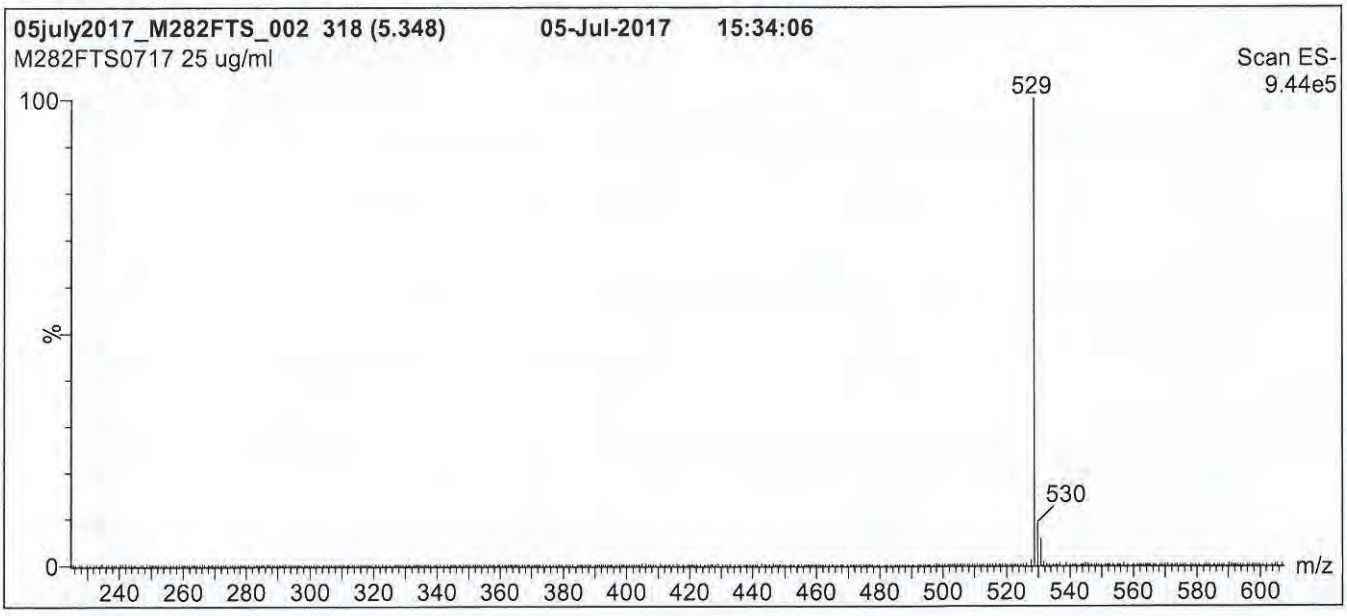
ANAB ACCREDITED Reference Material Producer

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

17K0805

Figure 1: **M2-8:2FTS; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

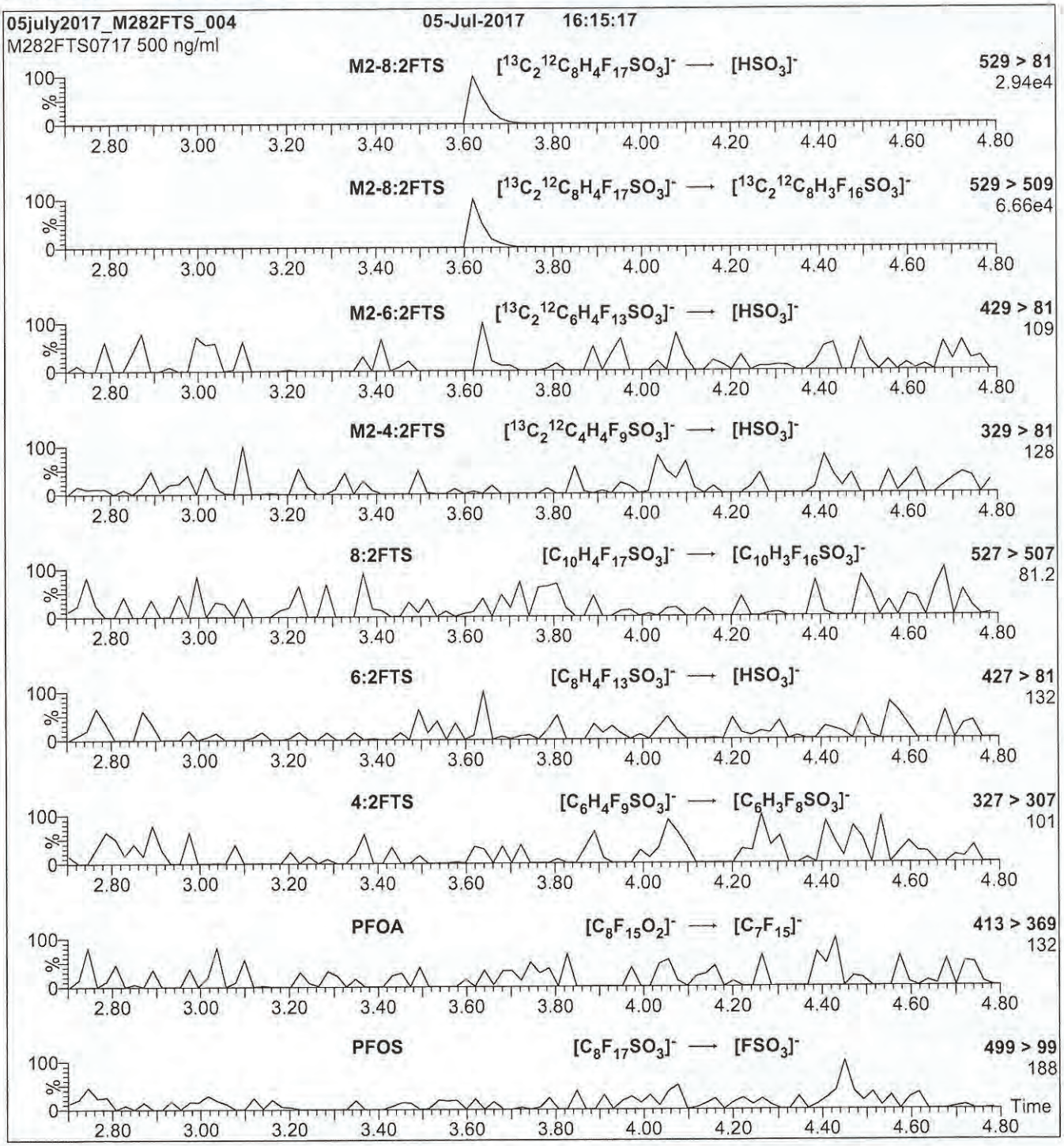
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17K0805

Figure 2: **M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-8:2FTS)

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) = 3.50e-3
Collision Energy (eV) = 30

17K0807

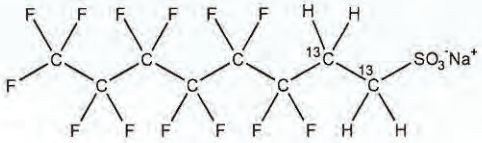
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0217

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)	**SOLVENT(S):**	Methanol
	47.5 ± 2.4 µg/ml (M2-6:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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.
- 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: B.G. Chittim **Date:** 02/24/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0807

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2,...x_n$ 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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).

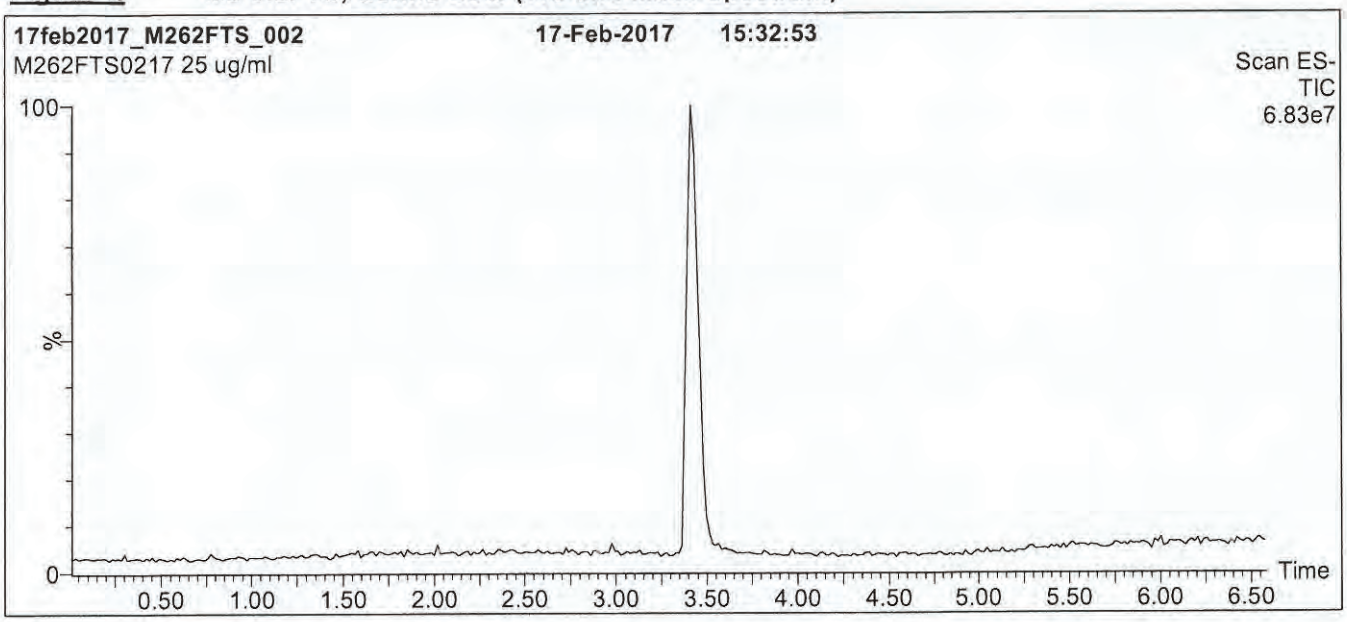
CALA

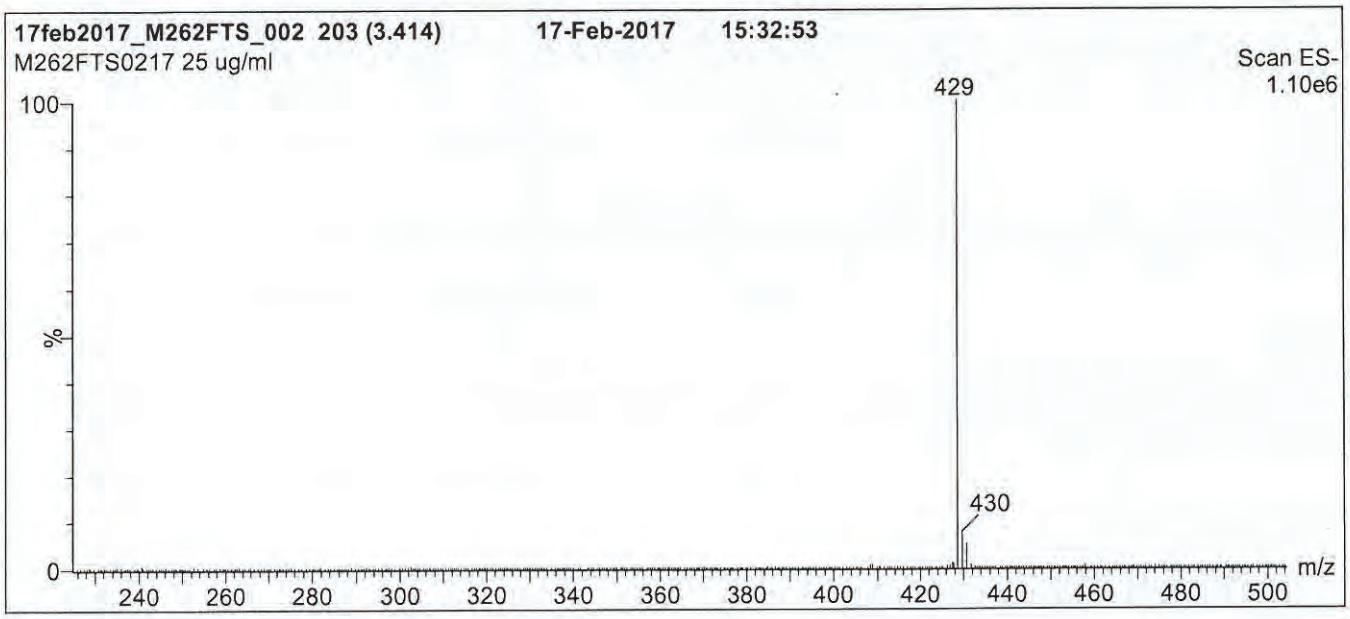
ANAB ACCREDITED

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

17K0807

Figure 1: **M2-6:2FTS; 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: 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 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

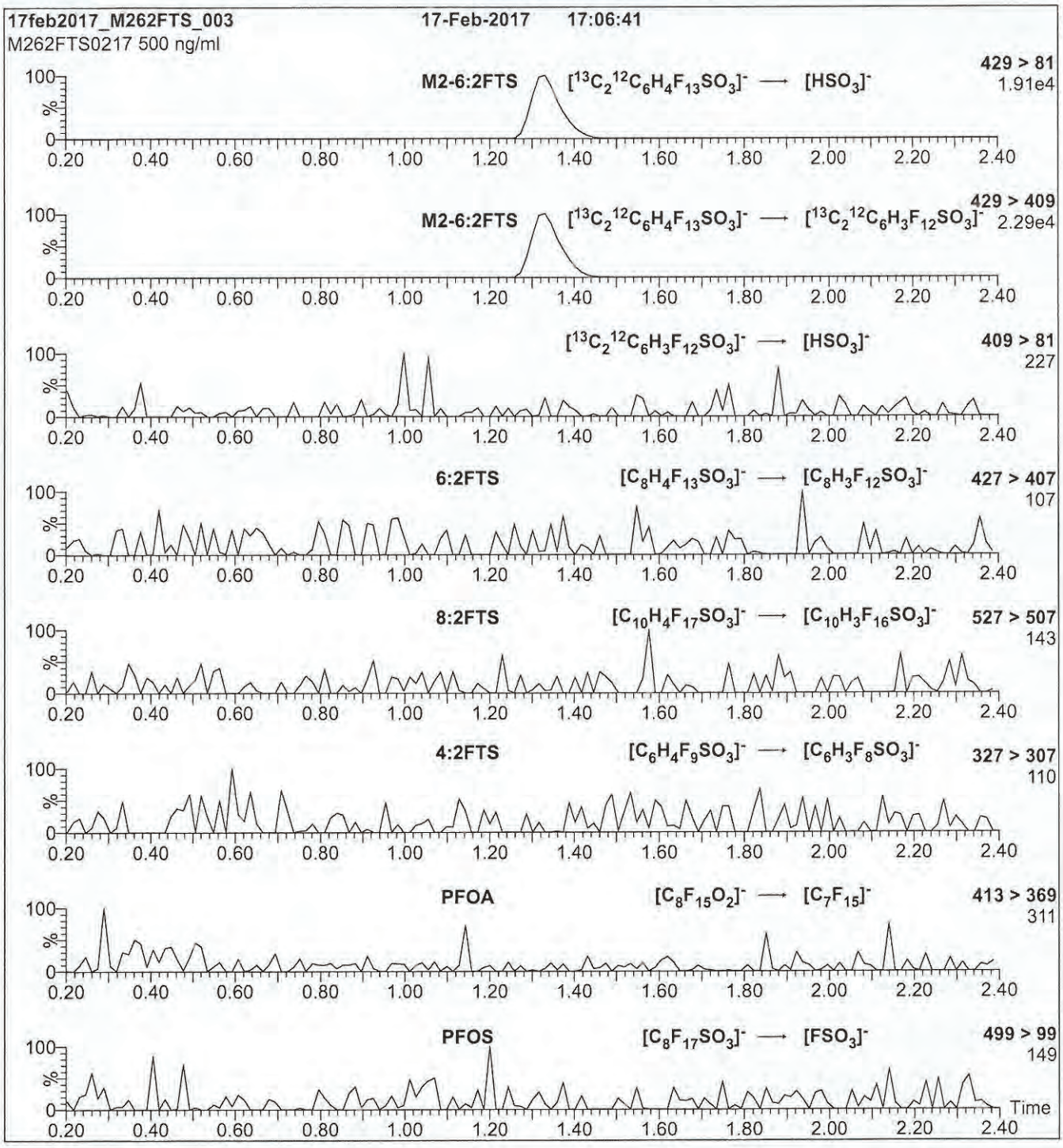
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0807

Figure 2: **M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-6:2FTS)

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) = 25

17K0810

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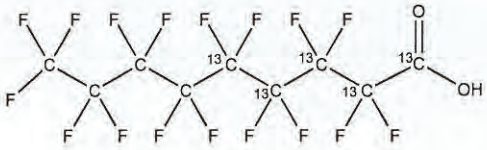
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid

LOT NUMBER: MPFNA0916

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)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
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: B.G. Chittim **Date:** 10/11/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0810

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.

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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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:

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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 NIST and/or NRC traceable external weights. All volumetric glassware used is 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.

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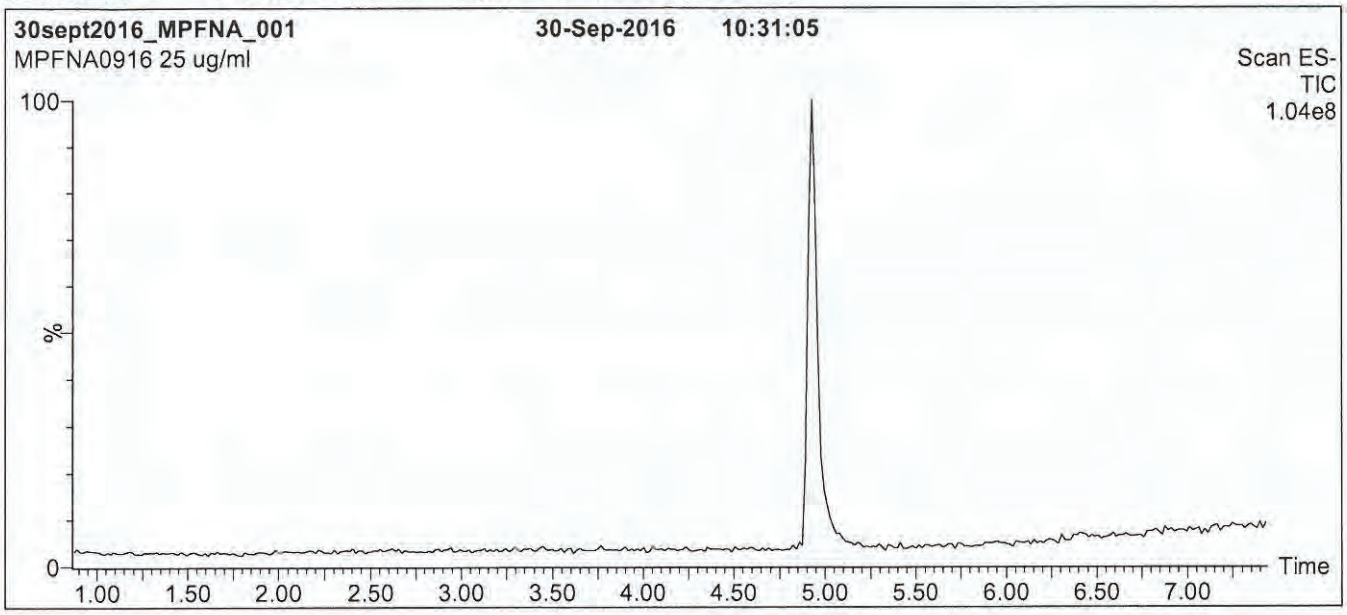
CALA Testing

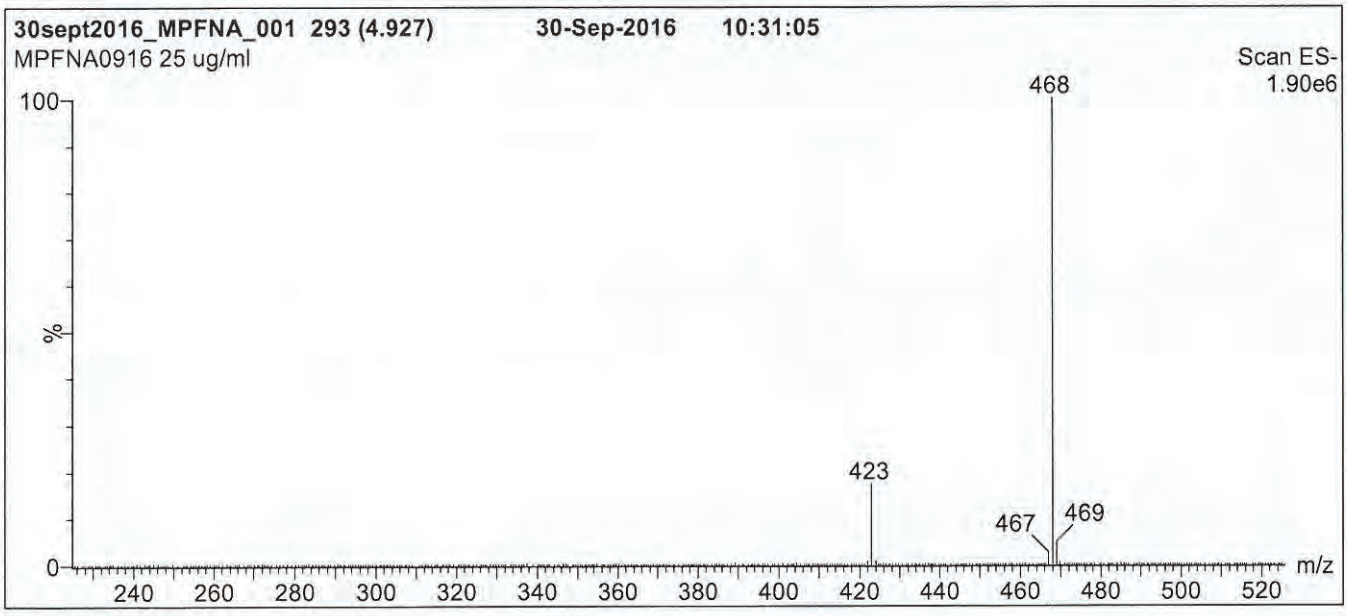
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

17K0810

Figure 1: **MPFNA; 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: 50% (80:20 MeOH:ACN) / 50% 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

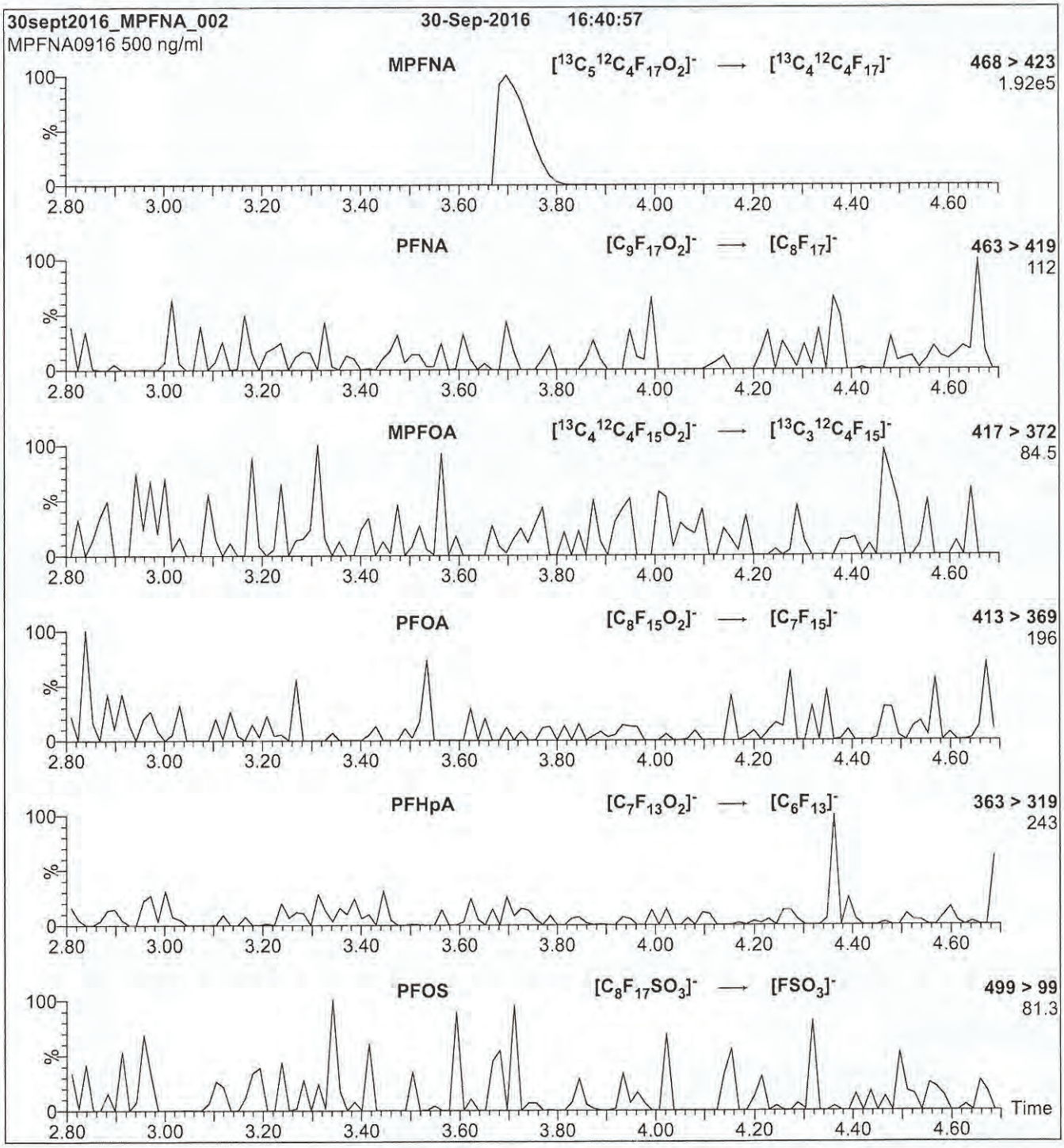
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0810

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFNA)

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) = 11

17K0812

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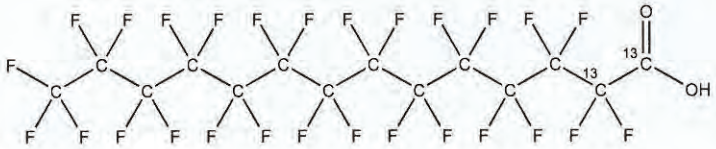
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFTeDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid

LOT NUMBER: M2PFTeDA0217

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{12}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 716.10
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/01/2017
EXPIRY DATE: (mm/dd/yyyy) 03/01/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)

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:** 03/07/2017 (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

17K0812

INTENDED USE:

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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 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).

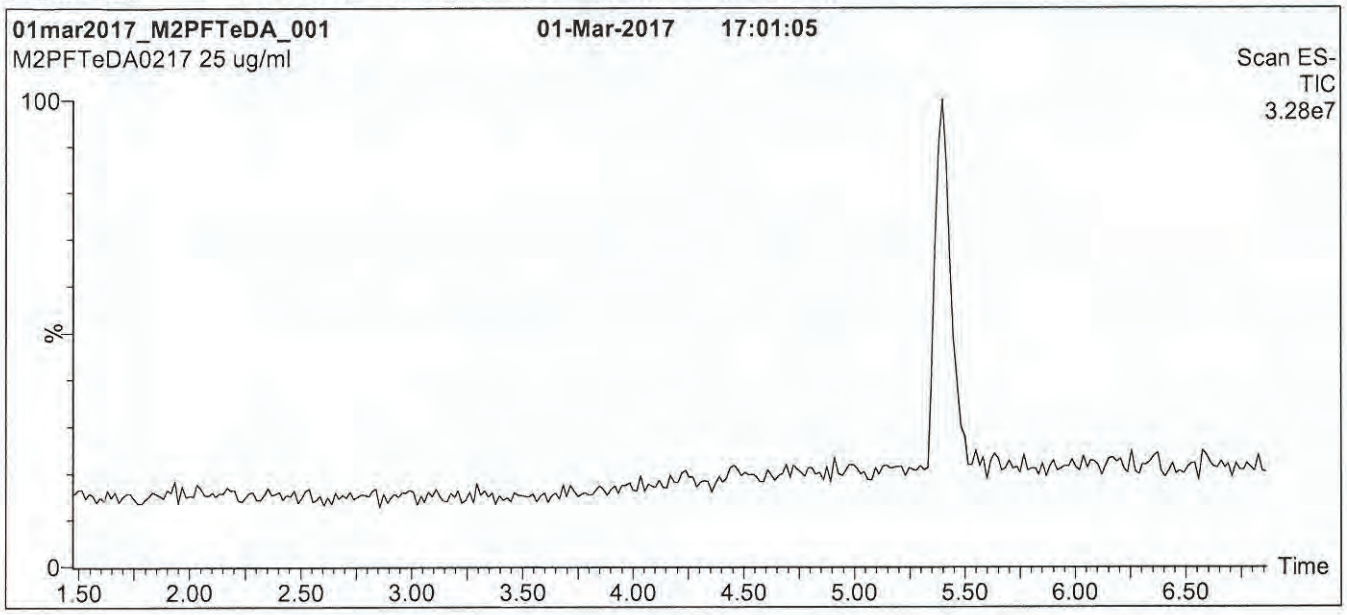
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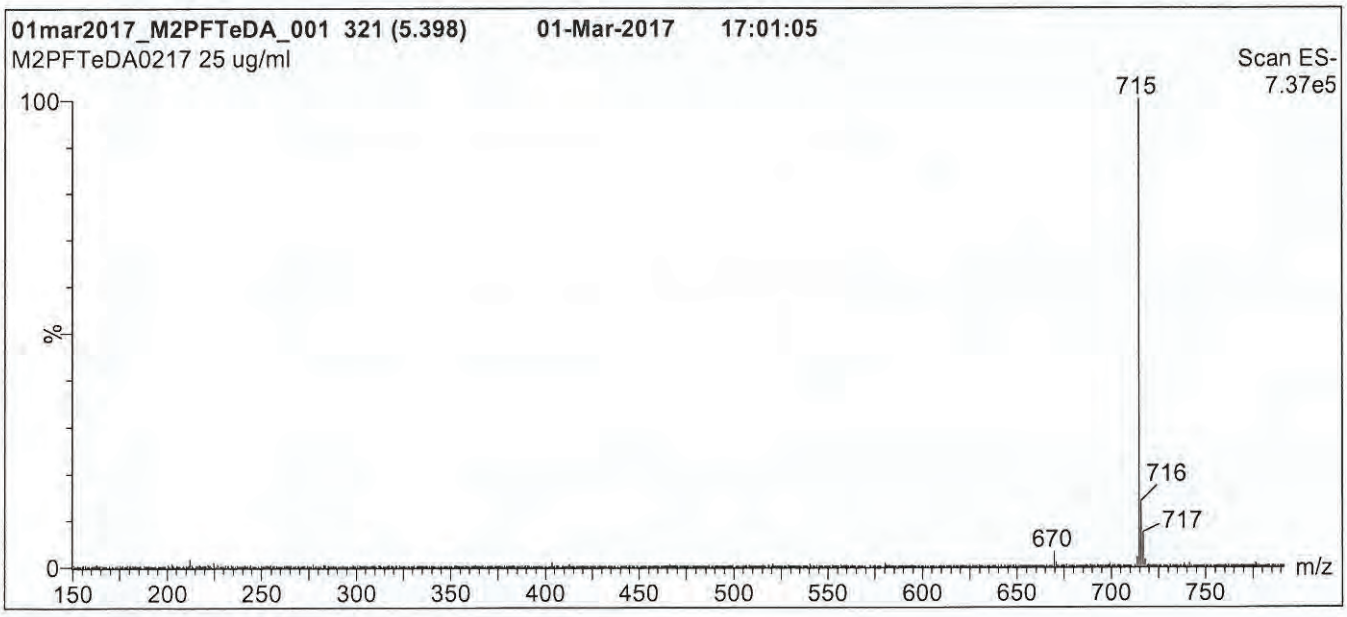
ANAB ACCREDITED Reference Material Producer

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

17K0812

Figure 1: **M2PFTeDA; 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: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

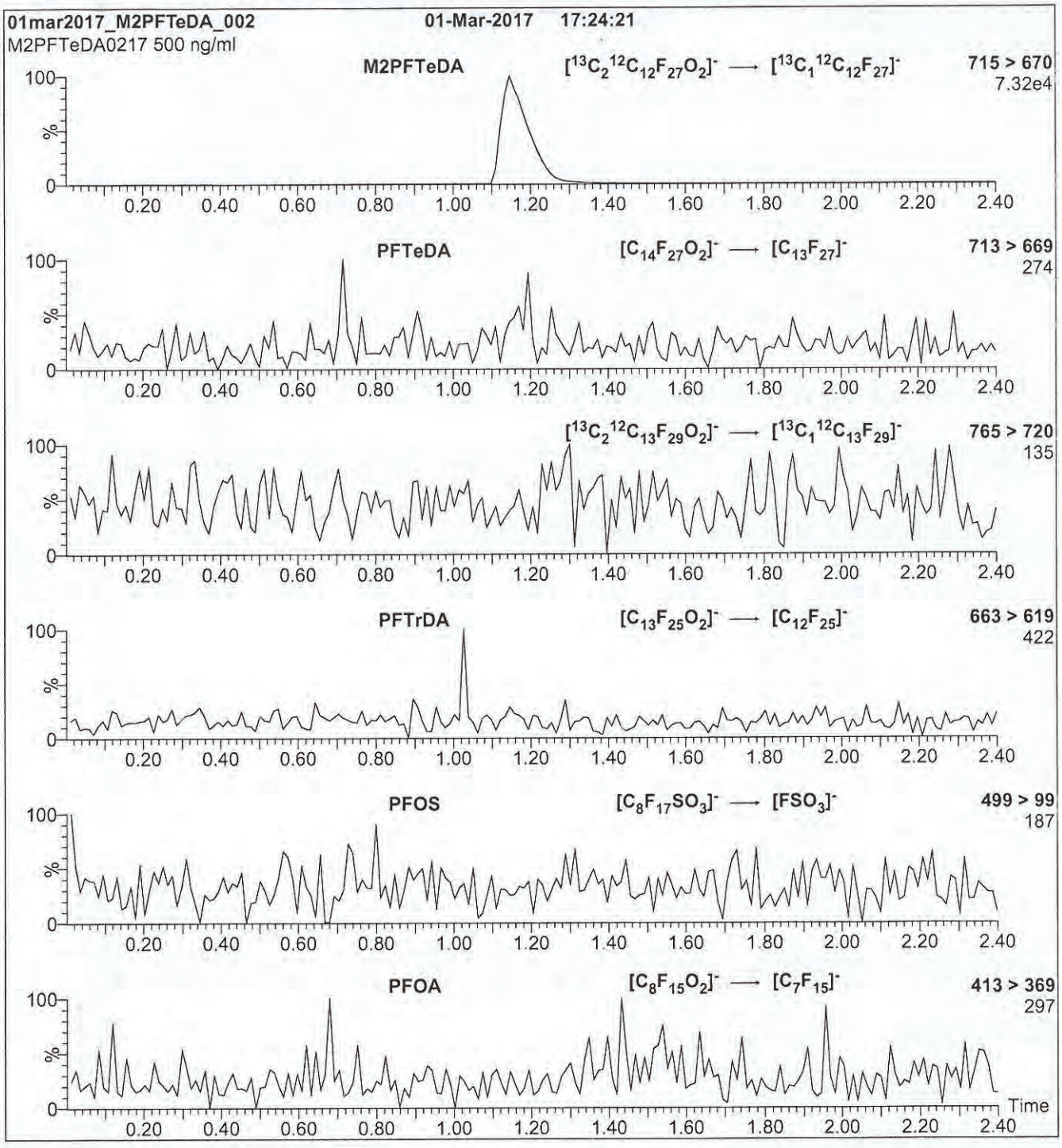
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17K0812

Figure 2: **M2PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFTeDA)

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) = 3.46e-3
Collision Energy (eV) = 14

17K0813

WELLINGTON LABORATORIES

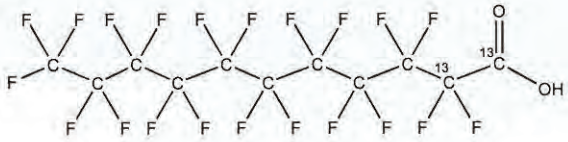
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFUdA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid

LOT NUMBER: MPFUdA1116

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_9HF_{21}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 566.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/22/2016
EXPIRY DATE: (mm/dd/yyyy) 11/22/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)

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: B.G. Chittim **Date:** 12/07/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1714-0813

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:

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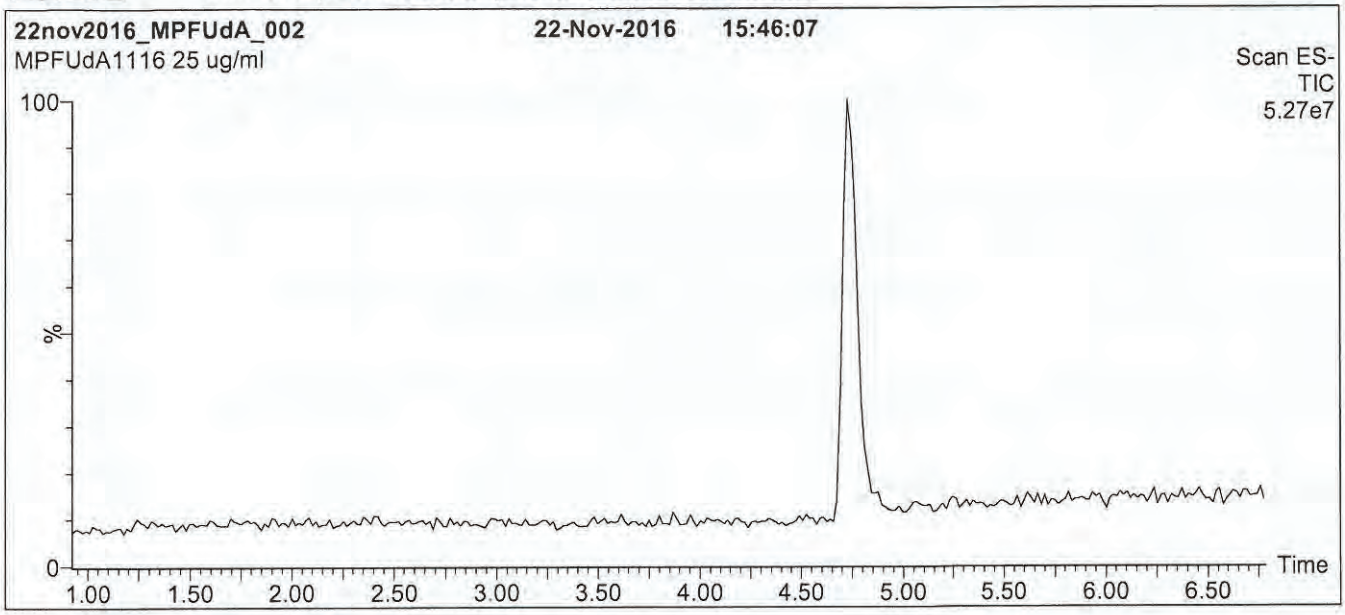
CALA Testing Accreditation No. A1226

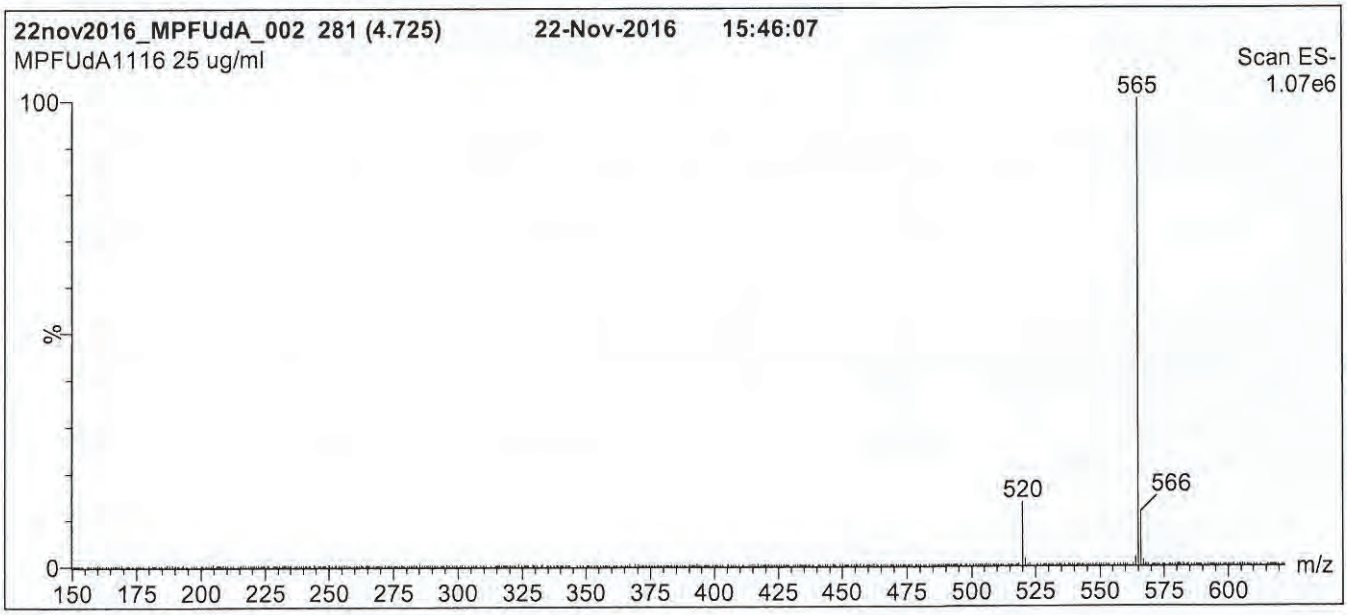
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

17K0813

Figure 1: **MPFUdA; 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: 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
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

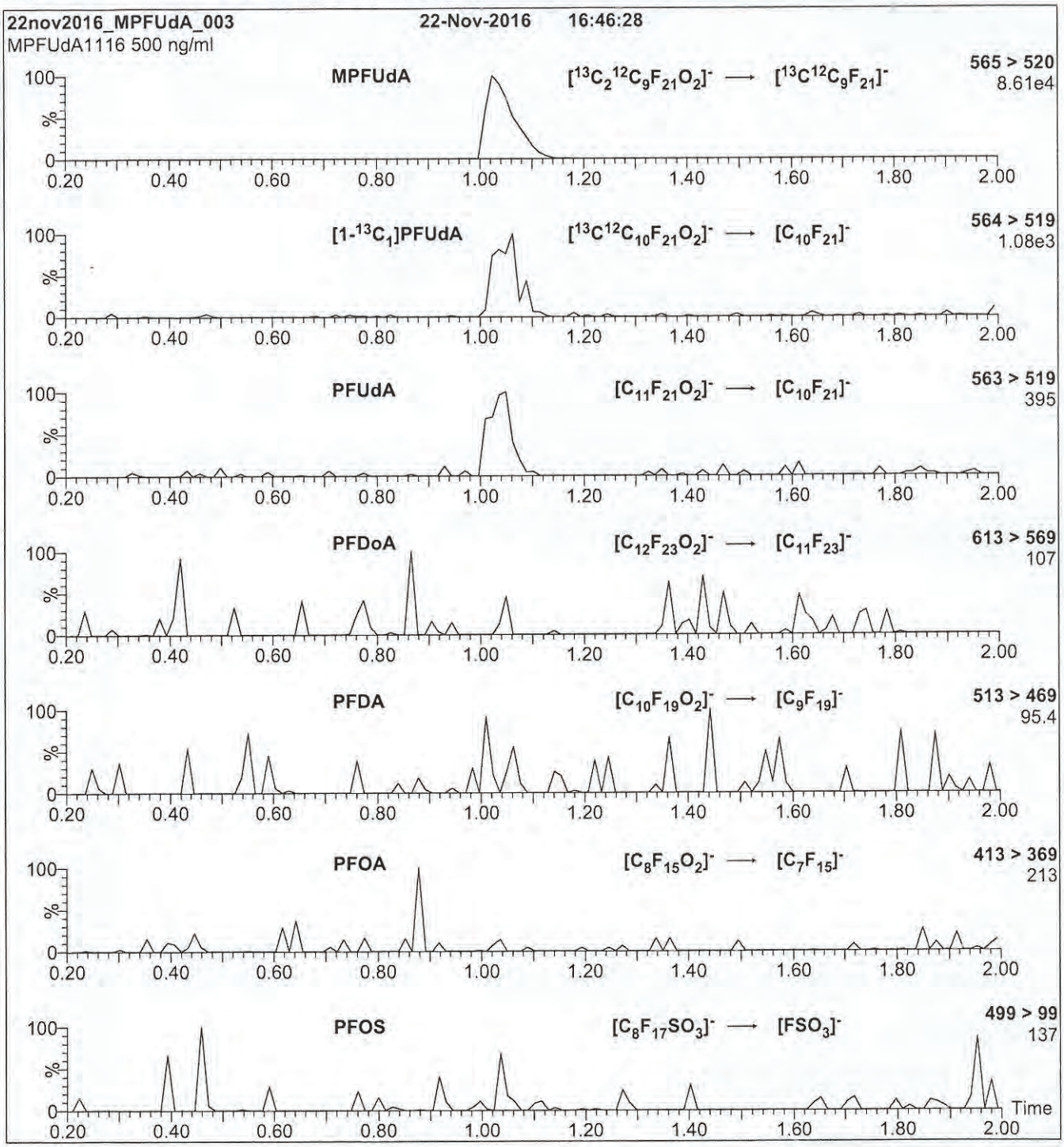
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

17K0813

Figure 2: **MPFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFUdA)

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) = 3.46e-3
Collision Energy (eV) = 11

17K0814

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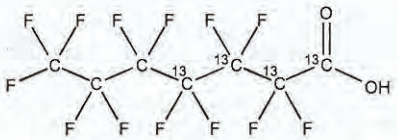
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M4PFHpA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid

LOT NUMBER: M4PFHpA0517

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_3HF_{13}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 368.03
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/03/2017
EXPIRY DATE: (mm/dd/yyyy) 05/03/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)

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:** 05/11/2017 (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

17K0814

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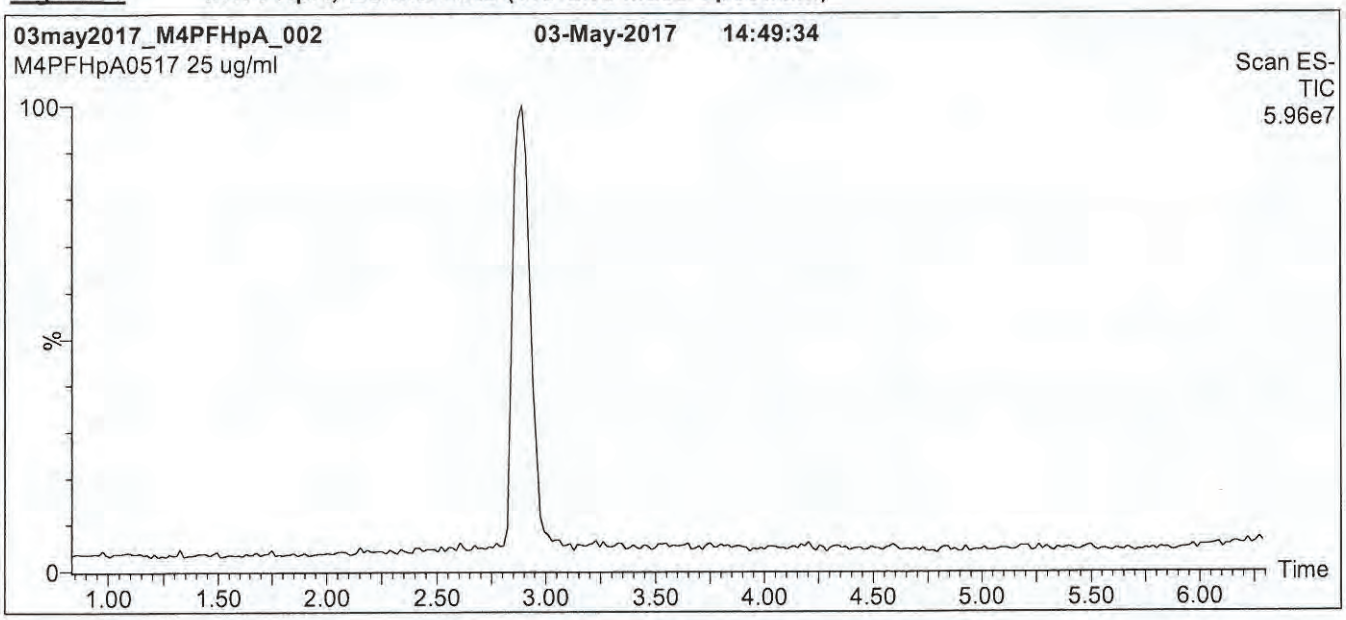
CALA Testing

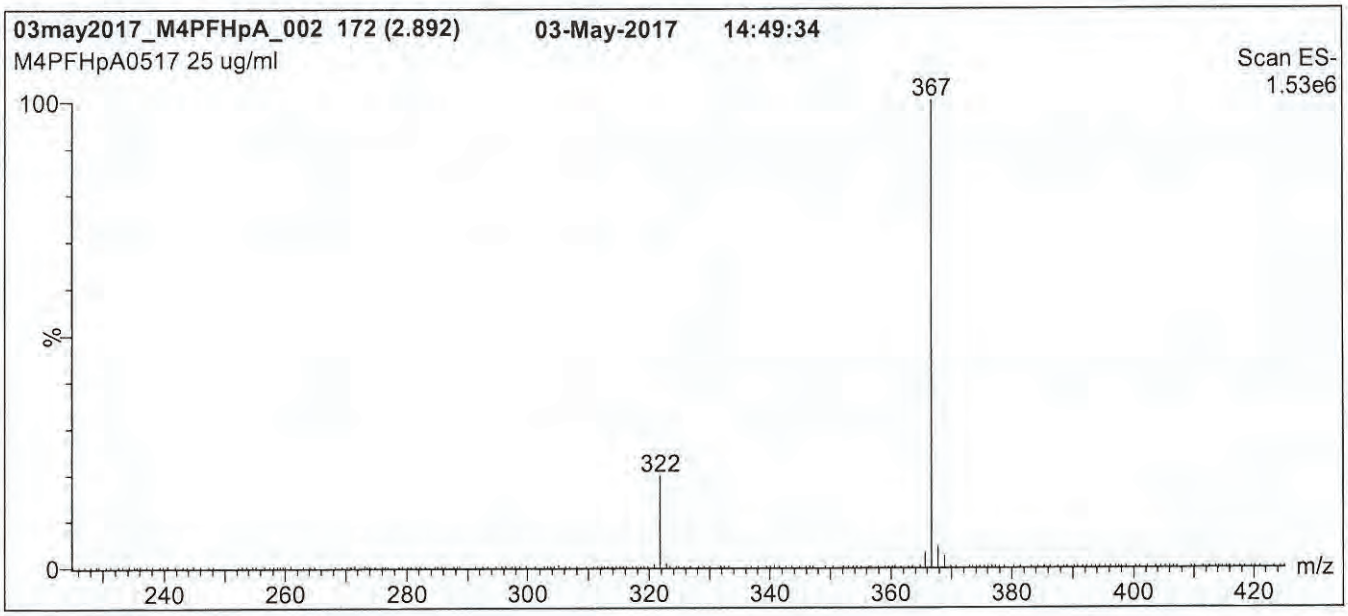
ANAB ACCREDITED

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17K0814

Figure 1: **M4PFHpA; 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: 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 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

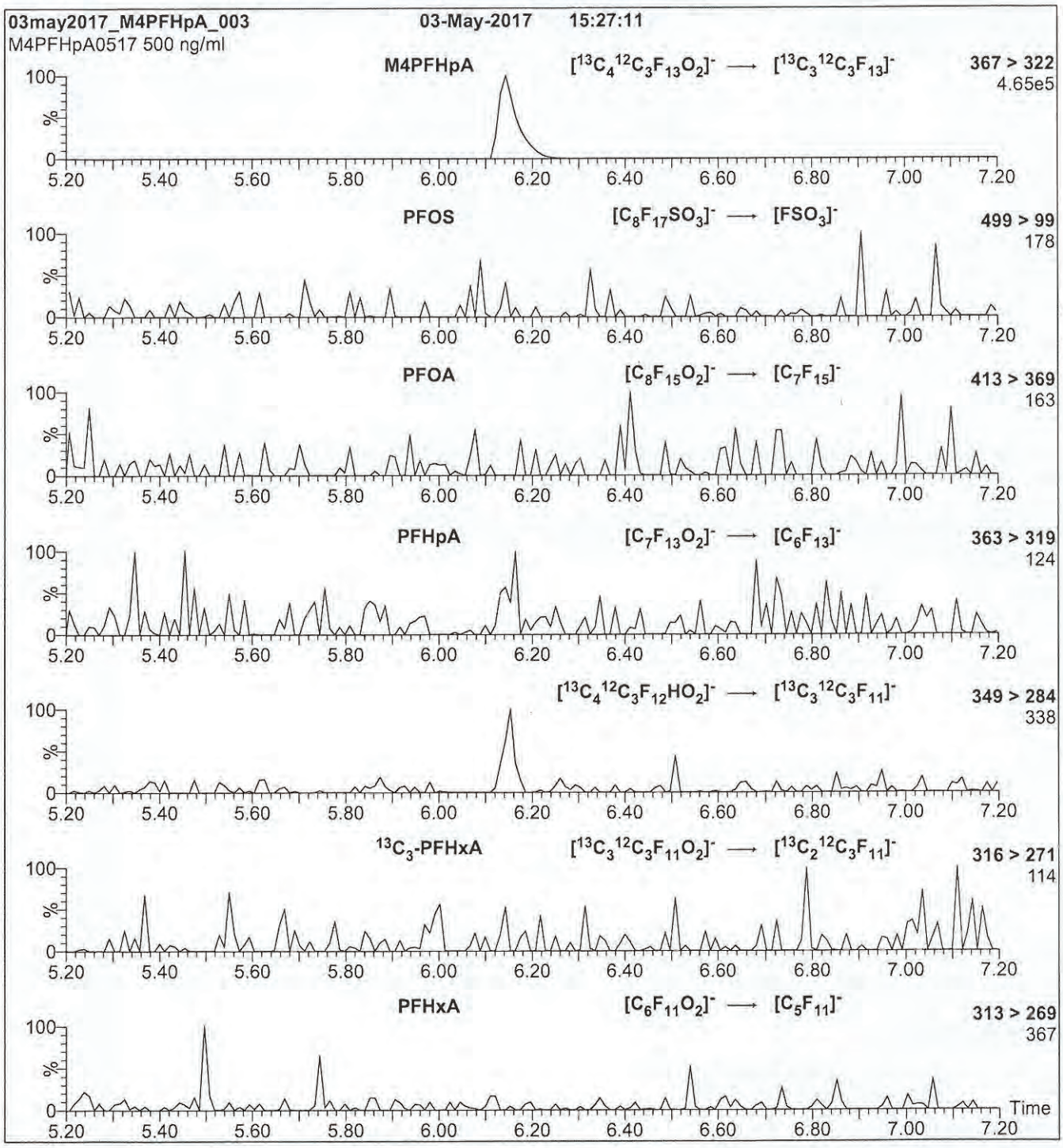
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0814

Figure 2: **M4PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M4PFHpA)

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) = 3.46e-3
Collision Energy (eV) = 9

1701<0816

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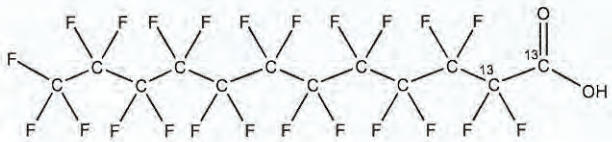
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA0517

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)	05/23/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/23/2022		
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.
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Certified By: _____ **Date:** 05/26/2017 (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

17K0816

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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).

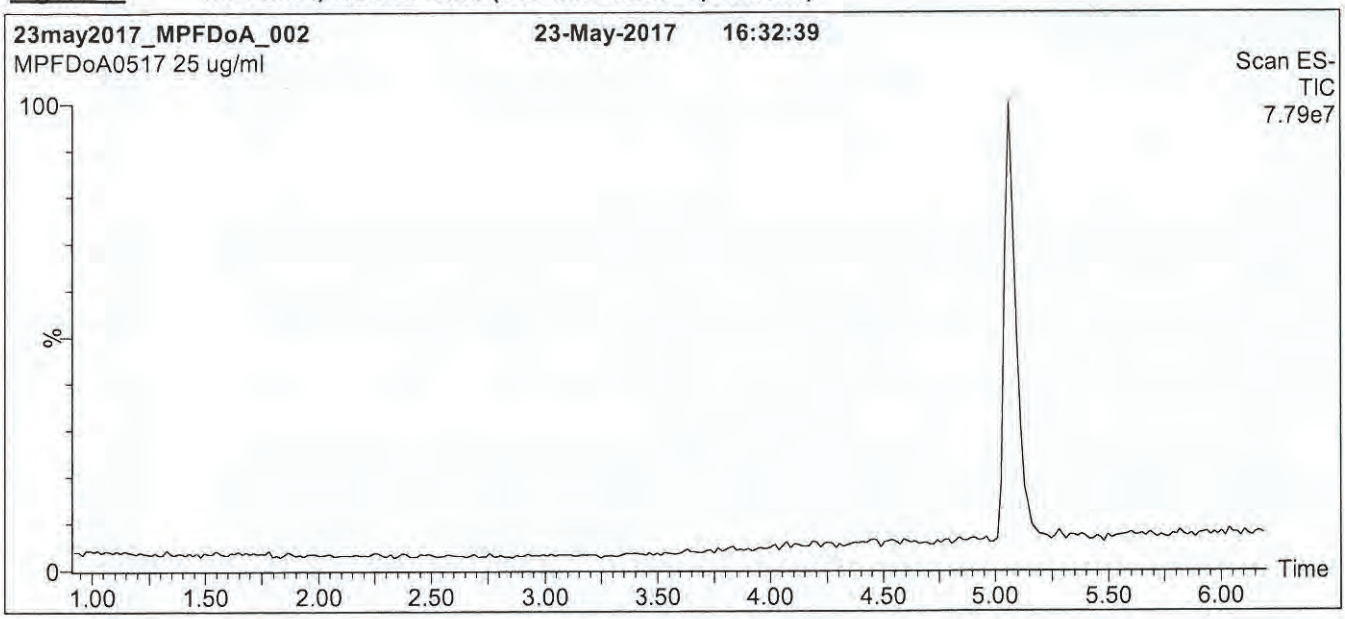
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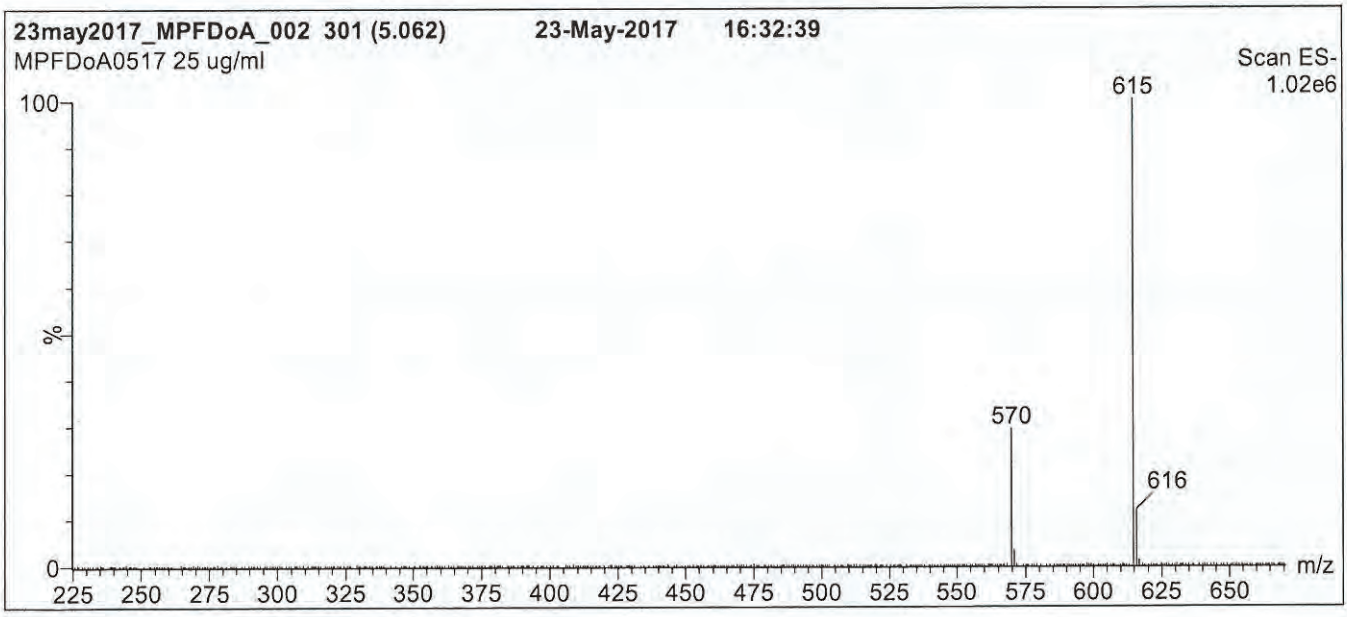
ANAB ACCREDITED

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17K0816

Figure 1: **MPFDoA; 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: 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 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

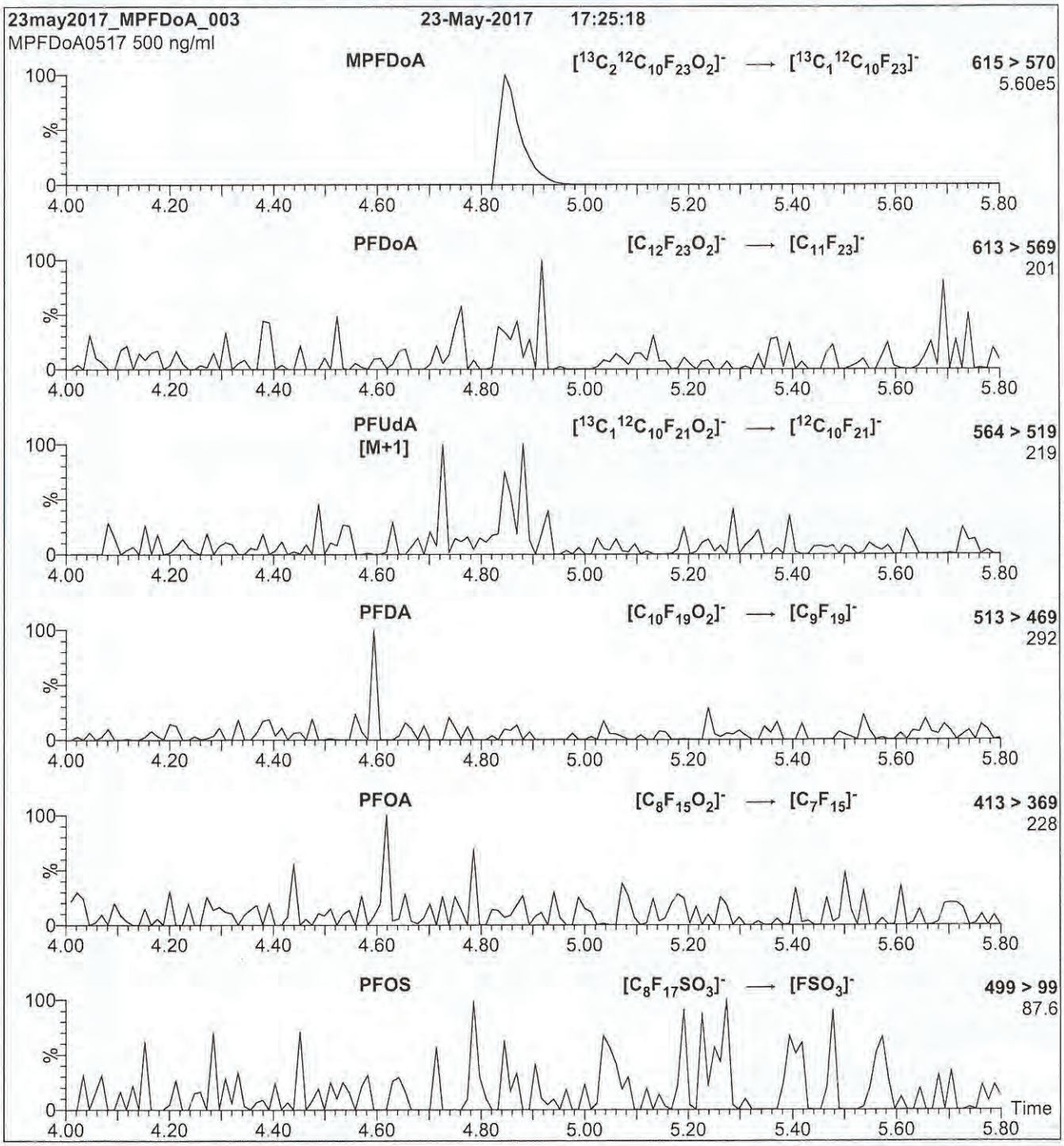
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17K0816

Figure 2: **MPFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFDoA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

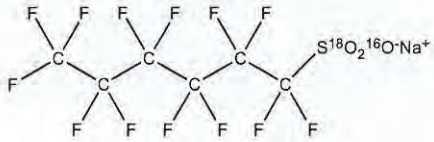
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

17K0818

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS0217
COMPOUND:	Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**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)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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.
- The response factor for MPFHxS ($C_6F_{13}S^{18}O_2{}^{16}O^-$) 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 ~ 1.0% of sodium perfluoro-1-octane[$^{18}O_2$]sulfonate ($^{18}O_2$-PFOS).
- 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:** 03/02/2017 (mm/dd/yyyy)
B.G. Chittim

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0818

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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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.

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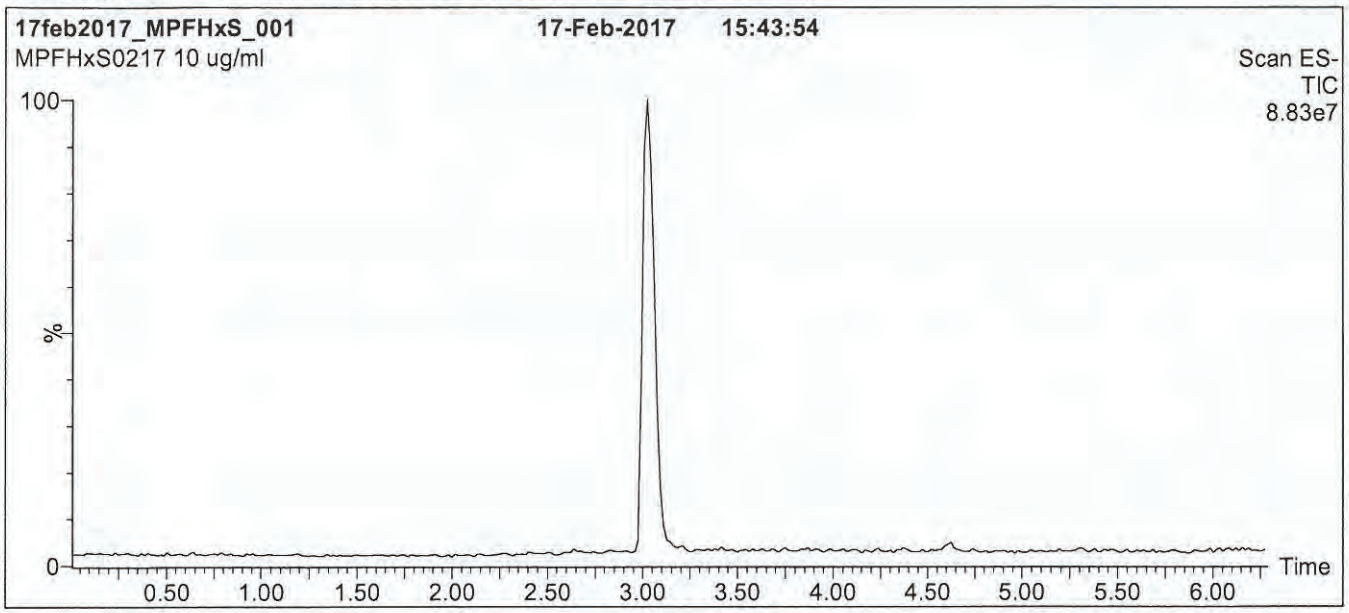
CALA

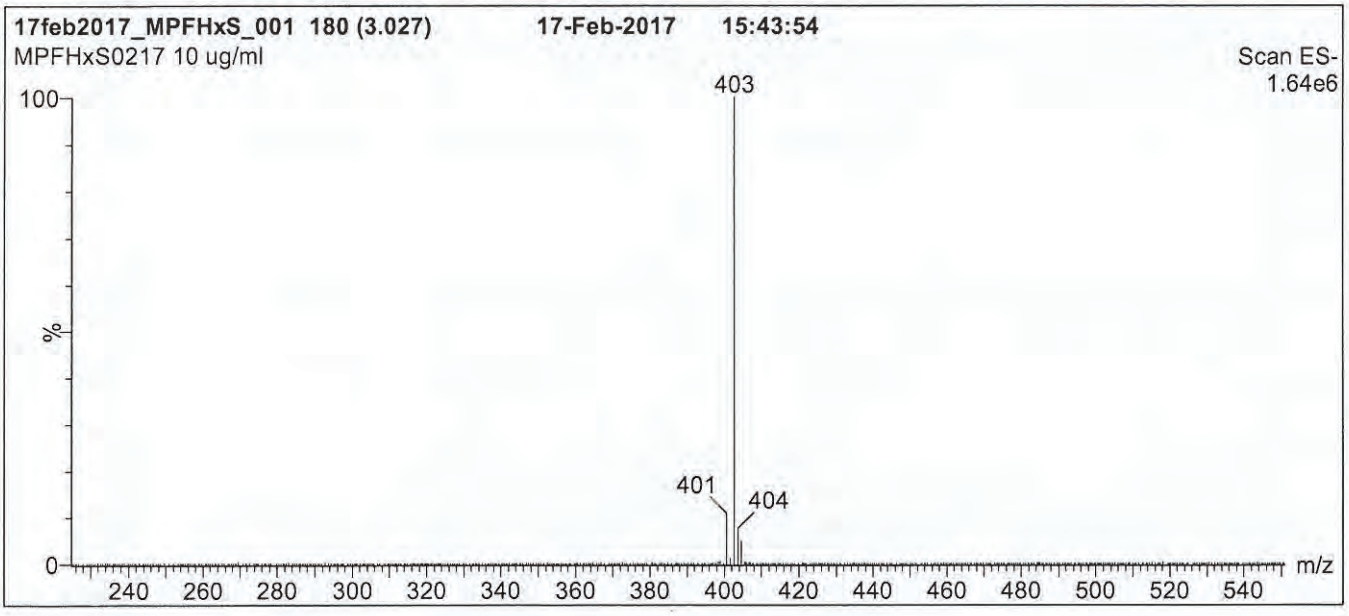
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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17K0818

Figure 1: **MPFHxS; 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: 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 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

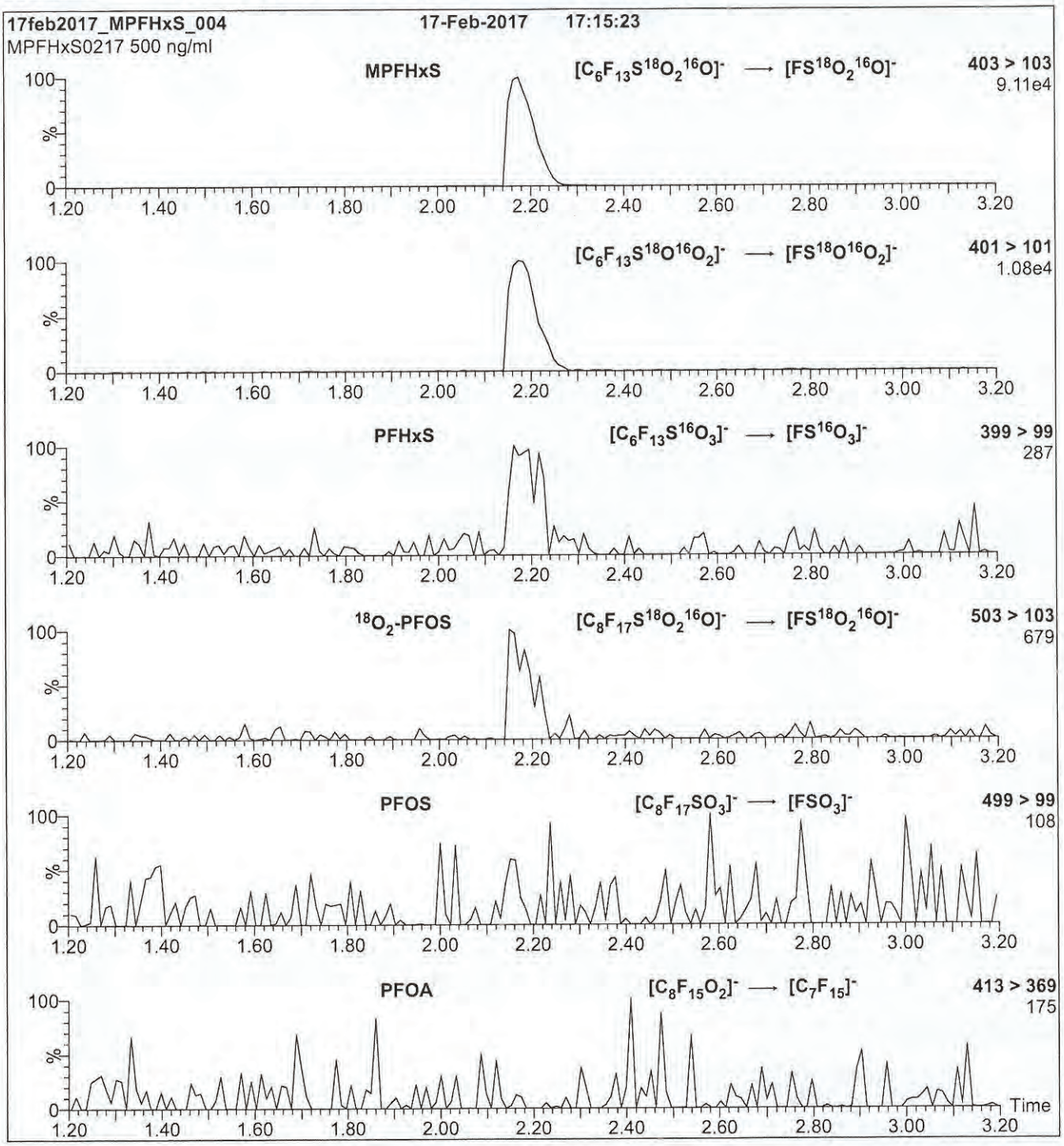
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17K0818

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFHxS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

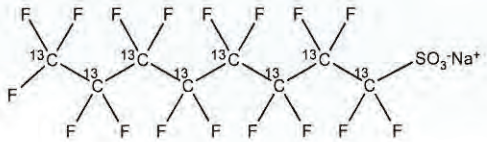
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

17K0819

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M8PFOS	**LOT NUMBER:**	M8PFOS0916
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:	48.5 ± 2.4 µg/ml (Na salt) 46.4 ± 2.3 µg/ml (M8PFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>97%	**ISOTOPIC PURITY:**	>99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
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 ~ 0.6% of sodium perfluoro-1-[$^{13}C_7$]heptanesulfonate ($^{13}C_7$-PFHpS), ~ 1.0% of chlorohexadecafluoro-1-[$^{13}C_8$]octanesulfonate, and ~ 1.5% of sodium perfluoro-1-[$^{13}C_4$]octanesulfonate (MPFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/11/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17K0819

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:

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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.

UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ 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.

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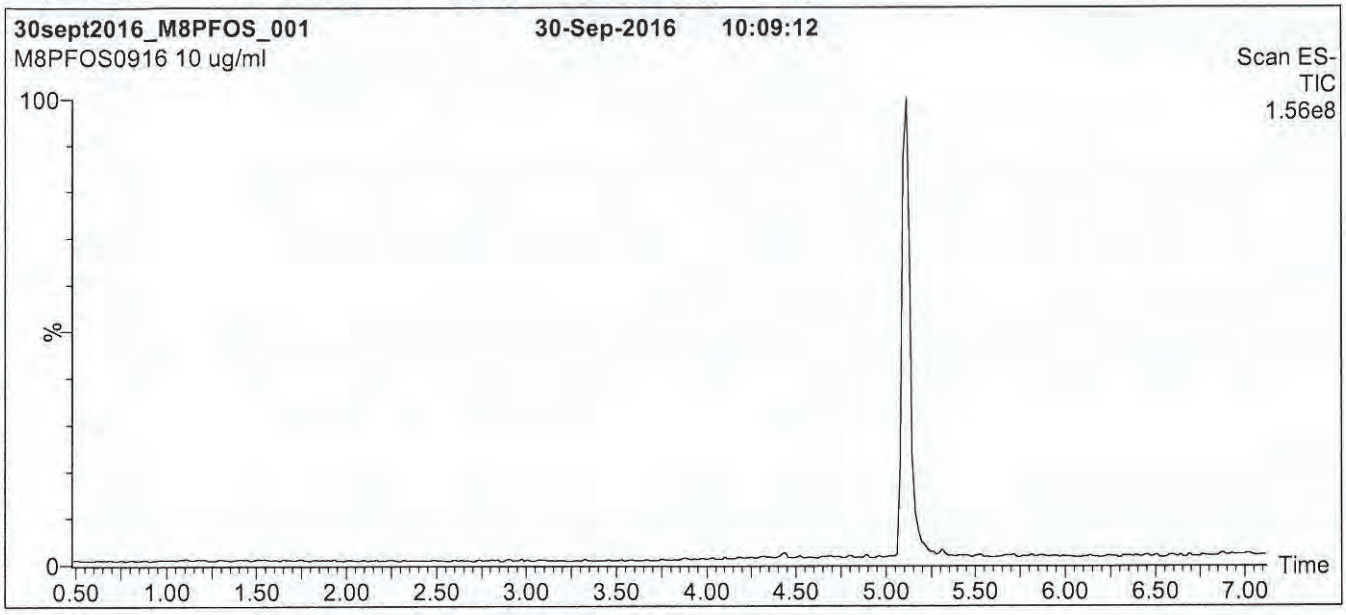
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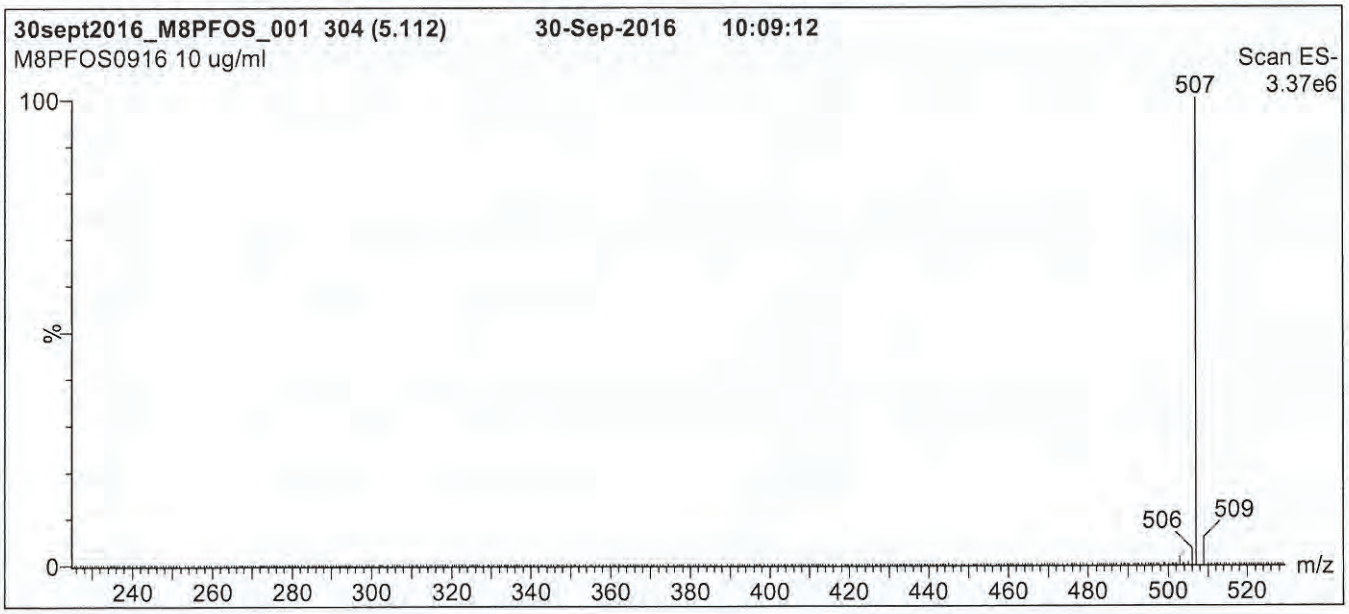
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17K0819

Figure 1: **M8PFOS; 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: 50% (80:20 MeOH:ACN) / 50% 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

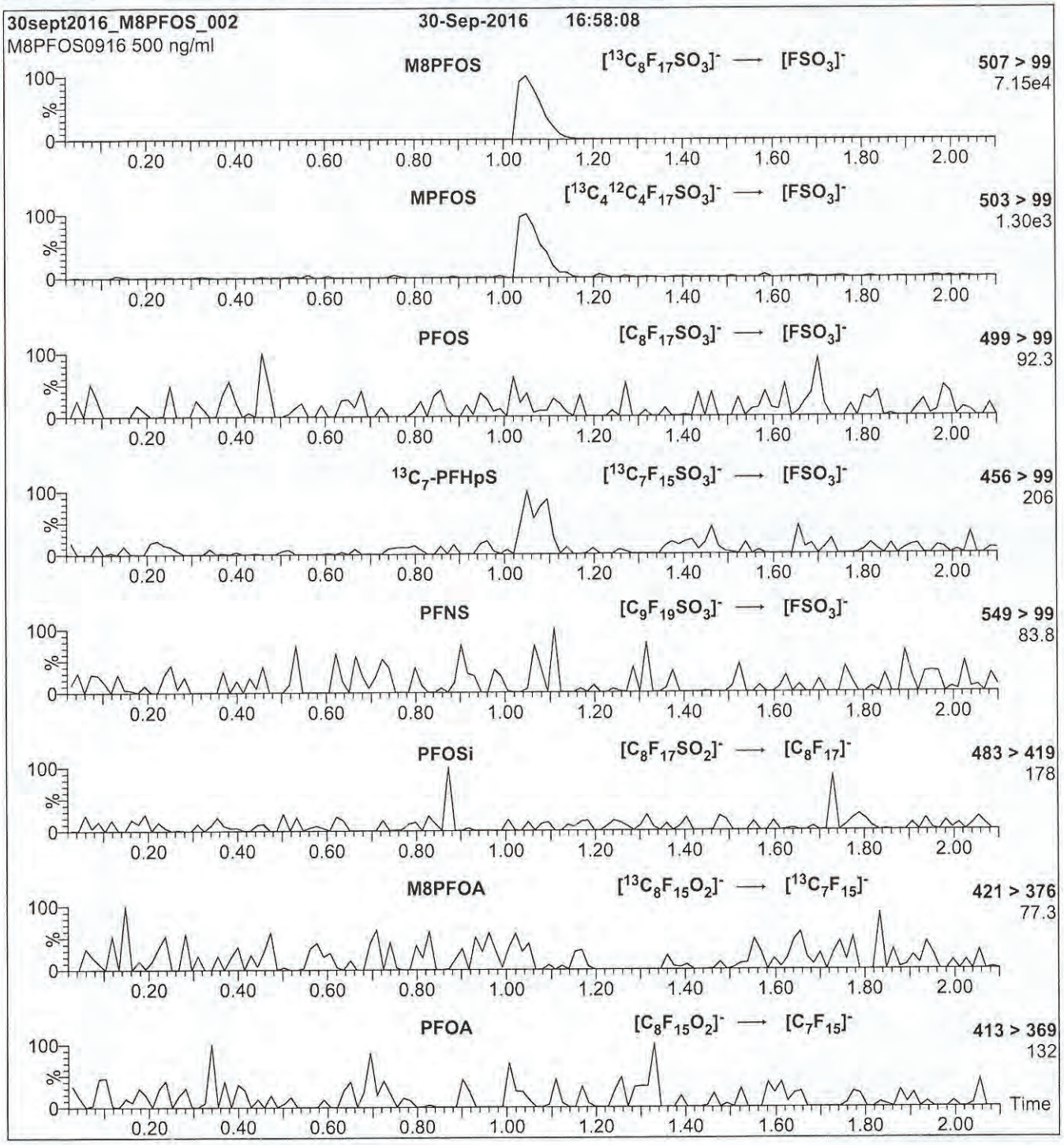
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0819

Figure 2: **M8PFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8PFOS)

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) = 3.35e-3
Collision Energy (eV) = 40

17K0821

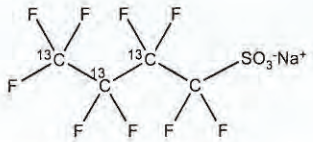
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFBS **LOT NUMBER:** M3PFBS0815

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)	05/24/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2022		
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:** 05/25/2017 (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

1710821

INTENDED USE:

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HAZARDS:

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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:

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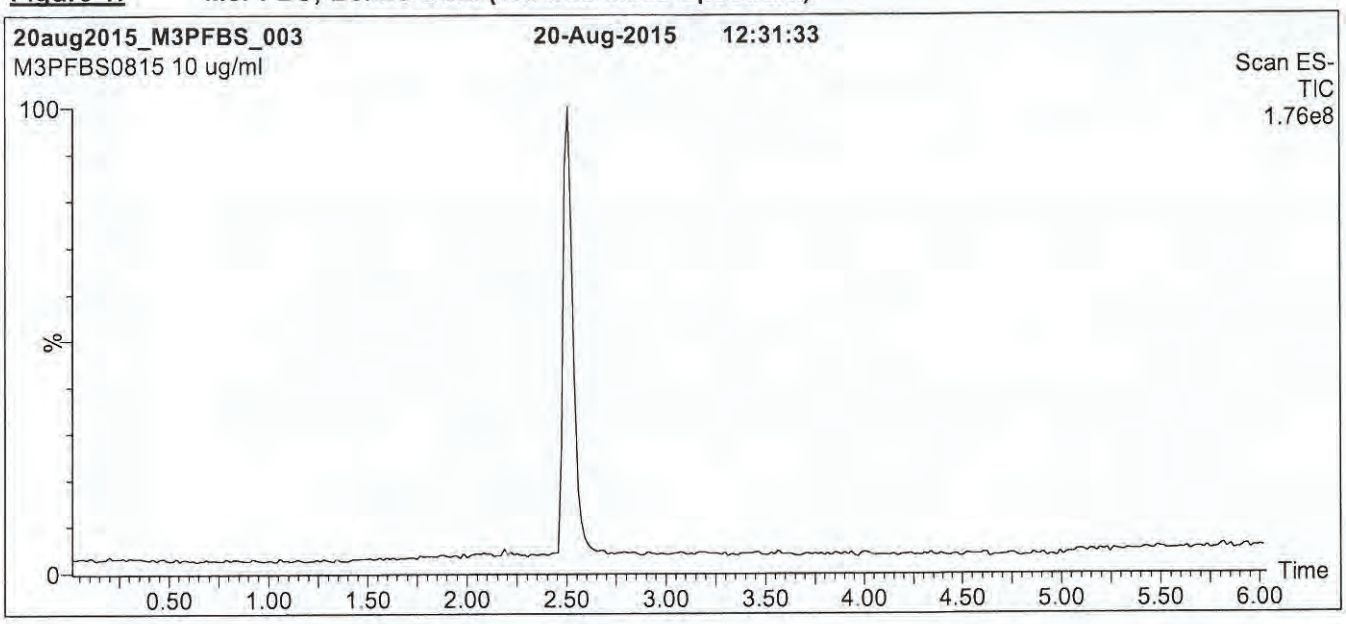
CALA

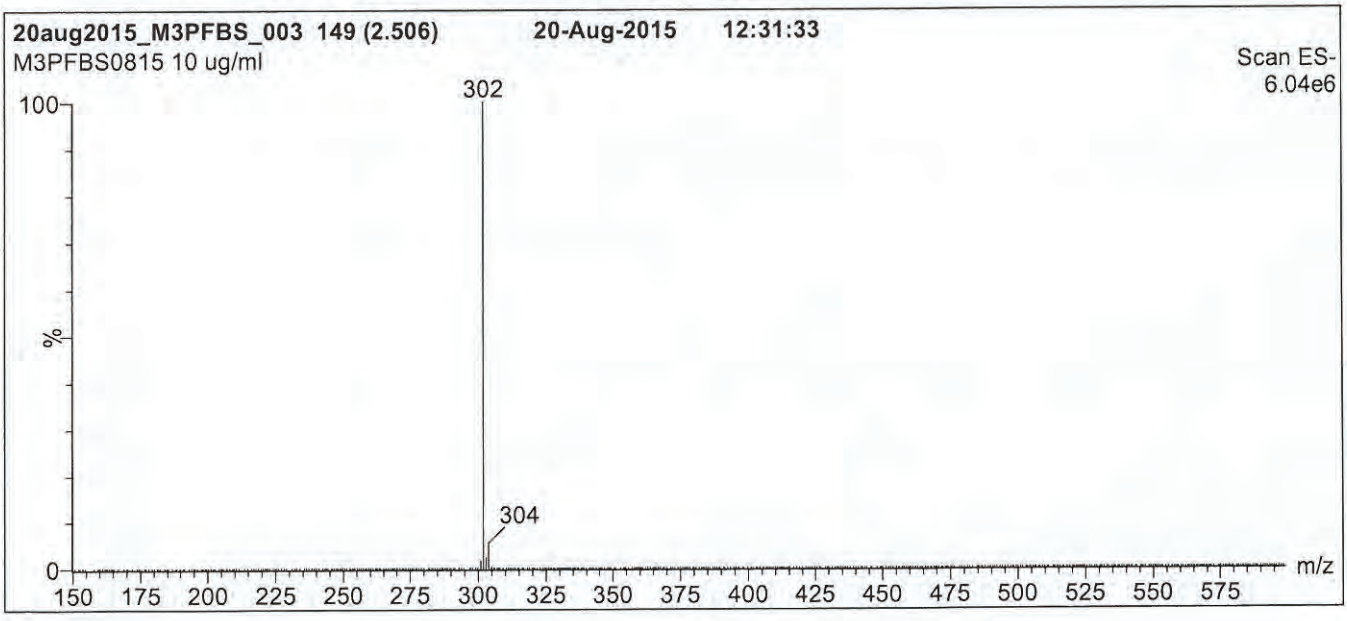
ANAB ACCREDITED

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

17K0821

Figure 1: **M3PFBS; 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: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

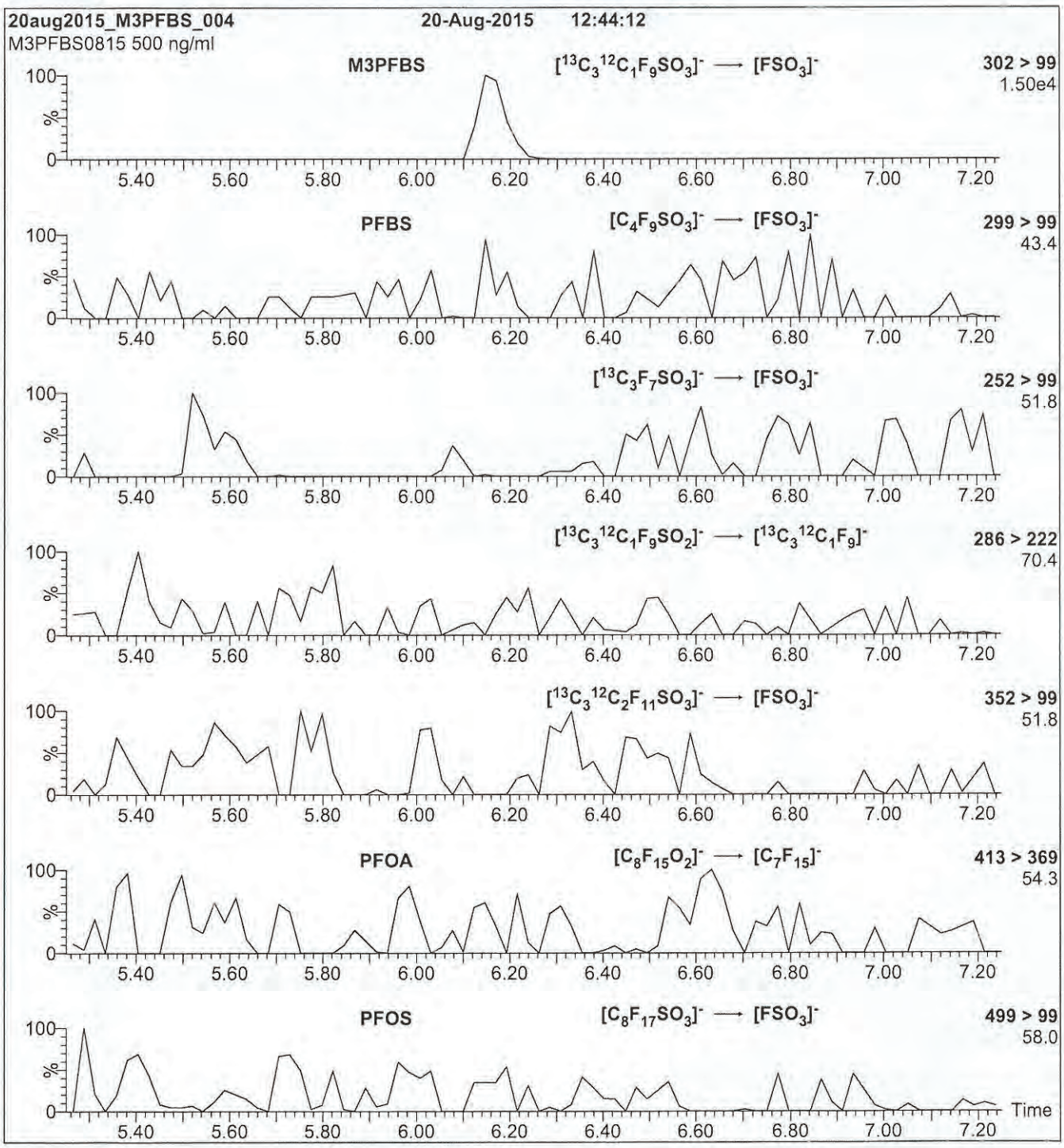
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17K0821

Figure 2: **M3PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFBS)

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) = 3.31e-3
Collision Energy (eV) = 25

Analytical Standard Record

Vista Analytical Laboratory

17K2502

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
17J0526	13C6-PFDA	05-Oct-17	** Vendor **	31-May-21	0.5
17J0527	13C8-PFOA	05-Oct-17	** Vendor **	05-Jul-22	0.51
17J1018	13C4-PFBA	10-Oct-17	** Vendor **	12-Apr-22	0.5
17J1019	13C5-PFHxA	10-Oct-17	** Vendor **	27-Aug-19	0.5
17J1020	13C9-PFNA	10-Oct-17	** Vendor **	23-May-22	0.5
17J1021	13C7-PFUdA	10-Oct-17	** Vendor **	13-Jul-22	0.5
17J1022	13C3-PFHxS	10-Oct-17	** Vendor **	05-Jul-22	0.53
17J1023	13C4-PFOS	10-Oct-17	** Vendor **	19-May-22	0.525
17J1024	13C2-FOUEA	10-Oct-17	** Vendor **	02-Aug-18	0.5

Description:	PFC-RS	Expires:	25-Nov-19
Standard Type:	Reagent	Prepared:	25-Nov-17
Solvent:	MeOH	Prepared By:	Isaac N. Johnson
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	25-Nov-17 10:25 by INJ

Analyte	CAS Number	Concentration	Units
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
13C3-PFHxS		1.25	ug/mL
13C2-FOUEA		1.25	ug/mL

17J0526

WELLINGTON LABORATORIES

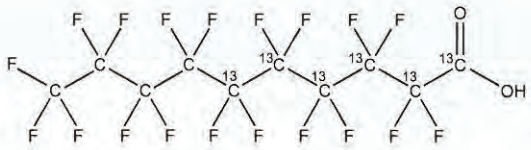
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M6PFDA
COMPOUND: Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid

LOT NUMBER: M6PFDA0516

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_6{}^{12}C_4HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 520.04
SOLVENT(S): Methanol
Water (<1%)

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4,5,6-$^{13}C_6$)

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: B.G. Chittim **Date:** 06/13/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17J0526

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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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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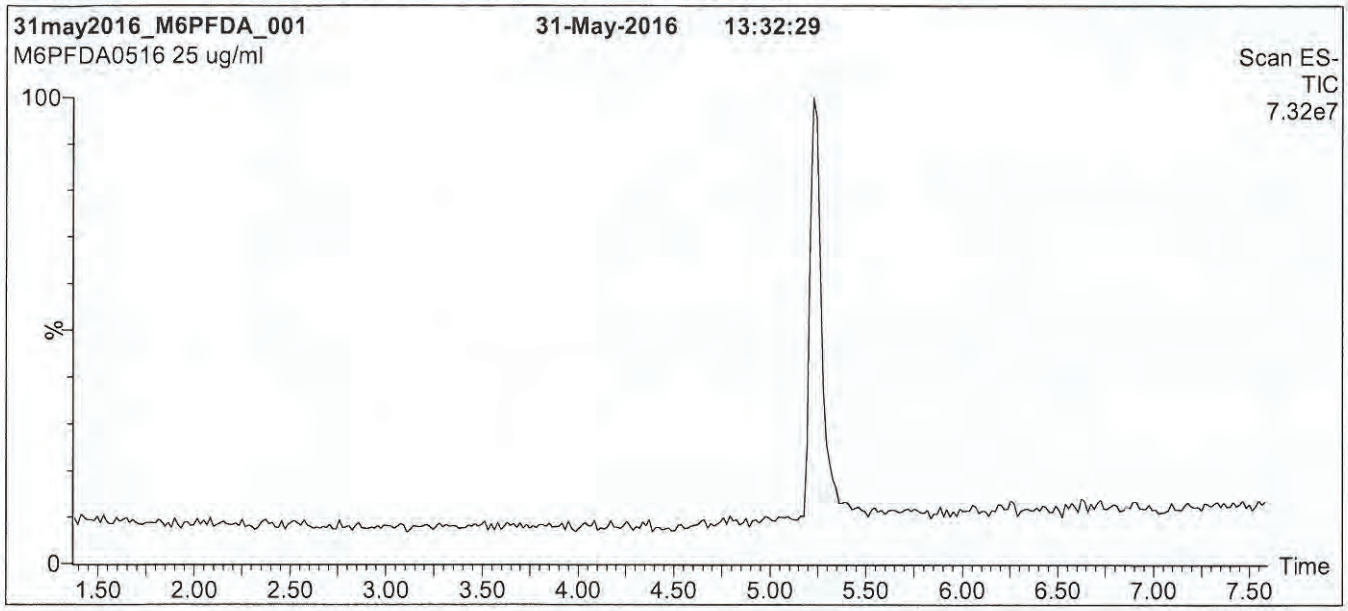
CALA

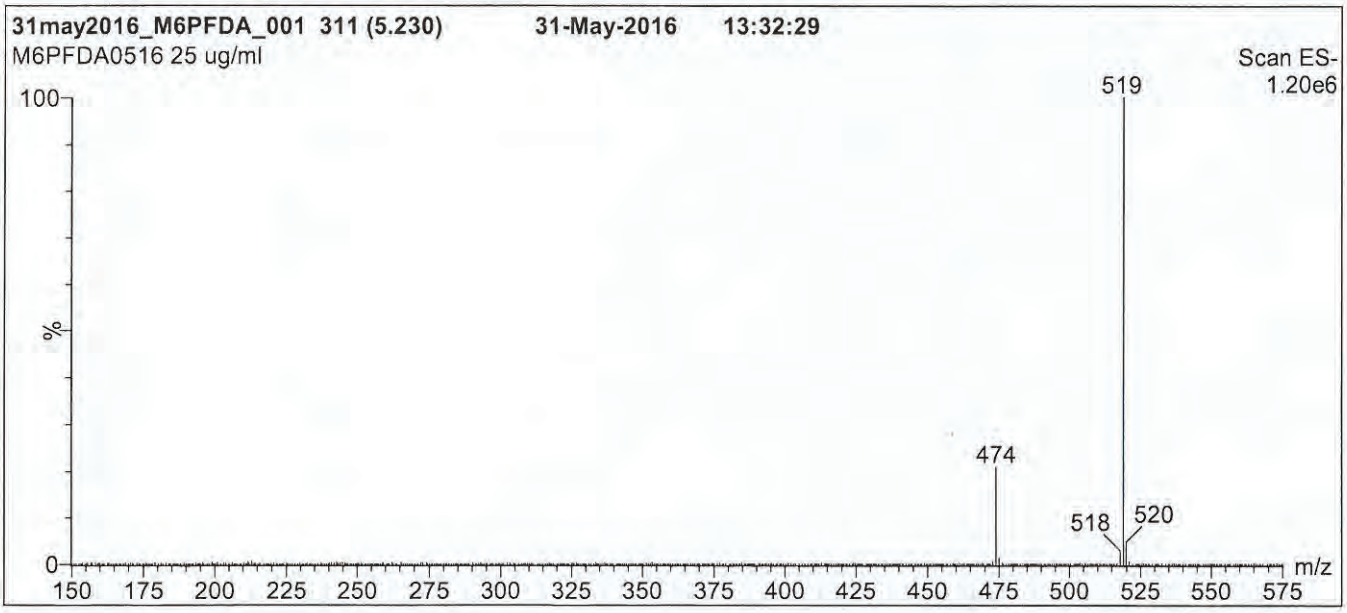
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

17J0526

Figure 1: **M6PFDA; 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: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

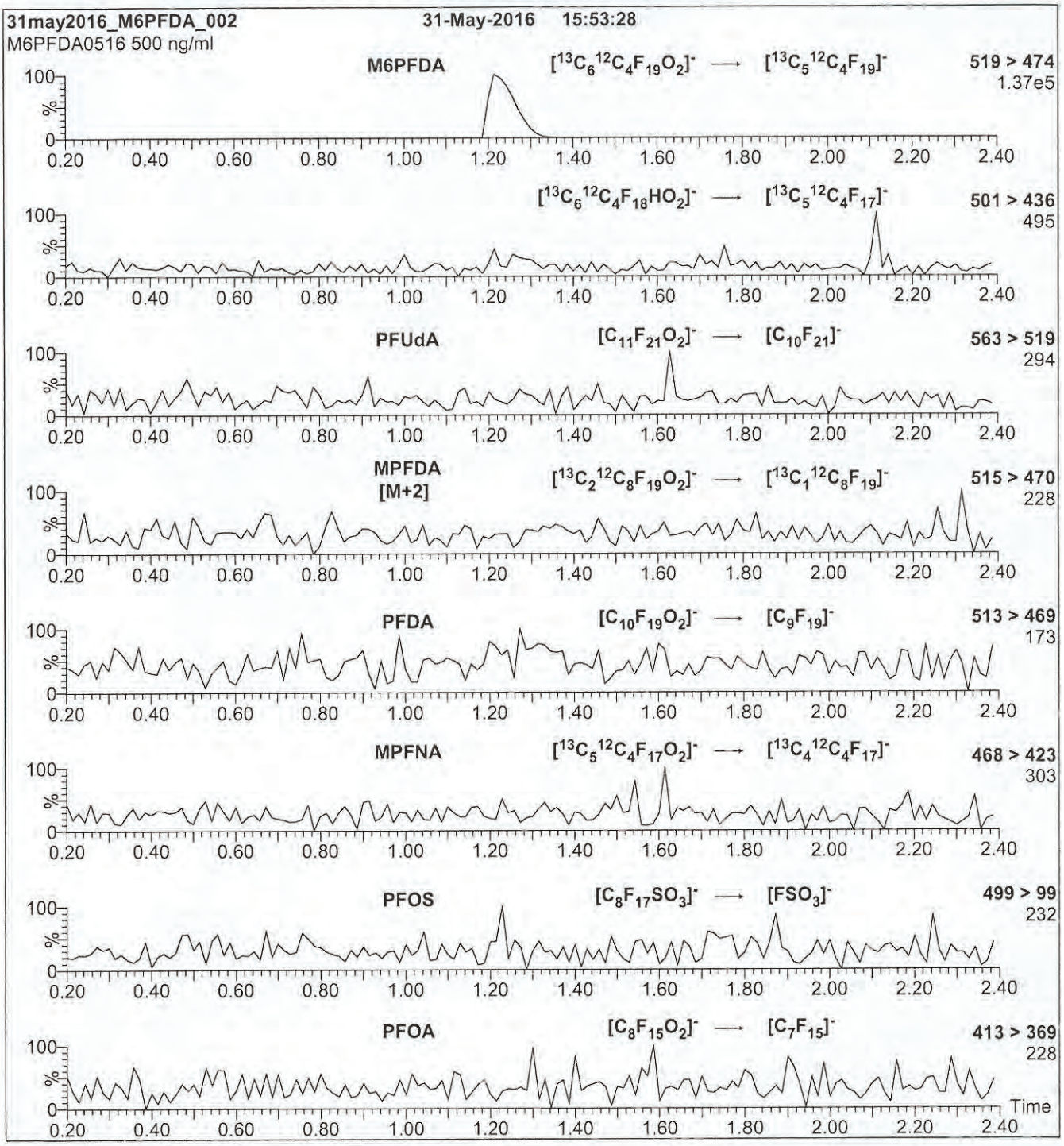
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17J0526

Figure 2: **M6PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M6PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

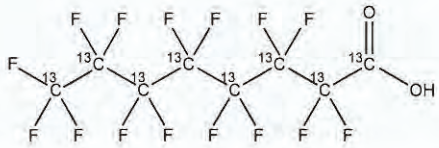
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 13

17G 17J0527
INJ 10/5/17

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8PFOA	**LOT NUMBER:**	M8PFOA0717
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:	49 ± 2.45 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	97.9% (M8PFOA) 2.1% (MPFOA [M+4])	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
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 < 0.1% of native perfluoro-n-octanoic acid (PFOA) and ~ 2.1% of [M+4] perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (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

17J0527

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:

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.

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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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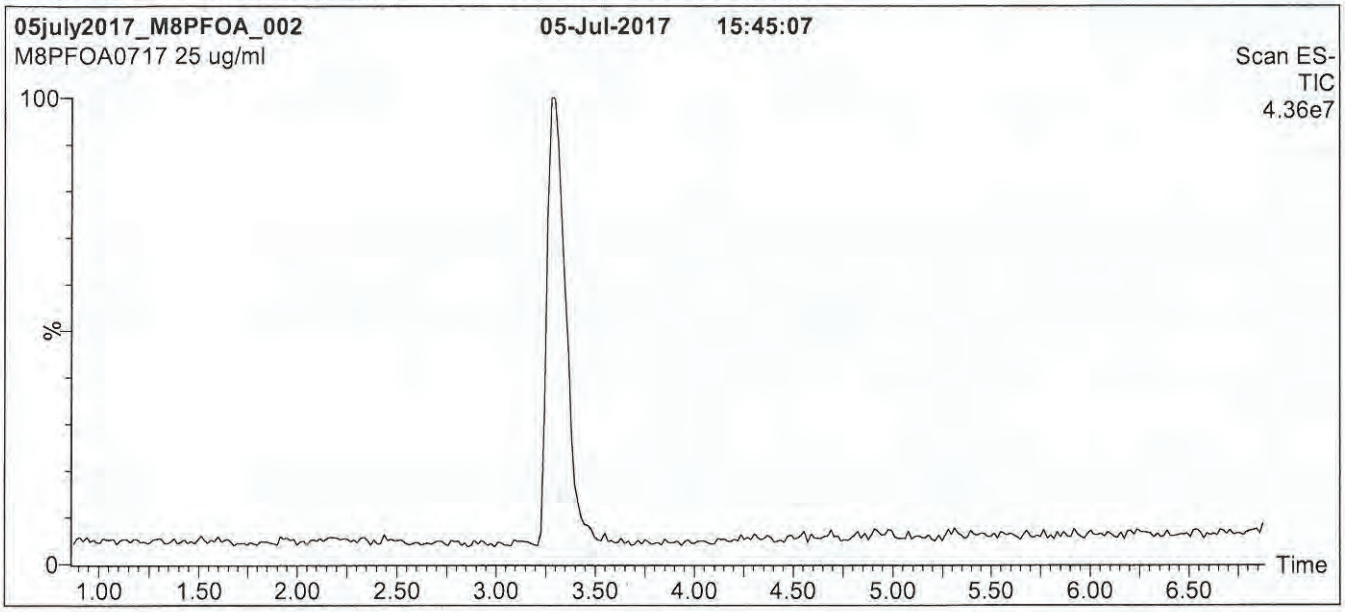
CALA

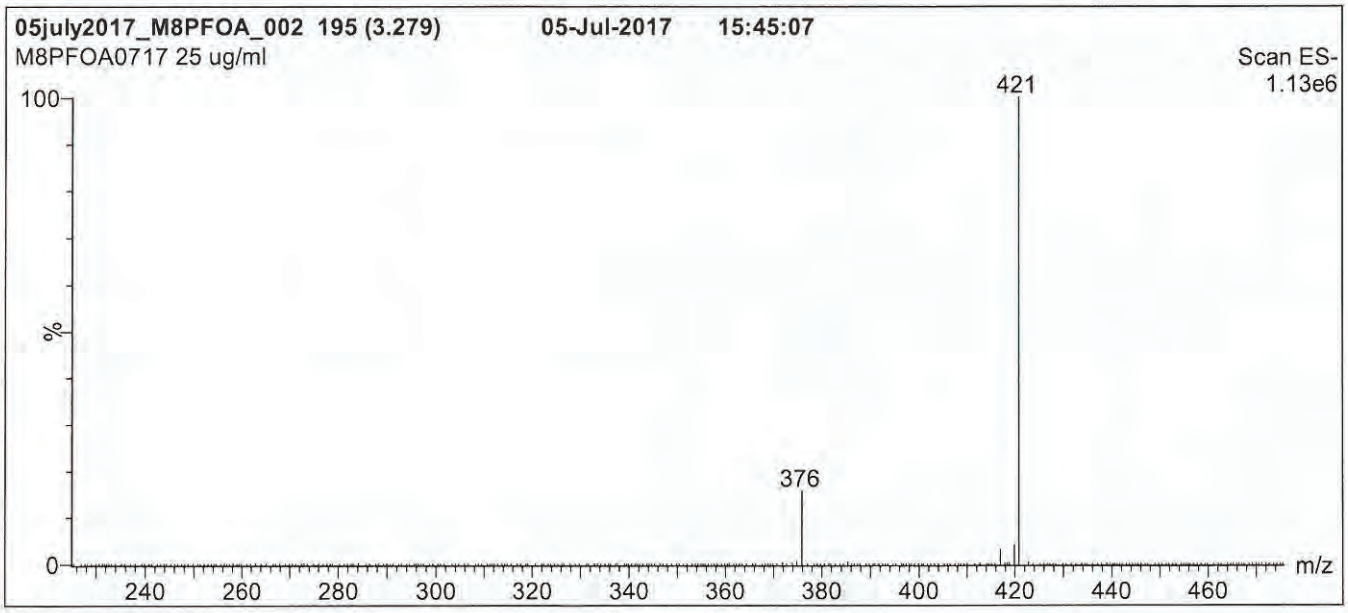
ANAB ACCREDITED

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17J0527

Figure 1: **M8PFOA; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

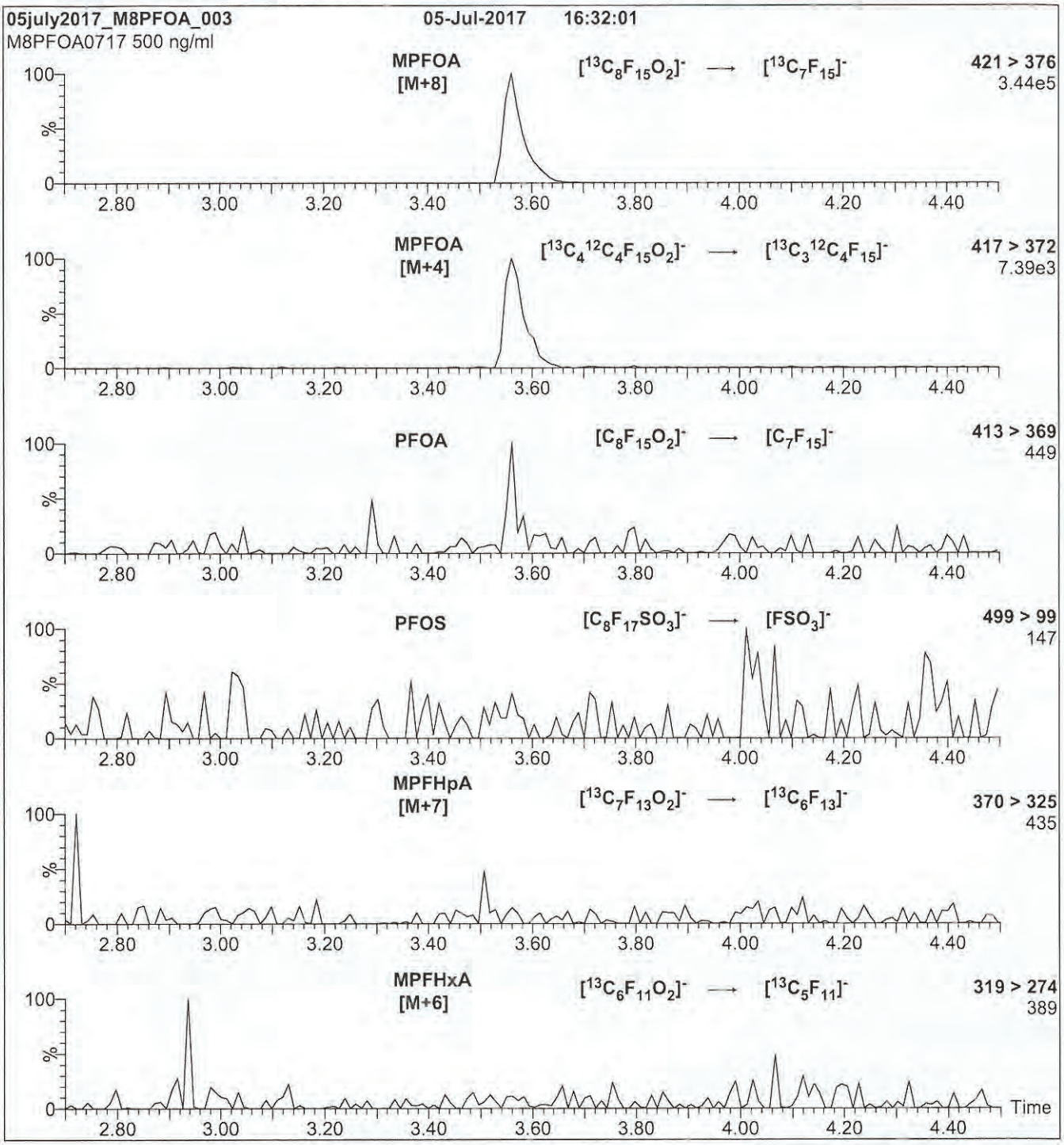
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

17J0527

Figure 2: **M8PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

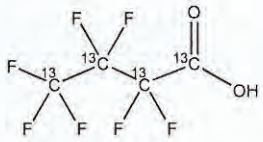
Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 10

17J1018

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA0417
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)	04/12/2017		
EXPIRY DATE: (mm/dd/yyyy)	04/12/2022		
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/20/2017 (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

17J1018

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QUALITY MANAGEMENT:

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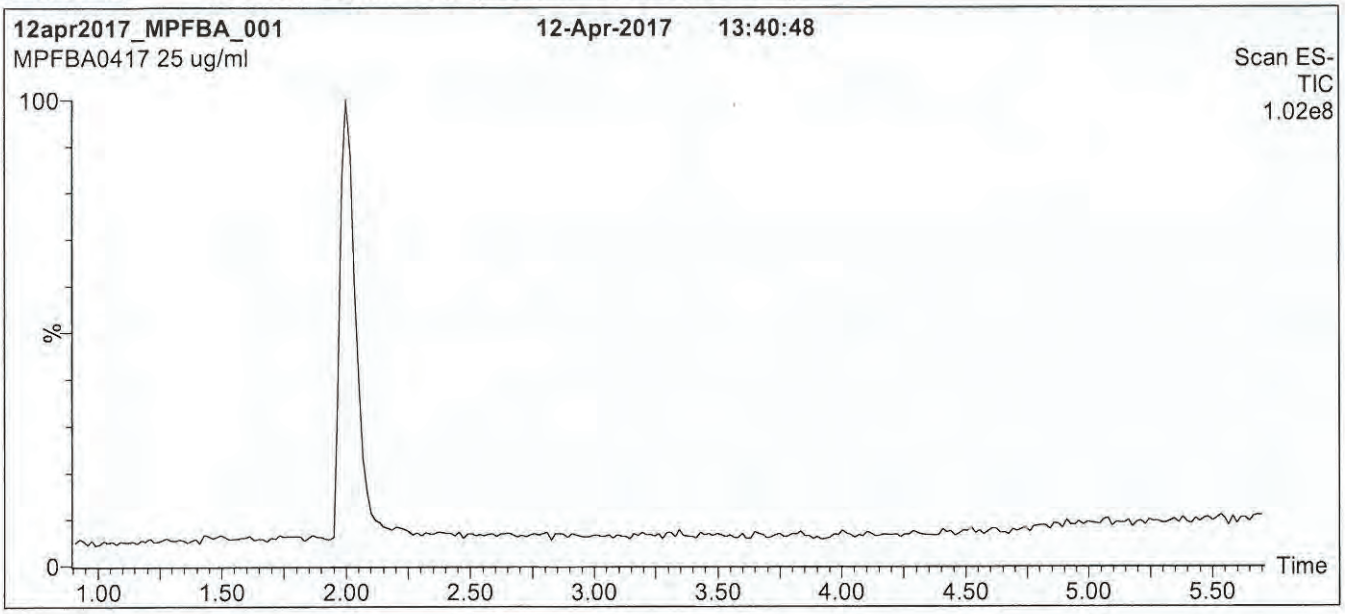
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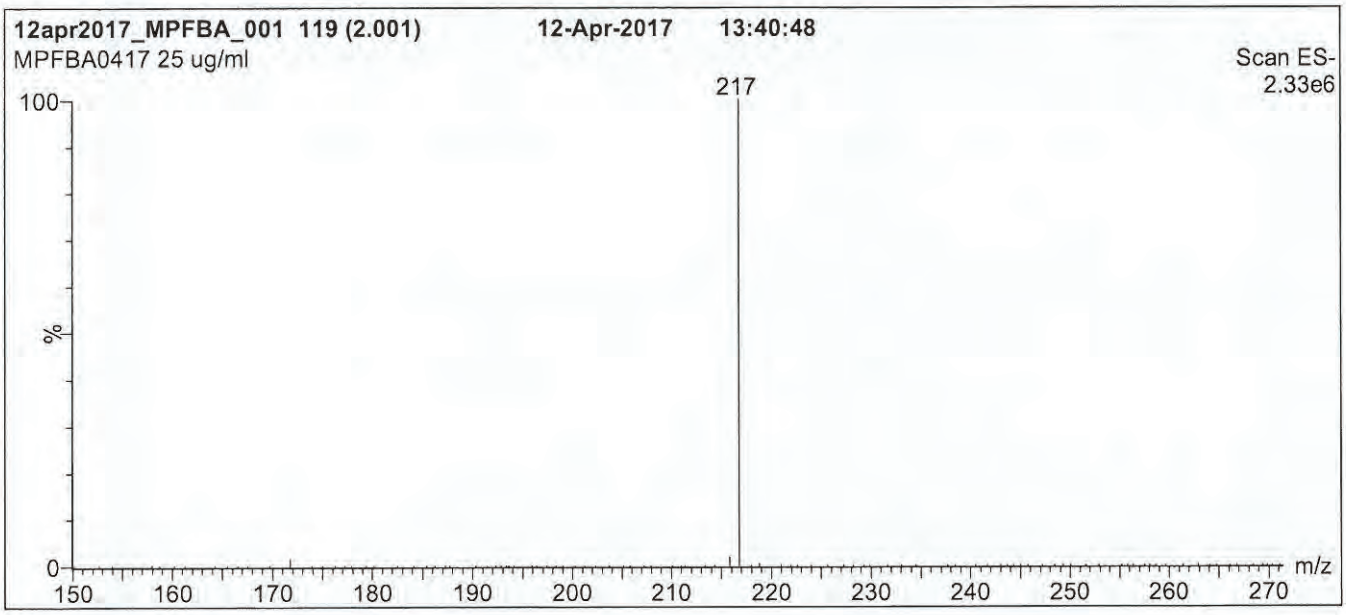
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17J1018

Figure 1: **MPFBA; 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

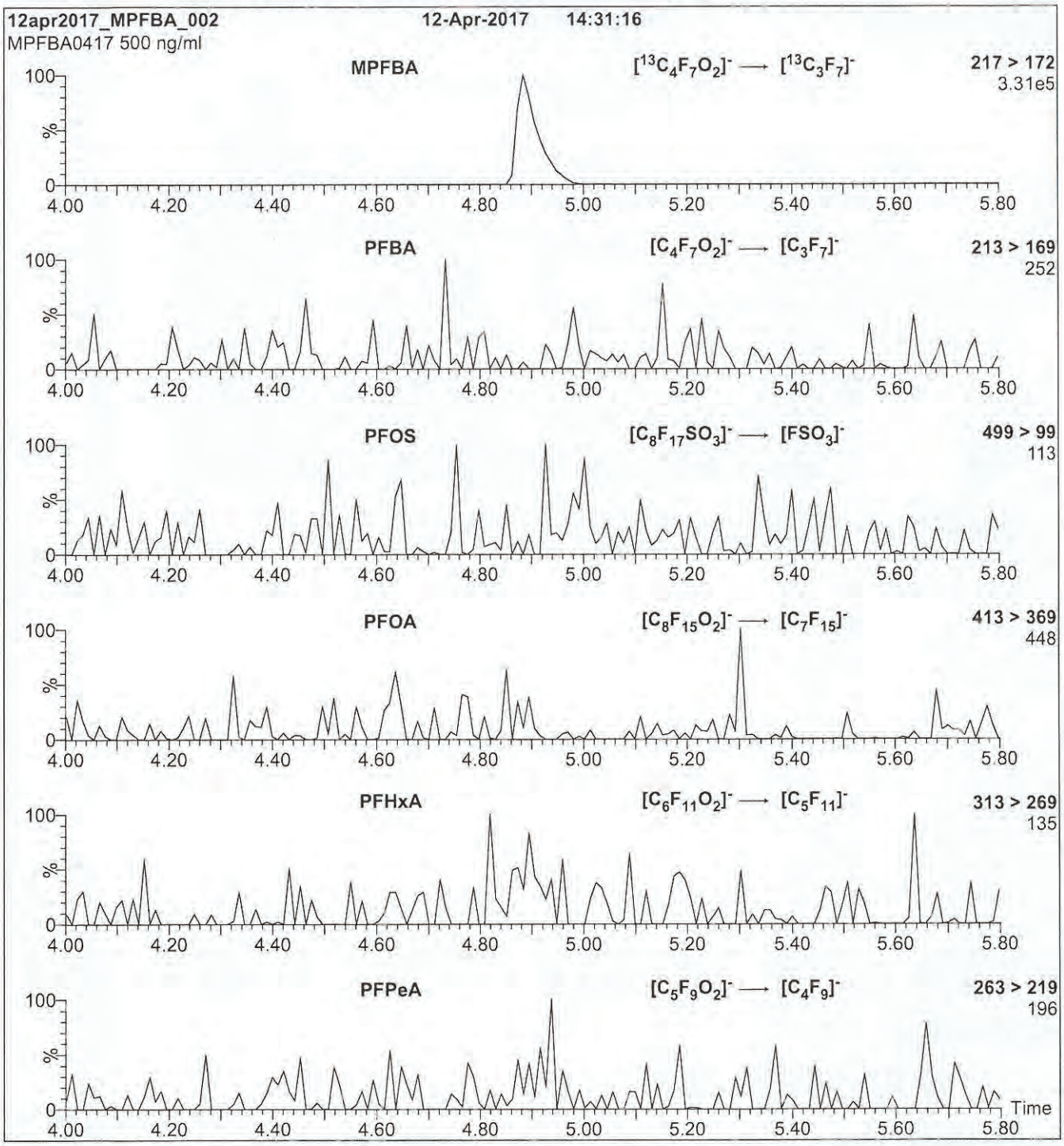
MS Parameters

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

17J1018

Figure 2: **MPFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFBA)

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) = 3.35e-3
Collision Energy (eV) = 10

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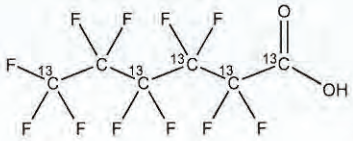
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M5PFHxA
COMPOUND: Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid

LOT NUMBER: M5PFHxA0814

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_5{}^{12}C_1HF_{11}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 319.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/27/2014
EXPIRY DATE: (mm/dd/yyyy) 08/27/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4,6\text{-}^{13}C_5$)

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: B.G. Chittim **Date:** 03/31/2015 (mm/dd/yyyy)

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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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:

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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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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:

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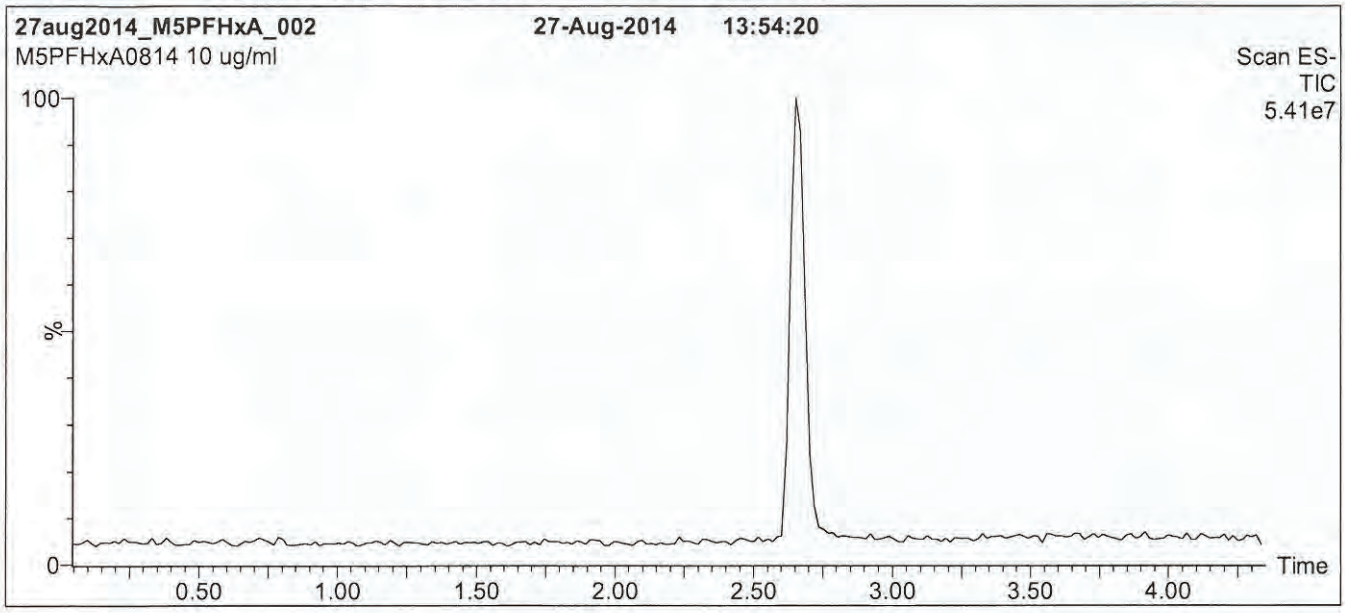
CALA

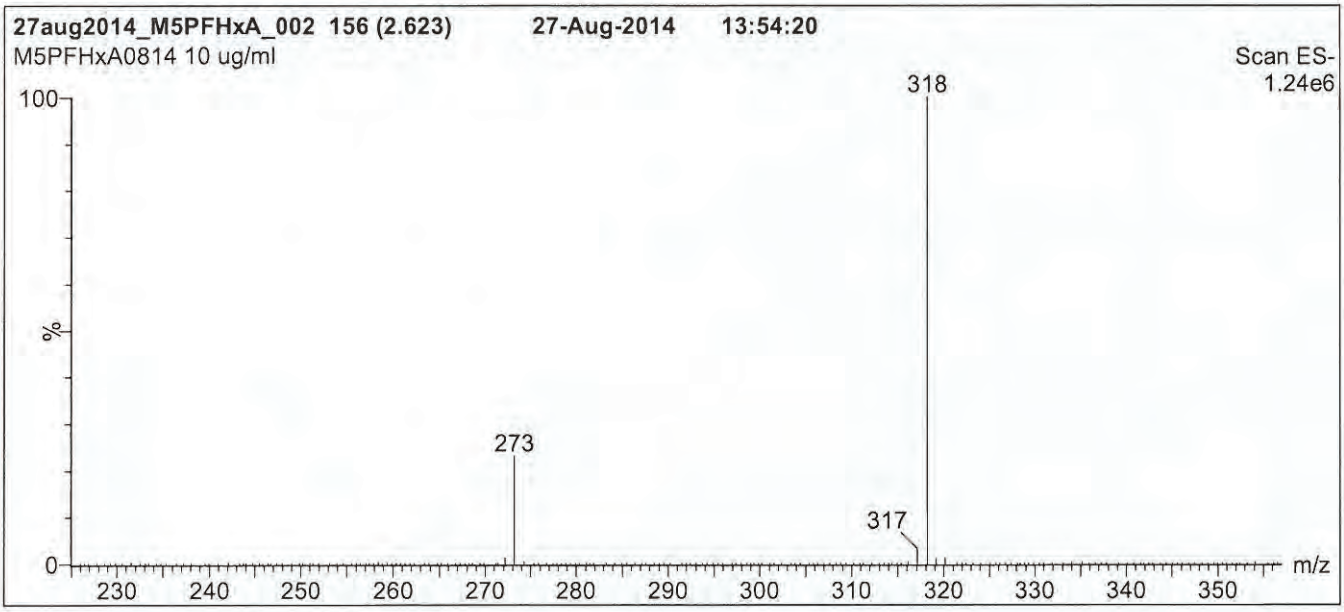
ANAB ACCREDITED

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17J1019

Figure 1: **M5PFHxA; 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: 40% (80:20 MeOH:ACN) / 60% 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

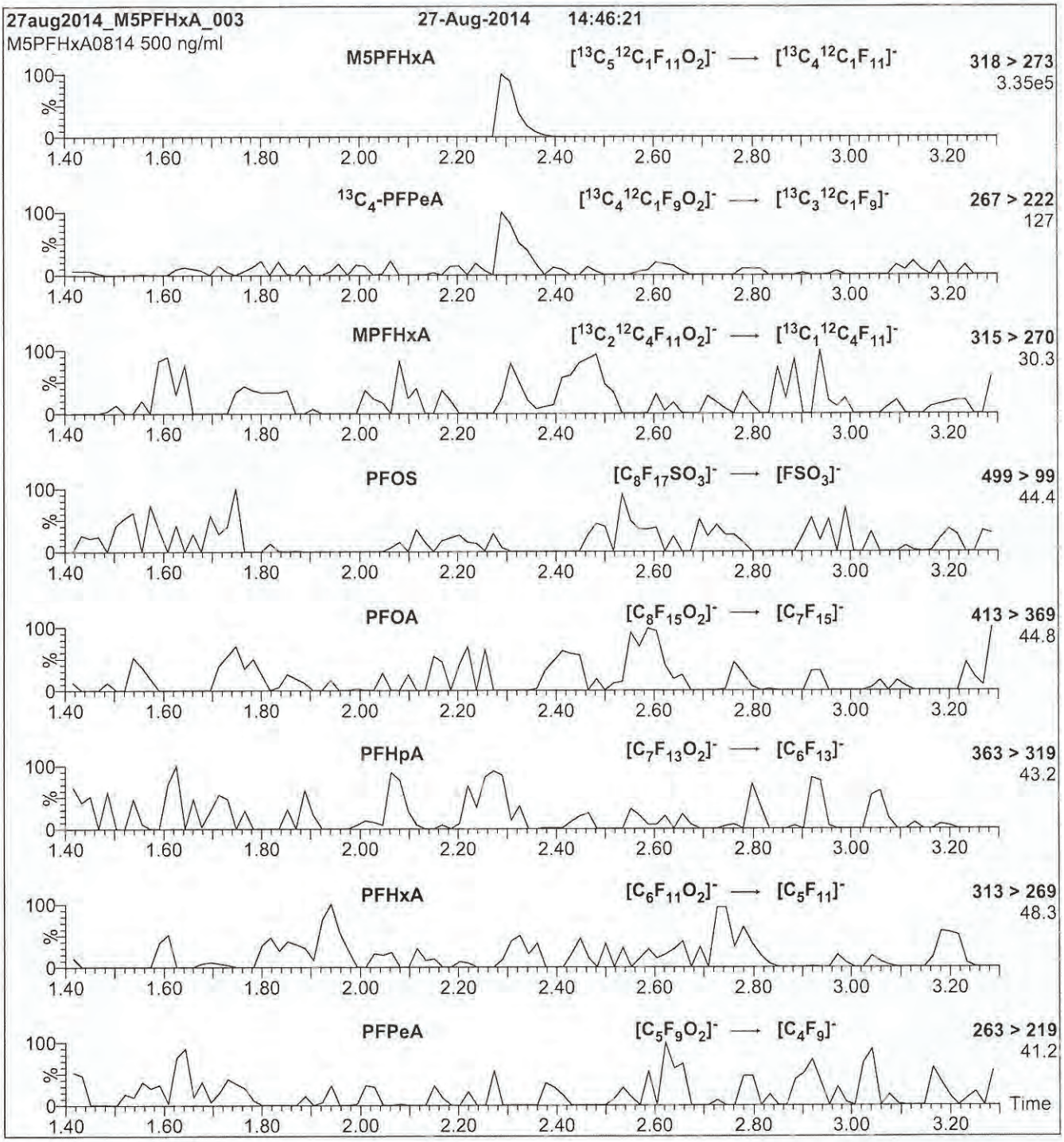
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

1751019

Figure 2: **M5PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M5PFHxA)

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) = 3.54e-3
Collision Energy (eV) = 10

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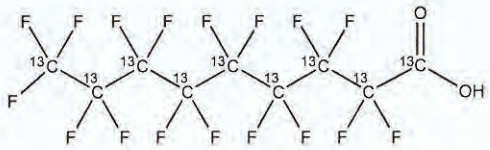
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M9PFNA
COMPOUND: Perfluoro-n-[$^{13}C_9$]nonanoic acid

LOT NUMBER: M9PFNA0517

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)	05/23/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/23/2022		
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 ~ 0.9% of $^{13}C_5{}^{12}C_4HF_{17}O_2$ (MPFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/25/2017 (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

17J1020

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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UNCERTAINTY:

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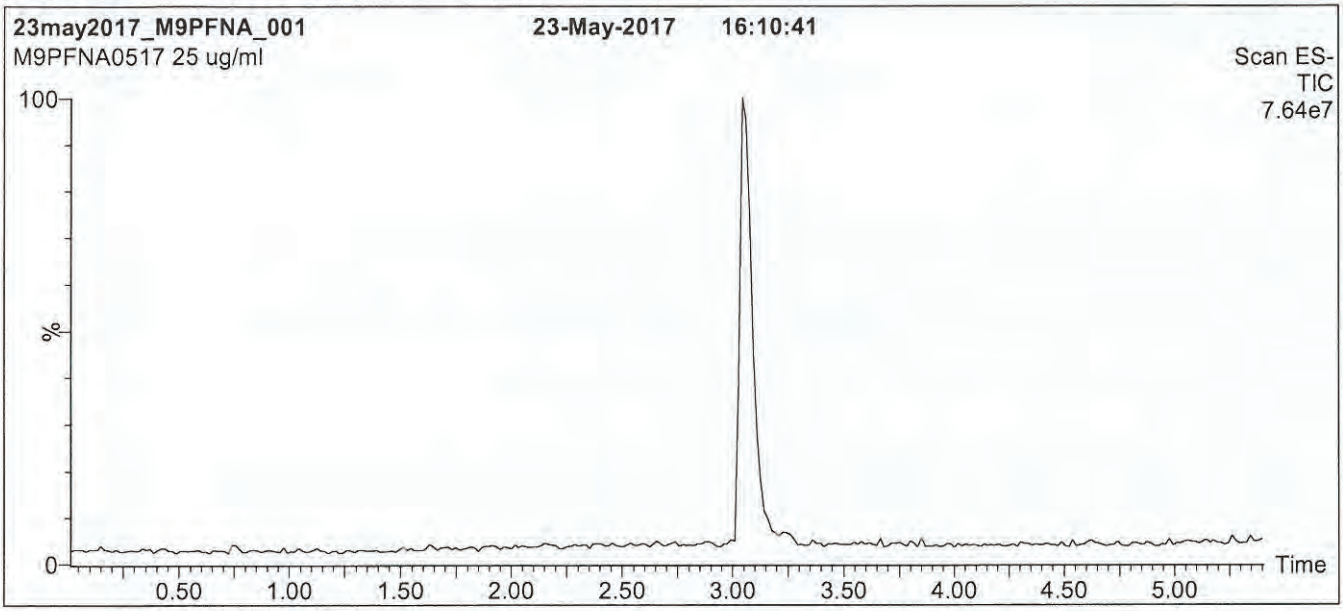
CALA

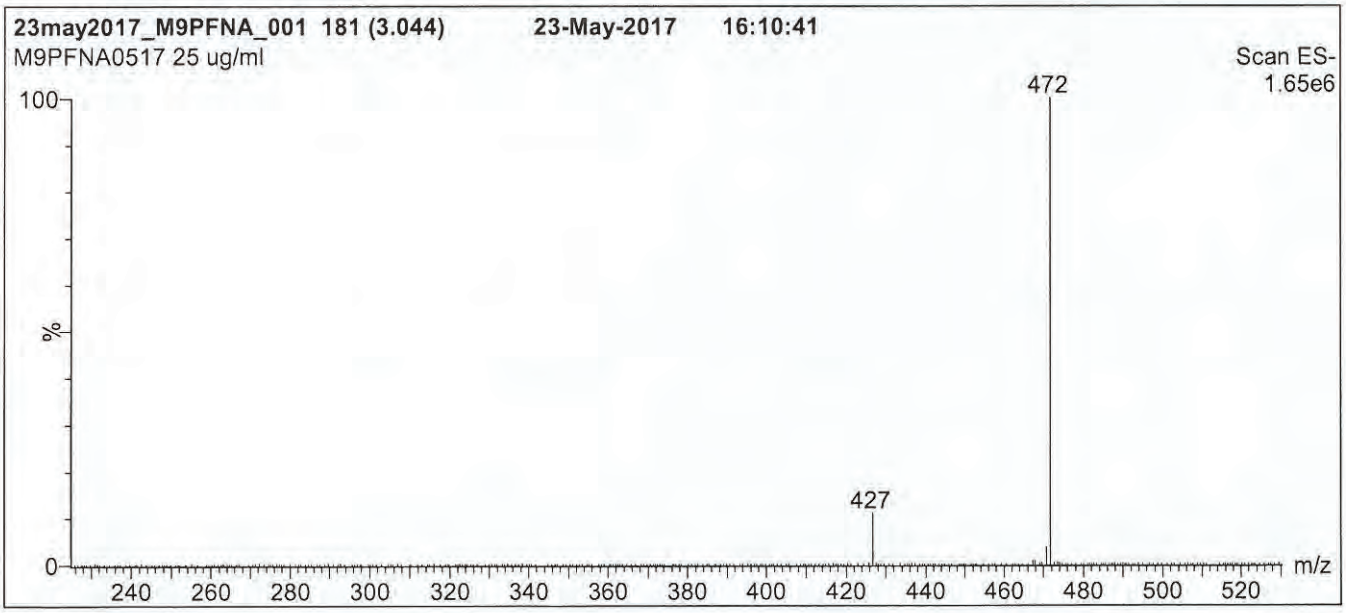
ANAB ACCREDITED

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17J1020

Figure 1: **M9PFNA; 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: 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 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

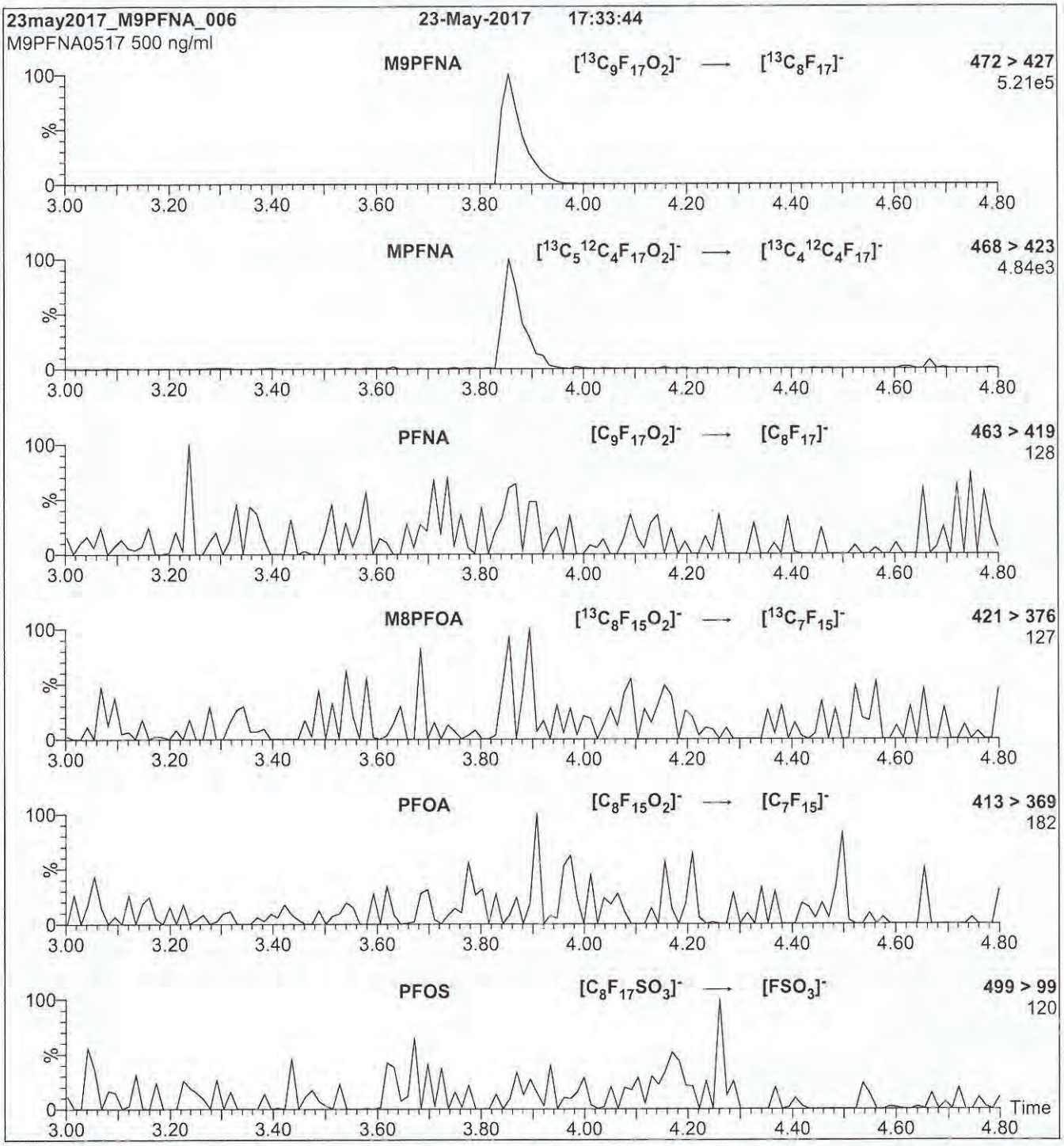
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17J1020

Figure 2: **M9PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M9PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

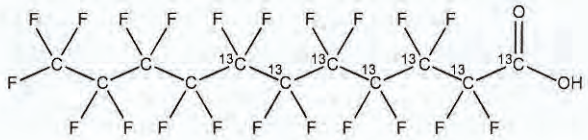
Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 11

17J1021

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M7PFUdA	**LOT NUMBER:**	M7PFUdA0717
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)	07/13/2017		(1,2,3,4,5,6,7-$^{13}C_7$)
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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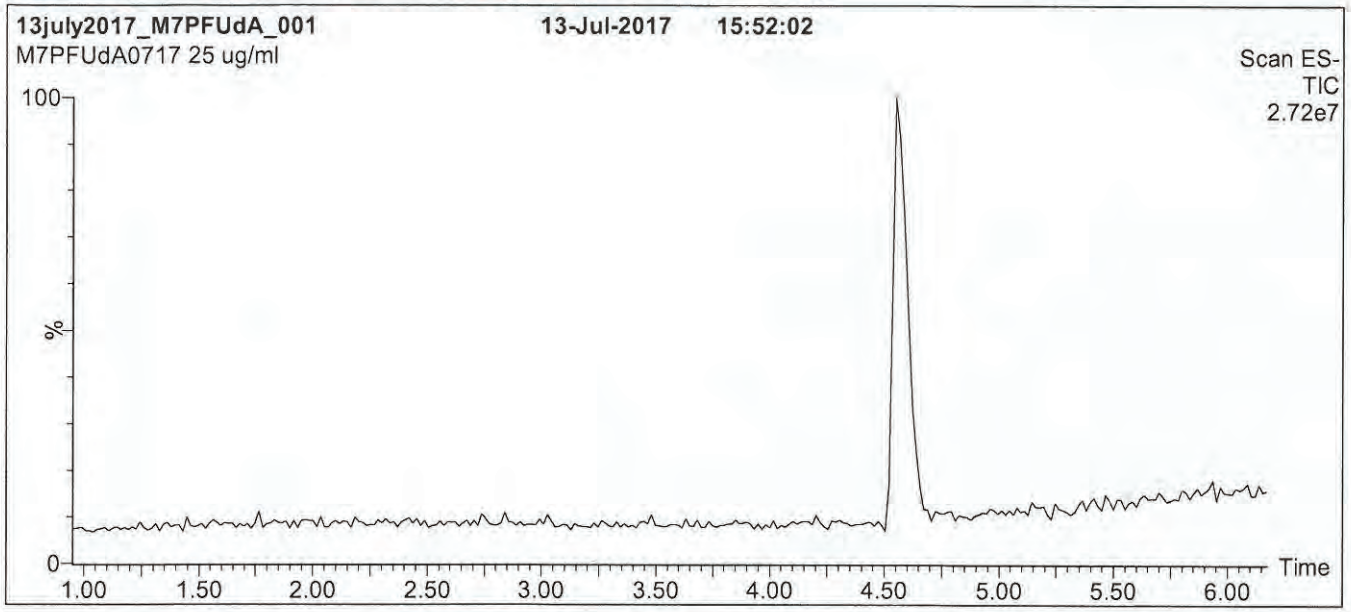
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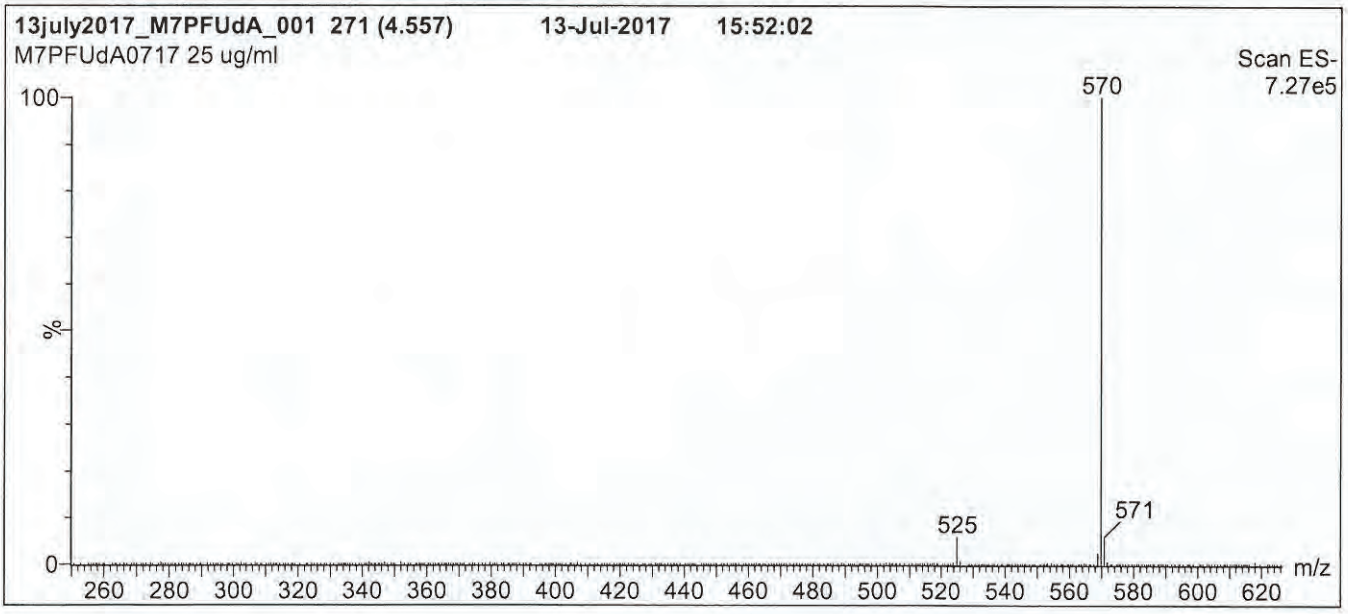
ANAB ACCREDITED

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17J1021

Figure 1: **M7PFUdA; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

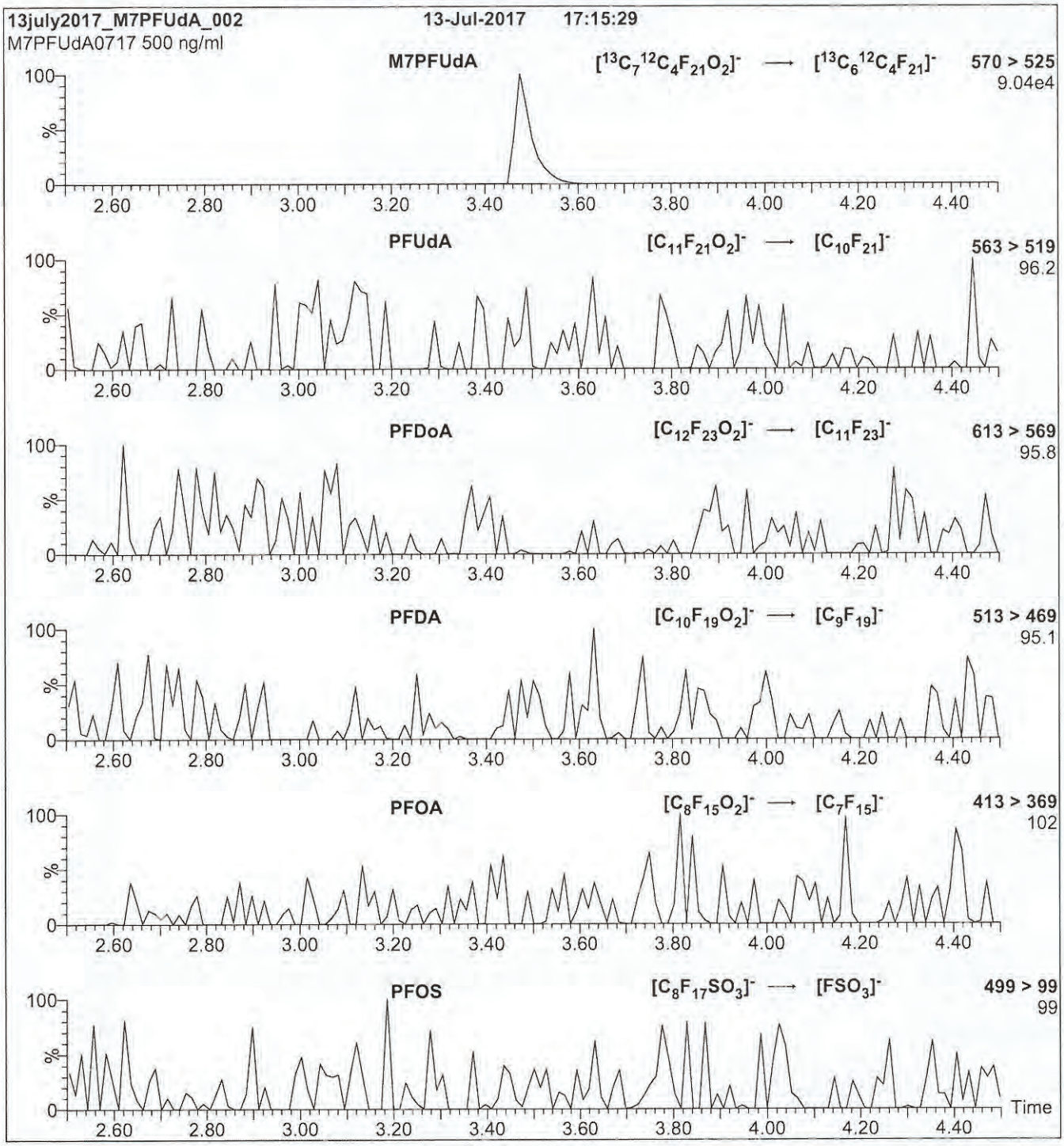
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

17J1021

Figure 2: **M7PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M7PFUdA)

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) = 3.28e-3
Collision Energy (eV) = 11

17J1022

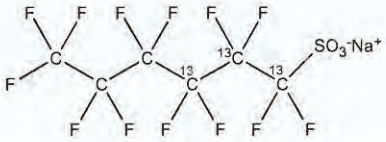
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFHxS **LOT NUMBER:** M3PFHxS0717

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)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
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:** 07/14/2017 (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

17J1622

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:

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 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).

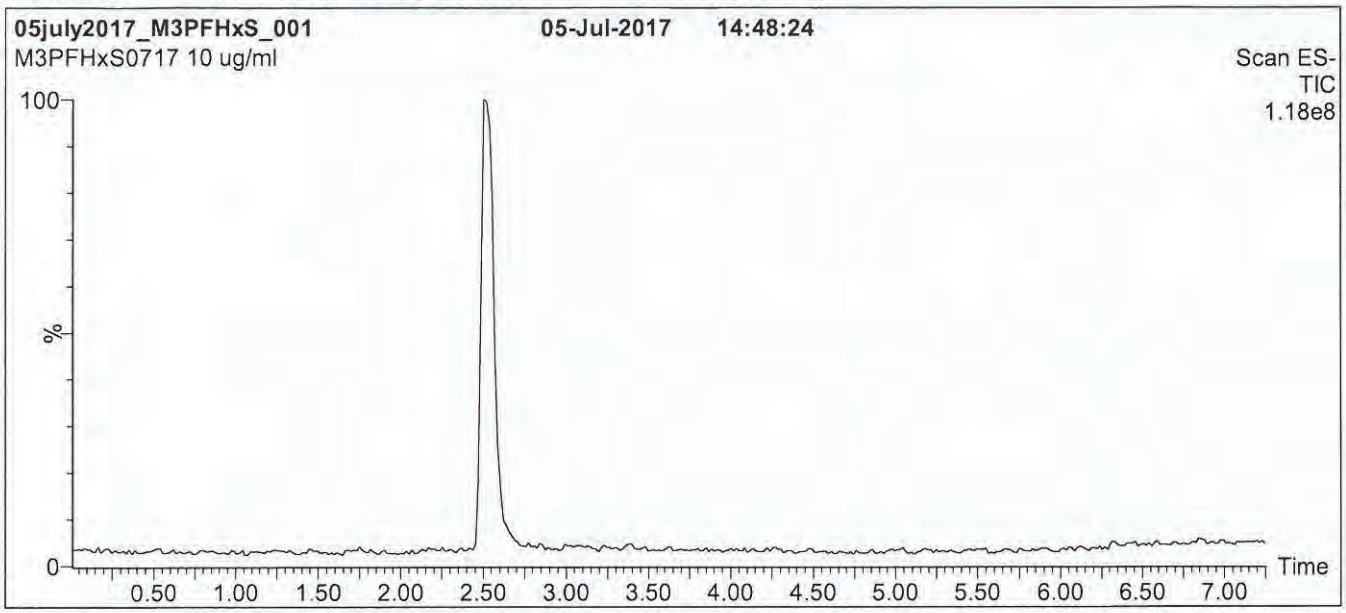
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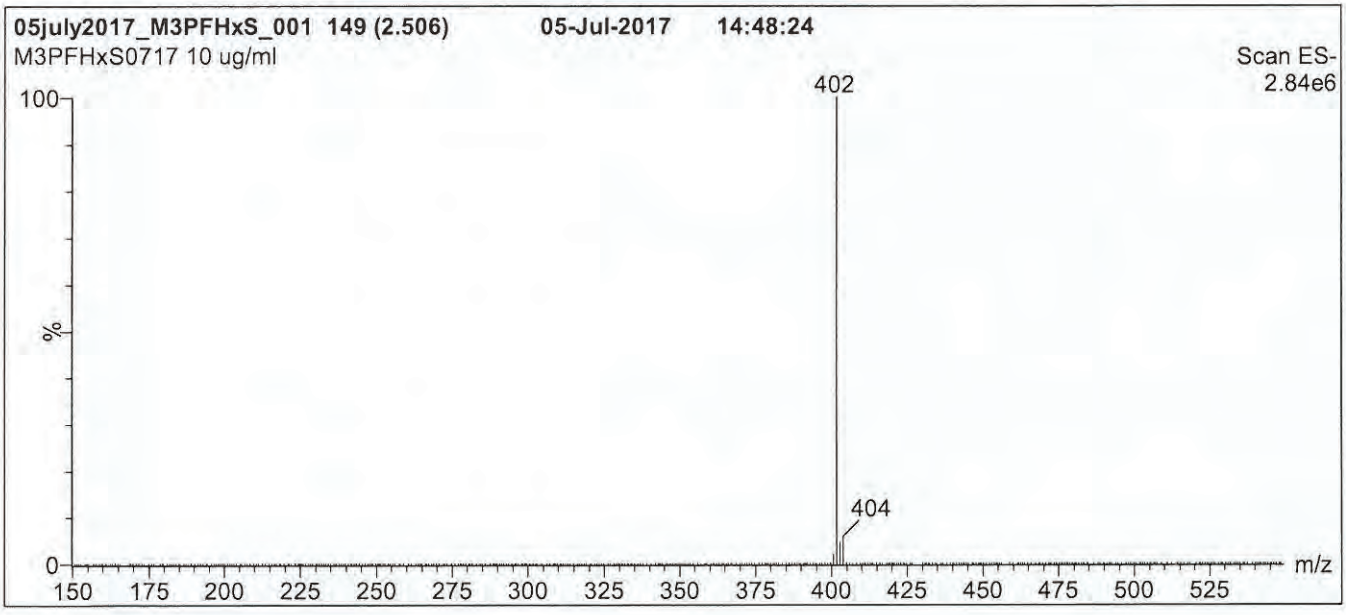
ANAB ACCREDITED

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

17J1022

Figure 1: **M3PFHxS; 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: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

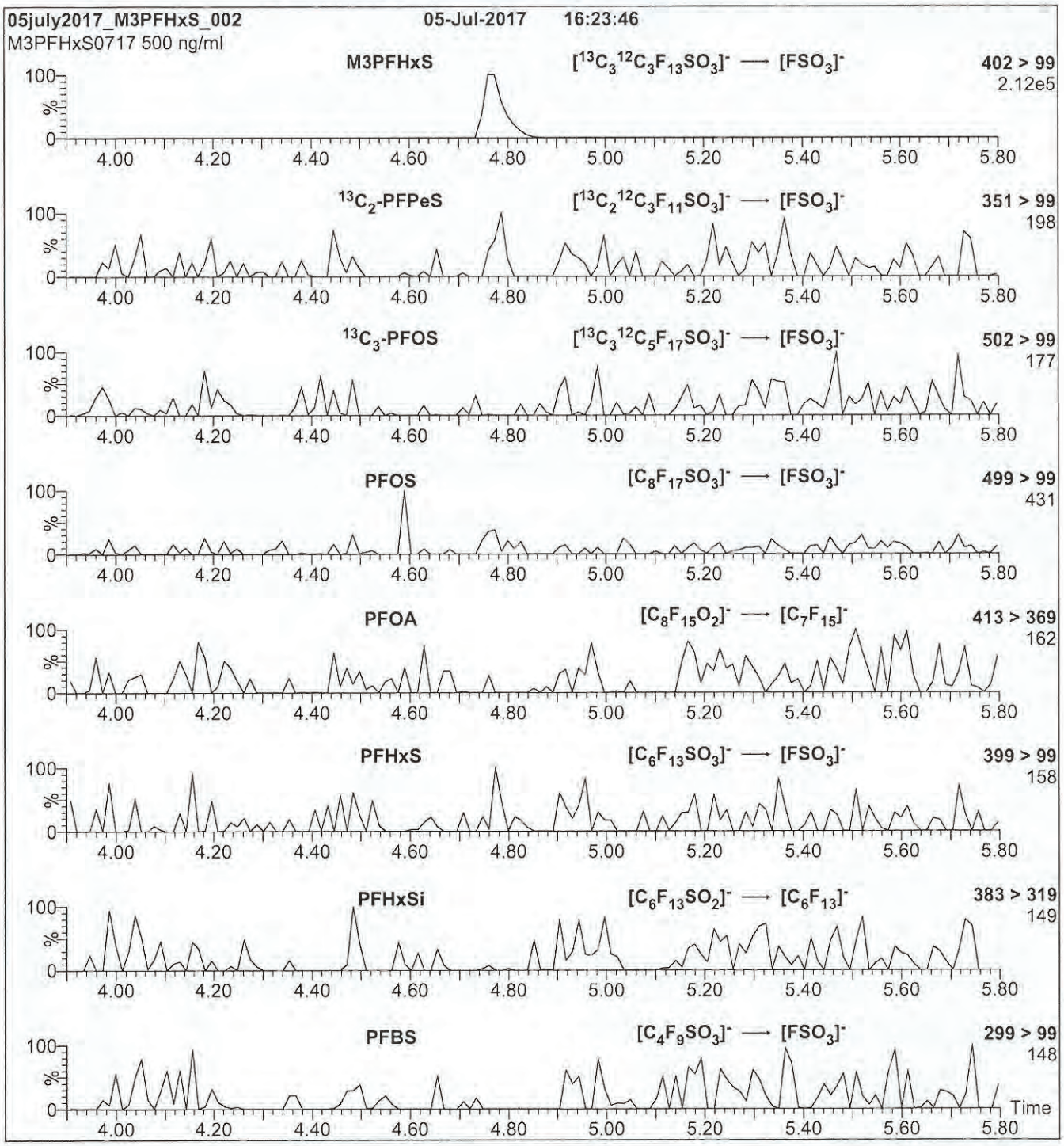
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17J1022

Figure 2: **M3PFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFHxS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

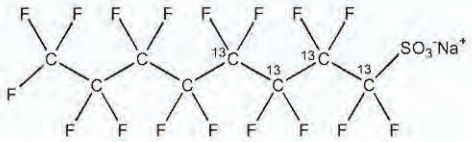
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

1701023

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS0517
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



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)	05/19/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/19/2022		
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 ~ 0.8% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2017 (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

17J1023

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.

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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:

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).

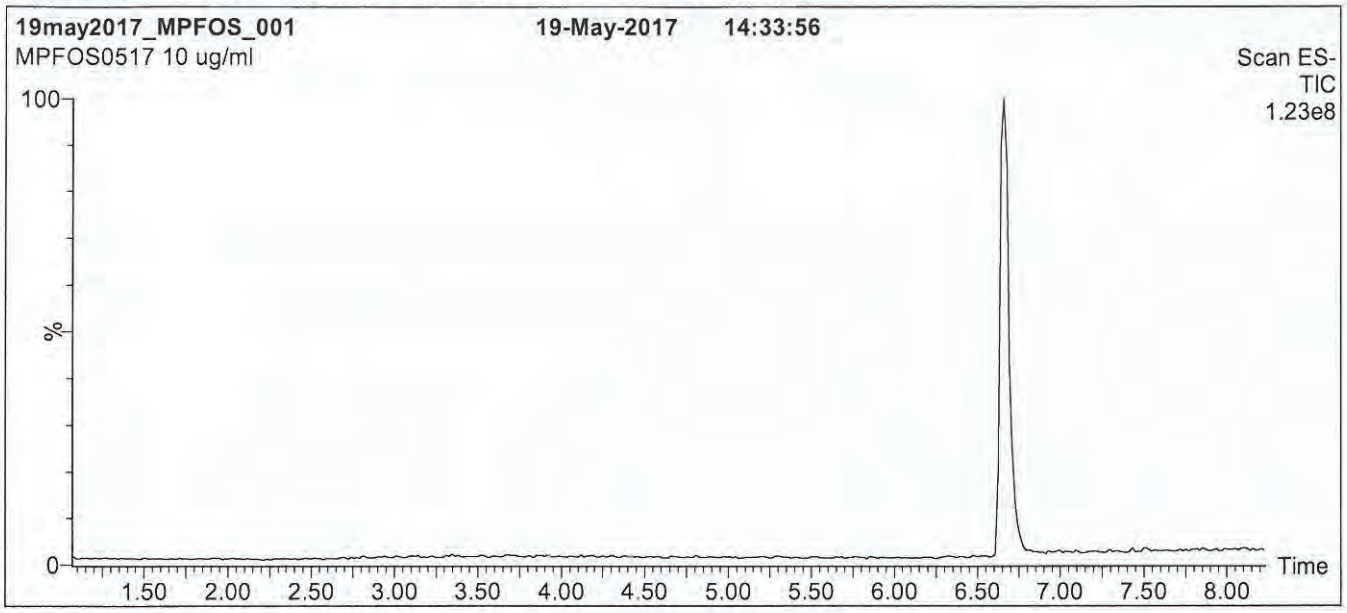
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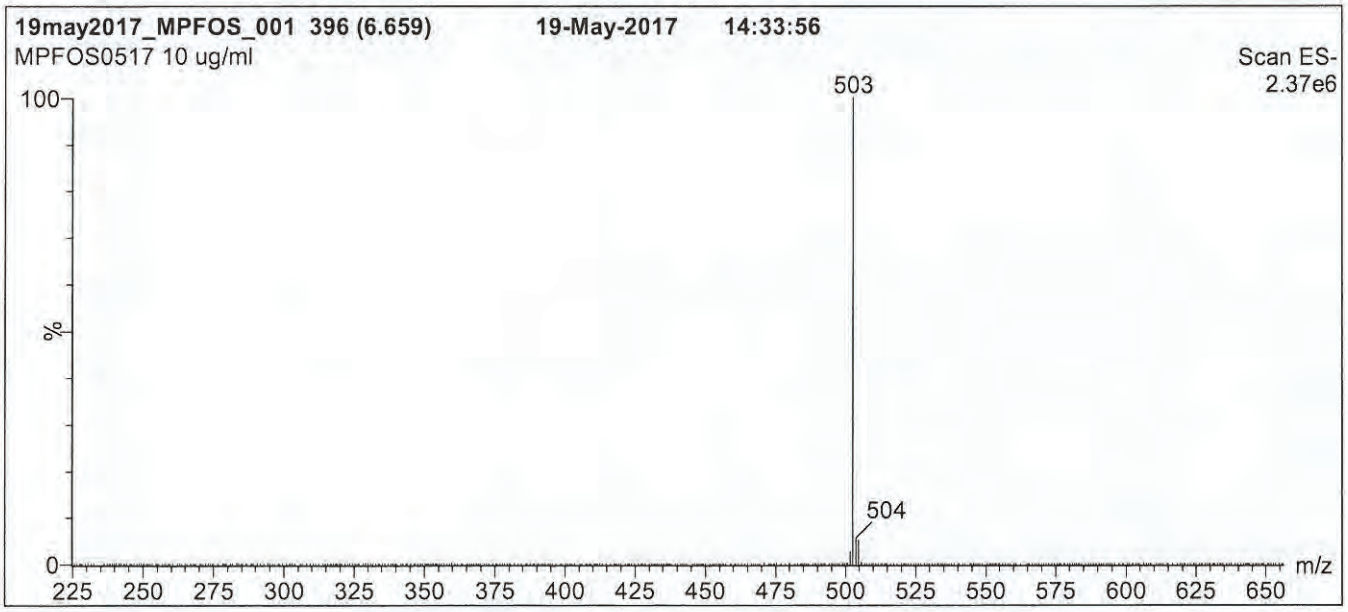
ANAB ACCREDITED

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17J1023

Figure 1: **MPFOS; 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: 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 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

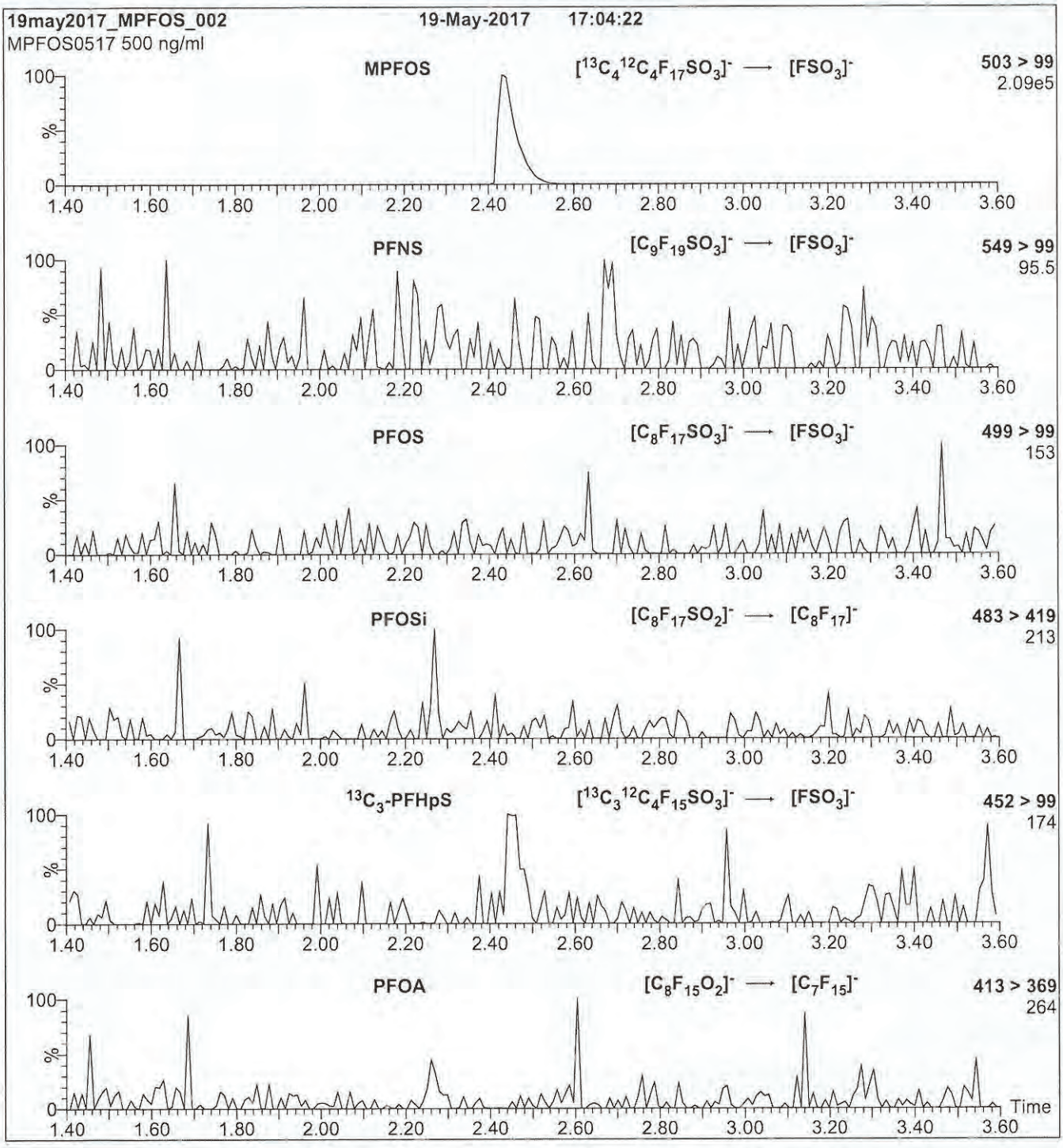
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

17J1023

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFOS)

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) = 3.31e-3
Collision Energy (eV) = 40

17J1024

WELLINGTON LABORATORIES

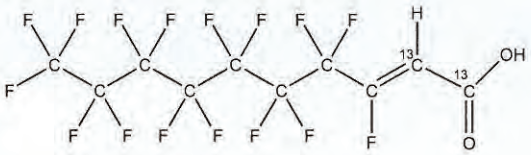
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MFOUEA
COMPOUND: 2H-Perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid

LOT NUMBER: MFOUEA0716

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)	08/02/2016		
EXPIRY DATE: (mm/dd/yyyy)	08/02/2018		
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: B.G. Chittim **Date:** 08/19/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

17J1024

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EXPIRY DATE / PERIOD OF VALIDITY:

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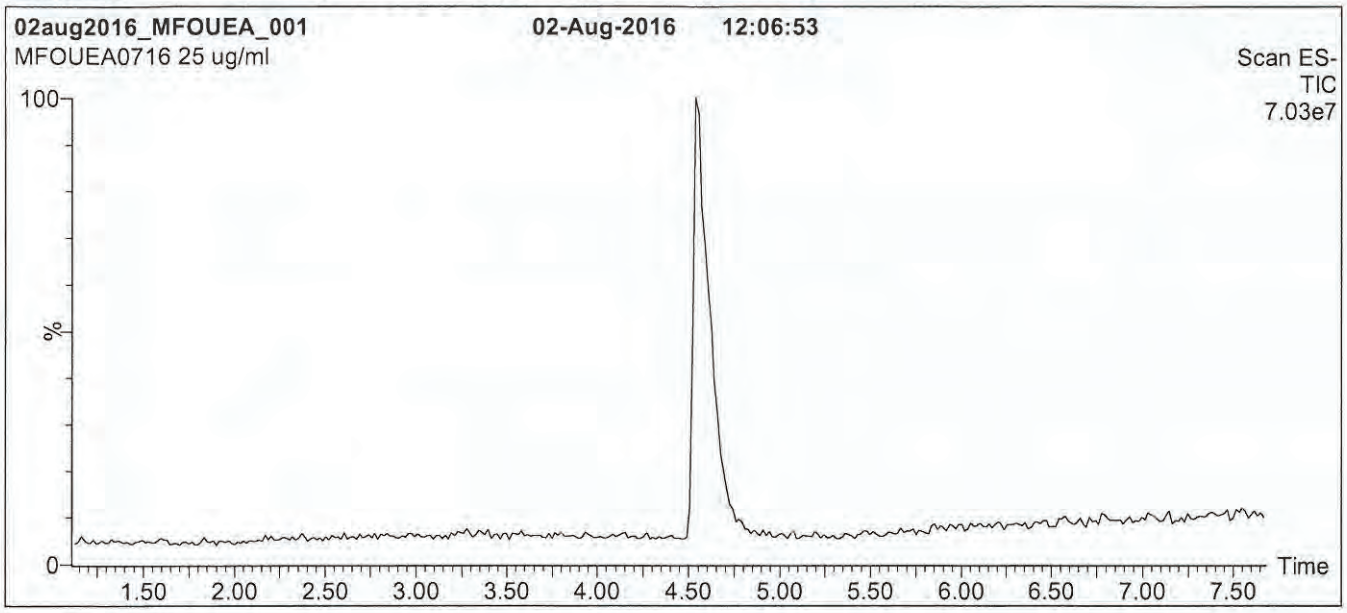
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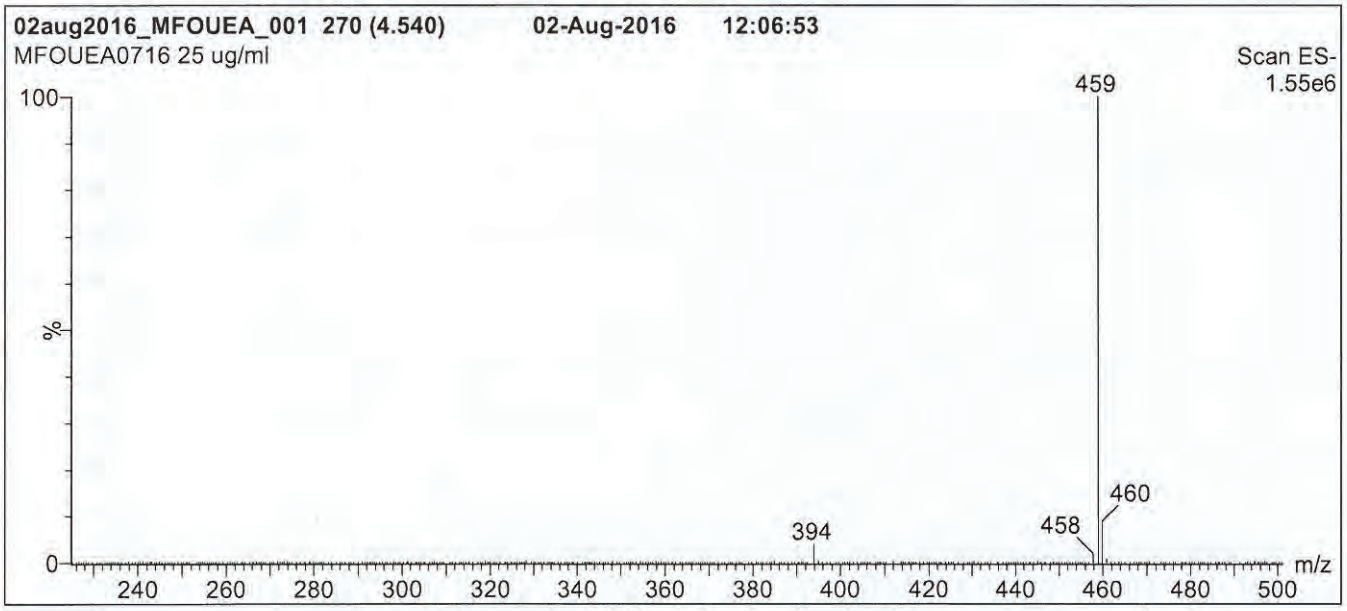
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

17J1024

Figure 1: **MFOUEA; 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: 50% (80:20 MeOH:ACN) / 50% 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

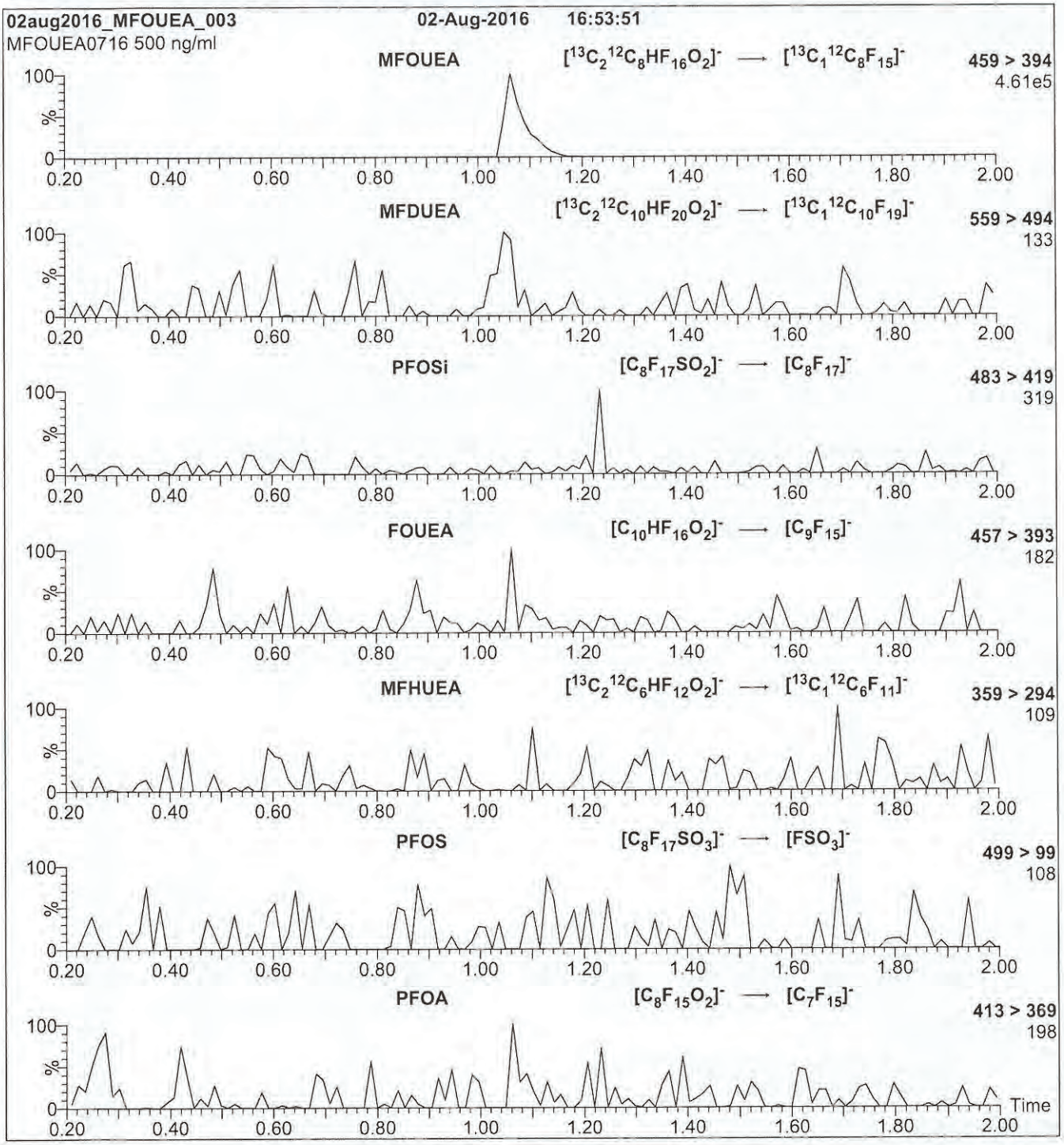
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 14.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

17J1024

Figure 2: **MFOUEA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MFOUEA)

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) = 21

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"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","307-24-4","PFHxA","2.38","ng/L","U","1.04","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","375-85-9","PFHpA","2.38","ng/L","U","0.281","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","355-46-4","PFHxS","2.38","ng/L","U","0.451","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","335-67-1","PFOA","2.38","ng/L","U","0.310","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","1763-23-1","PFOS","2.38","ng/L","U","0.384","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","375-95-1","PFNA","0.419","ng/L","J","0.386","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","335-76-2","PFDA","2.38","ng/L","U","0.709","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","2355-31-9","MeFOSAA","2.38","ng/L","U","0.785","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","2058-94-8","PFUnA","2.38","ng/L","U","0.500","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","2991-50-6","EtFOSAA","2.38","ng/L","U","0.652","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","307-55-1","PFDoA","2.38","ng/L","U","0.377","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","72629-94-8","PFTrDA","2.38","ng/L","U","0.235","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","376-06-7","PFTeDA","2.38","ng/L","U","0.359","LOD","","TRG","","","3.81","LOQ","YES","-99","","0.263","0.001","2.38",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C3-PFBS","13C3-PFBS","122","%R","","-99","NA","","IS","122","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFHxA","13C2-PFHxA","114","%R","","-99","NA","","IS","114","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C4-PFHpA","13C4-PFHpA","112","%R","","-99","NA","","IS","112","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","18O2-PFHxS","18O2-PFHxS","110","%R","","-99","NA","","IS","110","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFOA","13C2-PFOA","92.0","%R","","-99","NA","","IS","92.0","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C8-PFOS","13C8-PFOS","135","%R","","-99","NA","","IS","135","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C5-PFNA","13C5-PFNA","92.5","%R","","-99","NA","","IS","92.5","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFDA","13C2-PFDA","112","%R","","-99","NA","","IS","112","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","d3-MeFOSAA","d3-MeFOSAA","108","%R","","-99","NA","","IS","108","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFUnA","13C2-PFUnA","101","%R","","-99","NA","","IS","101","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","d5-EtFOSAA","d5-

EtFOSAA","120","%R","","-99","NA","","IS","120","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFDoA","13C2-
PFDoA","99.4","%R","","-99","NA","","IS","99.4","","-99","NA","YES","100","","0.263","0.001","-99",""
"CA-AQIDW01-20171205","Modified EPA Method 537","Initial","1701855-01","Vista","13C2-PFTeDA","13C2-
PFTeDA","141","%R","","-99","NA","","IS","141","","-99","NA","YES","100","","0.263","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","375-73-
5","PFBS","2.50","ng/L","U","0.895","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","307-24-
4","PFHxA","2.50","ng/L","U","1.09","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","375-85-
9","PFHpA","2.50","ng/L","U","0.296","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","355-46-
4","PFHxS","2.50","ng/L","U","0.474","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","335-67-
1","PFOA","2.50","ng/L","U","0.326","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","1763-23-
1","PFOS","2.50","ng/L","U","0.404","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","375-95-
1","PFNA","2.50","ng/L","U","0.405","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","335-76-
2","PFDA","2.50","ng/L","U","0.745","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","2355-31-
9","MeFOSAA","2.50","ng/L","U","0.825","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50
",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","2058-94-
8","PFUnA","2.50","ng/L","U","0.525","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","2991-50-
6","EtFOSAA","2.50","ng/L","U","0.685","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50"
,""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","307-55-
1","PFDoA","2.50","ng/L","U","0.396","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","72629-94-
8","PFTrDA","2.50","ng/L","U","0.247","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50","
"
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","376-06-
7","PFTeDA","2.50","ng/L","U","0.378","LOD","","TRG","","","4.00","LOQ","YES","-99","","0.250","0.001","2.50",
""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C3-PFBS","13C3-
PFBS","96.7","%R","","-99","NA","","IS","96.7","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFHxA","13C2-
PFHxA","108","%R","","-99","NA","","IS","108","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C4-PFHpA","13C4-
PFHpA","103","%R","","-99","NA","","IS","103","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","18O2-PFHxS","18O2-
PFHxS","119","%R","","-99","NA","","IS","119","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFOA","13C2-
PFOA","100","%R","","-99","NA","","IS","100","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C8-PFOS","13C8-
PFOS","103","%R","","-99","NA","","IS","103","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C5-PFNA","13C5-
PFNA","89.5","%R","","-99","NA","","IS","89.5","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFDA","13C2-
PFDA","95.1","%R","","-99","NA","","IS","95.1","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","d3-MeFOSAA","d3-

MeFOSAA","118","%R","","-99","NA","","IS","118","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFUnA","13C2-
PFUnA","97.1","%R","","-99","NA","","IS","97.1","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","d5-EtFOSAA","d5-
EtFOSAA","104","%R","","-99","NA","","IS","104","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFDoA","13C2-
PFDoA","78.9","%R","","-99","NA","","IS","78.9","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BLK1","Modified EPA Method 537","Initial","B7L0046-BLK1","Vista","13C2-PFTeDA","13C2-
PFTeDA","108","%R","","-99","NA","","IS","108","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","375-73-
5","PFBS","39.9","ng/L","","0.895","LOD","","TRG","99.7","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","307-24-
4","PFHxA","44.8","ng/L","","1.09","LOD","","TRG","112","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","375-85-
9","PFHpA","41.3","ng/L","","0.296","LOD","","TRG","103","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50"
,""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","355-46-
4","PFHxS","42.6","ng/L","","0.474","LOD","","TRG","106","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50"
,""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","335-67-
1","PFOA","44.2","ng/L","","0.326","LOD","","TRG","111","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","1763-23-
1","PFOS","35.6","ng/L","","0.404","LOD","","TRG","89.1","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","375-95-
1","PFNA","30.9","ng/L","","0.405","LOD","","TRG","77.3","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","335-76-
2","PFDA","38.8","ng/L","","0.745","LOD","","TRG","96.9","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50",
""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","2355-31-
9","MeFOSAA","41.8","ng/L","","0.825","LOD","","TRG","104","","4.00","LOQ","YES","40.0","","0.250","0.001","2
.50",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","2058-94-
8","PFUnA","41.7","ng/L","","0.525","LOD","","TRG","104","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50"
,""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","2991-50-
6","EtFOSAA","33.0","ng/L","","0.685","LOD","","TRG","82.6","","4.00","LOQ","YES","40.0","","0.250","0.001","2.
50",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","307-55-
1","PFDoA","40.2","ng/L","","0.396","LOD","","TRG","100","","4.00","LOQ","YES","40.0","","0.250","0.001","2.50"
,""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","72629-94-
8","PFTrDA","40.1","ng/L","","0.247","LOD","","TRG","100","","4.00","LOQ","YES","40.0","","0.250","0.001","2.5
0",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","376-06-
7","PFTeDA","34.9","ng/L","","0.378","LOD","","TRG","87.3","","4.00","LOQ","YES","40.0","","0.250","0.001","2.5
0",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C3-PFBS","13C3-
PFBS","107","%R","","-99","NA","","IS","107","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFHxA","13C2-

PFHxA","101","%R","","-99","NA","","IS","101","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C4-PFHpA","13C4-
PFHpA","97.6","%R","","-99","NA","","IS","97.6","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","18O2-PFHxS","18O2-
PFHxS","83.2","%R","","-99","NA","","IS","83.2","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFOA","13C2-
PFOA","83.3","%R","","-99","NA","","IS","83.3","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C8-PFOS","13C8-
PFOS","109","%R","","-99","NA","","IS","109","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C5-PFNA","13C5-
PFNA","111","%R","","-99","NA","","IS","111","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFDA","13C2-
PFDA","85.0","%R","","-99","NA","","IS","85.0","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","d3-MeFOSAA","d3-
MeFOSAA","99.2","%R","","-99","NA","","IS","99.2","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFUnA","13C2-
PFUnA","83.2","%R","","-99","NA","","IS","83.2","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","d5-EtFOSAA","d5-
EtFOSAA","112","%R","","-99","NA","","IS","112","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFDoA","13C2-
PFDoA","85.0","%R","","-99","NA","","IS","85.0","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BS1","Modified EPA Method 537","Initial","B7L0046-BS1","Vista","13C2-PFTeDA","13C2-
PFTeDA","124","%R","","-99","NA","","IS","124","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","375-73-
5","PFBS","39.3","ng/L","","0.895","LOD","","TRG","98.2","1.52","4.00","LOQ","YES","40.0","","0.250","0.001","2.
50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","307-24-
4","PFHxA","37.5","ng/L","","1.09","LOD","","TRG","93.7","17.9","4.00","LOQ","YES","40.0","","0.250","0.001","2
.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","375-85-
9","PFHpA","35.5","ng/L","","0.296","LOD","","TRG","88.9","14.9","4.00","LOQ","YES","40.0","","0.250","0.001","
2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","355-46-
4","PFHxS","31.9","ng/L","","0.474","LOD","","TRG","79.8","28.7","4.00","LOQ","YES","40.0","","0.250","0.001","
2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","335-67-
1","PFOA","38.3","ng/L","","0.326","LOD","","TRG","95.6","14.5","4.00","LOQ","YES","40.0","","0.250","0.001","2
.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","1763-23-
1","PFOS","40.1","ng/L","","0.404","LOD","","TRG","100","11.7","4.00","LOQ","YES","40.0","","0.250","0.001","2.
50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","375-95-
1","PFNA","35.6","ng/L","","0.405","LOD","","TRG","89.0","14.1","4.00","LOQ","YES","40.0","","0.250","0.001","2
.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","335-76-
2","PFDA","42.6","ng/L","","0.745","LOD","","TRG","107","9.48","4.00","LOQ","YES","40.0","","0.250","0.001","2.
50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","2355-31-
9","MeFOSAA","40.9","ng/L","","0.825","LOD","","TRG","102","2.05","4.00","LOQ","YES","40.0","","0.250","0.00
1","2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","2058-94-
8","PFUnA","28.0","ng/L","","0.525","LOD","","TRG","70.0","39.3","4.00","LOQ","YES","40.0","","0.250","0.001","
2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","2991-50-

6","EtFOSAA","34.5","ng/L","","0.685","LOD","","TRG","86.3","4.49","4.00","LOQ","YES","40.0","","0.250","0.001
","2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","307-55-
1","PFDoA","40.1","ng/L","","0.396","LOD","","TRG","100","0.226","4.00","LOQ","YES","40.0","","0.250","0.001",
"2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","72629-94-
8","PFTrDA","52.0","ng/L","","0.247","LOD","","TRG","130","25.9","4.00","LOQ","YES","40.0","","0.250","0.001",
"2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","376-06-
7","PFTeDA","34.9","ng/L","","0.378","LOD","","TRG","87.2","0.101","4.00","LOQ","YES","40.0","","0.250","0.001
","2.50",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C3-PFBS","13C3-
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PFHxA","103","%R","","-99","NA","","IS","103","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C4-PFHpA","13C4-
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"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","18O2-PFHxS","18O2-
PFHxS","107","%R","","-99","NA","","IS","107","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C2-PFOA","13C2-
PFOA","99.0","%R","","-99","NA","","IS","99.0","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C8-PFOS","13C8-
PFOS","102","%R","","-99","NA","","IS","102","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C5-PFNA","13C5-
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"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C2-PFDA","13C2-
PFDA","84.0","%R","","-99","NA","","IS","84.0","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","d3-MeFOSAA","d3-
MeFOSAA","85.0","%R","","-99","NA","","IS","85.0","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C2-PFUnA","13C2-
PFUnA","93.3","%R","","-99","NA","","IS","93.3","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","d5-EtFOSAA","d5-
EtFOSAA","93.4","%R","","-99","NA","","IS","93.4","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C2-PFDoA","13C2-
PFDoA","65.3","%R","","-99","NA","","IS","65.3","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7L0046-BSD1","Modified EPA Method 537","Initial","B7L0046-BSD1","Vista","13C2-PFTeDA","13C2-
PFTeDA","109","%R","","-99","NA","","IS","109","","-99","NA","YES","100","","0.250","0.001","-99",""
"112G08005-WE05 NWIRP Calv","112G08005-WE05 NWIRP Calverton PFAS Inv.","CA-AQIDW01-
20171205","12/05/2017 12:30","AQ","1701855-01","NM","","1.50","Modified EPA Method
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23:04","Vista","COA","WET","NA","1","NA","NA","01/01/1900
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DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	CALVERTON_NWIRP	1701855							N6247016D9008	WE05	TETRA TECH, INC.	CA-AQIDW01-20171205	IDW Water	Purge and rinseate water	5-Dec-17	537	Perfluoroalkyl Compounds