REAGENT PREPARATION FORM

Reagent # 157 Replaced Reagent # 146 Analyst: EGI

Reagent Name: 2% Formic Acid Preparation date: 2018/12/14 Expiry date: ~~2018/12/14~~ 2019/12/14

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 2%

Balance ID: — Pipette/Syringe/Cylinder ID: M25679G Storage: Shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
LCMS	980 ml	2018/12/12	2018/12/14	Omni	58201	2019/09/30
Formic Acid	20 ml	2018/10/11	2018/10/12	Sigma	SHBX1543	2019/05/31
			EGI 2018/12/14			

NOTES: Cylinder # 5553

Reagent # 158 Replaced Reagent # 118 Analyst: GSZ

Reagent Name: 0.3% NH_4OH in MeOH Preparation date: 2018/12/14 Expiry date: Daily

Final Volume: 100mL Oven No. : — Temp. : — Final Conc.: 0.3:99.7 v/v

Balance ID: — Pipette/Syringe/Cylinder ID: P424096 Storage: —

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	0.3 mL	2018/02/01	2018/05/25	Fisher	166350	2019/12/31
MeOH	99.7 mL	2018/11/19	2018/12/14	Sigma	SHBK5051	2023/07/31
			GSZ, 2018/12/14			

NOTES: 100mL class A Vol. Cylinder (6394)

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0000018

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drugs, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	A669	Quality Test / Release Date	1/10/2017
Lot Number	166350	Expiration Date	Dec'19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	= Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001

CERTIFIED BY

[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd 2018/11/12
BY: OKO
4x4L
HPLC-M.L

Product Name:
Methanol – for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK5051**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004596
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	20 AUG 2018
Expiration Date:	JUL 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.01
UV Absorbance 235nm	≤ 0.10	0.02
UV Absorbance 230nm	≤ 0.20	0.02
UV Absorbance 220nm	≤ 0.30	0.05
UV Absorbance 210nm	≤ 0.60	0.21
UV Absorbance 205nm	≤ 1.00	0.52
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 10 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34860
Batch Number: SHBK5051

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.11.15 - 2 x 4L - HPLC
Date Received: 2018.11.19 - 2 x 4L - HPLC
Date Received: 2018.12.06 - 2 x 4L - HPLC

REAGENT PREPARATION FORM

Reagent # 163 Replaced Reagent # PRLRE-116-521 Analyst: TK4

Reagent Name: Solution C Preparation date: 2018/12/17 Expiry date: 2019/12/17

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: -

Balance ID: - Pipette/Syringe/Cylinder ID: 0855-9G Storage: Shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
$DI H_2O$	800ml	←	In house	→		
6N HCl	300ml	←	PRLRE-116-519	→		
				TK4 2018/12/17		

NOTES:

Reagent # 164 Replaced Reagent # 158 Analyst: LR

Reagent Name: 0.3% NH_4OH Preparation date: 2018/12/17 Expiry date: Daily

Final Volume: 100ml Oven No. : - Temp. : - Final Conc.: 0.2% v/v

Balance ID: - Pipette/Syringe/Cylinder ID: - Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	0.3ml	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	99.7ml	2018/12/11	2018/12/17	Sigma	SHBK1963	2023/09/30
			2018/12/17 LR			

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0000318

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained.

Catalog Number	A669	**Quality Test / Release Date**	1/10/2017
Lot Number	166350	**Expiration Date**	Dec/19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	= Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001



[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Rec'd: 20181016
By: DAD
HPLC-M.C
4xLC

Certificate of Analysis

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK1963**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	18 MAY 2018
Expiration Date:	APR 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.03
UV Absorbance 235nm	≤ 0.10	0.05
UV Absorbance 230nm	≤ 0.20	0.07
UV Absorbance 220nm	≤ 0.30	0.15
UV Absorbance 210nm	≤ 0.60	0.34
UV Absorbance 205nm	≤ 1.00	0.66
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 5 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days		

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34660
Batch Number: SHBK1963

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Page 2 of 2

Date Received: 2018.10.15 - 12 bottles - HPLC
Date Received: 2018.10.16 - 12 bottles - HPLC
Date Received: 2018.10.25 - 4 bottles - HPLC
Date Received: 2018.10.30 - 4 bottles - HPLC
Date Received: 2018.10.31 - 4 bottles - HPLC
Date Received: 2018.11.06 - 4 bottles - HPLC
Date Received: 2018.11.09 - 4 bottles - HPLC
Date Received: 2018.11.13 - 4 bottles - HPLC
Date Received: 2018.11.15 - 4 bottles - HPLC
Date Received: 2018.11.20 - 4 bottles - HPLC
Date Received: 2018.11.30 - 4 bottles - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.11 - 4 bottles - HPLC
Date Received: 2018.12.15 - 4 bottles - HPLC

REAGENT PREPARATION FORM

Reagent # 167 Replaced Reagent # 165 Analyst: JD3

Reagent Name: 0.2% NH4OH Preparation date: 2018/12/18 Expiry date: Daily

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: 0.2% V/V

Balance ID: - Pipette/Syringe/Cylinder ID: # 5553 # K528906 Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH4OH	2 mL	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	998 mL	2018/12/15	2018/12/18	Sigma	SHBK 1963	JD3 2018/12/18 ~~2023/04/30~~ 2023/07/31
		JD3	2018/12/18			

NOTES:

Reagent # 168 Replaced Reagent # 160 Analyst: JD3

Reagent Name: 60:40 H2O : MeOH Preparation date: 2018/12/18 Expiry date: 2019/02/18

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: 60:40 V/V

Balance ID: - Pipette/Syringe/Cylinder ID: # 5553 Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
MeOH	400 mL	2018/12/15	2018/12/18	Sigma	SHBK 1963	2023/07/31 ~~2023/04/30~~ JD3 2018/12/18
LCMS H2O	600 mL	2018/12/12	2018/12/18	Omni	58201	2019/09/30
		JD3	2018/12/18			

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Rec'd: 20181016
By: (X)
HPLC-M.C
4x4L

Certificate of Analysis

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK1963**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	18 MAY 2018
Expiration Date:	APR 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.03
UV Absorbance 235nm	≤ 0.10	0.05
UV Absorbance 230nm	≤ 0.20	0.07
UV Absorbance 220nm	≤ 0.30	0.15
UV Absorbance 210nm	≤ 0.60	0.34
UV Absorbance 205nm	≤ 1.00	0.66
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 5 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34880
Batch Number: SHBK1983

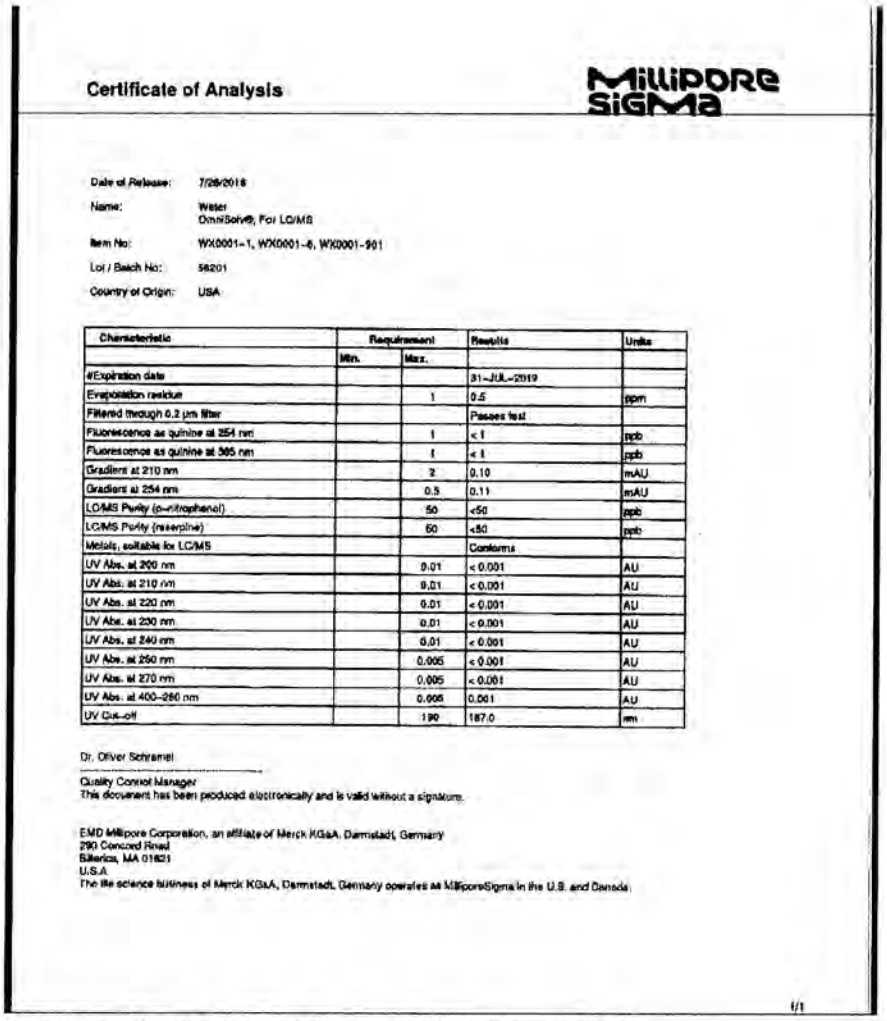
Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Page 2 of 2

Date Received: 2018.10.15 - 12 bottles - HPLC
Date Received: 2018.10.16 - 12 bottles - HPLC
Date Received: 2018.10.25 - 4 bottles - HPLC
Date Received: 2018.10.30 - 4 bottles - HPLC
Date Received: 2018.10.31 - 4 bottles - HPLC
Date Received: 2018.11.06 - 4 bottles - HPLC
Date Received: 2018.11.09 - 4 bottles - HPLC
Date Received: 2018.11.13 - 4 bottles - HPLC
Date Received: 2018.11.15 - 4 bottles - HPLC
Date Received: 2018.11.20 - 4 bottles - HPLC
Date Received: 2018.11.30 - 4 bottles - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.11 - 4 bottles - HPLC
Date Received: 2018.12.15 - 4 bottles - HPLC



Certificate of Analysis

MilliporeSigma

Date of Release: 7/26/2018

Name: Water
OmniSolv®, For LC/MS

Item No: WX0001-1, WX0001-6, WX0001-901

Lot / Batch No: 56201

Country of Origin: USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			31-JUL-2019	
Evaporation residue		1	0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.10	mAU
Gradient at 254 nm		0.5	0.11	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-250 nm		0.005	0.001	AU
UV Cut-off		190	187.0	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

1/1

Date Received: 2018.08.15 - 8 bottles - HPLC
Date Received: 2018.08.16 - 8 bottles - HPLC
Date Received: 2018.08.29 - 8 bottles - HPLC
Date Received: 2018.09.05 - 8 bottles - HPLC
Date Received: 2018.09.10 - 8 bottles - HPLC
Date Received: 2018.09.15 - 8 bottles - HPLC
Date Received: 2018.09.17 - 8 bottles - HPLC
Date Received: 2018.09.25 - 4 bottles - HPLC
Date Received: 2018.10.03 - 8 bottles - HPLC
Date Received: 2018.10.11 - 8 bottles - HPLC
Date Received: 2018.10.15 - 8 bottles - HPLC
Date Received: 2018.10.16 - 8 bottles - HPLC
Date Received: 2018.10.18 - 7 bottles - HPLC
Date Received: 2018.10.24 - 7 bottles - HPLC
Date Received: 2018.10.25 - 7 bottles - HPLC
Date Received: 2018.10.31 - 7 bottles - HPLC
Date Received: 2018.11.09 - 7 bottles - HPLC
Date Received: 2018.11.15 - 7 bottles - HPLC
Date Received: 2018.11.19 - 7 bottles - HPLC
Date Received: 2018.11.23 - 7 bottles - HPLC
Date Received: 2018.11.25 - 7 bottles - HPLC
Date Received: 2018.11.30 - 7 bottles - HPLC
Date Received: 2018.12.01 - 7 bottles - HPLC
Date Received: 2018.12.12 - 7 bottles - HPLC
Date Received: 2018.12.15 - 7 bottles - HPLC

REAGENT PREPARATION FORM

Reagent # 169 Replaced Reagent # 157 Analyst: JB3

Reagent Name: 2% Formic Acid Preparation date: 2018/12/18 Expiry date: 2019/02/18

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 2% v/v

Balance ID: — Pipette/Syringe/Cylinder ID: #M25679G #5553 Storage: Shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Formic Acid	20 mL	~~2018/10/11~~ 2018/12/12	2018/10/20	Sigma	SHBK1543	2019/05/31
LCMS H_2O	980mL	2018/12/12	2018/12/18	Omni	58201	2019/09/30
		JB3 2018/12/18				

NOTES:

Reagent # 170 Replaced Reagent # 164 Analyst: GSZ

Reagent Name: 0.3% NH_4OH in MeOH Preparation date: 2018/12/18 Expiry date: Daily

Final Volume: 250mL Oven No. : — Temp. : — Final Conc.: 0.3 : 99.7 v/v

Balance ID: — Pipette/Syringe/Cylinder ID: PA24096 Storage: —

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	0.75mL	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	249.25mL	2018/12/11	2018/12/18	Sigma	SHBK1963	2023/04/30
		GSZ, 2018/12/18				

NOTES: 250mL Class A Vol. Cylinder (3062)

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

SIGMA-ALDRICH®

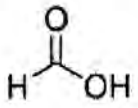
sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Formic acid - reagent grade, ≥95%

Product Number:	F0507
Batch Number:	SHBK1543
Brand:	SIGALD
CAS Number:	64-18-6
MDL Number:	MFCD00003297
Formula:	CH2O2
Formula Weight:	46.03 g/mol
Quality Release Date:	26 MAY 2016
Expiration Date:	MAY 2019



Test	Specification	Result
Appearance (Turbidity)	Clear	Clear
Appearance (Color)	Colorless to Very Faint Yellow	Colorless
Appearance (Form)	Liquid	Liquid
Proton NMR Spectrum	Conforms to Structure	Conforms
Solvent Content	≤ 1.0 %	< 0.1 %
Acetic Acid by NMR		
Water (by Karl Fischer)	2.0 - 2.5 %	2.1 %
Titration with NaOH	≥ 95.0 %	99.2 %
Expiration Date Period	----------	----------
1 Year		

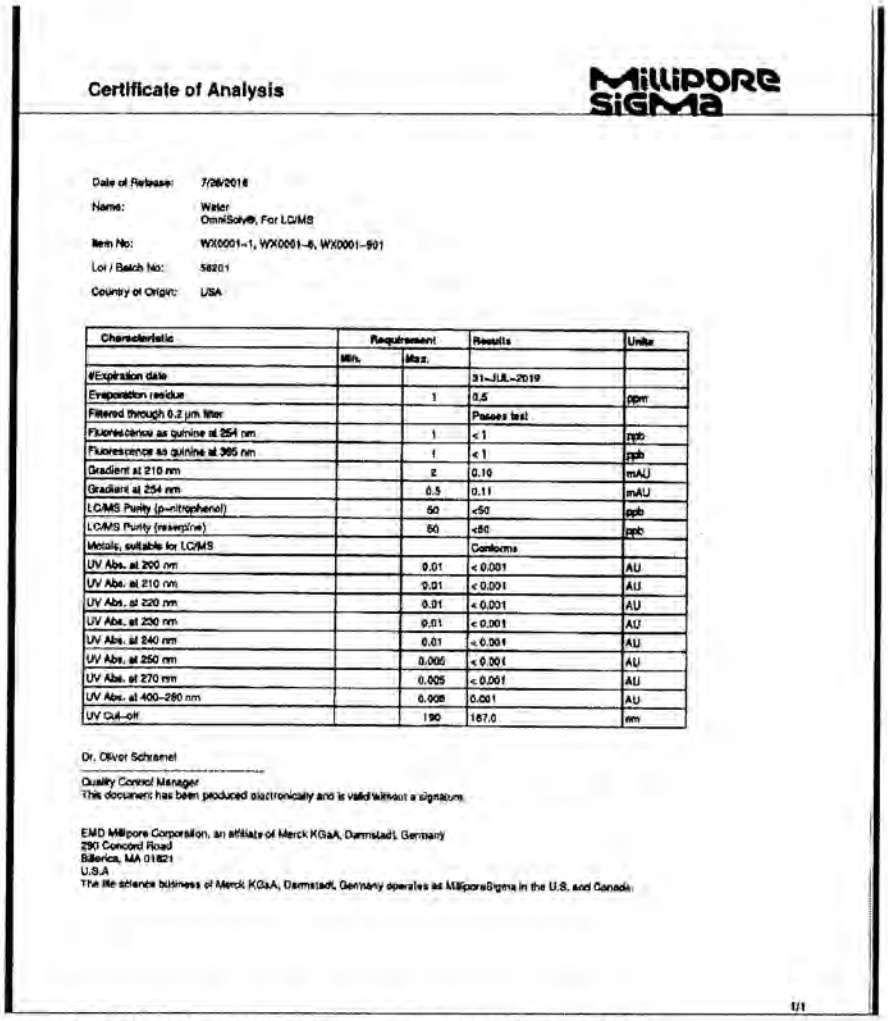
Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Received on 10/9/18
SSB

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date received: 2018.10.11 HPLC



Certificate of Analysis

MilliporeSigma

Date of Release: 7/26/2018

Name: Water
OmniSolv®, For LC/MS

Item No: WX0001-1, WX0001-6, WX0001-901

Lot / Batch No: 58201

Country of Origin: USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			31-JUL-2019	
Evaporation residue		1	0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.10	mAU
Gradient at 254 nm		0.5	0.11	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	0.001	AU
UV Cut-off		190	187.0	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

1/1

Date Received: 2018.08.15 - 8 bottles - HPLC
Date Received: 2018.08.16 - 8 bottles - HPLC
Date Received: 2018.08.29 - 8 bottles - HPLC
Date Received: 2018.09.05 - 8 bottles - HPLC
Date Received: 2018.09.10 - 8 bottles - HPLC
Date Received: 2018.09.15 - 8 bottles - HPLC
Date Received: 2018.09.17 - 8 bottles - HPLC
Date Received: 2018.09.25 - 4 bottles - HPLC
Date Received: 2018.10.03 - 8 bottles - HPLC
Date Received: 2018.10.11 - 8 bottles - HPLC
Date Received: 2018.10.15 - 8 bottles - HPLC
Date Received: 2018.10.16 - 8 bottles - HPLC
Date Received: 2018.10.18 - 7 bottles - HPLC
Date Received: 2018.10.24 - 7 bottles - HPLC
Date Received: 2018.10.25 - 7 bottles - HPLC
Date Received: 2018.10.31 - 7 bottles - HPLC
Date Received: 2018.11.09 - 7 bottles - HPLC
Date Received: 2018.11.15 - 7 bottles - HPLC
Date Received: 2018.11.19 - 7 bottles - HPLC
Date Received: 2018.11.23 - 7 bottles - HPLC
Date Received: 2018.11.25 - 7 bottles - HPLC
Date Received: 2018.11.30 - 7 bottles - HPLC
Date Received: 2018.12.01 - 7 bottles - HPLC
Date Received: 2018.12.12 - 7 bottles - HPLC
Date Received: 2018.12.15 - 7 bottles - HPLC

REAGENT PREPARATION FORM

Reagent # 171 Replaced Reagent # 167 Analyst: JD3

Reagent Name: 0.2% NH4OH Preparation date: 2018/12/19 Expiry date: Daily

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: 0.2% V/V

Balance ID: - Pipette/Syringe/Cylinder ID: # Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH4OH	2mL	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	998mL	2018/12/15	2018/12/19	Sigma	SHBK1963	2023/07/31
	JD3 2018/12/19					

NOTES:

Reagent # 172 Replaced Reagent # 150 Analyst: JD3

Reagent Name: FMOC Preparation date: 2018/12/19 Expiry date: Daily

Final Volume: 50mL Oven No. : - Temp. : - Final Conc.: -

Balance ID: BC-1 Pipette/Syringe/Cylinder ID: # Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
FMOC	0.0751g	2018/01/18	2018/09/08	Sigma	WXBC4866V	2023/01/18
ACN	50mL	2018/12/04	2018/12/05	Fisher	185728	2023/09/30
	JD3 2018/12/19					

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS. ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0080018

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	A669	Quality Test / Release Date	1/10/2017
Lot Number	166350	Expiration Date	Dec'19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	= Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001



[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH
sigma-aldrich.com
3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Rec'd: 20181016
By: DAD
HPLC-M.C
4x4L

Certificate of Analysis

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK1963**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	16 MAY 2018
Expiration Date:	APR 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.03
UV Absorbance 235nm	≤ 0.10	0.05
UV Absorbance 230nm	≤ 0.20	0.07
UV Absorbance 220nm	≤ 0.30	0.15
UV Absorbance 210nm	≤ 0.60	0.34
UV Absorbance 205nm	≤ 1.00	0.66
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.98 %
Color Test	≤ 10 APHA	< 5 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	.....	.....

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34990
Batch Number: SHBK1993

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date Received: 2018.10.15 - 12 bottles - HPLC
Date Received: 2018.10.16 - 12 bottles - HPLC
Date Received: 2018.10.25 - 4 bottles - HPLC
Date Received: 2018.10.30 - 4 bottles - HPLC
Date Received: 2018.10.31 - 4 bottles - HPLC
Date Received: 2018.11.06 - 4 bottles - HPLC
Date Received: 2018.11.09 - 4 bottles - HPLC
Date Received: 2018.11.13 - 4 bottles - HPLC
Date Received: 2018.11.15 - 4 bottles - HPLC
Date Received: 2018.11.20 - 4 bottles - HPLC
Date Received: 2018.11.30 - 4 bottles - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.11 - 4 bottles - HPLC
Date Received: 2018.12.15 - 4 bottles - HPLC

REAGENT PREPARATION FORM

Reagent # 173 Replaced Reagent # 170 Analyst: GSZ

Reagent Name: 0.3% NH_4OH in MeOH Preparation date: 2018/12/19 Expiry date: Daily

Final Volume: 500ml Oven No. : - Temp. : - Final Conc.: 0.3 : 99.7 v/v

Balance ID: - Pipette/Syringe/Cylinder ID: P424096 Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	1.5ml	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	498.5ml	2018/12/11	2018/12/18	Sigma	SHBK1963	2023/04/30
		GSZ 2018/12/19				

NOTES: 500ml Class A Vol. Cylinder (3026)

Reagent # 174 Replaced Reagent # 166 Analyst: JD3

Reagent Name: 05% NH_4OH Preparation date: 2018/12/~~19~~ 20 JD3 Expiry date: Daily

Final Volume: 200ml Oven No. : - Temp. : - Final Conc.: 5% V/V

Balance ID: - Pipette/Syringe/Cylinder ID: # K52296G # 08-5591 Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	5ml	2018/02/01	2018/09/4	Fisher	166350	2019/12/31
$RO_i H_2O$	195ml In	House				
		JD3 2018/12/~~19~~ 20				
					JD3 2018/12/20	

NOTES:

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by BAI Global Certificate Number CERT - 0000918

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	A669	Quality Test / Release Date	1/16/2017
Lot Number	166350	Expiration Date	Dec/19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	- PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	- Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	- PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001

CERTIFIED BY

[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Rec'd: 20181016
By: (X)
HPLC-M.C
4x4L

Certificate of Analysis

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK1963**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	16 MAY 2018
Expiration Date:	APR 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.03
UV Absorbance 235nm	≤ 0.10	0.05
UV Absorbance 230nm	≤ 0.20	0.07
UV Absorbance 220nm	≤ 0.30	0.15
UV Absorbance 210nm	≤ 0.60	0.34
UV Absorbance 205nm	≤ 1.00	0.66
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 5 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34966
Batch Number: SHBK1953

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Page 2 of 2

Date Received: 2018.10.15 - 12 bottles - HPLC
Date Received: 2018.10.16 - 12 bottles - HPLC
Date Received: 2018.10.25 - 4 bottles - HPLC
Date Received: 2018.10.30 - 4 bottles - HPLC
Date Received: 2018.10.31 - 4 bottles - HPLC
Date Received: 2018.11.06 - 4 bottles - HPLC
Date Received: 2018.11.09 - 4 bottles - HPLC
Date Received: 2018.11.13 - 4 bottles - HPLC
Date Received: 2018.11.15 - 4 bottles - HPLC
Date Received: 2018.11.20 - 4 bottles - HPLC
Date Received: 2018.11.30 - 4 bottles - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.11 - 4 bottles - HPLC
Date Received: 2018.12.15 - 4 bottles - HPLC

REAGENT PREPARATION FORM

Reagent # 177 Replaced Reagent # 171 Analyst: HIN

Reagent Name: 0.2% NH_4OH Preparation date: 2018/12/20 Expiry date: Daily

Final Volume: 1L Oven No. : _____ Temp. : _____ Final Conc.: 0.2% v/v

Balance ID: _____ Pipette/Syringe/Cylinder ID: _____ Storage: _____

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	2mL	2018/02/01	2018/09/25	fisher	166350	2019/12/31
MeOH	998mL	2018/12/19	2018/12/20	Sigma	SHBK5051	2023/07/31

2018/12/20 HIN

NOTES:

Reagent # 178 Replaced Reagent # 168 Analyst: JD3

Reagent Name: 60:40 H_2O:MeOH Preparation date: 2018/12/21 Expiry date: 2019/02/21

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: 60:40 v/v

Balance ID: - Pipette/Syringe/Cylinder ID: #5353 Storage: Shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
MeOH	400mL	2018/12/19	2018/12/20	Sigma	SHBK5051	2023/07/31
LCMS H_2O	600mL	2018/12/18	2018/12/20	Ommi	58248	2019/09/30

JD3 2018/12/21

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0030018

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	A669	Quality Test / Release Date	1/10/2017
Lot Number	166350	Expiration Date	Dec/19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	= Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001



[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd 2018/11/12
BY OKO
4xLL
HPLC-M.L

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK5051**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	20 AUG 2018
Expiration Date:	JUL 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.01
UV Absorbance 235nm	≤ 0.10	0.02
UV Absorbance 230nm	≤ 0.20	0.02
UV Absorbance 220nm	≤ 0.30	0.05
UV Absorbance 210nm	≤ 0.60	0.21
UV Absorbance 205nm	≤ 1.00	0.52
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 10 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34860
Batch Number: SHBK5051

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.11.15 - 2 x 4L - HPLC
Date Received: 2018.11.19 - 2 x 4L - HPLC
Date Received: 2018.12.06 - 2 x 4L - HPLC
Date Received: 2018.12.21 - 4 x 4L - HPLC
Date Received: 2018.12.24 - 8 x 4L - HPLC
Date Received: 2018.12.27 - 4 x 4L - HPLC Mainlab
Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.12.19 - 2 x 4L - HPLC

REAGENT PREPARATION FORM

Reagent # 195 Replaced Reagent # 07 Analyst: SG

Reagent Name: 96:4 MeOH:LCMS Preparation date: 2018/12/28 Expiry date: 2019/02/28

Final Volume: 100 ml Oven No. : — Temp. : — Final Conc.: 96:4 v/v

Balance ID: — Pipette/Syringe/Cylinder ID: K52290G Storage: Shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
LCMS	4 ml	2018/12/21	2018/12/27	Omni	58248	2019/09/30
MeOH	96 ml	2018/12/29	2018/12/27	Sig	SHBK5051	2023/07/31
		SG 2018/12/28				

NOTES: cylinder # 085570

Reagent # 196 Replaced Reagent # 191 Analyst: TK

Reagent Name: 0.2% NH4OH Preparation date: 2018/12/28 Expiry date: Daily

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 0.2% (v/v)

Balance ID: — Pipette/Syringe/Cylinder ID: K52290G Storage: Chem

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH4OH	200 ml	2018/02/01	2018/09/25	Fisher	166350	2019/12/31
methanol	998.0ml	2018/12/24	2018/12/28	Sigma	SHBK5051	2023/12/31
				TK 2018/12/28		

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

Certificate of Analysis

MilliPORE SiGMa

Date of Release:	9/5/2018
Name:	Water OmniSolv®, For LC/MS
Item No:	WX0001 all size codes
Lot / Batch No:	58248
Country of Origin:	USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Date received
2018/11/30
LR
4 Bottles

1/1

Date Received: 2018.12.18 - 8 bottles - HPLC
Date Received: 2018.12.19 - 8 bottles - HPLC
Date Received: 2018.12.21 - 8 bottles - HPLC
Date Received: 2018.12.23 - 8 bottles - HPLC
Date Received: 2018.12.24 - 8 bottles - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd: 2018/11/12
By: OKO
4x4L
HPLC-M.L

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK5051**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	20 AUG 2018
Expiration Date:	JUL 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.01
UV Absorbance 235nm	≤ 0.10	0.02
UV Absorbance 230nm	≤ 0.20	0.02
UV Absorbance 220nm	≤ 0.30	0.05
UV Absorbance 210nm	≤ 0.60	0.21
UV Absorbance 205nm	≤ 1.00	0.52
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 10 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34660
Batch Number: SHBK5051

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.11.15 - 2 x 4L - HPLC
Date Received: 2018.11.19 - 2 x 4L - HPLC
Date Received: 2018.11.23 - 2 x 4L - HPLC
Date Received: 2018.12.06 - 2 x 4L - HPLC
Date Received: 2018.12.21 - 4 x 4L - HPLC
Date Received: 2018.12.24 - 8 x 4L - HPLC
Date Received: 2018.12.27 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.19 - 2 x 4L - HPLC
Date Received: 2018.12.23 - 2 x 4L - HPLC
Date Received: 2018.12.24 - 2 x 4L - HPLC

REAGENT PREPARATION FORM

Reagent # 209 Replaced Reagent # 193 Analyst: TK4

Reagent Name: 60:40 (LCMS: Methanol) Preparation date: 2019/01/04 Expiry date: 2019/03/04

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 60:40 v/v

Balance ID: — Pipette/Syringe/Cylinder ID: 5553 Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
LCMS	600 ml	2018/12/24	2019/01/03	Omni	58248	2019/05/31
MeOH	400 ml	2018/12/24	2019/01/07	Sigma	SHBK5051	2023/07/30
		TK4 2019/01/04				

NOTES:

Reagent # 210 Replaced Reagent # 207 Analyst: TK4

Reagent Name: 0.2% NH4OH Preparation date: 2019/01/04 Expiry date: Daily

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 0.2%

Balance ID: — Pipette/Syringe/Cylinder ID: K52290G Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH4OH	2 ml	2018/02/01	2018/09/05	Fisher	166250	2019/12/31
MeOH	998 ml	2018/12/24	2019/01/03	Sigma	SHBK5051	2023/07/30
		TK4 2019/01/04				

NOTES:

Certificate of Analysis

MilliPORE SIGMA

Date of Release: 9/5/2018

Name: Water
OmniSolv®, For LC/MS

Item No: WX0001 all size codes

Lot / Batch No: 58248

Country of Origin: USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Date received
2018/11/30
LR
4 Bottles

1/1

Date Received: 2018.12.18 - 8 bottles - HPLC
Date Received: 2018.12.19 - 8 bottles - HPLC
Date Received: 2018.12.21 - 8 bottles - HPLC
Date Received: 2018.12.23 - 8 bottles - HPLC
Date Received: 2018.12.24 - 8 bottles - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd: 2018/11/12
By: CKO
4x4L
HPLC-M.C

Product Name:
Methanol – for HPLC, ≥99.9%

CH_3OH

Product Number:	34860
Batch Number:	SHBK5051
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	20 AUG 2018
Expiration Date:	JUL 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.01
UV Absorbance 235nm	≤ 0.10	0.02
UV Absorbance 230nm	≤ 0.20	0.02
UV Absorbance 220nm	≤ 0.30	0.05
UV Absorbance 210nm	≤ 0.60	0.21
UV Absorbance 205nm	≤ 1.00	0.52
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.98 %
Color Test	≤ 10 APHA	< 10 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34860
Batch Number: SHBK5051

Michael Grady, Manager
Quality Control
Sheboygen Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.11.15 - 2 x 4L - HPLC
Date Received: 2018.11.19 - 2 x 4L - HPLC
Date Received: 2018.11.23 - 2 x 4L - HPLC
Date Received: 2018.12.06 - 2 x 4L - HPLC
Date Received: 2018.12.21 - 4 x 4L - HPLC
Date Received: 2018.12.24 - 8 x 4L - HPLC
Date Received: 2018.12.27 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.19 - 2 x 4L - HPLC
Date Received: 2018.12.23 - 2 x 4L - HPLC
Date Received: 2018.12.24 - 2 x 4L - HPLC

REAGENT PREPARATION FORM

Reagent # 209 Replaced Reagent # 193 Analyst: TK4

Reagent Name: 60:40 (LCMS: Methanol) Preparation date: 2019/01/04 Expiry date: 2019/03/04

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 60:40 v/v

Balance ID: — Pipette/Syringe/Cylinder ID: 5553 Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
LCMS	600 ml	2018/12/24	2019/01/03	O mni	58248	2019/08/30
MeOH	400 ml	2018/12/24	2019/01/03	Sigma	SHBK5051	2023/07/30
		TK4 2019/01/04				

NOTES:

Reagent # 210 Replaced Reagent # 207 Analyst: TK4

Reagent Name: 0.2% NH4OH Preparation date: 2019/01/04 Expiry date: Daily

Final Volume: 1L Oven No. : — Temp. : — Final Conc.: 0.2%

Balance ID: — Pipette/Syringe/Cylinder ID: K52290G Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH4OH	2 ml	2018/02/01	2018/09/05	Fisher	166250	2019/12/31
MeOH	998 ml	2018/12/24	2019/01/03	Sigma	SHBK5051	2023/07/30
		TK4 2019/01/04				

NOTES:

DO NOT WRITE ANYWHERE ELSE WITH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. SIGN AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

[redacted]

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0080918

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained.

Catalog Number	A669	**Quality Test / Release Date**	1/10/2017
Lot Number	166350	**Expiration Date**	Dec'19
Description	AMMONIUM HYDROXIDE, CERTIFIED A.C.S. PLUS		
Country of Origin	United States		
Chemical Origin	Inorganic-non animal		

BSE/TSE Comment	This product does not contain and is not manufactured with raw material ingredients derived from any animal products, including countries where Bovine Spongiform Encephalopathy (BSE) is known to exist.
Chemical Comment	This product is free from genetically modified substances and is gluten free.

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	COLORLESS AND FREE FROM SUSPENDED MATTER
ALUMINUM	ppm	<= 0.3	0.010
ARSENIC AND ANTIMONY	ppm	<= 0.05	<0.050
ASSAY	w/w %	Inclusive Between 28.0 - 30.0	29.2
BORON (B)	ppm	<= 0.1	0.004
CALCIUM (Ca)	ppm	<= 0.3	0.003
CARBON DIOXIDE	%	<= 0.002	<0.0002
CHLORIDE	ppm	<= 0.5	<0.50
CHROMIUM (Cr)	ppm	<= 0.2	0.001
COPPER (Cu)	ppm	<= 0.1	0.001
GOLD (Au)	ppm	<= 0.3	0.001
HEAVY METALS (as Pb)	ppm	<= 0.5	<0.5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	0.001
LEAD (Pb)	ppm	<= 0.2	0.001
MAGNESIUM (Mg)	ppm	<= 0.3	0.001
MANGANESE (Mn)	ppm	<= 0.2	0.001
NICKEL (Ni)	ppm	<= 0.1	0.001
NITRATE (NO3)	ppm	<= 2	<2.0
PHOSPHATE (PO4)	ppm	<= 0.4	<0.40
POTASSIUM (K)	ppm	<= 0.3	0.002
RESIDUE AFTER IGNITION	ppm	<= 3	<3.00
SODIUM (Na)	ppm	= Report	0.017
SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	ppm	<= 2	<2.0
TIN (Sn)	ppm	<= 0.3	0.001
TITANIUM (Ti)	ppm	<= 0.3	0.001
ZINC (Zn)	ppm	<= 0.3	0.001



[redacted]

Quality Assurance Specialist - Certificate of Analysis BPF

Date Received: 2018.02.01 - 1 bottle - HPLC
Date Received: 2018.02.09 - 1 bottle - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd: 2018/11/12
By: OKO
4x4L
HPLC-M.L

Product Name:
Methanol – for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK5051**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	20 AUG 2018
Expiration Date:	JUL 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.01
UV Absorbance 235nm	≤ 0.10	0.02
UV Absorbance 230nm	≤ 0.20	0.02
UV Absorbance 220nm	≤ 0.30	0.05
UV Absorbance 210nm	≤ 0.60	0.21
UV Absorbance 205nm	≤ 1.00	0.52
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 10 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34860
Batch Number: SHBK5051

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date Received: 2018.11.12 - 2 x 4L - HPLC
Date Received: 2018.11.15 - 2 x 4L - HPLC
Date Received: 2018.11.19 - 2 x 4L - HPLC
Date Received: 2018.11.23 - 2 x 4L - HPLC
Date Received: 2018.12.06 - 2 x 4L - HPLC
Date Received: 2018.12.21 - 4 x 4L - HPLC
Date Received: 2018.12.24 - 8 x 4L - HPLC
Date Received: 2018.12.27 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.19 - 2 x 4L - HPLC
Date Received: 2018.12.23 - 2 x 4L - HPLC
Date Received: 2018.12.24 - 2 x 4L - HPLC

REAGENT PREPARATION FORM

Reagent # 211 Replaced Reagent # 200 Analyst: TK 4

Reagent Name: 2% Formic Acid Preparation date: 2019/01/04 Expiry date: 2019/03/04

Final Volume: 1L Oven No. : - Temp. : - Final Conc.: 2%

Balance ID: - Pipette/Syringe/Cylinder ID: M256796 Storage: shelf

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Formic Acid	20ml	2018/10/11	2018/11/09	sigma	SHBK1543	2019/05/31
LCMS	980ml	2018/12/24	2019/01/03	Omni	58248	2019/07/30
			TK 4 2019/01/04			

NOTES: cylinder # 5553

Reagent # 212 Replaced Reagent # 210 Analyst: DDA

Reagent Name: 0.2% NH_4OH Preparation date: 2019/01/05 Expiry date: Daily

Final Volume: 250ml Oven No. : Temp. : Final Conc.: 0.2%

Balance ID: Pipette/Syringe/Cylinder ID: P424096 Storage: -

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
NH_4OH	500µl 2019/01/05	2018/06/01	2018/09/25	Fisher	166350	2019/12/31
MeOH	250ml	2018/12/24	2019/01/04	Sigma	SHBK5051	2023/07/22
	2019/01/05	DDA				

NOTES:

DO NOT WRITE BENEATH ANY INSERTS OR PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL ENTRIES, CORRECTIONS AND INSERTS. INCLUDE ALL RELEVANT TRACEABLE REFERENCES ON ALL INSERTS.
ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

SIGMA-ALDRICH®

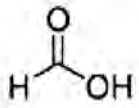
sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Formic acid - reagent grade, ≥95%

Product Number:	**F0507**
Batch Number:	**SHBK1543**
Brand:	SIGALD
CAS Number:	64-18-6
MDL Number:	MFCD00003297
Formula:	CH_2O_2
Formula Weight:	46.03 g/mol
Quality Release Date:	25 MAY 2016
Expiration Date:	MAY 2019



Test	Specification	Result
Appearance (Turbidity)	Clear	Clear
Appearance (Color)	Colorless to Very Faint Yellow	Colorless
Appearance (Form)	Liquid	Liquid
Proton NMR Spectrum	Conforms to Structure	Conforms
Solvent Content	≤ 1.0 %	< 0.1 %
Acetic Acid by NMR		
Water (by Karl Fischer)	2.0 - 2.5 %	2.1 %
Titration with NaOH	≥ 95.0 %	99.2 %
Expiration Date Period	----------	----------
1 Year		

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Received on 10/9/18
553

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Date received: 2018.10.11 HPLC

Certificate of Analysis

MilliPORE SIGMA

Date of Release:	9/5/2018
Name:	Water OmniSolv®, For LC/MS
Item No:	WX0001 all size codes
Lot / Batch No:	58248
Country of Origin:	USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Date received
2018/11/30
LR
4 Bottles

1/1

Date Received: 2018.12.18 - 8 bottles - HPLC
Date Received: 2018.12.19 - 8 bottles - HPLC
Date Received: 2018.12.21 - 8 bottles - HPLC
Date Received: 2018.12.23 - 8 bottles - HPLC
Date Received: 2018.12.24 - 8 bottles - HPLC

REAGENT PREPARATION FORM

SOLUTION # 458 REAGENT NAME: 20mM Ammonium Acetate in 0.1% Formic Acid

ANALYST: j DATE PREPARED: 2018/12/19 EXPIRY DATE: 2019/07/30

STORAGE: RT BALANCE ID: AB-02 PIPET/SYRINGE ID: FE-P-70

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Ammonium Acetate	0.7709	2017/01/03	2017/04/18	Sigma	BCBT4732	2019/07/30
Formic Acid	500ul	2018/06/11	2018/08/02	Sigma	STHBJ7957	2019/07/31
RO Di H2O	top up to 500mL	—	—	in House	—	—
		j 2018/12/19				

NOTES:

SOLUTION # 459 REAGENT NAME: ACN/MeOH (50/50)

ANALYST: DAU DATE PREPARED: 2018/12/20 EXPIRY DATE: 2019/02/20

STORAGE: Room Temp BALANCE ID: NA PIPET/SYRINGE ID: NA

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
MeOH	500mL	2018/12/06	2018/12/17	Sigma	SHBK1963	2023/04/30
ACN	500mL	2018/12/06	2018/12/13	Fisher	185692	2023/01/31
			2018/12/20 DAU			

NOTES:

ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.
RT = Room Temperature

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Recd: 20181016
By: DXD
HPLC-M.C
4x4L

Certificate of Analysis

Product Name:
Methanol - for HPLC, ≥99.9%

CH_3OH

Product Number:	**34860**
Batch Number:	**SHBK1963**
Brand:	SIGALD
CAS Number:	67-56-1
MDL Number:	MFCD00004595
Formula:	CH4O
Formula Weight:	32.04 g/mol
Quality Release Date:	16 MAY 2018
Expiration Date:	APR 2023

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
UV Absorbance 400nm	≤ 0.01	< 0.01
UV Absorbance 280nm	≤ 0.01	< 0.01
UV Absorbance 260nm	≤ 0.04	< 0.01
UV Absorbance 240nm	≤ 0.10	0.03
UV Absorbance 235nm	≤ 0.10	0.05
UV Absorbance 230nm	≤ 0.20	0.07
UV Absorbance 220nm	≤ 0.30	0.15
UV Absorbance 210nm	≤ 0.60	0.34
UV Absorbance 205nm	≤ 1.00	0.66
Fluorescence 254nm	≤ 1.0 ppb	0.1 ppb
Fluorescence 365nm	≤ 1.0 ppb	0.1 ppb
Purity (GC)	≥ 99.90 %	99.99 %
Color Test	≤ 10 APHA	< 5 APHA
Water (by Karl Fischer)	≤ 0.03 %	< 0.01 %
Residue on Evaporation	≤ 0.0005 %	0.0001 %
Expiration Date Period 1800 Days	----------	----------

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: 34860
Batch Number: SHBK1953

Michael Grady, Manager
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Page 2 of 2

Date Received: 2018.10.15 - 12 bottles - HPLC
Date Received: 2018.10.16 - 12 bottles - HPLC
Date Received: 2018.10.25 - 4 bottles - HPLC
Date Received: 2018.10.30 - 4 bottles - HPLC
Date Received: 2018.10.31 - 4 bottles - HPLC
Date Received: 2018.11.06 - 4 bottles - HPLC
Date Received: 2018.11.09 - 4 bottles - HPLC
Date Received: 2018.11.13 - 4 bottles - HPLC
Date Received: 2018.11.15 - 4 bottles - HPLC
Date Received: 2018.11.20 - 4 bottles - HPLC
Date Received: 2018.11.30 - 4 bottles - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.11 - 4 bottles - HPLC
Date Received: 2018.12.15 - 4 bottles - HPLC

ThermoFisher
SCIENTIFIC

Rec'd: 20181212106
By: CKO
HPLC-MC
4x4L

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

ThermoFisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0090018

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. ThermoFisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing.ThermoFisher does not maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	A996	Quality Test / Release Date	10/05/2018
Lot Number	185892		
Description	ACETONITRILE, OPTIMA		
Country of Origin	United States	Suggested Retest Date	Oct/2023
Chemical Origin	Organic - non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		
Chemical Comment			

N/A

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	CLEAR, COLORLESS LIQUID
ASSAY	%	>= 99.9	99.9
WATER (H2O)	%	<= 0.01	0.006
DENSITY AT 25 DEGREES C	GM/ML	Inclusive Between 0.775 - 0.780	0.777
EVAPORATION RESIDUE	ppm	<= 0.8	0.2
FLUORESCENCE BACKGROUND	ppb	<= 1	<1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
LC GRADIENT SUITABILITY	PASS/FAIL	= PASS TEST	PASS TEST
OPTICAL ABS AT 190 NM	ABS. UNITS	<= 1.00	0.56
OPTICAL ABS AT 195 NM	ABS. UNITS	<= 0.15	0.08
OPTICAL ABS AT 200 NM	ABS. UNITS	<= 0.07	0.007
OPTICAL ABS AT 205 NM	ABS. UNITS	<= 0.05	0.005
OPTICAL ABS AT 210 NM	ABS. UNITS	<= 0.04	0.005
OPTICAL ABS AT 220 NM	ABS. UNITS	<= 0.02	0.002
OPTICAL ABS AT 254 NM	ABS. UNITS	<= 0.005	<0.0005
PESTICIDE RESIDUE ANALYSIS	NG/L	<= 10	<10
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.3405 - 1.3425	1.3414
TITRATABLE ACID	MEQ/G	<= 0.0008	<0.0008
TITRATABLE BASE	MEQ/G	<= 0.0006	<0.00006
COLOR	APHA	<= 5	5

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

ThermoFisher SCIENTIFIC

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

ThermoFisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0090918

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis Bridgewater

Date Received: 2018.12.14 - 4 x 4L - HPLC Mainlab
Date Received: 2018.12.04 - 4 x 4L - HPLC
Date Received: 2018.12.06 - 4 x 4L - HPLC
Date Received: 2018.12.27 - 4 x 4L - HPLC Mainlab

Kelly Huckabone

Kelly Huckabone
Regulatory Affairs

REAGENT PREPARATION FORM

SOLUTION # 460 REAGENT NAME: 20mM Ammonium Acetate

ANALYST: YPL DATE PREPARED: 2018/12/20 EXPIRY DATE: ~~2019/02/20~~ 2019/01/30 YPL 2019/01/10

STORAGE: R.T. BALANCE ID: AB-02 PIPET/SYRINGE ID: N/A

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Ammonium Acetate	6.1622 g	2017/08/03	2017/09/18	Sigma	BCBT4732	2019/01/30
LCMS WATER	4L	2018/12/10	2018/12/20	OmniSolv	58248	2019/09/30
			YPL 2018/12/20			

NOTES:

SOLUTION # 461 REAGENT NAME: 20mM Ammonium Acetate

ANALYST: YPL DATE PREPARED: 2018/12/20 EXPIRY DATE: 2019/01/20

STORAGE: R.T. BALANCE ID: AB-02 PIPET/SYRINGE ID: N/A

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Ammonium Acetate	6.1635g	2017/08/03	2017/09/18	Sigma	BCBT0732	2019/01/30
LCMS WATER	4L	2018/12/10	2018/12/20	OmniSolv	58248	2019/09/30
			YPL 2018/12/20			

NOTES:

ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:	AMMONIUM ACETATE reagent grade, >= 98 %
Product Number:	A7262
Batch Number:	BCBT4732
Brand:	Sigma-Aldrich
CAS Number:	631-61-8
Formula:	$CH_3CO_2NH_4$
Formula Weight:	77.08
Storage Temperature:	2-8 C
Quality Release Date:	16 JAN 2017
Recommended Retest Date:	JAN 2019

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE	WHITE
APPEARANCE (FORM)	MOIST CRYSTALS	MOIST CRYSTALS
TITRATION	≥ 98 %	99.6 %
TITRATION (METHOD)	TITRATION WITH NAOH	TITRATION WITH NAOH
SOLUBILITY (COLOR)	COLORLESS	COLORLESS
SOLUBILITY (TURBIDITY)	CLEAR	CLEAR
SOLUBILITY (METHOD)	1 G/ML, H2O	1 G/ML, H2O

Dr. Claudia Geilner
Manager Quality Control
Buchs, Switzerland

Rec'd: 7
20 17/02/03
1 x 500 g
LC group
Storage: FD

Sigma-Aldrich warrants that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Certificate of Analysis

MilliporeSigma

Date of Release: 9/5/2018

Name: Water
OmniSolv®, For LC/MS

Item No: WX0001 all size codes

Lot / Batch No: 58248

Country of Origin: USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Date received
2018/11/30
LR
4 Bottles

1/1

Date Received: 2018.12.10 - 8 bottles - HPLC
Date Received: 2018.12.18 - 8 bottles - HPLC
Date Received: 2018.12.19 - 8 bottles - HPLC
Date Received: 2018.12.21 - 8 bottles - HPLC
Date Received: 2018.12.23 - 8 bottles - HPLC
Date Received: 2018.12.24 - 8 bottles - HPLC

REAGENT PREPARATION FORM

SOLUTION # 462 REAGENT NAME: 20 mM Ammonium Acetate

ANALYST: AKH DATE PREPARED: 2018/12/20 EXPIRY DATE: 2019/02/20

STORAGE: R.T. BALANCE ID: MS204S(AB-02) PIPET/SYRINGE ID: N/A

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Ammonium Acetate	6.1713 g	2018/09/18	2018/09/19	Sigma	BCBR6599V	2020/01/30
LCMS Water	4L	2018/12/18	2018/12/20	OmniSolv	58248	2019/09/30
		AKH 2018/12/20				

NOTES:

SOLUTION # 463 REAGENT NAME: (50/50) ACN/Ammonium Formate (20mM)

ANALYST: YPL DATE PREPARED: 2018/12/21 EXPIRY DATE: ~~2019~~ YPL 2018/12/21 2019/02/21

STORAGE: R.T. BALANCE ID: AB-02 PIPET/SYRINGE ID: N/A

CHEMICAL NAME	VOLUME/ WEIGHT	DATE RECEIVED	DATE OPENED	SUPPLIER	LOT NUMBER	EXPIRY DATE
Ammonium Formate	0.6318 g	2017/08/03	2017/10/17	Sigma	MKBJ4480V	2022/08/03
RODi+H2O	500mL	—	—	IN-HOUSE	—	—
ACN	500mL	2018/07/23	2018/09/07	Fisher	181378	2023/09/30
			YPL 2018/12/21			

NOTES: Cylinder . #09-730-30

ONLY CLASS A GLASSWARE IS USED FOR THE PREPARATION OF REAGENTS WHEN APPLICABLE.
RT = Room Temperature

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Rec'd 2018/09/18 uG

Product Name:	AMMONIUM ACETATE for mass spectrometry, eluent additive for LC-MS
Product Number:	73594
Batch Number:	BCBR6599V
Brand:	Sigma-Aldrich
CAS Number:	631-61-8
Formula:	$CH_3CO_2NH_4$
Formula Weight:	77.08
Quality Release Date:	04 MAR 2016
Recommended Retest Date:	JAN 2020

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	COLORLESS OR WHITE	WHITE
APPEARANCE (FORM)	CRYSTALS	CRYSTALS
TITRATION (T) NAOH 1M	99.0 - 101.0 %	100.2 %
REMARKS ON TITRATION	CALC. ON DRY SUBSTANCE	CALC. ON DRY SUBSTANCE
LC-MS	LC-MS IN ACCORDANCE	LC-MS IN ACCORDANCE
WATER	≤ 1 %	0.9 %
RESIDUE ON IGNITION	≤ 0.01 %	0.01 %
METAL TRACE ANALYSIS (ICP)	CORRESPONDS TO REQUIREMENTS	PASSED
ALUMINIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
BARIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
BISMUTH (ICP)	≤ 1 MG/KG	< 1 MG/KG
CALCIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
CADMIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
COBALT (ICP)	≤ 1 MG/KG	< 1 MG/KG
CHROMIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
COPPER (ICP)	≤ 1 MG/KG	< 1 MG/KG
IRON (ICP)	≤ 1 MG/KG	< 1 MG/KG
POTASSIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
LITHIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
MAGNESIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
MANGANESE (ICP)	≤ 1 MG/KG	< 1 MG/KG
MOLYBDENUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
SODIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
NICKEL (ICP)	≤ 1 MG/KG	< 1 MG/KG
LEAD (ICP)	≤ 1 MG/KG	< 1 MG/KG

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

STRONTIUM (ICP)	≤ 1 MG/KG	< 1 MG/KG
ZINC (ICP)	≤ 1 MG/KG	< 1 MG/KG
ARSENIC TRACES (MHS-AAS)	≤ 0.1 MG/KG	< 0.1 MG/KG
TOTAL SULFUR AS SO4 (ICP)	≤ 10 MG/KG	< 10 MG/KG
CHLORIDE (CL)	≤ 5 MG/KG	< 5 MG/KG
NITRATE (NO3)	≤ 10 MG/KG	< 10 MG/KG
SOLUBILITY (METHOD)	1 M IN H2O	1 M IN H2O
APPEARANCE (SOLUTION)	CLEAR COLORLESS	CLEAR COLORLESS
PH (SOLUTION)	6.2 - 7.5	6.9
RESIDUE (FILTER TEST)	NO RESIDUE	NO RESIDUE
UV - ABS. AT 260 NM	≤ 0.015	0.002
UV - ABS. AT 280 NM	≤ 0.010	0.001

Dr. Claudia Geltner
Manager Quality Control
Buchs, Switzerland

Sigma-Aldrich warrants that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Certificate of Analysis

MilliPORE SIGMA

Date of Release:	9/5/2018
Name:	Water OmniSolv®, For LC/MS
Item No:	WX0001 all size codes
Lot / Batch No:	58248
Country of Origin:	USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Date received
2018/11/30
LR
4 Bottles

1/1

Date Received: 2018.12.18 - 8 bottles - HPLC

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eutechserv@sial.com

Certificate of Analysis

Product Name:
Trizma® Pre-set crystals - BioPerformance Certified, pH 7.0, average Mw 154.8

Product Number:	T7193
Batch Number:	SLBX4064
Brand	SIGMA
Quality Release Date:	14 SEP 2018

Test	Specification	Result
Appearance (Color)	White	White
Appearance (Form)	Crystalline Powder	Crystalline Powder
Solubility (Color)	Colorless	Colorless
Solubility (Turbidity) 40 g plus 60 ml of H2O	Clear	Clear
Water (by Karl Fischer)	≤ 0.5 %	0.2 %
A260 UV absorbance (40% w/w)	≤ 0.05	0.03
Heavy Metals (as Lead)	≤ 5 ppm	≤ 5 ppm
Iron (Fe) by ICP- atomic emission	≤ 5 ppm	≤ 5 ppm
pH of a 0.05 M solution at 5 deg C	7.6 - 7.7	7.7
pH of a 0.05 M solution at 25 deg C	6.9 - 7.1	7.1
pH of a 0.05 M solution at 37 deg C	6.6 - 6.8	6.7
Endotoxin Level	≤ 0.1 EU/mg	< 0.0 EU/mg
Total Aerobic Microbial Count	≤ 100 CFU/g	0 CFU/g
Protease Detection - FITC	None Detected	None Detected
RNase Detection	None Detected	None Detected
NICKase,Endonuclease Detection	None Detected	None Detected
DNase, Exonuclease Detection	None Detected	None Detected
Cell Culture Test	Pass	Pass

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conforms to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Date Received: 2018.11.16 - 1 x 250g - HPLC

Certificate of Analysis

MilliporeSigma

Date of Release: 9/5/2018

Name: Water
OmniSolv®, For LC/MS

Item No: WX0001 all size codes

Lot / Batch No: 58248

Country of Origin: USA

Characteristic	Requirement		Results	Units
	Min.	Max.		
#Expiration date			30-SEP-2019	
Evaporation residue		1	<0.5	ppm
Filtered through 0.2 µm filter			Passes test	
Fluorescence as quinine at 254 nm		1	< 1	ppb
Fluorescence as quinine at 365 nm		1	< 1	ppb
Gradient at 210 nm		2	0.51	mAU
Gradient at 254 nm		0.5	< 0.05	mAU
LC/MS Purity (p-nitrophenol)		50	<50	ppb
LC/MS Purity (reserpine)		50	<50	ppb
Metals, suitable for LC/MS			Conforms	
UV Abs. at 200 nm		0.01	< 0.001	AU
UV Abs. at 210 nm		0.01	< 0.001	AU
UV Abs. at 220 nm		0.01	< 0.001	AU
UV Abs. at 230 nm		0.01	< 0.001	AU
UV Abs. at 240 nm		0.01	< 0.001	AU
UV Abs. at 250 nm		0.005	< 0.001	AU
UV Abs. at 270 nm		0.005	< 0.001	AU
UV Abs. at 400-280 nm		0.005	< 0.001	AU
UV Cut-off		190	<190	nm

Dr. Oliver Schramel

Quality Control Manager
This document has been produced electronically and is valid without a signature.

Date received
2018/11/30
12
4 Bottles

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

Solution No.: I-5418 Date: 2018/07/17 Expiry Date: 2019/01/17 Discard Date: —

Replaces Solution No.: I-5411 Replaced by Solution: _____ Chemist: RV

Compound(s)/Solution Name: Comp: PFAA working Soln DWA

Number of Parent Solution(s): See attached sheet

Concentration of Parent Solution(s): See attached sheet (mg, ug)/mL

Aliquot of Parent Solution(s): See attached sheet mL / uL

Pipette/Syringe ID CA24390G (100 ul)

Dilution Solvent 0.3% NH4OH in 96:4 (MeOH:H2O) Dilution Volume: 10 mL

Final Concentration(s): 125 / 500 ng/ml (mg, ug)/mL

Solution derivatized (as methyl ester): _____ As Other (specify): —

Solution Contains Surrogate Compounds: — For mix refer to table on page: —

Solution used for: PFAADW-W Volumetric Flask: 10 ml Class A (5640)
(identify by serial number or other unique ID)

Solvent Supplier: See PRIRE116-237 Lot No.: See PRIRE116-237

Date Opened: See PRIRE116-237

Storage Location: Shelf One time Use, Not Stored: —

Ampule Supplier: Wellington Date Opened: See attached sheet

Mix Name:

Catalogue No.: See attached sheet Ampule expiry Date: See attached sheet

Lot No.: See attached sheet

Date Received: See attached sheet

Notes/Comments:

I-5418 (PRLST 142 p. 241)

Compound Name	ID#	Conc. (ug/mL)	Vol. of Stock standard (uL)	Final Conc. (ng/mL)	Exp. date
L-PFBS	S4191-1	44.4	28.2	125	2021/12/02
PFHxA	S4191-2	50	25	125	2021/12/02
br-PFHxSk	S4191-3	45.7	27.4	125	2022/01/04
PFHpA	S4191-4	50	25	125	2021/12/02
PFOA	S4191-5	50	25	125	2022/02/17
brPFOSK	S4191-6	46.4	26.9	125	2022/01/12
PFNA	S4191-7	50	25	125	2022/07/20
PFDA	S4191-8	50	25	125	2022/05/29
PFuDA	S4191-9	50	25	125	2021/10/18
PFDoA	S4191-10	50	25	125	2022/05/29
PFTrDA	S4191-11	50	25	125	2022/05/02
PFTeDA	S4191-12	50	25	125	2021/09/30
N-MeFOSAA	S4191-13	50	100	500	2022/01/11
N-EtFOSAA	S4191-14	50	100	500	2022/01/11

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 133 PG 105

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4190 Date: 2017/09/12 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

Compound: _____ Purity: _____

S-4190 (PRLST 133 p. 105)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4190-1	MPFOA	MPFOA0417	2017/09/12	2022/04/12			50	MeOH	FZ11
S4190-2	MPFOS	MPFOS0517	2017/09/12	2022/05/19			50	MeOH	FZ11
S4190-2' 3	D3-N-MeFOSAA	d3NMeFOSAA0517	2017/09/12	2022/05/19			50	MeOH	FD59
Date opened (All compounds): 2017/09/12			Supplier: Wellington			Chemist: GSZ			

GSZ 2017/09/12
No writing on bottom page.

Storage Location / Conditions: _____

Notes/Comments

Solution No.: S-4191 Date: 2017/09/13 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: LQ

S-4191 (PRLST 133 pg 105)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4191-1	L-PFBS	LPFBSI1116	2017/09/12	2021/12/02			44.2	MeOH	FZ-11
S4191-2	PFHxA	PFHxA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4191-3	br-PFHxSK	br-PFHxSK0117	2017/09/12	2022/01/04			45.5	MeOH	FZ-11
S4191-4	PFHpA	PFHpA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4191-5	PFOA	PFOA0217	2017/09/12	2022/02/17			50	MeOH	FZ-11
S4191-6	brPFOSK	brPFOSK0117	2017/09/12	2022/01/12			46.4	MeOH	FZ-11
S4191-7	PFNA	PFNA0717	2017/09/12	2022/07/20			50	MeOH	FZ-11
S4191-8	PFDA	PFDA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4191-9	PFuDA	PFuDA1016	2017/09/12	2021/10/18			50	MeOH	FZ-11
S4191-10	PFDoA	PFDoA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4191-11	PFTrDA	PFTrDA0517	2017/09/12	2022/05/02			50	MeOH	FZ-11
S4191-12	PFTeDA	PFTeDA0916	2017/09/12	2021/09/30			50	MeOH	FZ-11
S4191-13	N-MeFOSAA	NMeFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
S4191-14	N-EtFOSAA	NEtFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
Date opened (All compounds): 2017/09/13			Supplier (All compounds) : Wellington			Chemist: LQ			

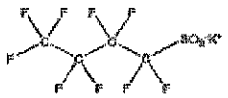
No writing on bottom page

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFBS	**LOT NUMBER:**	LPFBS1116
COMPOUND:	Potassium perfluoro-1-butanesulfonate		
STRUCTURE:		**CAS #:**	29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	**MOLECULAR WEIGHT:**	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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)

received/mm 2016/12/23 1x1.2ml FZ-11

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)

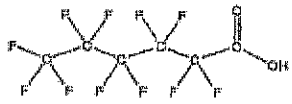
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Received 2016/12/19 2x1.2ml HPLC
Received 2016/12/23 1 x 1.2mL MMN FZ-11
RECEIVED 2017/03/10 1X1 MMN
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received:2017/06/02-DMZ-1.2ml-FD
R4ECEIVED 2017/08/09 1x1.2ml
Date recieved: 2017/08/30 1x1.2ml - HPLC
RECEIVED:2017/09/26 2X1.2mL HPLC
received 2017/09/12 2 ampules HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC
Date Received: 2017.08.09 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHxA	**LOT NUMBER:**	PFHxA1218
COMPOUND:	Perfluoro-n-hexanoic acid		
STRUCTURE:		**CAS #:**	307-24-4



MOLECULAR FORMULA:	$C_6HF_{11}O_2$	**MOLECULAR WEIGHT:**	314.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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)

Received
1x1.2mL
MMN 2017-02-22

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

Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date REceived: 2017/06/02-DMZ-1.2ml- FD
Date Received: 2017/08/09 1x1.2ml MMN FZ-11
Date received: 2017/08/30 1x1.2ml HPLC
Date received 2017/09/26 1x2 ampules HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC

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 ≥96% 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)

Received: 2017/06/02
- DMSO, 1.2 mL X 1
Fridge

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).

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

date recieved: 2017/05/29 HPLC
date recieved: 2017/08/30 HPLC
date recieved: 2017/08/09 HPLC
date received: 2017/09/26 HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC

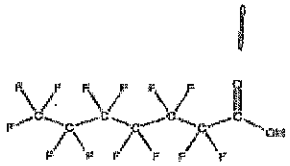
Date Received: 2018.07.23 - 1 ampoule - HPLC

Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-heptanoic acid**
Catalog # **PFHpa**
LOT # **PFHpA1216**
Expiration Date: **02/12/2021**
Supplier Name: **Wellington Laboratories**
Storage Location: Freezer

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHpA	**LOT NUMBER:**	PFHpA1216
COMPOUND:	Perfluoro-n-heptanoic acid		
STRUCTURE:		**CAS #:**	375-85-9

Received June 2016-12-16 2:41:2 mnd FZ-11

MOLECULAR FORMULA:	$C_7HF_{13}O_2$	**MOLECULAR WEIGHT:**	364.06
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim Date: 12/12/2016 (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

Form#27, Issued 2004-11-10
Revision#3, Revised 2015-03-24

Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Date Received: 2017/08/09 1X1.2ml HPLC
Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Date Received: 2017/08/09 1X1.2ml HPLC
Date Received: 2017/08/30 1X1.2ml HPLC
Date received 2017/09/26 1x2 ampules HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

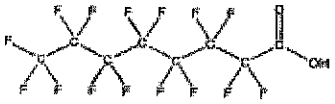
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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: 02/17/2017
EXPIRY DATE: 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 Translitions)

Received: 2017/06/02
DMZ, 1.2 mL x 1
fridge

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:** 02/22/2017

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2430 • Fax: 519-822-2849 • info@well-labs.com

date recieved:2017/05/29 1.2x1 - HPLC
date recieved:2017/05/29 1.2x1 - HPLC
Date Received:2017/06/02-1.2 x 1-HPLC
date recieved:2017/08/09 1.2x1 - HPLC
date recieved:2017/08/30 1.2x1 - HPLC
date received 2017/09/26 1x4 ampules HPLC
date received 2017/09/12 2 ampules HPLC
date received 2017/09/26 2 ampules HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0117
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)	01/09/2017
LAST TESTED: (mm/dd/yyyy)	01/12/2017
EXPIRY DATE: (mm/dd/yyyy)	01/12/2022
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)

Received: 2017/06/02
DMZ, 1.2 mL K1
Fridge

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

date recieved:2017/05/29 1.2x1- HPLC
date received: 2017/08/09 1 ampule HPLC
date received: 2017/08/30 1 ampule HPLC
date eceived: 2017/09/26 1.2x1ampule HPLC
date received 2017/09/12 2 ampules
Date Received: 2017.11.30 - 2 ampoules -HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC

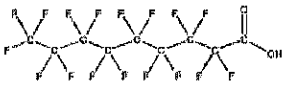
Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-nonanoic acid**
Catalog # **PFNA**
LOT # **PFNA0717**
Expiration Date: **07/20/2022**
Supplier Name: **Wellington**
Storage Location: Fridge

Ampoule: 2 TRW
Date received: 20170912

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFNA	LOT NUMBER:	PFNA0717
COMPOUND:	Perfluoro-n-nonanoic acid		
STRUCTURE:		CAS #:	375-95-1
MOLECULAR FORMULA:	$C_9HF_{17}O_2$	MOLECULAR WEIGHT:	464.08
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED:	07/20/2017		
EXPIRY DATE:	07/20/2022		
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 ~ 0.1% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ Date: 07/24/2017
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

Date Received: 2017.09.12 - 2 ampoules - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

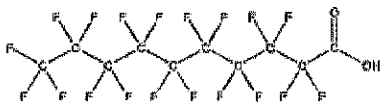
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA0517

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
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:

1 ampoule
2017/08/30 GSZ

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ Date: 05/30/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

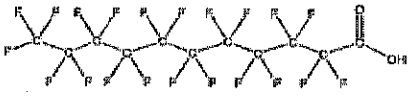
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2017.08.09 - 1 ampoule - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received:2017.09.12 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules – HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFUdA	**LOT NUMBER:**	PFUdA1016
COMPOUND:	Perfluoro-n-undecanoic acid		
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:	>95%		
LAST TESTED:	10/18/2016		
EXPIRY DATE:	10/18/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

received mmn 2016-12-19 1x1.2 ml F2-35M mmn 2016/12/19

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

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

Received 2016/11/25 1 x 1.2mL MMN FZ-35
Received 2016/12/01 1 x 1.2mL MMN FZ-35M
Received 2016/12/16 2 x 1.2mL -HPLC FZ-11
Receiced 2016/12/19 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Received 2017/08/09 1 x 1.2mL MMN FZ-11
Received 2017/08/30 1 x 1.2mL MMN FZ-11
Received 2017/09/26 1 x 1.2mL HPLC
Received 2017/09/12 2 ampules
Date Received: 2017.08.09 - 1 ampoule - HPLC

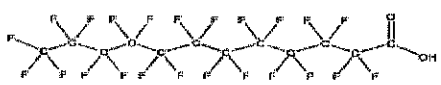
Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-dodecanoic acid**
Catalog # **PFDoA**
LOT # **PFDoA0517**
Expiration Date: **05/29/2022**
Supplier Name: **Wellington Laboratories**
Storage Location: Fridge

Ampoule: 2 TRW
Date Received: 2017.09.12

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFDoA	LOT NUMBER:	PFDoA0517
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		CAS #:	307-55-1
MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	MOLECULAR WEIGHT:	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED:	05/29/2017		
EXPIRY DATE:	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
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

Date Received: 2017.09.12 - 2 ampoules - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC

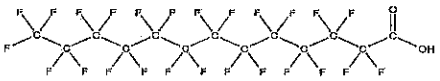
Certificate of Analysis from other Companies

Product Description: **PFTrDA**
Catalog # **PFTrDA**
LOT # **PFTrDA0517**
Expiration Date: **02/05/2022**
Supplier Name: **Wellington**
Storage Location: Freezer

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFTrDA	LOT NUMBER:	PFTrDA0517
COMPOUND:	Perfluoro-n-tridecanoic acid		
STRUCTURE:		CAS #:	72629-94-8



MOLECULAR FORMULA:	$C_{13}HF_{25}O_2$	MOLECULAR WEIGHT:	664.11
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/02/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/02/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

HPLC (1) 2017/08/09

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: 06/04/2017 (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

Received 2017/05/29 1 x 1.2mL HPLC

Received 2017/08/09 1 x 1.2mL HPLC

Received 2017/08/30 1 x 1.2mL HPLC

Received 2017/09/26 1 x 2 ampules HPLC

Received 2017/09/12 2 ampules HPLC

Date Received: 2017.11.30 - 2 ampoules - HPLC

Date Received: 2018.02.02 - 2 ampoules - HPLC

Date Received: 2018.04.10 - 2 ampoules - HPLC

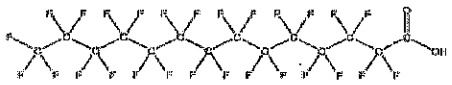
Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-tetradecanoic acid**
Catalog # **PFTeDA**
LOT # **PFTeDA0916**
Expiration Date: **09/30/2021**
Supplier Name: **Wellington Laboratories**
Storage Location: Freezer

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:	09/30/2016		
EXPIRY DATE:	09/30/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

Received
2016-12-16
2X1.2mL
FZ-11

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

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2049 • info@well-labs.com

Received: 2016.11.25 - 1 x 1.2mL- HPLC
Received: 2016.12.01 - 1 x 1.2ml - HPLC
Receiced 2016/12/19 1 x 1.2mL MMN FZ-11
Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 4 x 1.2mL MMN FZ-11
Date Received: 2017/06/22-DMZ-1.2ml-FD
DATE RECEIVED 2017/09/12 2 ampules HPLC

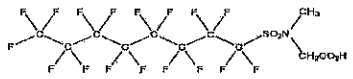
Certificate of Analysis from other Companies

Product Description: **NMEFOSAA**
Catalog # **N-MEFOSAA**
LOT # **NMeFOSAA0117**
Expiration Date: **11/01/2022**
Supplier Name: **Wellington**
Storage Location: Freezer

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)

HPLC(1) 2018.02.02

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

Form5:27, Issued 2004-11-10
Revision#3, Revised 2015-03-24

Received date 2017/05/25 1 x 1.2mL HPLC
Received date 2017/08/09 1 x 1.2mL HPLC
Received date 2017/08/30 1 x 1.2mL HPLC
RECEIVED DATE: 2017/09/26 1X1.2 mL HPLC
received date 2017-09-12 2 ampules HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC

Certificate of Analysis from other Companies

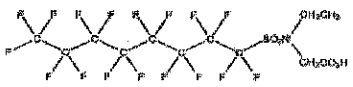
Product Description: **N-ethylperfluoro-1-octanesulfon amidoacetic acid**
Catalog # **none**
LOT # **NEtFOSAA0117**
Expiration Date: **11/01/2022**
Supplier Name: **Wellington**
Storage Location: Fridge

Ampoule: 2 TRW
Date received: 2017/09/12

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:	$C_{12}H_6F_{17}NO_4S$	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

Received : 20170525HPLC,
RECEIVED:2017/09/26 HPLC
Date Received: 2017.08.09 - 1 ampoule - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Recieved: 2017.09.12 - 2 ampoules - HPLC

PRLST 142 PG. 246

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

Solution No.: I-5427 Date: 2018/07/19 Expiry Date: 2019/01/19 Discard Date: _____

Replaces Solution No.: I-5410 Replaced by Solution: _____ Chemist: 652

Compound(s)/Solution Name: SECOND SOURCE SPIKING SOLN DWA

Number of Parent Solution(s): See attached sheet

Concentration of Parent Solution(s): See attached sheet (mg, ug)/mL

Aliquot of Parent Solution(s): See attached sheet mL / uL

Pippette/Syringe ID 6243906 (100uL)

Dilution Solvent: 0.3% NH4OH in 96:4 MeOH/H2O Dilution Volume: 10 mL

Final Concentration(s): 125/500 ng/mL (mg, ug)/mL

Solution derivatized (as methyl ester): - As Other (specify): -

Solution Contains Surrogate Compounds: - For mix refer to table on page: -

Solution used for: PFAADW-W Volumetric Flask: 10 mL Class A (5640)
(identify by serial number or other unique ID)

Solvent Supplier: See PRLRE 116-241 Lot No.: See PRLRE 116-241

Date Opened: See PRLRE 116-241

Storage Location: Shelf One time Use, Not Stored: -

Ampule Supplier: Wellington Date Opened: See attached sheet

Mix Name: -

Catalogue No.: See attached sheet Ampule expiry Date: See attached sheet

Lot No.: See attached sheet

Date Received: See attached sheet

Notes/Comments:

I-5427 (PRLST 142 p. 246)

Compound Name	ID#	Conc. (ug/mL)	Vol. of Stock standard (uL)	Final Conc. (ng/mL)	Exp. date
L-PFBS	S4189-1	44.4	28.2	125	2021/12/02
PFHxA	S4189-2	50	25	125	2021/12/02
br-PFHxSk	S4189-3	45.7	27.4	125	2022/01/04
PFHpA	S4189-4	50	25	125	2021/12/02
PFOA	S4189-5	50	25	125	2022/02/17
brPFOSK	S4189-6	46.4	26.9	125	2022/01/12
PFNA	S4189-7	50	25	125	2022/07/20
PFDA	S4189-8	50	25	125	2022/05/29
PFuDA	S4189-9	50	25	125	2021/10/18
PFDoA	S4189-10	50	25	125	2022/05/29
PFTrDA	S4189-11	50	25	125	2022/05/02
PFTeDA	S4189-12	50	25	125	2021/09/30
N-MeFOSAA	S4189-13	50	100	500	2022/01/11
N-EtFOSAA	S4189-14	50	100	500	2022/01/11

No writing on bottom page.

652, 2018/07/19

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

104
PRLST 133 PG 144

GSZ-2017/09/11

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4188 Date: 2017/09/11 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

Compound: _____ Purity: _____

S-4188 (PRLST 133 - p.104)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
4188-1	MPFHxA	MPFHxA1116	2017/02/22	2021/11/22	S4145-8		50	MeOH	FZ11
4188-2	D3-N-MeFOSAA	d3NMeFOSAA1116	2017/05/02	2021/11/22	S4145-9		50	MeOH	FD59
4188-3	D5-N-EtFOSAA	d5NEtFOSAA1116 *	2017/05/02	2021/11/22	S4145-19		50	MeOH	FD59
4188-4	D-N-MeFOSA-M	dNMeFOSA0417M	2017/07/21	2022/04/20	S4174-2		50	MeOH	FZ11
4188-5	D-N-EtFOSA-M	dNEtFOSA0417M	2017/07/21	2022/04/20	S4174-3		50	MeOH	FZ11
4188-6	D7-N-MeFOSE-M	d7NMeFOSE0217M	2017/07/21	2022/03/23	S4174-4		50	MeOH	FZ11
4188-7	D9-N-EtFOSE-M	d9NEtFOSE0317M	2017/07/21	2022/03/23	S4174-5		50	MeOH	FZ11
4188-8	M2-6:2FTS	M262FTS0217	2017/07/21	2022/02/17	S4174-6		50	MeOH	FD59
4188-9	M2-8:2FTS	M282FTS0717	2017/07/21	2022/07/05	S4174-7		50	MeOH	FD59
Date opened (All compounds): 2017/09/11			Supplier: Wellington			Chemist: GSZ			

No writing on bottom page. * d5NEtFOSAA GSZ 2018/02/16

Notes/Comments

Solution No.: S-4189 Date: 2017/09/12 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

S-4189 (PRLST 133 p 104)

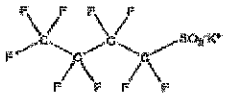
Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4189-1	L-PFBS	LPFBS1116	2017/09/12	2021/12/02			44.2	MeOH	FZ-11
S4189-2	PFHxA	PFHxA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4189-3	br-PFHxSk	brPFHxSK0117	2017/09/12	2022/01/04			45.5	MeOH	FZ-11
S4189-4	PFHpA	PFHpA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4189-5	PFOA	PFOA0217	2017/09/12	2022/02/17			50	MeOH	FZ-11
S4189-6	brPFOSK	brPFOSK0117	2017/09/12	2022/01/12			46.4	MeOH	FZ-11
S4189-7	PFNA	PFNA0717	2017/09/12	2022/07/20			50	MeOH	FZ-11
S4189-8	PFDA	PFDA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4189-9	PFuDA	PFuDA1016	2017/09/12	2021/10/18			50	MeOH	FZ-11
S4189-10	PFDoA	PFDoA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4189-11	PFTrDA	PFTrDA0517	2017/09/12	2022/05/02			50	MeOH	FZ-11
S4189-12	PFTeDA	PFTeDA0916	2017/09/12	2021/09/30			50	MeOH	FD-59
S4189-13	N-MeFOSAA	NMeFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
S4189-14	N-EtFOSAA	NEtFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
Date opened (All compounds): 2017/09/12			Supplier (All compounds) : Wellington				Chemist: GSZ		

No writing on bottom page.

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFBS	LOT NUMBER:	LPFBS1116
COMPOUND:	Potassium perfluoro-1-butanesulfonate		
STRUCTURE:		CAS #:	29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	MOLECULAR WEIGHT:	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	SOLVENT(S):	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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)

Received June 2016/12/23 (x1.2ml) FZ-11

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)

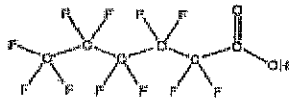
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Received 2016/12/19 2x1.2ml HPLC
Received 2016/12/23 1 x 1.2mL MMN FZ-11
RECEIVED 2017/03/10 1X1 MMN
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received:2017/06/02-DMZ-1.2ml-FD
R4ECEIVED 2017/08/09 1x1.2ml
Date recieved: 2017/08/30 1x1.2ml - HPLC
RECEIVED:2017/09/26 2X1.2mL HPLC
received 2017/09/12 2 ampules HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC
Date Received: 2017.08.09 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHxA	**LOT NUMBER:**	PFHxA1216
COMPOUND:	Perfluoro-n-hexanoic acid		
STRUCTURE:		**CAS #:**	307-24-4



MOLECULAR FORMULA:	$C_6HF_{11}O_2$	**MOLECULAR WEIGHT:**	314.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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)

Received
1x1.2mL
MB1 2017-02-22

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

Form3127, Issued 2004-11-10
Revision03, Revised 2016-03-24

Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date REceived: 2017/06/02-DMZ-1.2ml- FD
Date Received: 2017/08/09 1x1.2ml MMN FZ-11
Date received: 2017/08/30 1x1.2ml HPLC
Date received 2017/09/26 1x2 ampules HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC

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:	01/03/2017
LAST TESTED:	01/04/2017
EXPIRY DATE:	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)

Received: 2018/06/07
- DMSO, 1.2 mL X 1
Friday

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).

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

date recieved: 2017/05/29 HPLC
date recieved: 2017/08/30 HPLC
date recieved: 2017/08/09 HPLC
date received: 2017/09/26 HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC

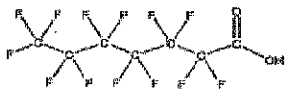
Date Received: 2018.07.23 - 1 ampoule - HPLC

Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-heptanoic acid**
Catalog # **PFHpa**
LOT # **PFHpA1216**
Expiration Date: **02/12/2021**
Supplier Name: **Wellington Laboratories**
Storage Location: Freezer

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFHpA	LOT NUMBER:	PFHpA1216
COMPOUND:	Perfluoro-n-heptanoic acid		
STRUCTURE:		CAS #:	375-85-9

Received 2016-12-16 2-Pk 1.2 mL F2-11

MOLECULAR FORMULA:	$C_7HF_{13}O_2$	MOLECULAR WEIGHT:	364.06
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim Date: 12/12/2016 (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

Form#27, Issued 2004-11-10
Revision#3, Revised 2015-03-24

Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Date Received: 2017/08/09 1X1.2ml HPLC
Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Date Received: 2017/08/09 1X1.2ml HPLC
Date Received: 2017/08/30 1X1.2ml HPLC
Date received 2017/09/26 1x2 ampules HPLC
DATE RECEIVED 2017/09/12 2 ampules HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

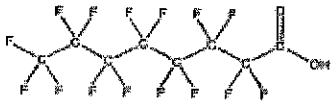
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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)

Received: 2017/06/02
DMZ, 1.2 mL x 1
fridge

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:** 02/22/2017 (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

date recieved:2017/05/29 1.2x1 - HPLC
date recieved:2017/05/29 1.2x1 - HPLC
Date Received:2017/06/02-1.2 x 1-HPLC
date recieved:2017/08/09 1.2x1 - HPLC
date recieved:2017/08/30 1.2x1 - HPLC
date received 2017/09/26 1x4 ampules HPLC
date received 2017/09/12 2 ampules HPLC
date received 2017/09/26 2 ampules HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0117
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)	01/09/2017
LAST TESTED: (mm/dd/yyyy)	01/12/2017
EXPIRY DATE: (mm/dd/yyyy)	01/12/2022
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)

Received: 2/7/2017
DM2, 1.2 mL x 1
Fridge

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

date recieved:2017/05/29 1.2x1- HPLC
date received: 2017/08/09 1 ampule HPLC
date received: 2017/08/30 1 ampule HPLC
date eceived: 2017/09/26 1.2x1ampule HPLC
date received 2017/09/12 2 ampules
Date Received: 2017.11.30 - 2 ampoules -HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC

Certificate of Analysis from other Companies

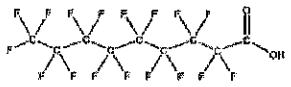
Product Description: **Perfluoro-n-nonanoic acid**
Catalog # **PFNA**
LOT # **PFNA0717**
Expiration Date: **07/20/2022**
Supplier Name: **Wellington**
Storage Location: Fridge

Ampoule: 2 TRW
Date received: 20170912

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFNA	LOT NUMBER:	PFNA0717
COMPOUND:	Perfluoro-n-nonanoic acid		
STRUCTURE:		CAS #:	375-95-1



MOLECULAR FORMULA:	$C_9HF_{17}O_2$	MOLECULAR WEIGHT:	464.08
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED:	07/20/2017		
EXPIRY DATE:	07/20/2022		
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 ~ 0.1% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ Date: 07/24/2017
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

Form:CZ, Issued 2004-11-10
Revisions, Revised 2017-03-08

PFNA0717 (1 of 4)
rev0

Date Received: 2017.09.12 - 2 ampoules - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

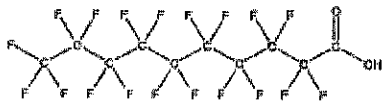
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA0517

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 05/29/2017
EXPIRY DATE: 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)

Ampoule
2017/08/30 GSZ

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, General Manager **Date:** 05/30/2017

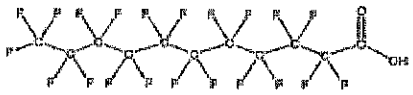
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2017.08.09 - 1 ampoule - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received:2017.09.12 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules – HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFUdA	**LOT NUMBER:**	PFUdA1016
COMPOUND:	Perfluoro-n-undecanoic acid		
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		

received 2016-12-19
1X1.2ml
FZ-35M
mm 12/19/16

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

Received 2016/11/25 1 x 1.2mL MMN FZ-35
Received 2016/12/01 1 x 1.2mL MMN FZ-35M
Received 2016/12/16 2 x 1.2mL -HPLC FZ-11
Receiced 2016/12/19 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 2 x 1.2mL MMN FZ-11
Received 2017/05/29 2 x 1.2mL MMN FZ-11
Date Received: 2017/06/02-DMZ-1.2ml-FD
Received 2017/08/09 1 x 1.2mL MMN FZ-11
Received 2017/08/30 1 x 1.2mL MMN FZ-11
Received 2017/09/26 1 x 1.2mL HPLC
Received 2017/09/12 2 ampules
Date Received: 2017.08.09 - 1 ampoule - HPLC

Certificate of Analysis from other Companies

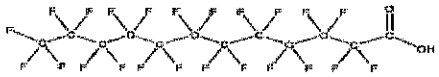
Product Description: **Perfluoro-n-dodecanoic acid**
Catalog # **PFDoA**
LOT # **PFDoA0517**
Expiration Date: **05/29/2022**
Supplier Name: **Wellington Laboratories**
Storage Location: Fridge

Ampoule: 2 TRW
Date Received: 2017.09.12

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFDoA	LOT NUMBER:	PFDoA0517
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		CAS #:	307-55-1



MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	MOLECULAR WEIGHT:	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED:	05/29/2017		
EXPIRY DATE:	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
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

Date Received: 2017.09.12 - 2 ampoules - HPLC
Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received: 2017.08.30 - 1 ampoule - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC

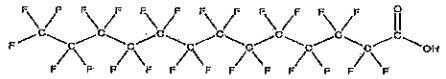
Certificate of Analysis from other Companies

Product Description: **PFTrDA**
Catalog # **PFTrDA**
LOT # **PFTrDA0517**
Expiration Date: **02/05/2022**
Supplier Name: **Wellington**
Storage Location: Freezer

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFTrDA	LOT NUMBER:	PFTrDA0517
COMPOUND:	Perfluoro-n-tridecanoic acid		
STRUCTURE:		CAS #:	72629-94-8



MOLECULAR FORMULA:	$C_{13}HF_{25}O_2$	MOLECULAR WEIGHT:	664.11
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/02/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/02/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

HPLC (1)
2017/08/09

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

Form#:27, Issued 2004-11-10
Revision#:4, Revised 2017-03-06

Received 2017/05/29 1 x 1.2mL HPLC

Received 2017/08/09 1 x 1.2mL HPLC

Received 2017/08/30 1 x 1.2mL HPLC

Received 2017/09/26 1 x 2 ampules HPLC

Received 2017/09/12 2 ampules HPLC

Date Received: 2017.11.30 - 2 ampoules - HPLC

Date Received: 2018.02.02 - 2 ampoules - HPLC

Date Received: 2018.04.10 - 2 ampoules - HPLC

Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-tetradecanoic acid**
Catalog # **PFTeDA**
LOT # **PFTeDA0916**
Expiration Date: **09/30/2021**
Supplier Name: **Wellington Laboratories**
Storage Location: Freezer

WELLINGTON LABORATORIES

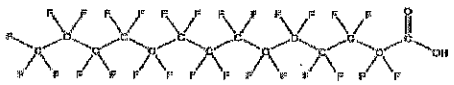
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid

LOT NUMBER: PFTeDA0916

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 714.11
SOLVENT(S): Methanol
Water (~1%)

CHEMICAL PURITY: >98%
LAST TESTED: 09/30/2016
EXPIRY DATE: 09/30/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

Received (mmn)
2016-12-16
2X1.2ml
FZ-11

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

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

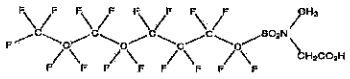
Received: 2016.11.25 - 1 x 1.2mL- HPLC
Received: 2016.12.01 - 1 x 1.2ml - HPLC
Receiced 2016/12/19 1 x 1.2mL MMN FZ-11
Received 2016/12/23 1 x 1.2mL MMN FZ-11
Received 2016/12/29 1 x 1.2mL MMN FZ-11
Received 2017/05/25 4 x 1.2mL MMN FZ-11
Date Received: 2017/06/22-DMZ-1.2ml-FD
DATE RECEIVED 2017/09/12 2 ampules HPLC

Certificate of Analysis from other Companies

Product Description: **NMEFOSAA**
Catalog # **N-MEFOSAA**
LOT # **NMeFOSAA0117**
Expiration Date: **11/01/2022**
Supplier Name: **Wellington**
Storage Location: Freezer

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:	$C_{11}H_8F_{17}NO_4S$	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)

MPCC(1) 20.08.03

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

Form#:27, Issued 2004-11-10
Revision#:3, Revised 2015-03-24

Received date 2017/05/25 1 x 1.2mL HPLC
Received date 2017/08/09 1 x 1.2mL HPLC
Received date 2017/08/30 1 x 1.2mL HPLC
RECEIVED DATE: 2017/09/26 1X1.2 mL HPLC
received date 2017-09-12 2 ampules HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC

Certificate of Analysis from other Companies

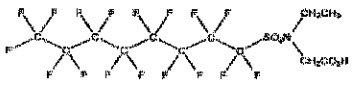
Product Description: **N-ethylperfluoro-1-octanesulfon amidoacetic acid**
Catalog # **none**
LOT # **NEtFOSAA0117**
Expiration Date: **11/01/2022**
Supplier Name: **Wellington**
Storage Location: Fridge

Ampoule: 2 TRW
Date received: 2017/09/12

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:	$C_{12}H_5F_{17}NO_4S$	MOLECULAR WEIGHT:	565.23
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED:	01/11/2017		
EXPIRY DATE:	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

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

Received : 20170525HPLC,
RECEIVED:2017/09/26 HPLC
Date Received: 2017.08.09 - 1 ampoule - HPLC
Date Received: 2017.11.30 - 2 ampoules - HPLC
Date Recieved: 2017.09.12 - 2 ampoules - HPLC

PRLST 150 PG. 51

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

Solution No.: I-5514 Date: 2018/10/30 Expiry Date: 2019/02/28 Discard Date: —
Replaces Solution No.: I-5392 Replaced by Solution: — Chemist: QV
Compound(s)/Solution Name: +-PFOA Spiking Soln
Number of Parent Solution(s): S-4192
Concentration of Parent Solution(s): 50 (mg, ug)/mL
Aliquot of Parent Solution(s): 12.5 mL, uL
Pippette/Syringe ID G24390G
Dilution Solvent: 0.1% NH4OH in 96:4 (MeOH:H2O) Dilution Volume: 5 mL
Final Concentration(s): 125 ng/mL (mg, ug)/mL
Solution derivatized (as methyl ester): — As Other (specify): —
Solution Contains Surrogate Compounds: — For mix refer to table on page: —
Solution used for: PFAADW-W Volumetric Flask: 5mL Class A (5840)
(identify by serial number or other unique ID)
Solvent Supplier: Aldrich LC Lot No.: See PRLRE124-08
Date Opened: See PRLRE124-08
Storage Location: Shelf One time Use, Not Stored: —
Ampule Supplier: Wellingtons Date Opened: 2017/09/13
Mix Name: —
Catalogue No.: — Ampule expiry Date: 2022/02/16
Lot No.: —
Date Received: —

Notes/Comments:

2018/11/01 2019/10/31

Solution No.: I-5515 Date: — Expiry Date: — Discard Date: —
Replaces Solution No.: — Replaced by Solution: — Chemist: TAR
Compound(s)/Solution Name: Custom Pesticide Mix
Number of Parent Solution(s): 1
Concentration of Parent Solution(s): 1000 (mg, ug)/mL
Aliquot of Parent Solution(s): 1 (2mL) mL / uL
Pippette/Syringe ID 593405-1
Dilution Solvent: Acetone Dilution Volume: 10 mL
Final Concentration(s): 200 (mg, ug)/mL
Solution derivatized (as methyl ester): — As Other (specify): —
Solution Contains Surrogate Compounds: — For mix refer to table on page: —
Solution used for: GCMS. Volumetric Flask: Class A
(identify by serial number or other unique ID)
Solvent Supplier: Fisher Lot No.: 184451
Date Opened: 2019/10/31.
Storage Location: 7059. One time Use, Not Stored: —
Ampule Supplier: ChemTrek. 025I Date Opened: 2018/11/01.
Mix Name: Custom Pesticide Mix 18-5105, 1000 ng/mL.
Catalogue No.: — Ampule expiry Date: 2019/11/19.
Lot No.: 345336.
Date Received: 2018/06/05.

Notes/Comments:



DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE.
INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 133 PG 106

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4192 Date: 2017/09/13 Expiry Date: 2022/02/16 Discard Date: _____

Replaces Solution: – Replaced by Solution: _____ Chemist: LOV

Compound: T-PFOA Purity: _____

Date Received: 2017/09/12 Expiry Date: 2022/02/16 Lot No.: TPFOA0217

Supplier: Wellington

Date Opened: 2017/09/13

Final Gross Weight: – g/mg Dilution Volume: – mL

Tare Weight* : – g/mg Volumetric Flask: –

Net Weight: – g/mg **Concentration:** 50 ug/ml ug/mL, mg/mL

Adjusted Net Weight** : – mg Solvent(s): MeOH

Balance Used: –
(specify model and serial no.)

Solvent Used: –

Solvent Supplier: – Lot No(s).: –

Date Opened: –

Storage Location / Conditions: F2-11

Notes/Comments

Received as a solution in ampule.

Solution No.: _____ Date: _____ Expiry Date: _____ Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: _____

Compound: _____ Purity: _____

Date Received: _____ Expiry Date: _____ Lot No.: _____

Supplier: _____

Date Opened: _____

Final Gross Weight: _____ g/mg Dilution Volume: _____ mL

Tare Weight* : _____ g/mg Volumetric Flask: _____

Net Weight: _____ g/mg **Concentration:** _____ ug/mL

Adjusted Net Weight** : _____ mg Solvent(s): _____

Balance Used: _____
(specify model and serial no.)

Solvent Used: _____

Solvent Supplier: _____ Lot No(s).: _____

Date Opened: _____

Storage Location / Conditions: _____

Notes/Comments

LV 2017/09/18

Ampoule: 1 TRW
Received: 2017/09/12

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	T-PFOA	**LOT NUMBER:**	TPFOA0217
COMPOUND:	Technical Ammonium Perfluorooctanoate		
STRUCTURE:	(see Table A)	**CAS #:**	95328-99-7 (for linear ammonium perfluorooctanoate)
MOLECULAR FORMULA:	$C_8F_{15}O_2NH_4$		
CONCENTRATION:	50 ± 2.5 µg/ml (gravimetric)		
CHEMICAL PURITY:	Technical material		
SOLVENT(S):	Methanol/Water (<1%)		
LAST TESTED: (mm/dd/yyyy)	02/16/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)
Figure 4: LC/MS Elution Profile of the Perfluorooctanoic Acid Isomers

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This technical mixture is >97% ammonium perfluorooctanoate (branched and linear isomers). The remaining 3% consists of common impurities such as the perfluoroheptanoic and perfluorohexanoic acids.
- It is recommended that this solution be used as a *qualitative or semi-quantitative standard only.*
- Contains 4 mole eq. of NaOH to prevent conversion of any carboxylic acids to their corresponding methyl esters.
- The molecular weight of perfluoro-n-octanoic acid is 414.07 g/mol.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/22/2017 (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

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

PRLST 150 PG. 78

Solution No.: I-5562 Date: 2018/12/14 Expiry Date: 2019/12/14 Discard Date: _____

Replaces Solution No.: ~~I-5508~~ I-5536 (GSZ 2018/12/17) Replaced by Solution: _____ Chemist: GSZ

Compound(s)/Solution Name: PFC SECOND SOURCE SPIKING SOLUTION A

Number of Parent Solution(s): See attached sheet

Concentration of Parent Solution(s): See attached sheet (mg, ug)/mL

Aliquot of Parent Solution(s): See attached sheet mL / uL

Pippette/Syringe ID K26250F

Dilution Solvent: 0.3% NH_4OH in MeOH Dilution Volume: 25 mL

Final Concentration(s): 1.0 (mg, ug)/mL

Solution derivatized (as methyl ester): – As Other (specify): –

Solution Contains Surrogate Compounds: – For mix refer to table on page: –

Solution used for: PFC. Volumetric Flask: 25ml Class A (5640)
(identify by serial number or other unique ID)

Solvent Supplier: See PRLRE 124-158 Lot No.: See PRLRE 124-158

Date Opened: See PRLRE 124-158

Storage Location: FZ11 One time Use, Not Stored: –

Ampule Supplier: Wellington Date Opened: See attached sheet

Mix Name: –

Catalogue No.: – Ampule expiry Date: See attached sheet

Lot No.: See attached sheet

Date Received: See attached sheet

I-5562 (PRLST 150 p. 78)

Compound Name	ID#	Conc. (ug/mL)	Vol.. of Stock standard (uL)	Final Conc. (ug/mL)	Exp. date
PFBA	S4472-1	50	500	1	2022/12/14
L-PFBS	S4472-2	44.2	565	1	2023/05/04
PFPeA	S4472-3	50	500	1	2023/02/16
PFHxA	S4472-4	50	500	1	2023/05/18
br-PFHxSk	S4488	45.5	549	1	2023/10/02
PFHpA	S4472-6	50	500	1	2023/07/12
L-PFHpS	S4472-7	47.6	525	1	2023/05/04
PFOA	S4472-8	50	500	1	2023/02/16
brPFOSK	S4472-9	46.4	540	1	2023/04/18
PFNA	S4472-10	50	500	1	2023/02/16
PFDA	S4472-11	50	500	1	2022/12/14
L-PFDS	S4472-12	48.2	518	1	2022/11/08
PFUdA	S4472-13	50	500	1	2022/09/21
PFDoA	S4472-14	50	500	1	2023/04/18
PFTrDA	S4472-15	50	500	1	2023/02/16
PFTeDA	S4472-16	50	500	1	2022/09/21
PFOSA (FOSA-I)	S4472-17	50	500	1	2023/06/20
N-MeFOSA-M	S4472-18	50	500	1	2023/05/31
N-EtFOSA-M	S4472-19	50	500	1	2023/05/31
N-MeFOSE-M	S4472-20	50	500	1	2023/05/17
N-EtFOSE-M	S4472-21	50	500	1	2023/06/04
N-MeFOSAA	S4472-22	50	500	1	2023/01/24
N-EtFOSAA	S4472-23	50	500	1	2023/01/24
6:2FTS	S4472-24	47.4	528	1	2023/04/03
8:2FTS	S4472-25	47.9	522	1	2023/01/24

Nothing written on bottom page.

GSZ, 2018/12/14

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 41

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4472 Date: 2018/11/20 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

S-4472 (PRLST 151 pg.41)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4472-1	PFBA	PFBA1217	2018/10/17	2022/12/14	S4436-1		50	MeOH	FZ-11
S4472-2	L-PFBS	LPFBS0418	2018/10/17	2023/05/04	S4436-2		44.2	MeOH	FZ-11
S4472-3	PFPeA	PFPeA0218	2018/10/17	2023/02/16	S4436-3		50	MeOH	FZ-11
S4472-4	PFHxA	PFHxA0518	2018/10/17	2023/05/18	S4436-4		50	MeOH	FZ-11
For br-PFHxSK, solution S4401-6 was used (new ampule not received)								GSZ 2018/11/20	
S4472-6	PFHpA	PFHpA0718	2018/10/17	2023/07/12	S4436-6		50	MeOH	FZ-11
S4472-7	L-PFHpS	LPFHpS0418	2018/10/17	2023/05/04	S4436-7		47.6	MeOH	FZ-11
S4472-8	PFOA	PFOA0818	2018/10/17	2023/08/23	S4436-8		50	MeOH	FZ-11
S4472-9	brPFOSK	brPFOSK0418	2018/10/17	2023/04/18	S4436-9		46.4	MeOH	FZ-11
S4472-10	PFNA	PFNA0218	2018/10/17	2023/02/16	S4436-10		50	MeOH	FZ-11
S4472-11	PFDA	PFDA1217	2018/10/17	2022/12/14	S4436-11		50	MeOH	FZ-11
S4472-12	L-PFDS	LPFDS1018	2018/10/17	2023/10/05	S4436-12		48.2	MeOH	FZ-11
S4472-13	PFUdA	PFUdA0818	2018/10/17	2023/08/23	S4436-13		50	MeOH	FZ-11
S4472-14	PFDoA	PFDoA0418	2018/10/17	2023/04/18	S4436-14		50	MeOH	FZ-11
S4472-15	PFTrDA	PFTrDA0218	2018/10/17	2023/02/16	S4436-15		50	MeOH	FZ-11
S4472-16	PFTeDA	PFTeDA0917	2018/10/17	2023/08/23	S4436-16		50	MeOH	FZ-11
S4472-17	PFOSA (FOSA-I)	FOSA06181	2018/10/17	2023/06/20	S4436-17		50	IPA	FD-59
S4472-18	N-MeFOSA-M	NMeFOSA0518M	2018/10/17	2023/05/31	S4436-18		50	MeOH	FZ-11
S4472-19	N-EtFOSA-M	NEtFOSA0518M	2018/10/17	2023/05/31	S4436-19		50	MeOH	FZ-11
S4472-20	N-MeFOSE-M	NMeFOSE0418M	2018/10/17	2023/05/17	S4436-20		50	MeOH	FZ-11
S4472-21	N-EtFOSE-M	NEtFOSE0518M	2018/10/17	2023/06/04	S4436-21		50	MeOH	FZ-11
S4472-22	N-MeFOSAA	NMeFOSAA0118	2018/10/17	2023/01/24	S4436-22		50	MeOH	FD-59
S4472-23	N-EtFOSAA	NEtFOSAA0118	2018/10/17	2023/01/24	S4436-23		50	MeOH	FD-59
S4472-24	6:2FTS	62FTS0418	2018/10/17	2023/04/03	S4436-24		47.4	MeOH	FD-59
S4472-25	8:2FTS	82FTS0118	2018/10/17	2023/01/24	S4436-25		47.9	MeOH	FD-59
Date Opened (All compounds): 2018/11/20			Supplier (All compounds) : Wellington				Chemist: GSZ, 2018/11/20		

No writing on bottom page.

Solvent Supplier: _____ Lot No(s).: _____

Date Opened: _____

Storage Location / Conditions: _____

Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL

PRLST 151 PG 51

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4488 Date: 2018/12/14 Expiry Date: 2023/10/02 Discard Date: _____

Replaces Solution: S-4436-5 Replaced by Solution: _____ Chemist: 652

Compound: br-PFHxSK Purity: _____

Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHxSK1018

Supplier: Wellington

Date Opened: 2018/12/14

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight*: - g/mg Volumetric Flask: - 652 2018/12/14

Net Weight: - g/mg **Concentration:** ~~50~~ 45.5 (ug/mL), mg/mL

Adjusted Net Weight**: - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ11

Notes/Comments

Solution No.: S-4489 Date: 2018/12/17 Expiry Date: 2023/10/02 Discard Date: -

Replaces Solution: S-4435-5 Replaced by Solution: _____ Chemist: LW

Compound: br-PFHxSK Purity: _____

Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHxSK1018

Supplier: Wellington

Date Opened: 2018/12/17

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight*: - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 45.5 (ug/mL)

Adjusted Net Weight**: - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ-11

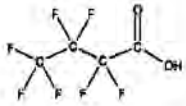
Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFBA	**LOT NUMBER:**	PFBA1217
COMPOUND:	Perfluoro-n-butanoic acid		
STRUCTURE:		**CAS #:**	375-22-4



MOLECULAR FORMULA:	$C_4HF_7O_2$	**MOLECULAR WEIGHT:**	214.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

3 ampules

recd: 2018/04/10 DH3

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/18/2017 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

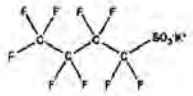
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate

LOT NUMBER: LPFBS0418

STRUCTURE:



CAS #: 29420-49-3

2018/06/26
TJ Jaslow
2X Ampoules.

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)	05/04/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 05/25/2018 (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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

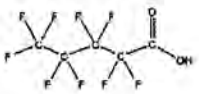
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0218

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) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
rec'd: 2018/04/10 DM3

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: B.G. Chittim, General Manager **Date:** 02/20/2018 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

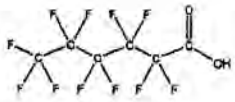
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA0518

STRUCTURE:



CAS #: 307-24-4

Received On:
2018/07/25
TKq
1 x Ampoule

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) 05/18/2018
EXPIRY DATE: (mm/dd/yyyy) 05/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.08.29 - 2 ampoules - HPLC

Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

Received on 2018/11/23 TKA

• 4/4 ampoules.

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK1018
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt) 45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/01/2018
LAST TESTED: (mm/dd/yyyy)	10/02/2018
EXPIRY DATE: (mm/dd/yyyy)	10/02/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% of perfluoro-n-hexanoic acid and ~ 0.15% of perfluoro-1-pentanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

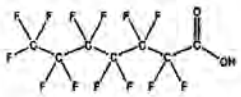
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0718

STRUCTURE:



CAS #: 375-85-9

Received on:
2018/08/29
TKq
2 x Ampoules.

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) 07/12/2018
EXPIRY DATE: (mm/dd/yyyy) 07/12/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 07/18/2018 (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

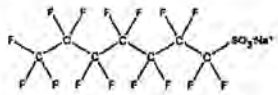
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate
LOT NUMBER: LPFHpS0418

STRUCTURE:



CAS #: Not available

R018|06|26
Tejashri
2X Ampoules.

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)	05/04/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 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: _____ **Date:** 05/17/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2435 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

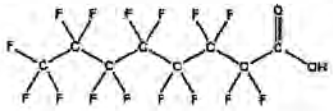
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFOA
COMPOUND: Perfluoro-n-octanoic acid

LOT NUMBER: PFOA0818

STRUCTURE:



CAS #: 335-67-1

Received: 2018/10/17
Group name: HPLC
Ampoules: 2

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: 08/23/2018
EXPIRY DATE: 08/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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, General Manager **Date:** 08/24/2018

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

2019/06/26
Tufashwi
2 x Ampoules

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0418
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)	04/09/2018
LAST TESTED: (mm/dd/yyyy)	04/18/2018
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023
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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.26 - 2 ampoules - HPLC

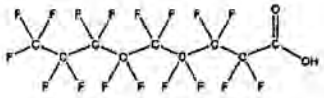
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid

LOT NUMBER: PFNA0218

STRUCTURE:



CAS #: 375-85-1

Received on:
2018/07/23
TK4
1 x Ampoule

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: 02/16/2018
EXPIRY DATE: 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY; NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018
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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

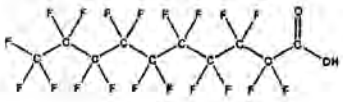
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA1217

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 12/14/2017
EXPIRY DATE: 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recd. 2018/04/10 DG3

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, General Manager **Date:** 12/18/2017

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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

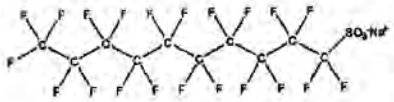
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFDS
COMPOUND: Sodium perfluoro-1-decanesulfonate

LOT NUMBER: LPFDS1018

CAS #: 2806-15-7

STRUCTURE:



Received = 2018/10/17
Group name: HPLC
Ampoules = 2

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) 10/05/2018
EXPIRY DATE: (mm/dd/yyyy) 10/05/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

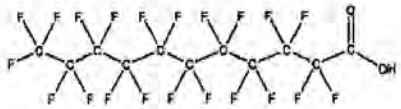
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid

LOT NUMBER: PFUdA0818

STRUCTURE:

CAS #: 2058-94-8



Received : 2018/10/17
Group name = HPLC
Ampoules : 2

MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 564.09
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid
LOT NUMBER: PFDoA0418

STRUCTURE:

CAS #: 307-55-1



2018/06/26
EGI
2 x ampoules

MOLECULAR FORMULA: $C_{12}HF_{23}O_2$
MOLECULAR WEIGHT: 614.10
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/18/2018
EXPIRY DATE: (mm/dd/yyyy) 04/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS Data (Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 04/24/2018 (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

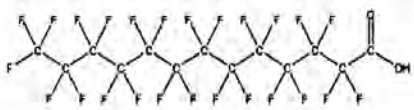
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid
LOT NUMBER: PFTrDA0218

STRUCTURE:



CAS #: 72629-94-8

2018/06/26
Tafashni
2Y ampules.

MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
MOLECULAR WEIGHT: 664.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% 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:** 02/20/2016 (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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

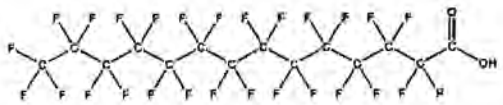
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid

LOT NUMBER: PFTeDA0917

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 714.11
SOLVENT/S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 09/21/2017
EXPIRY DATE: 09/21/2022
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)

662 2017/11/30
2 ampules

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: _____ **Date:** 09/21/2017
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

Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

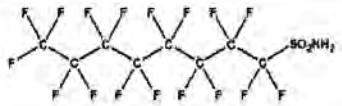
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0618I

STRUCTURE:



CAS #: 754-91-6

Received on:
2018/07/25
TKA
1 x Ampoule

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)	06/20/2018		
EXPIRY DATE: (mm/dd/yyyy)	06/20/2023		
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, General Manager **Date:** 06/25/2018 (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

Ema Gitej
FW: F4G *B8J5075
Hi team,
Please proceed with F4

Date Received:2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

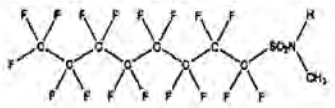
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0518M

STRUCTURE:



CAS #: 31506-32-8

Received on:
2018/07/18
TK4
1 x Ampoule

MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

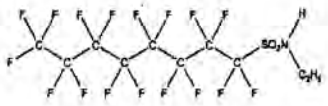
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0518M

STRUCTURE:



CAS #: 4151-50-2

Received on:
2018/07/23
TK4
1x Ampoule

MOLECULAR FORMULA:	$C_{10}H_5F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/12/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

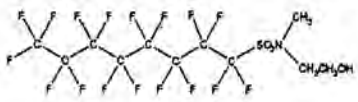
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0418M
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 24448-09-7



2018/06/26
Tiffany
2 x Ampoules.

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)	05/17/2018 (HRGC/LRMS) 05/03/2018 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	05/17/2023		
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:** 06/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

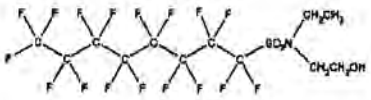
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0518M
COMPOUND: 2-(*N*-ethylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 1691-99-2



2018/06/26
Tejinder
2X Ampoules.

MOLECULAR FORMULA:	$C_{12}H_{18}F_{17}NO_3S$	**MOLECULAR WEIGHT:**	571.25
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: mm/dd/yyyy	06/04/2018 (HRGC/LRMS)		
	05/30/2018 (LC/MS)		
EXPIRY DATE: mm/dd/yyyy	06/04/2023		
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:** 06/04/2018 mm/dd/yyyy
B.G. Chittim, General Manager

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

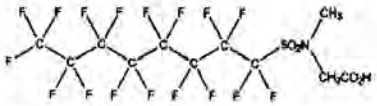
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0118
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2355-31-9



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
recd: 2018/04/10

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:** 01/26/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

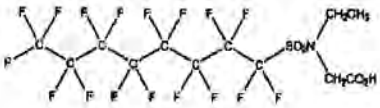
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSAA
LOT NUMBER: NEtFOSAA0118
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) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
recd: 2018/04/10

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.
- Contains ~ 0.2% of sodium perfluoro-1-octanesulfonate (L-PFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/05/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2018-01-23

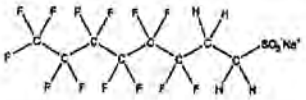
Date Received: 2018.06.26- 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0418
COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE:



CAS #: Not available

2018/06/26
Tajashri
8x Ampoules.

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)	04/03/2018			
EXPIRY DATE: (mm/dd/yyyy)	04/03/2023			
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 ~ 0.3% of sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2FTS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

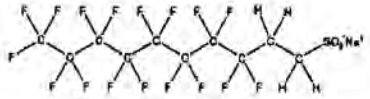
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0118
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) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
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)

2 ampules
recid: 2018/06/10 DM3

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/31/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.06.26 - 2 Ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

PRLST 150 PG. 79

Solution No.: I-5563 Date: 2018/12/17 Expiry Date: 2019/12/17 Discard Date: –

Replaces Solution No.: I-5542 Replaced by Solution: _____ Chemist: LW

Compound(s)/Solution Name: PFC Working Soln A

Number of Parent Solution(s): See attached sheet

Concentration of Parent Solution(s): See attached sheet (mg, ug)/mL

Aliquot of Parent Solution(s): See attached sheet mL / uL

Pipette/Syringe ID P424096

Dilution Solvent: 0.3% NH4OH in MeOH Dilution Volume: 25 mL

Final Concentration(s): 1 (mg, ug)/mL

Solution derivatized (as methyl ester): – As Other (specify): –

Solution Contains Surrogate Compounds: – For mix refer to table on page: –

Solution used for: PFC Volumetric Flask: 25 mL Class A (5640)
(identify by serial number or other unique ID)

Solvent Supplier: See PRLRE124-164 Lot No.: See PRLRE124-164

Date Opened: See PRLRE124-164

Storage Location: F2-11 One time Use, Not Stored: –

Ampule Supplier: Wellington Date Opened: See attached sheet

Mix Name: –

Catalogue No.: – Ampule expiry Date: See attached sheet

Lot No.: See attached sheet

Date Received: See attached sheet

Notes/Comments:

I-5563 (PRLST 150 Pg. 79)

Compound Name	ID#	Conc. (ug/mL)	Vol.. of Stock standard (uL)	Final Conc. (ug/mL)	Exp. date
PFBA	S4471-1	50	500	1	2022/12/14
L-PFBS	S4471-2	44.2	565	1	2023/05/04
PFPeA	S4471-3	50	500	1	2023/02/16
PFHxA	S4471-4	50	500	1	2023/05/18
br-PFHxSk	S4489	45.5	549	1	2023/10/02
PFHpA	S4471-6	50	500	1	2023/07/12
L-PFHpS	S4471-7	47.6	525	1	2023/05/04
PFOA	S4471-8	50	500	1	2023/02/16
brPFOSK	S4471-9	46.4	540	1	2023/04/18
PFNA	S4471-10	50	500	1	2023/02/16
PFDA	S4471-11	50	500	1	2022/12/14
L-PFDS	S4471-12	48.2	518	1	2022/11/08
PFUdA	S4471-13	50	500	1	2022/09/21
PFDoA	S4471-14	50	500	1	2023/04/18
PFTrDA	S4471-15	50	500	1	2023/02/16
PFTeDA	S4471-16	50	500	1	2022/09/21
PFOSA (FOSA-I)	S4471-17	50	500	1	2023/06/20
N-MeFOSA-M	S4471-18	50	500	1	2023/05/31
N-EtFOSA-M	S4471-19	50	500	1	2023/05/31
N-MeFOSE-M	S4471-20	50	500	1	2023/05/17
N-EtFOSE-M	S4471-21	50	500	1	2023/06/04
N-MeFOSAA	S4471-22	50	500	1	2023/01/24
N-EtFOSAA	S4471-23	50	500	1	2023/01/24
6:2FTS	S4471-24	47.4	528	1	2023/04/03
8:2FTS	S4471-25	47.9	522	1	2023/01/24

DP writting on bottom Page LW, 2018/12/17

PRLST 151 PG 40

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4471 Date: 2018/11/20 Expiry Date: See Below. Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: LQ

Compound: _____

S-4471 (PRLST 151 Pg.40)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4471-1	PFBA	PFBA1217	2018/10/17	2022/12/14	S4435-1		50	MeOH	FZ-11
S4471-2	L-PFBS	LPFBS0418	2018/10/17	2023/05/04	S4435-2		44.2	MeOH	FZ-11
S4471-3	PFPeA	PFPeA0218	2018/10/17	2023/02/16	S4435-3		50	MeOH	FZ-11
S4471-4	PFHxA	PFHxA0518	2018/10/17	2023/05/18	S4435-4		50	MeOH	FZ-11
For br-PFHxSK, Solution, S-4402-6 was used (new ampule not received) — LQ 2018/11/23									
S4471-6	PFHpA	PFHpA0718	2018/10/17	2023/07/12	S4435-6		50	MeOH	FZ-11
S4471-7	L-PFHpS	LPFHpS0418	2018/10/17	2023/05/04	S4435-7		47.6	MeOH	FZ-11
S4471-8	PFOA	PFOA0818	2018/10/17	2023/08/23	S4435-8		50	MeOH	FZ-11
S4471-9	brPFOSK	brPFOSK0418	2018/10/17	2023/04/18	S4435-9		46.4	MeOH	FZ-11
S4471-10	PFNA	PFNA0218	2018/10/17	2023/02/16	S4435-10		50	MeOH	FZ-11
S4471-11	PFDA	PFDA1217	2018/10/17	2022/12/14	S4435-11		50	MeOH	FZ-11
S4471-12	L-PFDS	LPFDS1018	2018/10/17	2023/10/05	S4435-12		48.2	MeOH	FZ-11
S4471-13	PFUdA	PFUdA0818	2018/10/17	2023/08/23	S4435-13		50	MeOH	FZ-11
S4471-14	PFDoA	PFDoA0418	2018/10/17	2023/04/18	S4435-14		50	MeOH	FZ-11
S4471-15	PFTrDA	PFTrDA0218	2018/10/17	2023/02/16	S4435-15		50	MeOH	FZ-11
S4471-16	PFTeDA	PFTeDA0917	2018/10/17	2023/08/23	S4435-16		50	MeOH	FZ-11
S4471-17	PFOSA (FOSA-I)	FOSA06181	2018/10/17	2023/06/20	S4435-17		50	IPA	FD-59
S4471-18	N-MeFOSA-M	NMeFOSA0518M	2018/10/17	2023/05/31	S4435-18		50	MeOH	FZ-11
S4471-19	N-EtFOSA-M	NEtFOSA0518M	2018/10/17	2023/05/31	S4435-19		50	MeOH	FZ-11
S4471-20	N-MeFOSE-M	NMeFOSE0418M	2018/10/17	2023/05/17	S4435-20		50	MeOH	FZ-11
S4471-21	N-EtFOSE-M	NEtFOSE0518M	2018/10/17	2023/06/04	S4435-21		50	MeOH	FZ-11
S4471-22	N-MeFOSAA	NMeFOSAA0118	2018/10/17	2023/01/24	S4435-22		50	MeOH	FD-59
S4471-23	N-EtFOSAA	NEtFOSAA0118	2018/10/17	2023/01/24	S4435-23		50	MeOH	FD-59
S4471-24	6:2FTS	62FTS0418	2018/10/17	2023/04/03	S4435-24		47.4	MeOH	FD-59
S4471-25	8:2FTS	82FTS0118	2018/10/17	2023/01/24	S4435-25		47.9	MeOH	FD-59
Date Opened (All compounds):			Supplier (All compounds) : Wellington			Chemist:			

No writting on bottom Page

LQ, 2018/11/20

Date Opened: _____

Storage Location / Conditions: _____

Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 51

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4488 Date: 2018/12/14 Expiry Date: 2023/10/02 Discard Date: —
Replaces Solution: S-4436-5 Replaced by Solution: — Chemist: GSZ
Compound: br-PFHxSK Purity: —
Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHxSK1018
Supplier: Wellington
Date Opened: 2018/12/14
Final Gross Weight: — g/mg Dilution Volume: — mL
Tare Weight*: — g/mg Volumetric Flask: — GSZ 2018/12/14
Net Weight: — g/mg **Concentration:** ~~50~~ 45.5 (ug/mL), mg/mL
Adjusted Net Weight**: — mg Solvent(s): MeOH
Balance Used: — (specify model and serial no.)
Solvent Used: —
Solvent Supplier: — Lot No(s).: —
Date Opened: —
Storage Location / Conditions: FZ11
Notes/Comments

Solution No.: S-4489 Date: 2018/12/17 Expiry Date: 2023/10/02 Discard Date: —
Replaces Solution: S-4435-5 Replaced by Solution: — Chemist: LW
Compound: br-PFHxSK Purity: —
Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHXSK1018
Supplier: Wellington
Date Opened: 2018/12/17
Final Gross Weight: — g/mg Dilution Volume: — mL
Tare Weight*: — g/mg Volumetric Flask: —
Net Weight: — g/mg **Concentration:** 45.5 (ug/mL)
Adjusted Net Weight**: — mg Solvent(s): MeOH
Balance Used: — (specify model and serial no.)
Solvent Used: —
Solvent Supplier: — Lot No(s).: —
Date Opened: —
Storage Location / Conditions: F2-11
Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL

WELLINGTON LABORATORIES

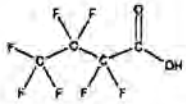
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanoic acid

LOT NUMBER: PFBA1217

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: 12/14/2017
EXPIRY DATE: 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recd: 2018/04/10 DH3

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/18/2017
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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

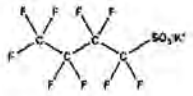
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate

LOT NUMBER: LPFBS0418

STRUCTURE:



CAS #: 29420-49-3

2018/06/26
Tejashri
2x Ampoules

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)	05/04/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

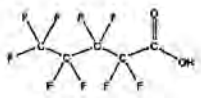
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0218

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) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recd: 2018/04/10 DM3

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 $C_6H_2F_{10}O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

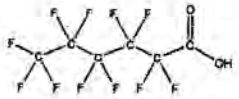
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA0518

STRUCTURE:



CAS #: 307-24-4

Received On:
2018/07/23
TKq
1 x Ampoule

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) 05/18/2018
EXPIRY DATE: (mm/dd/yyyy) 05/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.08.29 - 2 ampoules - HPLC

Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and Branched Isomers

Received on
2018/11/23
TKA
4/4 ampoules.

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK1018
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/01/2018
LAST TESTED: (mm/dd/yyyy)	10/02/2018
EXPIRY DATE: (mm/dd/yyyy)	10/02/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% of perfluoro-n-hexanoic acid and ~ 0.15% of perfluoro-1-pentanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

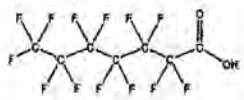
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0718

STRUCTURE:



CAS #: 375-85-9

Received on:
2018/08/29
TKq
2 x Ampoules.

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) 07/12/2018
EXPIRY DATE: (mm/dd/yyyy) 07/12/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/18/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

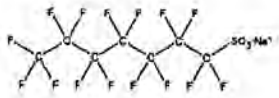
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate
LOT NUMBER: LPFHpS0418

STRUCTURE:



CAS #: Not available

R018|06|R6
Tefoshi
2X Ampoules.

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)	05/04/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 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: _____ **Date:** 05/17/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

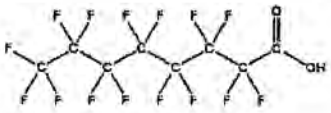
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFOA	**LOT NUMBER:**	PFOA0818
COMPOUND:	Perfluoro-n-octanoic acid		
STRUCTURE:		**CAS #:**	335-67-1



Received = 2018/10/17
Group name = HPLC
Ampoules = 2

MOLECULAR FORMULA:	$C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	414.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

2018/06/26
tufashvi
2 x Ampoules

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0418
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)	04/09/2018
LAST TESTED: (mm/dd/yyyy)	04/18/2018
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023
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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.26 - 2 ampoules - HPLC

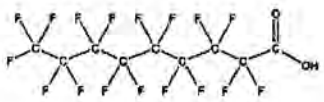
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid

LOT NUMBER: PFNA0218

STRUCTURE:



CAS #: 375-95-1

Received on:
2018/07/23
TK4
1 x Ampoule.

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) 02/16/2016
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

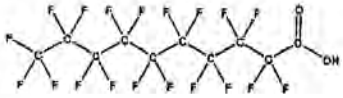
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA1217

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/14/2017
EXPIRY DATE: (mm/dd/yyyy) 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recvd. 2018/04/10 DMS

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, General Manager **Date:** 12/18/2017 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

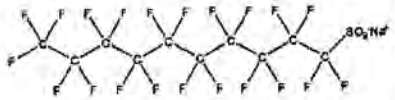
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFDS
COMPOUND: Sodium perfluoro-1-decanesulfonate

LOT NUMBER: LPFDS1018

STRUCTURE:



CAS #: 2806-15-7

Received: 2018/10/17
Group name: HPLC
Ampoules: 2

MOLECULAR FORMULA:	$C_{10}F_{21}SO_3Na$	**MOLECULAR WEIGHT:**	622.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.2 ± 2.4 µg/ml (PFDS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/05/2018		
EXPIRY DATE: (mm/dd/yyyy)	10/05/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

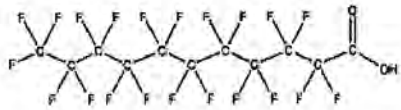
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid

LOT NUMBER: PFUdA0818

STRUCTURE:

CAS #: 2058-94-8



Received : 2018/10/17
Group name = HPLC
Ampoules : 2

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) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

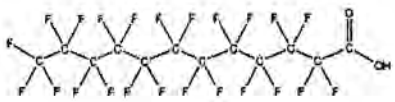
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid

LOT NUMBER: PFDoA0418

STRUCTURE:

CAS #: 307-55-1



2018/06/26
EGI
2 x ampoules

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) 04/18/2018
EXPIRY DATE: (mm/dd/yyyy) 04/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS Data (Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

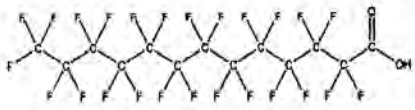
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid
LOT NUMBER: PFTrDA0218

STRUCTURE:



CAS #: 72629-94-8

2018/06/26
Tafashni
2X ampules.

MOLECULAR FORMULA:	$C_{13}HF_{25}O_2$	**MOLECULAR WEIGHT:**	664.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% 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:** 02/20/2018 (mm/dd/yyyy)
B.G Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

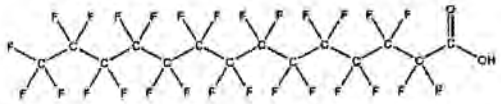
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid
LOT NUMBER: PFTeDA0917

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml
MOLECULAR WEIGHT: 714.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/21/2017
EXPIRY DATE: (mm/dd/yyyy) 09/21/2022
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)

GSZ 2017/11/30
2 ampules

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, General Manager **Date:** 09/21/2017 (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

Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

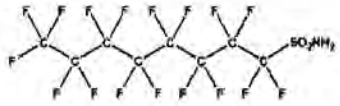
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0618I

STRUCTURE:



CAS #: 754-91-6

Received on:
2018/07/18
TK
1 x Ampoule

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)	06/20/2018		
EXPIRY DATE: (mm/dd/yyyy)	06/20/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Ema Gitej
FW: F4G *B815075
Hi team,
Please proceed with F4

Date Received:2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

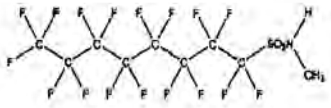
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0518M

STRUCTURE:



CAS #: 31506-32-8

Received on:
2018/07/18
TK4
1 x Ampoule

MOLECULAR FORMULA:	$C_9H_4F_{17}NO_3S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

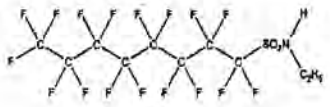
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0518M

STRUCTURE:



CAS #: 4151-50-2

Received on:
2018/07/25
TK9
1 x Ampoule

MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/12/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

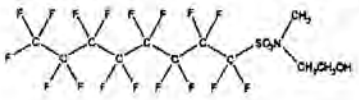
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0418M
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 24448-09-7



20181061126
Tefashirt
2 x Ampoules

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)	05/17/2018 (HRGC/LRMS) 05/03/2018 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	05/17/2023		
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:** 05/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

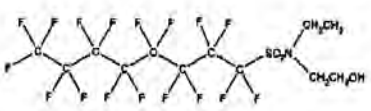
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0518M
COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 1691-99-2



2018/06/26
Tajeshwi
2X ampoules.

MOLECULAR FORMULA:	$C_{12}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	571.25
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: mm/dd/yyyy	06/04/2018 (HRGC/LRMS) 05/30/2018 (LC/MS)		
EXPIRY DATE: mm/dd/yyyy	06/04/2023		
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:** 06/04/2018 mm/dd/yyyy
B.G. Chittim, General Manager

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

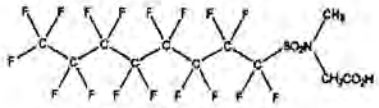
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0118
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2355-31-9



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
recd: 2018/04/10

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 molety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 01/26/2018 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

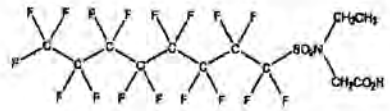
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSAA
COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid
LOT NUMBER: NEtFOSAA0118

STRUCTURE:

CAS #: 2991-50-6



MOLECULAR FORMULA: $C_{12}H_6F_{17}NO_4S$
MOLECULAR WEIGHT: 585.23
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
rec'd: 2018/04/10

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.
- Contains ~ 0.2% of sodium perfluoro-1-octanesulfonate (L-PFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 02/05/2018 (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

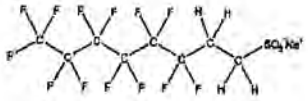
Date Received: 2018.06.26- 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS
LOT NUMBER: 62FTS0416
COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE:



CAS #: Not available

2018/06/26
Tajashri
8x Ampoules.

MOLECULAR FORMULA:	$C_8H_5F_{13}SO_3Na$		**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)	04/03/2018			
EXPIRY DATE: (mm/dd/yyyy)	04/03/2023			
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 ~ 0.3% of sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2FTS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 04/09/2018 (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

Form#:37, Issued 2004-11-10
Revision#:5, Revised 2018-01-22

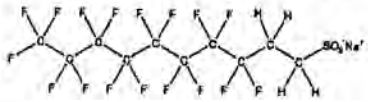
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0118
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) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
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)

2 ampules
recd: 2018/06/10 DM3

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 01/31/2018 (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

Date Received: 2018.06.26 - 2 Ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

155 PG 48

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7169 Prep'n Date: 2018/09/28 Expiry Date: ~~2021/11/22~~ 2020/05/28 ~~GSZ 2018/09/28~~ Discard Date:
Replaces Solution No.: SI-7130 Replaced by Solution: SI-7194 Chemist: GSZ
Sol'n. Name: PFC INTERNAL STD SPIKING SOLN (BC)
Solution Used As: Internal Std: ✓ Surrogate Spike:
Spike Volume: - uL or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS
Solvent(s): 0.3% NH4OH in MeOH Supplier(s): See PRLRE 116-399 Lot No(s).: See PRLRE 116-399
Date Solvent Opened: See PRLRE 116-399
Volumetric Flask Used: 50mL Class A (5640) Syringe ID: Pipette G243906
Storage Location and Conditions: FZ11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL)/(uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
MPFBS	S305, SSCSP3	50	50 mL	50	> 50/125	-
PFC INTERNAL STD SPIKING SOLN	SI-7141	50/125	50 mL	50		-

GSZ 2018/09/28

Notes:

Solution No.: Prep'n Date: Expiry Date: Discard Date:
Replaces Solution No.: Replaced by Solution: Chemist:
Sol'n. Name:
Solution Used As: Internal Std: Surrogate Spike:
Spike Volume: uL or mL (for I.S. uL per mL) For Instrument/Analysis:
Solvent(s): Supplier(s): Lot No(s).:
Date Solvent Opened:
Volumetric Flask Used: Syringe ID:
Storage Location and Conditions:
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

2018/09/28 GSZ

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL)/(uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
MPFBS	S305, SSCSP3	50	50 mL	50	> 50/125	-
PFC INTERNAL STD SPIKING SOLN	SI-7141	50/125	50 mL	50		-

GSZ 2018/09/28

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

Scientific Services / R & D

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution #: S304 Compound: M2-PFHxDA

Supplier / Lot #: Wellington / M2PFHxDA1112 Date Received: 2016/05/25

Date Opened: 2016/07/04 Expiry Date: 2021/01/07

Purity: 798 % Correction Factor: —

Net Weight (mg) / Volume (mL): — Adj. Net Weight (mg): —

Dilution Volume (mL): — Volumetric Flask Used: Y / N NA

Dilution Solvent: — Solvent Supplier / Lot #: —

Date Received (Solvent): — Date Opened / Prep'd: — (Solvent)

Expiry Date (Solvent): —

Final Sol'n Concentration: 50 (mg (ug) / mL *(Specify Units)*

Solution Expiry: 2021/01/07 Solution Replaced: —

Storage Location FZ-09 Balance / Pipette ID(s): —

Comments: Received as solution in ampoule.

Analyst: [signature] Prep Date: 2016/07/04

Solution #: S305 Compound: M3-PFBS

Supplier / Lot #: Wellington / M3PFBS0815 Date Received: 2016/05/25

Date Opened: 2016/07/04 Expiry Date: 2020/08/20

Purity: 798 % Correction Factor: —

Net Weight (mg) / Volume (mL): — Adj. Net Weight (mg): —

Dilution Volume (mL): — Volumetric Flask Used: Y / N NA

Dilution Solvent: — Solvent Supplier / Lot #: —

Date Received (Solvent): — Date Opened / Prep'd: — (Solvent)

Expiry Date (Solvent): —

Final Sol'n Concentration: 46.5 (mg (ug) / mL *(Specify Units)*

Solution Expiry: 2020/08/20 Solution Replaced: —

Storage Location FZ-09 Balance / Pipette ID(s): —

Comments: Received as solution in ampoule.

Analyst: [signature] Prep Date: 2016/07/04

155 PG 32

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7141 Prep'n Date: 2018/09/14 Expiry Date: 2021/11/22 Discard Date:
Replaces Solution No.: SI-7116 Replaced by Solution: SI-7173 Chemist: GSZ
Sol'n. Name: PFC INTERNAL STD SPIKING SOLUTION
Solution Used As: Internal Std: ✓ Surrogate Spike:
Spike Volume: - uL or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS
Solvent(s): 0.9% NH4OH in MeOH Supplier(s): See PRLRE 116-399 Lot No(s).: See PRLRE 116-399
Date Solvent Opened: See PRLRE 116-399
Volumetric Flask Used: 200mL Class A (5640) Syringe ID: Pipette M41011F/J434396
Storage Location and Conditions: FZ 11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date: See attached sheet

SI-7141 (PRLST 155 p. 32)

Compound Name	ID#	Conc. (ug/mL)	Vol. of Stock standard (uL)	Dilution volume (mL)	Final Conc. (ng/mL)	Exp. date
MPFBA	S4381-1	50	200	200	50	2022/04/12
M5PFPeA	S4381-2	50	200	200	50	2022/07/20
MPFHxA	S4381-3	50	200	200	50	2022/10/27
MPFHxS	S4381-4	50	200	200	50	2022/02/17
M4PFHpA	S4381-5	50	200	200	50	2022/05/03
MPFOA	S4381-6	50	200	200	50	2022/10/17
MPFOS	S4381-7	50	200	200	50	2022/10/17
MPFNA	S4381-8	50	200	200	50	2022/12/14
MPFDA	S4381-9	50	200	200	50	2022/07/13
MPFUdA	S4381-10	50	200	200	50	2021/11/22
MPFDoA	S4381-11	50	200	200	50	2022/05/23
M2PFTeDA	S4381-12	50	200	200	50	2022/11/30
MPFOSA	S4381-13	50	200	200	50	2022/10/11
D3-N-MeFOSAA	S4381-14	50	200	200	50	2022/11/08
D5-N-EtFOSAA	S4381-15	50	200	200	50	2022/11/08
D-N-MeFOSA-M	S4425-1	50	500	200	125	2022/11/08
D-N-EtFOSA-M	S4425-2	50	500	200	125	2022/10/11
D7-N-MeFOSE-M	S4425-3	50	500	200	125	2022/10/13
D9-N-EtFOSE-M	S4425-4	50	500	200	125	2022/10/13
M2-6:2FTS	S4425-5	50	500	200	125	2023/02/16
M2-8:2FTS	S4425-6	50	500	200	125	2023/01/24

No writing on bottom page.

GSZ, 2018/09/14

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST_____ PG_____

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4381 Date: 2018/07/10 Expiry Date: See below Discard Date:

S-4381 (PRLST 133 p. 214)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4381-1	MPFBA	MPFBA0417	2018/05/02	2022/04/12	S4333-1		50	MeOH	FZ-11
S4381-2	M5PFPeA	M5PFPeA0717	2018/05/02	2022/07/20	S4333-2		50	MeOH	FZ-11
S4381-3	MPFHxA	MPFHxA1017	2018/01/16	2022/10/27	S4333-3		50	MeOH	FZ11
S4381-4	MPFHxS	MPFHxS0217	2018/01/16	2022/02/17	S4333-4		50	MeOH	FZ-11
S4381-5	M4PFHpA	M4PFHpA0517	2018/01/16	2022/05/03	S4333-5		50	MeOH	FZ-11
S4381-6	MPFOA	MPFOA1017	2018/01/16	2022/10/17	S4333-6		50	MeOH	FZ-11
S4381-7	MPFOS	MPFOS1017	2018/01/16	2022/10/17	S4333-7		50	MeOH	FZ-11
S4381-8	MPFNA	MPFNA1217	2018/01/16	2022/12/14	S4333-8		50	MeOH	FZ-11
S4381-9	MPFDA	MPFDA0717	2018/01/16	2022/07/13	S4333-9		50	MeOH	FZ-11
S4381-10	MPFUdA	MPFUdA1116	2018/05/02	2021/11/22	S4333-10		50	MeOH	FZ11
S4381-11	MPFDoA	MPFDoA0517	2018/01/16	2022/05/23	S4333-11		50	MeOH	FZ-11
S4381-12	M2PFTeDA	M2PFTeDA1117	2018/01/16	2022/11/30	S4333-12		50	MeOH	FZ-11
S4381-13	MPFOSA	M8FOSA1017I	2018/01/16	2022/10/11	S4333-13		50	IPA	FD-59
S4381-14	D3-N-MeFOSAA	d3NMeFOSAA1117	2018/01/16	2022/11/08	S4333-14		50	MeOH	FD59
S4381-15	D5-N-EtFOSAA	d5NEtFOSAA1117	2018/01/16	2022/11/08	S4333-15		50	MeOH	FD59
S4381-16	D-N-MeFOSA-M	dNMeFOSA1117M	2018/06/04	2022/11/08	S4352-1		50	MeOH	FZ11
S4381-17	D-N-EtFOSA-M	dNEtFOSA1017M	2018/06/04	2022/10/11	S4352-2		50	MeOH	FZ11
S4381-18	D7-N-MeFOSE-M	d7NMeFOSE1017M	2018/06/04	2022/10/13	S4352-3		50	MeOH	FZ11
S4381-19	D9-N-EtFOSE-M	d9NEtFOSE1017M	2018/06/04	2022/10/13	S4352-4		50	MeOH	FZ11
S4381-20	M2-6:2FTS	M262FTS0218	2018/06/04	2023/02/16	S4352-5		50	MeOH	FD59
S4381-21	M2-8:2FTS	M282FTS0118	2018/06/04	2023/01/24	S4352-6		50	MeOH	FD59
Date opened (All compounds): 2018/07/10			Supplier: Wellington			Chemist: GSZ			

No writing on bottom page.

GSZ, 2018/07/10

Solution No.: S-4382 Date: 2018/07/19 Expiry Date: 2019/07/19 Discard Date: 20190719

Replaces Solution: S-4168 Replaced by Solution: — Chemist: TC

Compound: NONylphenol (TNP) Purity: 96.8%

Date Received: 20180712 Expiry Date: 2021/11/30 Lot No.: BCBT5112

Supplier: Sigma Aldrich

Date Opened: 20180719

Final Gross Weight: — g/mg Dilution Volume: 100 mL

Tare Weight*: — g/mg Volumetric Flask: Class A 5680

Net Weight: 0.1577 g/mg × 96.8% Concentration: 1526.54 ug/mL

Adjusted Net Weight**: 152.6536 mg Solvent(s): _____

Balance Used: Ohaus AP2105 Serial # N01360
(specify model and serial no.)

Solvent Used: 2-propanol

Solvent Supplier: Sigma Aldrich Lot No(s).: SHBJ9461

Date Opened: 20180704

Storage Location / Conditions: FD-59

Notes/Comments

PRLST 151 PG 15

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4425 Date: 2018/09/14 Expiry Date: See Below Discard Date: _____

S-4425 (PRLST 151 p. 15)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4425-1	D-N-MeFOSA-M	dNMeFOSA1117M	2018/07/12	2022/11/08	S4405-1		50	MeOH	FZ-11
S4425-2	D-N-EtFOSA-M	dNEtFOSA1017M	2018/07/12	2022/10/11	S4405-2		50	MeOH	FZ-11
S4425-3	D7-N-MeFOSE-M	d7NMeFOSE1017M	2018/07/12	2022/10/13	S4405-3		50	MeOH	FZ-11
S4425-4	D9-N-EtFOSE-M	d9NEtFOSE1017M	2018/07/12	2022/10/13	S4405-4		50	MeOH	FZ-11
S4425-5	M2-6:2FTS	M262FTS0218	2018/07/12	2023/02/16	S4405-5		50	MeOH	FD-59
S4425-6	M2-8:2FTS	M282FTS0118	2018/07/12	2023/01/24	S4405-6		50	MeOH	FD-59
Date opened (All compounds): 2018/09/14			Supplier: Wellington			Chemist: GSZ			

No writing on bottom page.

GSZ, 2018/09/14

Notes/Comments

Solution No.: S-4426 Date: 2018/09/18 Expiry Date: 2019/12/06 Discard Date: _____

Replaces Solution: ~~S-4387~~ ~~S-4386~~ ~~S-4376~~ GSZ 2018/09/18 Replaced by Solution: _____ Chemist: GSZ

Compound: 2,4-DIAMINO-6-NITROTOLUENE Purity: -

Date Received: 2018/03/22 Expiry Date: 2019/12/06 Lot No.: 216101352-01

Supplier: Accustandard

Date Opened: 2018/09/18

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight*: - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 100 ug/mL

Adjusted Net Weight**: - mg Solvent(s): ACN

Balance Used: - (specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FP59

Notes/Comments Received as solution in ampule.

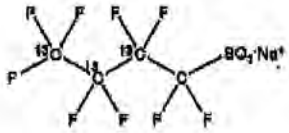


DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M3PFBS	**LOT NUMBER:**	M3PFBS0615
COMPOUND:	Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{13}CF_8SO_3Na$	**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:	>96%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	08/20/2015		
EXPIRY DATE: (mm/dd/yyyy)	08/20/2020		
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)

Received MM
2016/05/05
1x 1.2 mL
F2-35

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 08/20/2015 (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

WELLINGTON LABORATORIES

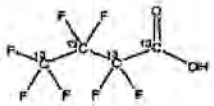
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFBA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid

LOT NUMBER: MPFBA0417

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 218.01
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
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

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)

1 ampule
2014/10/25 652

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

Date Received: 2017.09.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC

Date received: 2017/09/07 RW Ampoule: 1

WELLINGTON LABORATORIES

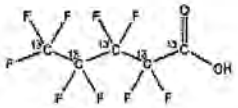
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M5PFPeA
COMPOUND: Perfluoro-n-[$^{13}C_5$]pentanoic acid

LOT NUMBER: M5PF^{13}PeA0717

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_5HF_9O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 269.01
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/20/2017
EXPIRY DATE: (mm/dd/yyyy) 07/20/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($^{13}C_5$)

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.
- Contains < 0.1% of perfluoro-n-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 07/26/2017 (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

Date Received: 2017.10.25 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule -HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC

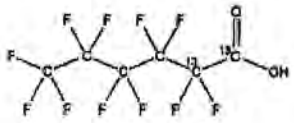
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

LOT NUMBER: MPFHxA1017

STRUCTURE:



CAS #: Not available

2018/01/16
1 ampoule
Σ. G

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_9O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/27/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/27/2022		
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 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:** 10/30/2017 (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

WELLINGTON LABORATORIES

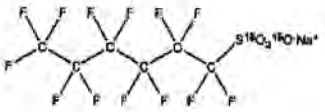
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxS
COMPOUND: Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate

LOT NUMBER: MPFHxS0217

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		

F2
1ampule
HPLC
2017/05/02
JPD

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: B.G. Chittim **Date:** 03/02/2017 (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

Date received 2017/09/07 1 ampoule HPLC
Date received 2017/10/25 1 ampoule HPLC
Date Received: 2017.10.25 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0517
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yy)	05/03/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/03/2022		
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)

1 ampoule
2017/10/26 GSZ

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

Date Received: 2017.09.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

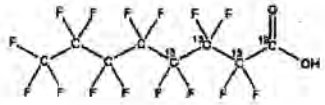
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid

LOT NUMBER: MPFOA1017

STRUCTURE:



CAS #: Not available

2018/01/16
1 amp-ok
E.G

MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 418.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 10/17/2017
EXPIRY DATE: 10/17/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

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.
- Contains ~ 0.1% of native perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 10/19/2017

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

Form#27, Issued 2004-11-10
Revision#4, Revised 2017-03-06

Date Received: 2017.12.06 - 1 ampoule - HPLC

Date Received: 2018.03.08 - 1 ampoule - HPLC

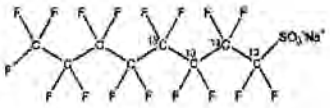
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS
LOT NUMBER: MPFOS1017
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)	10/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/17/2022		
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)

1 ampule
2017/10/25 GSZ

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.4% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC

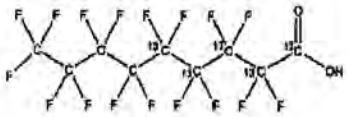
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid

LOT NUMBER: MPFNA1217

STRUCTURE:



CAS #: Not available

2018/01/16
1 ampoule
E.G

MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/19/2017 (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

Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

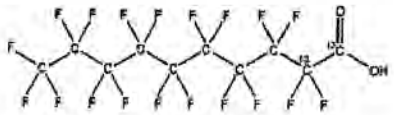
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid

LOT NUMBER: MPFDA0717

STRUCTURE:

CAS #: Not available



2018/01/16
1 ampoule
E.G

MOLECULAR FORMULA:	$^{12}C_8{}^{13}C_2HF_{19}O_2$	**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-$^{13}C_2$)
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:

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 $^{13}C_4$-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
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:27, Issued 2004-11-16
Revision#:4, Revised 2017-03-08

Date Received: 2017.12.06 - 1 ampoule - HPLC

Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

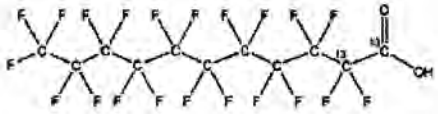
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFUdA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid

LOT NUMBER: MPFUdA1116

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

received mm 2017/02/22
2 x 1.2 mL (T2-11)

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-$^{13}C_2$-PFUdA (~1%; see Figure 2), 2-$^{13}C_2$-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)

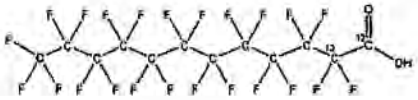
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Received 2017/05/02 2x1.2 mL HPLC
Date Received: 2017.05.02 - 1 x 1.2ml - HPLC
Date Received: 2017.06.29 - 1 x 1.2ml - HPLC
Date Received: 2017.09/07 - 1 x 1.2ml - HPLC
Date Received: 2017.02/22 - 1 x 1.2ml - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.05/02 - 1 x 1.2ml - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFDoA	**LOT NUMBER:**	MPFDoA0517
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid		
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-$^{13}C_2$)
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)

1 ampule
2017/10/25, 652

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:** 05/26/2017 (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

Date Received: 2017.09.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

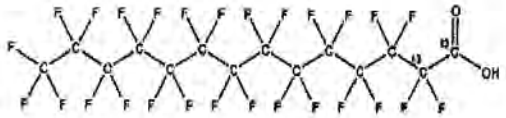
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFTeDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid

LOT NUMBER: M2PFTeDA1117

STRUCTURE:

CAS #: Not available



20181011/16
1 - 8.4
2.6

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/30/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/30/2022		
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:** 12/01/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

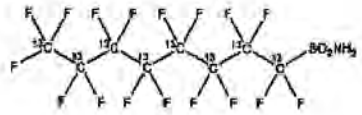
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[$^{13}C_8$]octanesulfonamide

LOT NUMBER: M8FOSA1017I

STRUCTURE:



CAS #: Not available

20181012G
1 ampoule
E.G

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)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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 ~ 1.1% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.01% of perfluoro-1-[$^{13}C_4$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

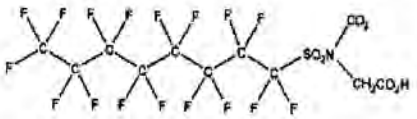
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA
LOT NUMBER: d3NMeFOSAA1117
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #: Not available



2018/01/16
1 ampoule
q. 6

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)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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:** 11/16/2017 (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

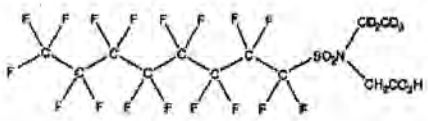
Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA
LOT NUMBER: d5NEtFOSAA1117
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:



CAS #: Not available

2018/01/16
1 ampoule
E.G

MOLECULAR FORMULA:	$C_{12}D_5H_2F_{17}NO_4S$	**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)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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:** 11/16/2017 (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

Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

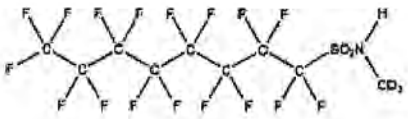
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M
COMPOUND: N-methyl-d_3-perfluoro-1-octanesulfonamide

LOT NUMBER: dNMeFOSA1117M

STRUCTURE:

CAS #: Not available



2018/01/16
1 ampoule
2.6

MOLECULAR FORMULA:	$C_9D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	518.19
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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:** 11/16/2017 (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

Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 2 ampoules - HPLC
Date Received: 2018.06.04 - 2 ampoules - HPLC
Date Received: 2018.07.12 - 2 ampoules - HPLC

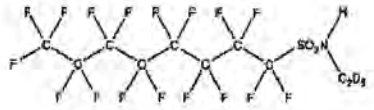
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d-N-EtFOSA-M
COMPOUND: N-ethyl-d_5-perfluoro-1-octanesulfonamide

LOT NUMBER: dNEtFOSA1017M

STRUCTURE:



CAS #: Not available

HPLC
2018/03/08
2x ampoules
E.G

MOLECULAR FORMULA:	$C_{10}D_5HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	632.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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: B.G. Chittim, General Manager **Date:** 11/06/2017 (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

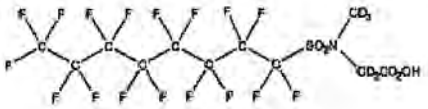
Date Received: 2017.11.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 2 ampoules - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d7-N-MeFOSE-M **LOT NUMBER:** d7NMeFOSE1017M
COMPOUND: 2-(N-methyl-d3-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_7HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	564.27
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_7$
LAST TESTED: (mm/dd/yyyy)	10/13/2017 (HRGC/LRMS) 10/12/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampule
HPLC
2017/11/07

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:** 11/03/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d9-N-EtFOSE-M **LOT NUMBER:** d9NEtFOSE1017M
COMPOUND: 2-(N-ethyl-d5-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{12}D_9HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	580.31
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_9$
LAST TESTED: (mm/dd/yyyy)	10/13/2017 (HRGC/LRMS) 10/12/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampoule
HPLC
2017/11/07

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.
- Contains ~ 1.2% of N-ethyl-d5-perfluoro-1-octanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoules - HPLC
Date Received: 2018.07.12 - 1 ampoules - HPLC

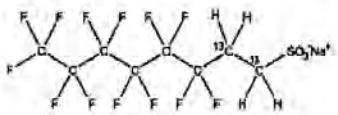
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0218

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE:



CAS #: Not available

Received on:
2018/07/12
Typed in
1 x 1 ampoule

MOLECULAR FORMULA:	$^{13}C_2{}^{13}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.5 ± 2.4 µg/ml (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Received date: 2018/06/04 1x1.2 mL HPLC
Received date: 2018/07/12 1x1.2 mL HPLC

WELLINGTON LABORATORIES

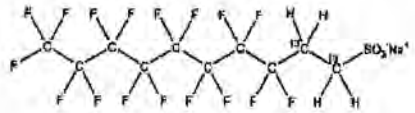
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0118

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE:

CAS #: Not available



20181031-08
2 x a-packs
E.G

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_2F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	552.15
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.9 ± 2.4 µg/ml (M2-8:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>96%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	01/24/2018		
EXPIRY DATE: (mm/dd/yyyy)	01/24/2023		
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:** 01/26/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.05.02 - 1 ampule - HPLC
Date Received: 2018.06.04 - 1 ampule - HPLC
Date Received: 2018.07.12 - 1 ampule - HPLC

155 PG 82

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7231 Prep'n Date: 2018/10/30 Expiry Date: 2018/12/05 Discard Date: —
Replaces Solution No.: SI-7181 Replaced by Solution: _____ Chemist: lv
Sol'n. Name: Acrylic acid Internal Std.
Solution Used As: Internal Std: ✓ Surrogate Spike: _____
Spike Volume: _____ uL or mL (for I.S. uL per mL) For Instrument/Analysis: _____
Solvent(s): Methanol Supplier(s): Sigma Lot No(s).: SHBK1963
Date Solvent Opened: 2018/10/30
Volumetric Flask Used: Class A 10 mL (5630) Syringe ID: M41011F
Storage Location and Conditions: F2-11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
Acrylic acid dry stock	S-4434	1231.32	162.4	10	20	—
				2018/10/30 lv		

Notes:

Solution No.: SI-7232 Prep'n Date: 2018/10/30 Expiry Date: 2018/12/30 Discard Date: —
Replaces Solution No.: SI-7092 Replaced by Solution: _____ Chemist: lv
Sol'n. Name: Internal Std. (PFAADW-W)
Solution Used As: Internal Std: — Surrogate Spike: _____
Spike Volume: — uL or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS-MS
Solvent(s): 0.1% NH4OH in 96:4 methanol:water Supplier(s): See PRLRE124-08 Lot No(s).: See PRLRE124-08
Date Solvent Opened: See PRLRE124-08
Volumetric Flask Used: 25 mL class A (5640) Syringe ID: Pipette # G243906, M41011F
Storage Location and Conditions: Shelf
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
MPFOA	S-4190-1	50	50	25	100	—
MPFOS	S-4190-2	50	50	25	100	—
D3-N-MeFOSAA	S-4260-1	50	200	25	400	—
				2018/10/30 lv		

Notes:

WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS.

PRLST 133 PG 105

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4190 Date: 2017/09/12 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

Compound: _____ Purity: _____

S-4190 (PRLST 133 p. 105)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4190-1	MPFOA	MPFOA0417	2017/09/12	2022/04/12			50	MeOH	FZ11
S4190-2	MPFOS	MPFOS0517	2017/09/12	2022/05/19			50	MeOH	FZ11
S4190-2' 3	D3-N-MeFOSAA	d3NMeFOSAA0517	2017/09/12	2022/05/19			50	MeOH	FD59
Date opened (All compounds): 2017/09/12			Supplier: Wellington			Chemist: GSZ			

GSZ 2017/09/12 No writing on bottom page.

Storage Location / Conditions: _____

Notes/Comments

Solution No.: S-4191 Date: 2017/09/13 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: LA

S-4191 (PRLST 133 pg 105)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4191-1	L-PFBS	LPFBS1116	2017/09/12	2021/12/02			44.2	MeOH	FZ-11
S4191-2	PFHxA	PFHxA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4191-3	br-PFHxSK	br-PFHxSK0117	2017/09/12	2022/01/04			45.5	MeOH	FZ-11
S4191-4	PFHpA	PFHpA1216	2017/09/12	2021/12/02			50	MeOH	FZ-11
S4191-5	PFOA	PFOA0217	2017/09/12	2022/02/17			50	MeOH	FZ-11
S4191-6	brPFOSK	brPFOSK0117	2017/09/12	2022/01/12			46.4	MeOH	FZ-11
S4191-7	PFNA	PFNA0717	2017/09/12	2022/07/20			50	MeOH	FZ-11
S4191-8	PFDA	PFDA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4191-9	PFuDA	PFuDA1016	2017/09/12	2021/10/18			50	MeOH	FZ-11
S4191-10	PFDoA	PFDoA0517	2017/09/12	2022/05/29			50	MeOH	FZ-11
S4191-11	PFTrDA	PFTrDA0517	2017/09/12	2022/05/02			50	MeOH	FZ-11
S4191-12	PFTeDA	PFTeDA0916	2017/09/12	2021/09/30			50	MeOH	FZ-11
S4191-13	N-MeFOSAA	NMeFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
S4191-14	N-EtFOSAA	NEtFOSAA0117	2017/09/12	2022/01/11			50	MeOH	FD-59
Date opened (All compounds): 2017/09/13			Supplier (All compounds) : Wellington			Chemist: LA			

No writing on bottom page

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 133 PG 144

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4260 Date: 2017/12/14 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

S-4260 (PRLST 133 p. 144)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4260-1	D3-N-MeFOSAA	d3NMeFOSAA1116	2017/05/31	2021/11/22	S4226-2		50	MeOH	FD59
S4260-2	D5-N-EtFOSAA	d5NEtFOSAA1116 *	2017/05/31	2021/11/22	S4226-3		50	MeOH	FD59
Date opened (All compounds): 2017/12/14			Supplier: Wellington			Chemist: GSZ			

No writing on bottom page. * d5NEtFOSAA1116 GSZ 2018/02/16

Storage Location / Conditions: _____

Notes/Comments

Solution No.: _____ Date: _____ Expiry Date: _____ Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: _____

Compound: _____ Purity: _____

Date Received: _____ Expiry Date: _____ Lot No.: _____

Supplier: _____

Date Opened: _____

GSZ 2017/12/15

Final Gross Weight: _____ g/mg Dilution Volume: _____ mL

Tare Weight* : _____ g/mg Volumetric Flask: _____

Net Weight: _____ g/mg **Concentration:** _____ ug/mL

Adjusted Net Weight** : _____ mg Solvent(s): _____

Balance Used: _____
(specify model and serial no.)

Solvent Used: _____

Solvent Supplier: _____ Lot No(s).: _____

Date Opened: _____

Storage Location / Conditions: _____

Notes/Comments

Certificate of Analysis from other Companies

Product Description: **Perfluoro-n-[1,2,3,4-13C4]octanoic acid**
Catalog # **MPFOA**
LOT # **MPFOA0417**
Expiration Date: **12/04/2022**
Supplier Name: **Wellington Laboratories**
Storage Location: Fridge

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid

LOT NUMBER: MPFOA0417

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 418.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 04/12/2017
EXPIRY DATE: 04/12/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

Fz 1 ampule HPLC 2017/05/02 ddB

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ Date: 04/28/2017
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

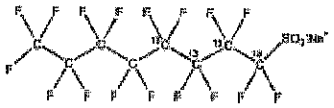
date received: 2017/05/22 - 1 ampule HPLC
date received 2017/09/12 - 1 ampule HPLC

Ampoule: 1 TRW
Date received: 2017/09/12

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS0617
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 ($1,2,3,4$-$^{13}C_4$)
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: 519-822-2349 • info@well-labs.com

Fourth:27, Issued 2004-11-19
Fourteenth:4, Revised 2017-03-06

Date Received: 2017/06/29 HPLC 1 ampoule

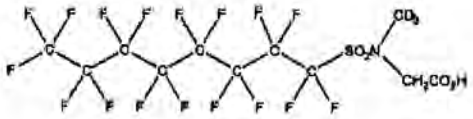
Date Received: 2017/09/12 HPLC 1 ampoule

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA1116
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_3H_2F_{17}NO_4S$	**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)	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.

received 2x1.2mL 2017-12-22 mtm

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

Form#:27, Issued 2004-11-10
Revision#:3, Revised 2015-03-24

date recieved 2017/05/31 2x1`.2
date recieved 2017/05/02 2x1`.2

155 PG 87

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7239 Prep'n Date: 2018/10/31 Expiry Date: 2019/10/31 Discard Date: _____
Replaces Solution No.: SI-7189 Replaced by Solution: _____ Chemist: GSZ
Sol'n. Name: INJ. I.S.
Solution Used As: Internal Std: ✓ Surrogate Spike: _____
Spike Volume: 20 (uL) or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS
Solvent(s): 0.3% NH4OH in MeOH Supplier(s): See PRLRE 118 124-15 GSZ 2018/10/31 Lot No(s).: See PRLRE 124-15
Date Solvent Opened: See PRLRE 124-15
Volumetric Flask Used: 200mL Class A (5640) Syringe ID: Pipette K26250F
Storage Location and Conditions: FZ11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL (uL))	Dilution Volume (mL)	Final Conc'n. ng/mL (ug/mL)	Absolute Amount Spiked (ug / ng)
$^{13}C_8$ PFDA	S-4460	50	400	200	100	-
$^{13}C_6$ PFHxA	S-4461	50	400	200	100	-

GSZ 2018/10/31

Notes:

Solution No.: SI-7240 Prep'n Date: 2018-10-01 Expiry Date: 2018-11-08 Discard Date: _____
Replaces Solution No.: SI-7230 Replaced by Solution: SI-7247 Chemist: RPT
Sol'n. Name: Hexanes - o-terphenyle
Solution Used As: Internal Std: N/A Surrogate Spike: Yes
Spike Volume: 3.0 uL or mL (for I.S. uL per mL) For Instrument/Analysis: _____
Solvent(s): Hexanes Supplier(s): fisher Lot No(s).: 184118
Date Solvent Opened: 2018-10-01
Volumetric Flask Used: Class-A Syringe ID: 10 ml pipette lot # 2018
Storage Location and Conditions: _____
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL /uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
o-Terphenyle	PR 1-173	100mg/ml	4	4000	100ug/ml	N/A

RPT 2018-11-01

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 34

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4460 Date: 2018/10/31 Expiry Date: 2028/01/23 Discard Date: _____

Replaces Solution: S-4347 Replaced by Solution: _____ Chemist: GSZ

Compound: $^{13}C_9$ PFDA Purity: -

Date Received: 2018/06/06 Expiry Date: 2028/01/23 Lot No.: SCID-014

Supplier: CIL

Date Opened: 2018/10/31

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight* : - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 50 (ug/mL) mg/mL

Adjusted Net Weight** : - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ11

Notes/Comments
Received as solution in ampule.

Solution No.: S-4461 Date: 2018/10/31 Expiry Date: 2020/09/30 Discard Date: _____

Replaces Solution: S-4348 Replaced by Solution: _____ Chemist: GSZ

Compound: $^{13}C_6$ PFHxA Purity: -

Date Received: 2018/06/06 Expiry Date: 2020/09/30 Lot No.: SDAA-004

Supplier: CIL

Date Opened: 2018/10/31

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight* : - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 50 ug/mL

Adjusted Net Weight** : - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ11

Notes/Comments
Received as solution in ampule.

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

Product Name: (Isotopic Label & Enrichment Specification)	PERFLUORODECANOIC ACID (13C9, 99%) 50 UG/ML IN METHANOL
Lot Number:	SCID-014
Catalog Number:	CLM-8172-S

Product Information

Chemical Purity Specification:	≥ 98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	335-76-2
MW*:	523.02
Chemical Formula:	CF3(*CF2)8*CO2H
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Bekersley

Timothy J. Bekersley, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	06/20/2008
Expiration Date	06/20/2018
Concentration Based on Gravimetry	50.0 µg/mL
Chemical Purity of Neat Material(s)	>98%
LC/MS for Concentration	46.2 ± 6.4 µg/mL (k=2)

Received June 2016/15
1 x 1.2mL
RT

50 Frontage Road, Andover, MA 01810-5413 USA • 1.800.322.1174 (North America) • 1.978.749.8000 (International) • isotope.com

Date Received:2016.8.17 - 1 x 1.2mL - HPLC
Date Received: 2016.09.14 -HPLC - 1 x 1.2ml
Date Received: 2016/11/22 1x 1.2ml MMN HPLC
Date Received:2017.02.15 - 1 x 1mL - HPLC (MMN)
Date received: 2017/06/09 - 1x1.2ml - HPLC
Date received: 2017/07/25 - 1x1.2ml - HPLC
Date received: 2018/02/28 - 1x1.2ml - HPLC
Date received: 2018/06/06 - 1x1.2ml - HPLC

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

Product Name: (Isotopic Label & Enrichment Specification)	PERFLUOROHEXANOIC ACID, SODIUM SALT (13C6, 99%) 50 UG/ML IN METHANOL
Lot Number:	SDAA-004
Catalog Number:	CLM-8340-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	307-24-4
MW*:	320.00
Chemical Formula:	*CF3(*CF2)4*COOH
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NCSL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	9/30/2010
Expiration Date	9/30/2020
Concentration Based on Gravimetry	50.4 µg/mL
Chemical Purity of Neat Material(s)	99.2%
LC/MS for Concentration	47.1 ± 2.6 µg/mL (k=2)

Received June 2016 10/1/13 1X 1.2mL

50 Frontage Road, Andover, MA 01810-5413 USA • 1.800.322.1174 (North America) • 1.978.749.8000 (International) • isotope.com

Date Received: 2017.07.25 - 1 ampoule -HPLC
Date Received: 2018.02.28 - 1 ampoule -HPLC
Date Received: 2018.06.06 - 1 ampoule -HPLC

155 PG 115

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7291 Prep'n Date: 2018/11/30 Expiry Date: 2021/04/08 Discard Date: _____
Replaces Solution No.: SI-7272 Replaced by Solution: SI-7316 Chemist: GSZ
Sol'n. Name: PFC INTERNAL STD SPIKING SOLUTION
Solution Used As: Internal Std: / Surrogate Spike: _____
Spike Volume: — uL or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS
Solvent(s): 0.3% NH4OH in MeOH Supplier(s): See PRLRE 124-109 Lot No(s).: See PRLRE 124-109
Date Solvent Opened: See PRLRE 124-109
Volumetric Flask Used: 200mL Class A (5640) Syringe ID: Pipette M4101IF / K262505F
Storage Location and Conditions: FZ11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date: See attached sheet

SI-7291 (PRLST 155 p. 115)

Compound Name	ID#	Conc. (ug/mL)	Vol. of Stock standard (uL)	Dilution volume (mL)	Final Conc. (ng/mL)	Exp. date
MPFBA	S4454-1	50	200	200	50	2022/04/12
M5PFPeA	S4454-2	50	200	200	50	2021/11/22
MPFHxA	S4454-3	50	200	200	50	2021/11/22
MPFHxS	S4454-4	50	200	200	50	2022/02/17
M4PFHpA	S4454-5	50	200	200	50	2022/05/03
MPFOA	S4454-6	50	200	200	50	2022/04/12
MPFOS	S4454-7	50	200	200	50	2021/12/12
MPFNA	S4454-8	50	200	200	50	2021/09/30
MPFDA	S4454-9	50	200	200	50	2021/09/30
MPFUdA	S4454-10	50	200	200	50	2021/11/22
MPFDoA	S4454-11	50	200	200	50	2021/04/08
M2PFTeDA	S4454-12	50	200	200	50	2022/03/01
MPFOSA	S4454-13	50	200	200	50	2022/10/11
D3-N-MeFOSAA	S4454-14	50	200	200	50	2023/08/23
D5-N-EtFOSAA	S4454-15	50	200	200	50	2023/08/23
D-N-MeFOSA-M	S4473-1	50	500	200	125	2022/11/08
D-N-EtFOSA-M	S4473-2	50	500	200	125	2022/10/11
D7-N-MeFOSE-M	S4473-3	50	500	200	125	2022/10/13
D9-N-EtFOSE-M	S4473-4	50	500	200	125	2022/10/13
M2-6:2FTS	S4473-5	50	500	200	125	2023/02/16
M2-8:2FTS	S4473-6	50	500	200	125	2023/01/24

No writing on bottom page.

GSZ, 2018/11/30

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 30

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4453 Date: 2018/10/18 Expiry Date: 2019/10/18 Discard Date: _____

Replaces Solution: S-4236 Replaced by Solution: _____ Chemist: GSZ

Compound: SIMAZINE d10 Purity: 99.4

Date Received: 2017/11/14 Expiry Date: 2020/11/09 Lot No.: BC-320

Supplier: CDN Isotopes

Date Opened: 2018/10/18

Final Gross Weight: 0.0064 g/mg Dilution Volume: 50 mL

Tare Weight*: _____ g/mg Volumetric Flask: 50 mL Class A (28014)

Net Weight: _____ g/mg **Concentration:** 127.2 ug/mL, mg/mL

Adjusted Net Weight**: 6.362 mg Solvent(s): ACN

Balance Used: Sartorius SN 0036750189
(specify model and serial no.)

Solvent Used: ACN

Solvent Supplier: Fisher Lot No(s).: 182354

Date Opened: 2018/09/27

Storage Location / Conditions: FZ11

Notes/Comments

Solution No.: S-4454 Date: 2018/10/23 Expiry Date: See Below Discard Date: _____

S-4454 (PRLST 151 p. 30)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4454-1	MPFBA	MPFBA0417	2017/05/31	2022/04/12	S4428-1		50	MeOH	FZ-11
S4454-2	M5PFPeA	M5PFPeA1116	2017/05/31	2021/11/22	S4428-2		50	MeOH	FZ-11
S4454-3	MPFHxA	MPFHxA1116	2017/05/31	2021/11/22	S4428-3		50	MeOH	FZ11
S4454-4	MPFHxS	MPFHxS0217	2017/05/31	2022/02/17	S4428-4		50	MeOH	FZ-11
S4454-5	M4PFHpA	M4PFHpA0517	2017/05/31	2022/05/03	S4428-5		50	MeOH	FZ-11
S4454-6	MPFOA	MPFOA0417	2017/05/31	2022/04/12	S4428-6		50	MeOH	FZ-11
S4454-7	MPFOS	MPFOS1216	2017/05/31	2021/12/12	S4428-7		50	MeOH	FZ-11
S4454-8	MPFNA	MPFNA0916	2017/05/31	2021/09/30	S4428-8		50	MeOH	FZ-11
S4454-9	MPFDA	MPFDA0916	2017/05/31	2021/09/30	S4428-9		50	MeOH	FZ-11
S4454-10	MPFUdA	MPFUdA1116	2017/05/31	2021/11/22	S4428-10		50	MeOH	FZ11
S4454-11	MPFDoA	MPFDoA0416	2017/05/31	2021/04/08	S4428-11		50	MeOH	FZ-11
S4454-12	M2PFTeDA	M2PFTeDA0217	2017/05/31	2022/03/01	S4428-12		50	MeOH	FZ-11
S4454-13	MPFOSA	M8FOSA1017I	2018/09/18	2022/10/11	S4428-13		50	IPA	FD-59
S4454-14	D3-N-MeFOSAA	d3NMeFOSAA0818	2018/09/18	2023/08/23	S4428-14		50	MeOH	FD59
S4454-15	D5-N-EtFOSAA	d5NEtFOSAA0818	2018/09/18	2023/08/23	S4428-15		50	MeOH	FD59
S4454-16	D-N-MeFOSA-M	dNMeFOSA0417M	2017/05/31	2022/04/20	S4449-1		50	MeOH	FZ11
S4454-17	D-N-EtFOSA-M	dNEtFOSA0417M	2017/05/31	2022/04/20	S4449-2		50	MeOH	FZ11
S4454-18	D7-N-MeFOSE-M	d7NMeFOSE0217M	2017/05/31	2022/03/23	S4449-3		50	MeOH	FZ11
S4454-19	D9-N-EtFOSE-M	d9NEtFOSE0317M	2017/05/31	2022/03/23	S4449-4		50	MeOH	FZ11
S4454-20	M2-6:2FTS	M262FTS0218	2018/09/25	2023/02/16	S4449-5		50	MeOH	FD59
S4454-21	M2-8:2FTS	M282FTS0118	2018/09/25	2023/01/24	S4449-6		50	MeOH	FD59
Date opened (All compounds): 2018/10/23			Supplier: Wellington			Chemist: GSZ, 2018/10/18			

No writing on bottom page.

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 42

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4473 Date: 2018/11/21 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

S-4473 (PRLST 151 pg. 42)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4473-1	D-N-MeFOSA-M	dNMeFOSA1117M	2018/09/18	2022/11/08	S4454-16		50	MeOH	FZ-11
S4473-2	D-N-EtFOSA-M	dNEtFOSA1017M	2018/09/18	2022/10/11	S4454-17		50	MeOH	FZ-11
S4473-3	D7-N-MeFOSE-M	d7NMeFOSE1017M	2018/09/18	2022/10/13	S4454-18		50	MeOH	FZ-11
S4473-4	D9-N-EtFOSE-M	d9NEtFOSE1017M	2018/09/18	2022/10/13	S4454-19		50	MeOH	FZ-11
S4473-5	M2-6:2FTS	M262FTS0218	2018/09/25	2023/02/16	S4454-20		50	MeOH	FD-59
S4473-6	M2-8:2FTS	M282FTS0118	2018/09/25	2023/01/24	S4454-21		50	MeOH	FD-59
Date opened (All compounds): 2018/11/21			Supplier: Wellington			Chemist: GSZ			

No writing on bottom page.

Notes/Comments

Solution No.: S-4474 Date 2018/11/28 Expiry Date: 2019/05/28 Discard Date: —

Replaces Solution: — Replaced by Solution: _____ Chemist: lav

Compound: Non-Ionic Surfactant Stock Soln. Purity: _____

Date Received: _____ Expiry Date: _____ Lot No.: _____

Supplier: _____

Date Opened: _____

Final Gross Weight: ~~1.6878~~ 1.6881 g/mg Dilution Volume: 500 mL

Tare Weight*: _____ g/mg Volumetric Flask: _____

Net Weight: _____ g/mg **Concentration:** _____ ug/mL

Adjusted Net Weight**: 1688.1 mg Solvent(s): MeOH

Balance Used: FC-1
(specify model and serial no.)

Solvent Used: MeOH

Solvent Supplier: Fisher Lot No(s).: 181172

Date Opened: 2018/11/13

Storage Location / Conditions: FZ-11

Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

WELLINGTON LABORATORIES

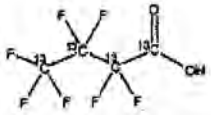
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFBA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid

LOT NUMBER: MPFBA0417

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 218.01
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
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

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)

1 ampule
2014/10/25 65%

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

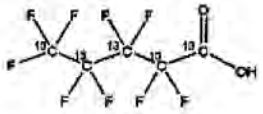
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2017.09.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2017.05.31 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M5PFPeA	**LOT NUMBER:**	M5PFPeA1116
COMPOUND:	Perfluoro-n-[$^{13}C_5$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5HF_9O_2$	**MOLECULAR WEIGHT:**	269.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_5$)
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		

Received
2x1.2 ml
MB1 5/2/22

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-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/09/2016 (mm/dd/yyyy)

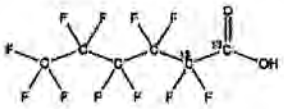
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

date recieved 2017/05/02 1x1.2 FZ-11
date recievd 2017/05/31 2x1.2
date received 2017/0222 2x1.2

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 ($1,2\text{-}^{13}C_2$)
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 (freezer)		

HPLC (1)
2017/02/02
SSV

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

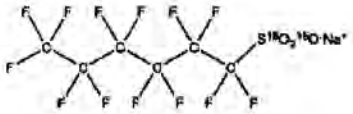
Certified By: B.G. Chittim **Date:** 12/13/2016 (mm/dd/yyyy)

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

Received date: 2017/02/22 1x1.2 mL MMN
Received date: 2017/02/14 1x1.2 mL MMN
Received date: 2017/02/02 2x1.2 mL MZH
Received date: 2017/05/02 1x1.2 mL SSV
Received date: 2017/05/31 2x1.2 mL ssv
Date Received: 2017.05.02 - 1 x 1.2ml - HPLC
Date Received: 2017/09/12 - 1 ampule HPLC
Date Received: 2017/11/07 - 1 ampule HPLC

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		

F2
1ampule
HPLC
2017/05/02
FD3

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: B.G. Chittim **Date:** 03/02/2017 (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

Date Received: 2017.05.31 - 1 ampoule - HPLC
Date received 2017/09/07 1 ampoule HPLC
Date received 2017/10/25 1 ampoule HPLC
Date Received: 2017.10.25 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

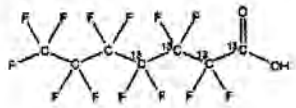
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M4PFHpA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid

LOT NUMBER: M4PFHpA0517

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{12}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	05/03/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/03/2022		
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)

1 ampoule
2017/10/24 652

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

Date Received: 2017.05.31 - 1 ampoule - HPLC
Date Received: 2017.09.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

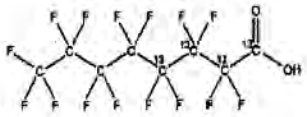
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid

LOT NUMBER: MPFOA0417

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 418.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
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

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

Fz
1 ampule
HPLC
2017/05/02
JB3

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/28/2017 (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

date received: 2017/05/22 - 1 ampule HPLC

date received: 2017/05/31 - 1 ampule HPLC

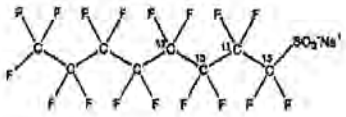
date received 2017/09/12 - 1 ampule HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1216
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:**	≥98% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	12/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	12/12/2021		
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 ~ 0.8% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

Received
2x1.2mL
MB1 2017-05-22

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/14/2016 (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

date recieved 2017/05/31 2x1.2
Date Received: 2017.05.02 - 1 ampule - HPLC

WELLINGTON LABORATORIES

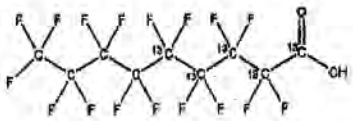
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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:	$^{13}C_5{}^{13}C_4HF_{17}O_2$	**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		

Received
2016-12-12
1x1.2 ml
FZ-11

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)

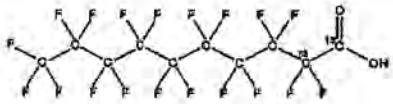
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Received date: 2017/02/22 2x1.2 mL MZ
Received date: 2017/05/02 1x1.2 mL ssv
Received date: 2017/05/31 2x1.2 mL ssv
Received date: 2017/09/07 2x1.2 mL TRW
Received date: 2017/10/25 2x1.2 mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0916
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-$^{13}C_2$)
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		

Received mm
2016-12-12
1x1.2ml
FZ-11

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 $^{13}C_4$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

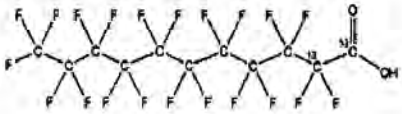
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2017.02.02 - 1 x 1.2ml - HPLC
Received date: 2017/02/14 1x1.2 mL MMN
Date Received: 2017.02.22 - 2 x 1.2ml - HPLC,
Date Received: 2017.05.02 - 1 x 1.2ml - HPLC
Date Received: 2017.05.31 - 2 x 1.2ml - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFUdA	**LOT NUMBER:**	MPFUdA1116
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

Received mm 2017/02/22
2 x 1.2 mL (T2-11)

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 $1\text{-}^{13}C_1$-PFUdA (~1%; see Figure 2), $2\text{-}^{13}C_1$-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

Received 2017/05/02 2x1.2 mL HPLC
Date Received: 2017.05.02 - 1 x 1.2ml - HPLC
Date Received: 2017.05.31 - 1 x 1.2ml - HPLC
Date Received: 2017.06.29 - 1 x 1.2ml - HPLC
Date Received: 2017.09/07 - 1 x 1.2ml - HPLC
Date Received: 2017.02/22 - 1 x 1.2ml - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDoA	**LOT NUMBER:**	MPFDoA0416
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid		
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)	04/08/2016		
EXPIRY DATE: (mm/dd/yyyy)	04/08/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

Received MMN 50 ng/ml 15
1 x 1.2mL
FZ35

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:** 04/15/2016 (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

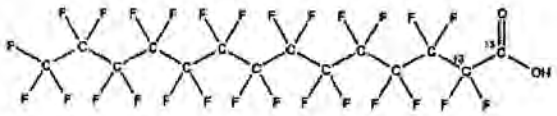
Date Received: 2016.10.24 -HPLC - 1 x1.2ml
Received 2016/12/12 1 x 1.2mL MMN FZ-11
Received date: 2017/02/22 2x1.2 mL MZ
Received date: 2017/05/02 1x1.2 mL ssv
HReceived date: 2017/05/31 2x1.2 mL ssv
Date Received: 2017.05.02- 1 x 1.2ml - HPLC

WELLINGTON LABORATORIES

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:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	03/01/2017		
EXPIRY DATE: (mm/dd/yyyy)	03/01/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

PV
1 ampule
HPLC
2017/05/02
JD3

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

Date received 2017/05/31 1 ampule HPLC
Date received 2017/09/07 1 ampule HPLC
Date received 2017/10/25 1 ampule HPLC

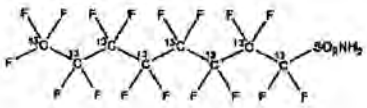
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[$^{13}C_8$]octanesulfonamide

LOT NUMBER: M8FOSA1017I

STRUCTURE:



CAS #: Not available

20181012 IG
1 ampoule
e.G

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)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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 ~ 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:** 10/20/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC

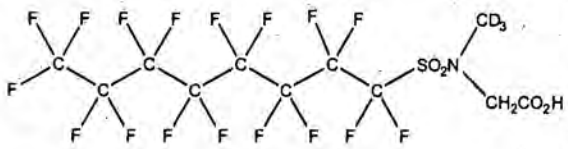
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0818

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:



CAS #: Not available

Date Received = 2018/09/18
Group: HPLC
Quantity = 1 Ampoule
Initials: LG

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)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

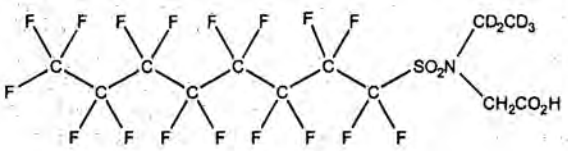
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0818

COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:



CAS #: Not available

Date Received = 2018/09/18
Group = HPLC
Quantity = 1 Ampoule
Initials: CR

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)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
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:** 08/28/2018
(mm/dd/yyyy)
B.G. Chittim, General Manager

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

WELLINGTON LABORATORIES

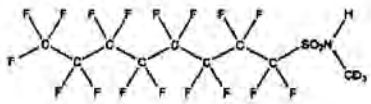
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M
COMPOUND: N-methyl-d_3-perfluoro-1-octanesulfonamide

LOT NUMBER: dNMeFOSA1117M

STRUCTURE:

CAS #: Not available



2018/01/16
1 ampoule
2.6

MOLECULAR FORMULA:	$C_9D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.18
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_1$
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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:** 11/16/2017 (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

Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 2 ampoules - HPLC
Date Received: 2018.06.04 - 2 ampoules - HPLC
Date Received: 2018.07.12 - 2 ampoules - HPLC
Date Received: 2018.09.18 - 2 ampoules - HPLC
Date Received: 2018.09.25 - 2 ampoules - HPLC

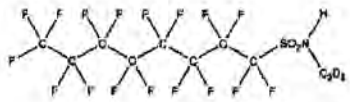
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d-N-EtFOSA-M
COMPOUND: N-ethyl-d_5-perfluoro-1-octanesulfonamide

LOT NUMBER: dNEtFOSA1017M

STRUCTURE:



CAS #: Not available

HPLC
2018/03/08
2x ampoules
E.G

MOLECULAR FORMULA:	$C_{10}D_5HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	532.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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:** 11/06/2017 (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

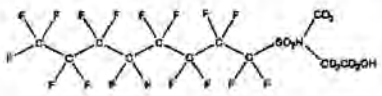
Date Received: 2017.11.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 2 ampoules - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d7-N-MeFOSE-M **LOT NUMBER:** d7NMeFOSE1017M
COMPOUND: 2-(N-methyl-d3-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_7HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	664.27
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_7$
LAST TESTED: (mm/dd/yyyy)	10/13/2017 (HRGC/LRMS) 10/12/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampule
HPLC
2017/11/07

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:** 11/03/2017 (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

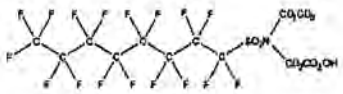
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d9-N-EtFOSE-M **LOT NUMBER:** d9NEtFOSE1017M
COMPOUND: 2-(N-ethyl-d5-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{10}D_4HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	580.31
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED:	10/13/2017 (HRGC/LRMS)		
	10/12/2017 (LC/MS)		
EXPIRY DATE:	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampoule
HPLC
2017/11/07

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.
- Contains ~ 1.2% of N-ethyl-d5-perfluoro-1-octanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017
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

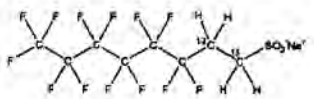
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoules - HPLC
Date Received: 2018.07.12 - 1 ampoules - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0218
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE:



CAS #: Not available

Received on:
2018/07/12
Tyashvi
1 x Ampoule

MOLECULAR FORMULA:	$^{13}C_2{}^{13}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.5 ± 2.4 µg/ml (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED:	02/16/2018		
EXPIRY DATE:	02/16/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018
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

Received date: 2018/06/04 1x1.2 mL HPLC
Received date: 2018/07/12 1x1.2 mL HPLC
Date Received: 2018.09.18 1x1.2 ml HPLC
Date Received: 2018.09.25 1x1.2 ml HPLC

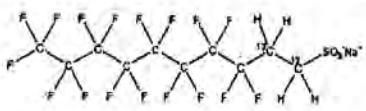
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS
LOT NUMBER: M282FTS0118
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE:

CAS #: Not available



20181031 08
2 X a-pools
E. G

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_8H_4F_{13}SO_3Na$
MOLECULAR WEIGHT: 552.15
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.8 ± 2.4 µg/ml (M2-8:2FTS anion)
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
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: B.G. Chittim, General Manager **Date:** 01/26/2018 (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

Date Received: 2018.05.02 - 1 ampule - HPLC
Date Received: 2018.06.04 - 1 ampule - HPLC
Date Received: 2018.07.12 - 1 ampule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC
Date Received: 2018.09.25 - 1 ampoule - HPLC

155 PG 130

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

Solution No.: SI-7316 7318 (GSZ 2018/12/19) Prep'n Date: 2018/12/19 Expiry Date: ~~2019/12/19~~ 2022/07/20 GSZ Discard Date:

Replaces Solution No.: SI-7291 Replaced by Solution: SI-7326 Chemist: GSZ

Sol'n. Name: PFC INTERNAL STD SPIKING SOLUTION

Solution Used As: Internal Std: ✓ Surrogate Spike:

Spike Volume: — uL or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS

Solvent(s): 0.3% NH4OH in MeOH Supplier(s): See PRLRE 124-173 Lot No(s).: See PRLRE 124-173

Date Solvent Opened: See PRLRE 124-173

Volumetric Flask Used: 200ml Class A (5640) Syringe ID: Pipette M4101IF / K26250F

Storage Location and Conditions: FZ 11

Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date: See attached sheet

SI-7316 (PRLST 155 p.130)

Compound Name	ID#	Conc. (ug/mL)	Vol. of Stock standard (uL)	Dilution volume (mL)	Final Conc. (ng/mL)	Exp. date
MPFBA	S4493-1	50	200	200	50	2023/02/16
M5PFPeA	S4493-2	50	200	200	50	2022/07/20
MPFHxA	S4493-3	50	200	200	50	2023/05/22
MPFHxS	S4493-4	50	200	200	50	2023/03/22
M4PFHpA	S4493-5	50	200	200	50	2023/07/06
MPFOA	S4493-6	50	200	200	50	2023/05/04
MPFOS	S4493-7	50	200	200	50	2023/06/15
MPFNA	S4493-8	50	200	200	50	2022/12/14
MPFDA	S4493-9	50	200	200	50	2023/02/16
MPFUdA	S4493-10	50	200	200	50	2023/05/11
MPFDoA	S4493-11	50	200	200	50	2023/02/16
M2PFTeDA	S4493-12	50	200	200	50	2022/11/30
MPFOSA	S4493-13	50	200	200	50	2022/10/11
D3-N-MeFOSAA	S4493-14	50	200	200	50	2023/08/23
D5-N-EtFOSAA	S4493-15	50	200	200	50	2023/08/23
D-N-MeFOSA-M	S4493-16	50	500	200	125	2022/11/08
D-N-EtFOSA-M	S4493-17	50	500	200	125	2022/10/11
D7-N-MeFOSE-M	S4493-18	50	500	200	125	2022/10/13
D9-N-EtFOSE-M	S4493-19	50	500	200	125	2022/10/13
M2-6:2FTS	S4493-20	50	500	200	125	2023/02/16
M2-8:2FTS	S4493-21	50	500	200	125	2023/01/24

No writing on bottom page.

GSZ, 2018/12/19

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 54

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4493 Date: 2018/12/19 Expiry Date: See Below Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: GSZ

S-4493 (PRLST 151 g.54)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc (ug/mL)	Solvent	Storage
S4493-1	MPFBA	MPFBA0218	2018/09/18	2023/02/16	S4454-1		50	MeOH	FZ-11
S4493-2	M5PFPeA	M5PFPeA0717	2018/09/18	2022/07/20	S4454-2		50	MeOH	FZ-11
S4493-3	MPFHxA	MPFHxA0518	2018/09/18	2023/05/22	S4454-3		50	MeOH	FZ11
S4493-4	MPFHxS	MPFHxS0318	2018/09/18	2023/03/22	S4454-4		50	MeOH	FZ-11
S4493-5	M4PFHpA	M4PFHpA0618	2018/09/18	2023/07/06	S4454-5		50	MeOH	FZ-11
S4493-6	MPFOA	MPFOA0418	2018/09/18	2023/05/04	S4454-6		50	MeOH	FZ-11
S4493-7	MPFOS	MPFOS~~0418~~ 0618	2018/09/18	2023/06/15	S4454-7		50	MeOH	FZ-11
S4493-8	MPFNA	MPFNA1217 GSZ	2018/09/18	2022/12/14	S4454-8		50	MeOH	FZ-11
S4493-9	MPFDA	MPFDA0218 2018/12/19	2018/09/18	2023/02/16	S4454-9		50	MeOH	FZ-11
S4493-10	MPFUdA	MPFUdA0518	2018/09/18	2023/05/11	S4454-10		50	MeOH	FZ11
S4493-11	MPFDoA	MPFDoA0218	2018/09/18	2023/02/16	S4454-11		50	MeOH	FZ-11
S4493-12	M2PFTeDA	M2PFTeDA1117	2018/09/18	2022/11/30	S4454-12		50	MeOH	FZ-11
S4493-13	MPFOSA	M8FOSA1017I	2018/09/25	2022/10/11	S4454-13		50	IPA	FD-59
S4493-14	D3-N-MeFOSAA	d3NMeFOSAA0818	2018/09/25	2023/08/23	S4454-14		50	MeOH	FD59
S4493-15	D5-N-EtFOSAA	d5NEtFOSAA0818	2018/09/25	2023/08/23	S4454-15		50	MeOH	FD59
S4493-16	D-N-MeFOSA-M	dNMeFOSA1117M	2018/09/18	2022/11/08	S4473-1		50	MeOH	FZ-11
S4493-17	D-N-EtFOSA-M	dNEtFOSA1017M	2018/09/18	2022/10/11	S4473-2		50	MeOH	FZ-11
S4493-18	D7-N-MeFOSE-M	d7NMeFOSE1017M	2018/09/18	2022/10/13	S4473-3		50	MeOH	FZ-11
S4493-19	D9-N-EtFOSE-M	d9NEtFOSE1017M	2018/09/18	2022/10/13	S4473-4		50	MeOH	FZ-11
S4493-20	M2-6:2FTS	M262FTS0218	2018/09/25	2023/02/16	S4473-5		50	MeOH	FD-59
S4493-21	M2-8:2FTS	M282FTS0118	2018/09/25	2023/01/24	S4473-6		50	MeOH	FD-59
Date opened (All compounds): 2018/12/19			Supplier: Wellington			Chemist: GSZ, 2018/12/19			

No writing on bottom page.

Solution No.: S-4494 Date: 2018/12/27 Expiry Date: ~~2019/06/21~~ 2019/06/27 GSZ 2018/12/28 Discard Date: —

Replaces Solution: S-4448 Replaced by Solution: _____ Chemist: EGL

Compound: Cyanoric ICV Stock soln Purity: 100.2%

Date Received: 2018/10/30 Expiry Date: 2021/05/29 Lot No.: G139414

Supplier: Dr. Ehrenstorfer GmbH

Date Opened: 2018/12/27

Final Gross Weight: 0.0100 g/mg Dilution Volume: 10 mL

Tare Weight*: _____ g/mg Volumetric Flask: 10 ml class A

Net Weight: 10.0 g/mg **Concentration:** 1002 ug/mL

Adjusted Net Weight**: 10.02 mg Solvent(s): _____

Balance Used: FC-1
(specify model and serial no.)

Solvent Used: DMSO / MeOH

Solvent Supplier: Sigma/Aldrich Lot No(s).: SHBK1713/ SHBG7759V

Date Opened: 2018/05/11 / 2018/10/16

Storage Location / Conditions: FD-59

Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

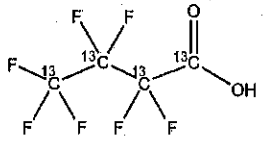
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFBA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid

LOT NUMBER: MPFBA0218

STRUCTURE:



CAS #: Not available

Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initial:

MOLECULAR FORMULA: $^{13}C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 218.01
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)

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:** 02/22/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

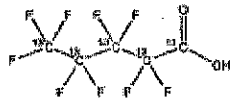
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date received: 2017/09/07 Rec'd Ampoule: 1

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M5PFPeA	**LOT NUMBER:**	M5PFPeA0717
COMPOUND:	Perfluoro-n-[$^{13}C_5$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5HF_9O_2$	**MOLECULAR WEIGHT:**	269.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>99%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	07/20/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/20/2022		
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 < 0.1% of perfluoro-n-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/20/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M6 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Date Received: 2017.10.25 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule -HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC

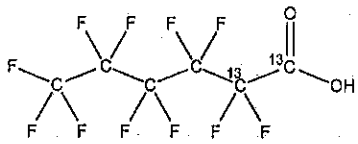
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

LOT NUMBER: MPFHxA0518

STRUCTURE:



CAS #: Not available

Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initials: lg

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$
CONCENTRATION:	50 ± 2.5 µg/ml
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	05/22/2018
EXPIRY DATE: (mm/dd/yyyy)	05/22/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

MOLECULAR WEIGHT:	316.04
SOLVENT(S):	Methanol Water (<1%)
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.
- Contains < 0.1% of perfluoro-n-hexanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

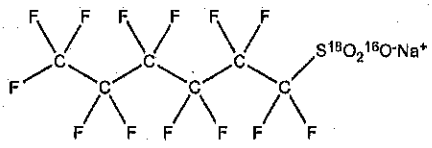
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxS
LOT NUMBER: MPFHxS0318
COMPOUND: Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate

STRUCTURE:



CAS #: 1585941-14-5

Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initials: JR

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) 03/22/2018
EXPIRY DATE: (mm/dd/yyyy) 03/22/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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) and ~ 0.3% of sodium perfluoro-1-heptane[$^{18}O_2$]sulfonate ($^{18}O_2$-PFHpS).
- Due to the isotopic purity of the starting material ($^{18}O_2$ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

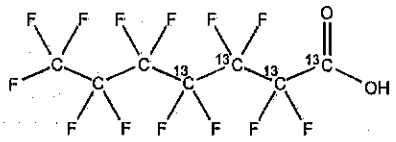
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M4PFHpA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid

LOT NUMBER: M4PFHpA0618

STRUCTURE:



CAS #: Not available

Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initial:

MOLECULAR FORMULA: $^{13}C_4{}^{12}C_3HF_{13}O_2$
MOLECULAR WEIGHT: 368.03
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy) 07/06/2018
EXPIRY DATE: (mm/dd/yyyy) 07/06/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.04% of perfluoro-n-heptanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

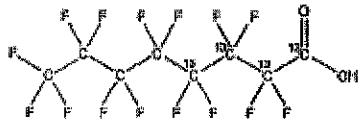
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid

LOT NUMBER: MPFOA0418

STRUCTURE:



CAS #: 960315-48-4

Date Received: 2018/09/18
Group = HPLC
Quantity: 1 Ampoule
Initials: VZ

MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4HF_{15}O_2$	**MOLECULAR WEIGHT:**	418.04
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:	05/04/2018		
EXPIRY DATE:	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/13/2018
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

Form:CF, Issued 2004-11-19
Revised:S, Revised 2018-04-22

MPFOA0418 (1 of 4)
rev1

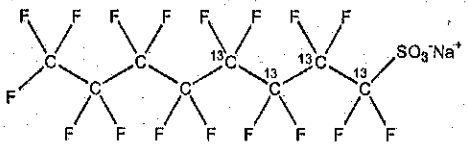
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0618

COMPOUND: Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate

STRUCTURE:



CAS #: Not available

Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initial: VV

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)	06/15/2018		
EXPIRY DATE: (mm/dd/yyyy)	06/15/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/18/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

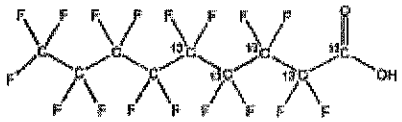
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid

LOT NUMBER: MPFNA1217

STRUCTURE:



CAS #: Not available

2018/01/16
1 ampoule
E.G

MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/19/2017 (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

Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

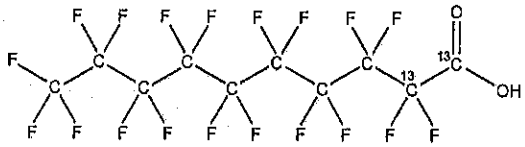
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid

LOT NUMBER: MPFDA0218

STRUCTURE:

CAS #: Not available



Date Received: 2018/09/18
Group: HPLC
Quantity: 1 Ampoule
Initials: LR

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$
CONCENTRATION:	50 ± 2.5 µg/ml
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	02/16/2018
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

MOLECULAR WEIGHT:	516.07
SOLVENT(S):	Methanol Water (<1%)
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.
- Contains < 0.1% of $^{13}C_4$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

WELLINGTON LABORATORIES

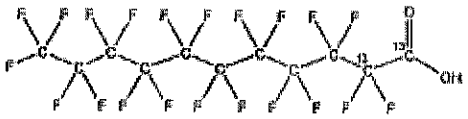
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFUdA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid

LOT NUMBER: MPFUdA0518

STRUCTURE:

CAS #: Not available



Date Received = 20181109118
Group = HPLC
Quantity = 1 Ampoule
Initial g

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	05/11/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/11/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Presence of 1-$^{13}C_1$-PFUdA (~1%; see Figure 2), 2-$^{13}C_1$-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ^{13}C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ Date: 05/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

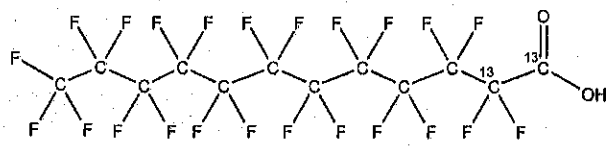
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA0218

STRUCTURE:



CAS #: Not available

Date Received : 2018/09/18
Group: HPLC
Quantity : 1 Ampoule
Initial : LR

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)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/23/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

WELLINGTON LABORATORIES

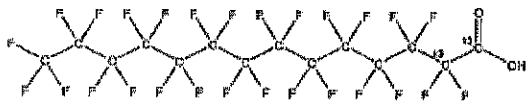
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFTeDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid

LOT NUMBER: M2PFTeDA1117

STRUCTURE:

CAS #: Not available



20181011 lc
1 - 8 - 4
5. 6

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/30/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/30/2022		
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: 12/01/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC

WELLINGTON LABORATORIES

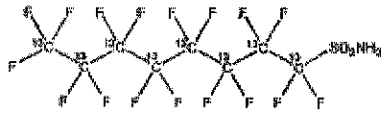
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[$^{13}C_8$]octanesulfonamide

LOT NUMBER: M8FOSA1017I

STRUCTURE:

CAS #: Not available



20181016
1 a—pack
E. G

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)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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 ~ 1.1% of perfluoro-1-[$^{13}C_8$]octanesulfonamide and ~ 0.01% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2017 (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

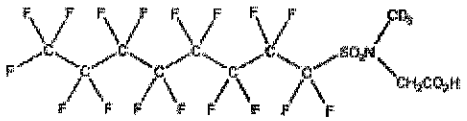
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA
LOT NUMBER: d3NMeFOSAA0618
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA:	$C_{11}D_3H_2F_{17}NO_4S$	**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)	06/23/2016		
EXPIRY DATE: (mm/dd/yyyy)	06/23/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

Received on:
2018/09/25
TK-9
2x Ampoules.

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: 06/24/2016 (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

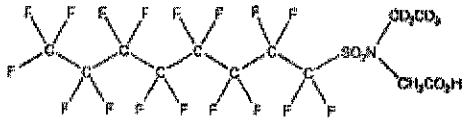
Form#:37, Issued 2004-11-16
Revision#:6, Revised 2010-09-14

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA
LOT NUMBER: d5NEtFOSAA0818
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)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

Received on 2018/09/25
TK4
2x Ampoules

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

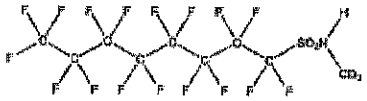
Certified By: B.G. Chittim, General Manager **Date:** 08/28/2018 (mm/dd/yyyy)

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	d-N-MeFOSA-M	**LOT NUMBER:**	dNMeFOSA1117M
COMPOUND:	N-methyl-d_3-perfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	Not available



2018/01/16
1 ampoule
2.6

MOLECULAR FORMULA:	$C_9D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.19
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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: B.G. Chittim, General Manager **Date:** 11/16/2017 (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

Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 2 ampoules - HPLC
Date Received: 2018.06.04 - 2 ampoules - HPLC
Date Received: 2018.07.12 - 2 ampoules - HPLC
Date Received: 2018.09.18 - 2 ampoules - HPLC
Date Received: 2018.09.25 - 2 ampoules - HPLC
Date Received: 2018.12.06 - 2 ampoules - HPLC

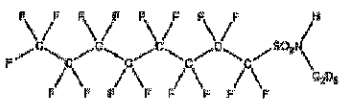
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d-N-EtFOSA-M
COMPOUND: N-ethyl-d_5-perfluoro-1-octanesulfonamide

LOT NUMBER: dNEtFOSA1017M

STRUCTURE:



CAS #: Not available

HPLC
2018 10 3/0 8
2x ampules
E. G

MOLECULAR FORMULA:	$C_{10}D_5HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	532.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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:** 11/06/2017 (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

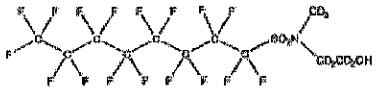
Date Received: 2017.11.07 - 1 ampoule - HPLC
Date Received: 2017.12.06 - 2 ampoules - HPLC
Date Received: 2018.03.08 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d7-N-MeFOSE-M **LOT NUMBER:** d7NMeFOSE1017M
COMPOUND: 2-(N-methyl-d3-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_7HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	564.27
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_7$
LAST TESTED: (mm/dd/yyyy)	10/13/2017 (HRGC/LRMS) 10/12/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampule
HPLC
2017/11/07

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:** 11/03/2017 (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

Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoule - HPLC
Date Received: 2018.07.12 - 1 ampoule - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d9-N-EtFOSE-M
LOT NUMBER: d9NEtFOSE1017M
COMPOUND: 2-(N-ethyl-d5-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$C_{10}D_9HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	580.31
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_9$
LAST TESTED: (mm/dd/yyyy)	10/13/2017 (HRGC/LRMS) 10/12/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	10/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

1 ampoule
HPLC
2017/11/07

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.
- Contains ~ 1.2% of N-ethyl-d5-perfluoro-1-octanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M6 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

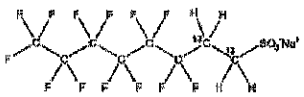
Date Received: 2017.12.06 - 1 ampoule - HPLC
Date Received: 2018.01.16 - 1 ampoule - HPLC
Date Received: 2018.03.08 - 2 ampoules - HPLC
Date Received: 2018.05.02 - 1 ampoule - HPLC
Date Received: 2018.06.04 - 1 ampoules - HPLC
Date Received: 2018.07.12 - 1 ampoules - HPLC
Date Received: 2018.09.25 - 2 ampoule - HPLC
Date Received: 2018.09.18 - 2 ampoule - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS
LOT NUMBER: M262FTS0218
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE:



CAS #: Not available

Received on:
2018/07/12
Tyasbeck
1 x 1.2 ampoule

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.5 ± 2.4 µg/ml (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/15/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/15/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018 (mm/dd/yyyy)
S.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M6 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

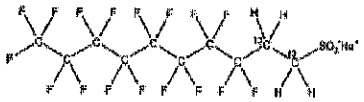
Received date: 2018/06/04 1x1.2 mL HPLC
Received date: 2018/07/12 1x1.2 mL HPLC
Date Received: 2018.09.18 1x1.2 ml HPLC
Date Received: 2018.09.25 - 4 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS
LOT NUMBER: M282FTS0118
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE:



CAS #: Not available

20181031 08
2 X ampules
E. G

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_8H_2F_{17}SO_3Na$
MOLECULAR WEIGHT: 552.16
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.9 ± 2.4 µg/ml (M2-8:2FTS anion)
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
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: 01/26/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.05.02 - 1 ampule - HPLC
Date Received: 2018.06.04 - 1 ampule - HPLC
Date Received: 2018.07.12 - 1 ampule - HPLC
Date Received: 2018.09.18 - 1 ampoule - HPLC
Date Received: 2018.09.25 - 4 ampoules - HPLC
Date Received: 2018.12.06 - 2 ampoules - HPLC

PREPARATION OF SURROGATE / INTERNAL STANDARD SPIKING SOLUTION

GSZ 2018/12/19
Solution No.: SI-~~7317~~ 7319 Prep'n Date: 2018/12/19 Expiry Date: 2019/12/19 Discard Date:
Replaces Solution No.: SI-7239 Replaced by Solution: Chemist: GSZ
Sol'n. Name: INJ. I-S.
Solution Used As: Internal Std: / Surrogate Spike:
Spike Volume: 20 (uL) or mL (for I.S. uL per mL) For Instrument/Analysis: LCMS/MS
Solvent(s): 0.3% NH4OH in MeOH Supplier(s): See PRLRE 124-173 Lot No(s).: See PRLRE 124-173
Date Solvent Opened: See PRLRE 124-173
Volumetric Flask Used: 200mL Class A (5640) Syringe ID: Pipette K262505F
Storage Location and Conditions: FZ11
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL) (uL)	Dilution Volume (mL)	Final Conc'n. ng/mL (ug/mL)	Absolute Amount Spiked (ug / ng)
$^{13}C_8$ PFDA	S-4460	50	400	200	100	–
$^{13}C_6$ PFHxA	S-4461	50	400	200	100	–
		GSZ				

Notes:

7320
Solution No.: SI-7318 DDA 2018/12/19 Prep'n Date: 2018/12/19 Expiry Date: Daily Discard Date:
Replaces Solution No.: SI-7317 Replaced by Solution: Chemist: DDA
Sol'n. Name: Acrylamide IS working
Solution Used As: Internal Std: v Surrogate Spike:
Spike Volume: — uL or mL (for I.S. uL per mL) For Instrument/Analysis: LC/MS MS
Solvent(s): RODI H_2O Supplier(s): In House Lot No(s).:
Date Solvent Opened:
Volumetric Flask Used: 10mL Class A Syringe ID: Pipette M234878
Storage Location and Conditions:
Ampule supplier; Mix Name; Catalogue No.; Lot No.; Date Rec'd.; Date Opened, Ampule Expiry Date:

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (mL) (uL)	Dilution Volume (mL)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug / ng)
Acrylamide IS Stock	S-4462	1030.64	24.3	10	2.5	—
		2018/12/19 DDA				

Notes:

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 34

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4460 Date: 2018/10/31 Expiry Date: 2028/01/23 Discard Date: _____

Replaces Solution: S-4347 Replaced by Solution: _____ Chemist: GSZ

Compound: $^{13}C_9$ PFDA Purity: -

Date Received: 2018/06/06 Expiry Date: 2028/01/23 Lot No.: SGID-014

Supplier: CIL

Date Opened: 2018/10/31

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight* : - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 50 (ug/mL) mg/mL

Adjusted Net Weight** : - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ11

Notes/Comments
Received as solution in ampule.

Solution No.: S-4461 Date: 2018/10/31 Expiry Date: 2020/09/30 Discard Date: _____

Replaces Solution: S-4348 Replaced by Solution: _____ Chemist: GSZ

Compound: $^{13}C_6$ PFHxA Purity: -

Date Received: 2018/06/06 Expiry Date: 2020/09/30 Lot No.: SDAA-004

Supplier: CIL

Date Opened: 2018/10/31

Final Gross Weight: - g/mg Dilution Volume: - mL

Tare Weight* : - g/mg Volumetric Flask: -

Net Weight: - g/mg **Concentration:** 50 ug/mL

Adjusted Net Weight** : - mg Solvent(s): MeOH

Balance Used: -
(specify model and serial no.)

Solvent Used: -

Solvent Supplier: - Lot No(s).: -

Date Opened: -

Storage Location / Conditions: FZ11

Notes/Comments
Received as solution in ampule.

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

Product Name: (Isotopic Label & Enrichment Specification)	PERFLUORODECANOIC ACID (13C9, 99%) 50 UG/ML IN METHANOL
Lot Number:	SCID-014
Catalog Number:	CLM-8172-S

Product Information

Chemical Purity Specification:	≥ 98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	335-76-2
MW*:	523.02
Chemical Formula:	CF3(*CF2)8*CO2H
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	06/20/2008
Expiration Date	06/20/2018
Concentration Based on Gravimetry	50.0 µg/mL
Chemical Purity of Neat Material(s)	>98%
LC/MS for Concentration	46.2 ± 6.4 µg/mL (k=2)

Received mmn 25 Jul 01/15
1 x 1.2mL RT

50 Frontage Road, Andover, MA 01810-5413 USA • 1.800.322.1174 (North America) • 1.978.749.8000 (International) • isotope.com

Date Received:2016.8.17 - 1 x 1.2mL - HPLC
Date Received: 2016.09.14 -HPLC - 1 x 1.2ml
Date Received: 2016/11/22 1x 1.2ml MMN HPLC
Date Received:2017.02.15 - 1 x 1mL - HPLC (MMN)
Date received: 2017/06/09 - 1x1.2ml - HPLC
Date received: 2017/07/25 - 1x1.2ml - HPLC
Date received: 2018/02/28 - 1x1.2ml - HPLC
Date received: 2018/06/06 - 1x1.2ml - HPLC

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

Product Name: (Isotopic Label & Enrichment Specification)	PERFLUOROHEXANOIC ACID, SODIUM SALT (13C6, 99%) 50 UG/ML IN METHANOL
Lot Number:	SDAA-004
Catalog Number:	CLM-8340-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	307-24-4
MW*:	320.00
Chemical Formula:	*CF3(*CF2)4*COOH
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

** For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	9/30/2010
Expiration Date	9/30/2020
Concentration Based on Gravimetry	50.4 µg/mL
Chemical Purity of Neat Material(s)	99.2%
LC/MS for Concentration	47.1 ± 2.6 µg/mL (k=2)

Received June 2016/01/13
1X1.2mL

50 Frontage Road, Andover, MA 01810-5413 USA • 1.800.322.1174 (North America) • 1.978.749.8000 (International) • isotope.com

Date Received: 2017.07.25 - 1 ampoule -HPLC
Date Received: 2018.02.28 - 1 ampoule -HPLC
Date Received: 2018.06.06 - 1 ampoule -HPLC

PREPARATION OF SPIKING STANDARD SOLUTION

Solution No.: SK-7773 Prep'n Date: 2018/07/16 Expiry Date: 2018/07/18 2019-01-17 Discard Date: —

Replaces Solution No.: SK-7753 Replaced by Solution: SK-7776 Chemist: EG1

Solution Name: Acrylamide working solu C Solvent(s): D. H2O

Solvent Supplier(s): — Solvent Lot No(s): —

Date Opened: —

Volumetric Flask Used: 10 ml (Class A) Volume: 10 mL **Spike Volume:** — uL / mL *

Syringe ID: Pipette J43 43 46

Storage Location and Conditions: —

For extended mix of compounds, refer to table on: —

Compound	Parent Solution No.	Parent Solution Conc'n (ug/mL)	Aliquot Volume (uL) mL) *	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug ng) *
Acrylamide working soln B	SK-7772	1	1	0.1	—
		EG1 2018/07/16			

Notes:

Solution No.: SK-7774 Prep'n Date: 2018/07/17 Expiry Date: 2019/01/17 Discard Date: —

Replaces Solution No.: SK-7735 Replaced by Solution: — Chemist: LAV

Solution Name: Composite PFAA working Soln DWB Solvent(s): 0.3:1 v/v MeOH in 96:4 MeOH:NH4OH

Solvent Supplier(s): See PRLRE116-237 Solvent Lot No(s): See PRLRE116-237

Date Opened: See PRLRE116-237

Volumetric Flask Used: 10ml Class A (5640) Volume: 10 mL **Spike Volume:** — uL / mL *

Syringe ID: Pipette ID # J43434G

Storage Location and Conditions: Shelf

For extended mix of compounds, refer to table on: —

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (uL mL) *	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug ng) *
Composite PFAA working Soln DWA	I-5418	125/50 ug/mL	1.0	12.5/50	—

Notes:

Do not write beneath any inserts or place any inserts on top of any raw data entered on this page. Initial and date all entries, corrections and inserts. Include ALL relevant traceable

PREPARATION OF SPIKING STANDARD SOLUTION

Solution No.: SK-8290 Prep'n Date: 2018/12/17 Expiry Date: 2019/12/17 Discard Date: —

Replaces Solution No.: SK-8223 Replaced by Solution: _____ Chemist: GZ

Solution Name: PFC working Soln C Solvent(s): 0.3% NH4OH in MeOH

Solvent Supplier(s): Aldrich Solvent Lot No(s): See PRLRE124-164

Date Opened: See PRLRE124-164

Volumetric Flask Used: 25mL Class A (5640) Volume: 25 mL **Spike Volume:** — uL / mL *

Syringe ID: Pipette # K52290G

Storage Location and Conditions: F2-11

For extended mix of compounds, refer to table on: —

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (uL (mL) *)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug ng) *
Comp. PFC working Soln A	I-5563	1	2.5	100ng/mL	—
				2018/12/17 GZ	

Notes:

Solution No.: SK-8291 Prep'n Date: 2018/12/17 Expiry Date: _____ Discard Date: _____

Replaces Solution No.: SK-8263 Replaced by Solution: _____ Chemist: GSZ

Solution Name: PFAS SECOND SOURCE SPIKING SOLUTION C Solvent(s): 0.3% NH4OH in MeOH

Solvent Supplier(s): See PRLRE 124-164 Solvent Lot No(s): See PRLRE 124-164

Date Opened: See PRLRE 124-164

Volumetric Flask Used: 5mL Class A (28014) Volume: 5 mL **Spike Volume:** — uL / mL *

Syringe ID: Pipette K26250F

Storage Location and Conditions: FZ11

For extended mix of compounds, refer to table on: —

Compound	Parent Solution No.	Parent Solution Conc'n. (ug/mL)	Aliquot Volume (uL (mL) *)	Final Conc'n. (ug/mL)	Absolute Amount Spiked (ug ng) *
PFAS SECOND SOURCE SPIKING SOLN A	I-5564	1	0.5	100 ng/mL	—
				GSZ, 2018/12/17	

Notes:

Do not write beneath any inserts or place any inserts on top of any raw data entered on this page. Initial and date all entries, corrections and inserts. Include ALL relevant traceable references on ALL inserts.

PREPARATION OF STANDARDS OF INTERMEDIARY CONCENTRATION

PRLST 150 PG. 79

Solution No.: I-5563 Date: 2018/12/17 Expiry Date: 2019/12/17 Discard Date: –

Replaces Solution No.: I-5542 Replaced by Solution: _____ Chemist: LV

Compound(s)/Solution Name: PFC Working Soln A

Number of Parent Solution(s): See attached sheet

Concentration of Parent Solution(s): See attached sheet (mg, ug)/mL

Aliquot of Parent Solution(s): See attached sheet mL / uL

Pipette/Syringe ID P424096

Dilution Solvent: 0.3% NH4OH in MeOH Dilution Volume: 25 mL

Final Concentration(s): 1 (mg, ug)/mL

Solution derivatized (as methyl ester): – As Other (specify): –

Solution Contains Surrogate Compounds: – For mix refer to table on page: –

Solution used for: PFC Volumetric Flask: 25 mL Class A (5640)
(identify by serial number or other unique ID)

Solvent Supplier: See PRLRE124-164 Lot No.: See PRLRE124-164

Date Opened: See PRLRE124-164

Storage Location: F2-11 One time Use, Not Stored: –

Ampule Supplier: Wellington Date Opened: See attached sheet

Mix Name: –

Catalogue No.: – Ampule expiry Date: See attached sheet

Lot No.: See attached sheet

Date Received: See attached sheet

Notes/Comments:

I-5563 (PRLST 150 Pg. 79)

Compound Name	ID#	Conc. (ug/mL)	Vol.. of Stock standard (uL)	Final Conc. (ug/mL)	Exp. date
PFBA	S4471-1	50	500	1	2022/12/14
L-PFBS	S4471-2	44.2	565	1	2023/05/04
PFPeA	S4471-3	50	500	1	2023/02/16
PFHxA	S4471-4	50	500	1	2023/05/18
br-PFHxSk	S4489	45.5	549	1	2023/10/02
PFHpA	S4471-6	50	500	1	2023/07/12
L-PFHpS	S4471-7	47.6	525	1	2023/05/04
PFOA	S4471-8	50	500	1	2023/02/16
brPFOSK	S4471-9	46.4	540	1	2023/04/18
PFNA	S4471-10	50	500	1	2023/02/16
PFDA	S4471-11	50	500	1	2022/12/14
L-PFDS	S4471-12	48.2	518	1	2022/11/08
PFUdA	S4471-13	50	500	1	2022/09/21
PFDoA	S4471-14	50	500	1	2023/04/18
PFTrDA	S4471-15	50	500	1	2023/02/16
PFTeDA	S4471-16	50	500	1	2022/09/21
PFOSA (FOSA-I)	S4471-17	50	500	1	2023/06/20
N-MeFOSA-M	S4471-18	50	500	1	2023/05/31
N-EtFOSA-M	S4471-19	50	500	1	2023/05/31
N-MeFOSE-M	S4471-20	50	500	1	2023/05/17
N-EtFOSE-M	S4471-21	50	500	1	2023/06/04
N-MeFOSAA	S4471-22	50	500	1	2023/01/24
N-EtFOSAA	S4471-23	50	500	1	2023/01/24
6:2FTS	S4471-24	47.4	528	1	2023/04/03
8:2FTS	S4471-25	47.9	522	1	2023/01/24

DP writting on bottom Page LV, 2018/12/17

PRLST 151 PG 40

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4471 Date: 2018/11/20 Expiry Date: See Below. Discard Date: _____

Replaces Solution: _____ Replaced by Solution: _____ Chemist: lw

Compound: _____

S-4471 (PRLST 151 Pg. 40)

Solution ID#	Compound Name	Lot#	Received date	Exp. date	Replaces Solution	Replaced by Solution	Conc. (ug/mL)	Solvent	Storage
S4471-1	PFBA	PFBA1217	2018/10/17	2022/12/14	S4435-1		50	MeOH	FZ-11
S4471-2	L-PFBS	LPFBS0418	2018/10/17	2023/05/04	S4435-2		44.2	MeOH	FZ-11
S4471-3	PFPeA	PFPeA0218	2018/10/17	2023/02/16	S4435-3		50	MeOH	FZ-11
S4471-4	PFHxA	PFHxA0518	2018/10/17	2023/05/18	S4435-4		50	MeOH	FZ-11
For br-PFHxSK, Solution, S-4402-6 was used (new ampule not received) — lw 2018/11/23									
S4471-6	PFHpA	PFHpA0718	2018/10/17	2023/07/12	S4435-6		50	MeOH	FZ-11
S4471-7	L-PFHpS	LPFHpS0418	2018/10/17	2023/05/04	S4435-7		47.6	MeOH	FZ-11
S4471-8	PFOA	PFOA0818	2018/10/17	2023/08/23	S4435-8		50	MeOH	FZ-11
S4471-9	brPFOSK	brPFOSK0418	2018/10/17	2023/04/18	S4435-9		46.4	MeOH	FZ-11
S4471-10	PFNA	PFNA0218	2018/10/17	2023/02/16	S4435-10		50	MeOH	FZ-11
S4471-11	PFDA	PFDA1217	2018/10/17	2022/12/14	S4435-11		50	MeOH	FZ-11
S4471-12	L-PFDS	LPFDS1018	2018/10/17	2023/10/05	S4435-12		48.2	MeOH	FZ-11
S4471-13	PFUdA	PFUdA0818	2018/10/17	2023/08/23	S4435-13		50	MeOH	FZ-11
S4471-14	PFDoA	PFDoA0418	2018/10/17	2023/04/18	S4435-14		50	MeOH	FZ-11
S4471-15	PFTrDA	PFTrDA0218	2018/10/17	2023/02/16	S4435-15		50	MeOH	FZ-11
S4471-16	PFTeDA	PFTeDA0917	2018/10/17	2023/08/23	S4435-16		50	MeOH	FZ-11
S4471-17	PFOSA (FOSA-I)	FOSA06181	2018/10/17	2023/06/20	S4435-17		50	IPA	FD-59
S4471-18	N-MeFOSA-M	NMeFOSA0518M	2018/10/17	2023/05/31	S4435-18		50	MeOH	FZ-11
S4471-19	N-EtFOSA-M	NEtFOSA0518M	2018/10/17	2023/05/31	S4435-19		50	MeOH	FZ-11
S4471-20	N-MeFOSE-M	NMeFOSE0418M	2018/10/17	2023/05/17	S4435-20		50	MeOH	FZ-11
S4471-21	N-EtFOSE-M	NEtFOSE0518M	2018/10/17	2023/06/04	S4435-21		50	MeOH	FZ-11
S4471-22	N-MeFOSAA	NMeFOSAA0118	2018/10/17	2023/01/24	S4435-22		50	MeOH	FD-59
S4471-23	N-EtFOSAA	NEtFOSAA0118	2018/10/17	2023/01/24	S4435-23		50	MeOH	FD-59
S4471-24	6:2FTS	62FTS0418	2018/10/17	2023/04/03	S4435-24		47.4	MeOH	FD-59
S4471-25	8:2FTS	82FTS0118	2018/10/17	2023/01/24	S4435-25		47.9	MeOH	FD-59
Date Opened (All compounds):			Supplier (All compounds) : Wellington			Chemist:			

No writting on bottom Page

lw, 2018/11/20

Date Opened: _____

Storage Location / Conditions: _____

Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL INSERTS. LOGBOOK, PAGE AND APPROPRIATE SOLUTION NUMBER REFERENCES MUST BE WRITTEN ON ALL INSERTS.

PRLST 151 PG 51

PREPARATION OF CONCENTRATED STOCK STANDARDS

Solution No.: S-4488 Date: 2018/12/14 Expiry Date: 2023/10/02 Discard Date: —
Replaces Solution: S-4436-5 Replaced by Solution: — Chemist: GSZ
Compound: br-PFHxSK Purity: —
Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHxSK1018
Supplier: Wellington
Date Opened: 2018/12/14
Final Gross Weight: — g/mg Dilution Volume: — mL
Tare Weight*: — g/mg Volumetric Flask: — GSZ 2018/12/14
Net Weight: — g/mg **Concentration:** ~~50~~ 45.5 (ug/mL) mg/mL
Adjusted Net Weight**: — mg Solvent(s): MeOH
Balance Used: —
(specify model and serial no.)
Solvent Used: —
Solvent Supplier: — Lot No(s).: —
Date Opened: —
Storage Location / Conditions: FZ11
Notes/Comments

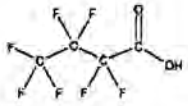
Solution No.: S-4489 Date: 2018/12/17 Expiry Date: 2023/10/02 Discard Date: —
Replaces Solution: S-4435-5 Replaced by Solution: — Chemist: LW
Compound: br-PFHxSK Purity: —
Date Received: 2018/11/23 Expiry Date: 2023/10/02 Lot No.: brPFHXSK1018
Supplier: Wellington
Date Opened: 2018/12/17
Final Gross Weight: — g/mg Dilution Volume: — mL
Tare Weight*: — g/mg Volumetric Flask: —
Net Weight: — g/mg **Concentration:** 45.5 (ug/mL)
Adjusted Net Weight**: — mg Solvent(s): MeOH
Balance Used: —
(specify model and serial no.)
Solvent Used: —
Solvent Supplier: — Lot No(s).: —
Date Opened: —
Storage Location / Conditions: F2-11
Notes/Comments

DO NOT WRITE BENEATH ANY INSERTS ON THIS PAGE. DO NOT PLACE ANY INSERTS ON TOP OF ANY RAW DATA ENTERED ON THIS PAGE. INITIAL AND DATE ALL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFBA	**LOT NUMBER:**	PFBA1217
COMPOUND:	Perfluoro-n-butanoic acid		
STRUCTURE:		**CAS #:**	375-22-4



MOLECULAR FORMULA:	$C_4HF_7O_2$	**MOLECULAR WEIGHT:**	214.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

2 ampules
recd: 2018/04/10 DH3

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/18/2017 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

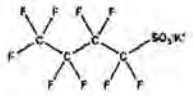
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate

LOT NUMBER: LPFBS0418

STRUCTURE:



CAS #: 29420-49-3

2018/06/26
Tejashri
2X Ampoules

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)	05/04/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

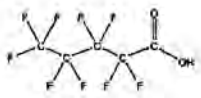
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0218

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) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recd: 2018/04/10 DM3

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 $C_6H_2F_{10}O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 02/20/2018 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

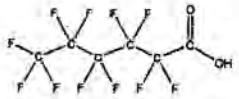
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA0518

STRUCTURE:



CAS #: 307-24-4

Received On:
2018/07/23
TKq
1 x Ampoule

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) 05/18/2018
EXPIRY DATE: (mm/dd/yyyy) 05/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.08.29 - 2 ampoules - HPLC

Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and Branched Isomers

Received on
2018/11/23
TKA
4/4 ampoules.

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK1018
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/01/2018
LAST TESTED: (mm/dd/yyyy)	10/02/2018
EXPIRY DATE: (mm/dd/yyyy)	10/02/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% of perfluoro-n-hexanoic acid and ~ 0.15% of perfluoro-1-pentanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

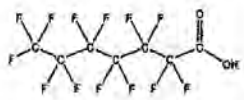
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0718

STRUCTURE:



CAS #: 375-85-9

Received on:
2018/08/29
TKq
2 x Ampoules.

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) 07/12/2018
EXPIRY DATE: (mm/dd/yyyy) 07/12/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/18/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

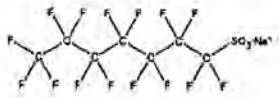
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate

LOT NUMBER: LPFHpS0418

STRUCTURE:



CAS #: Not available

R018|06|R6
Tefoshi
2X Ampoules.

MOLECULAR FORMULA: $C_7F_{15}SO_3Na$
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.6 ± 2.4 µg/ml (PFHpS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/04/2018
EXPIRY DATE: (mm/dd/yyyy) 05/04/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 472.10
SOLVENT(S): Methanol

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, General Manager **Date:** 05/17/2018 (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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

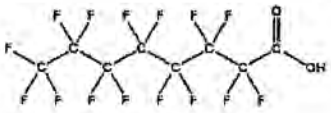
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFOA
COMPOUND: Perfluoro-n-octanoic acid

LOT NUMBER: PFOA0818

STRUCTURE:



CAS #: 335-67-1

Received: 2018/10/17
Group name: HPLC
Ampoules: 2

MOLECULAR FORMULA:	$C_8HF_{15}O_2$
CONCENTRATION:	50 ± 2.5 µg/ml
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	08/23/2018
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

MOLECULAR WEIGHT:	414.07
SOLVENT(S):	Methanol Water (<1%)

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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

2018/06/26
tufashwi
2 x Ampoules

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0418
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)	04/09/2018
LAST TESTED: (mm/dd/yyyy)	04/18/2018
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023
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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.26 - 2 ampoules - HPLC

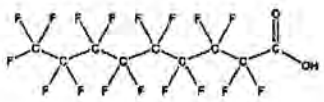
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid

LOT NUMBER: PFNA0218

STRUCTURE:



CAS #: 375-95-1

Received on:
2018/07/23
TK4
1 x Ampoule.

MOLECULAR FORMULA:	$C_9HF_{17}O_2$	**MOLECULAR WEIGHT:**	464.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

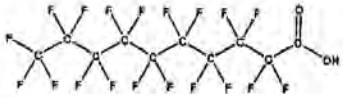
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA1217

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: 12/14/2017
EXPIRY DATE: 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

2 ampules
recvd. 2018/04/10 DMS

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, General Manager **Date:** 12/18/2017

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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

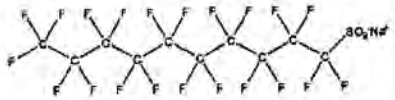
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFDS
COMPOUND: Sodium perfluoro-1-decanesulfonate

LOT NUMBER: LPFDS1018

STRUCTURE:



CAS #: 2806-15-7

Received: 2018/10/17
Group name: HPLC
Ampoules: 2

MOLECULAR FORMULA:	$C_{10}F_{21}SO_3Na$
MOLECULAR WEIGHT:	622.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.2 ± 2.4 µg/ml (PFDS anion)
SOLVENT(S):	Methanol
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	10/05/2018
EXPIRY DATE: (mm/dd/yyyy)	10/05/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/09/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

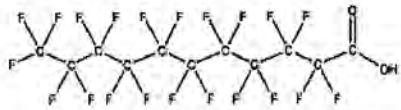
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid

LOT NUMBER: PFUdA0818

STRUCTURE:

CAS #: 2058-94-8



Received : 2018/10/17
Group name = HPLC
Ampoules : 2

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) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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:** 08/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

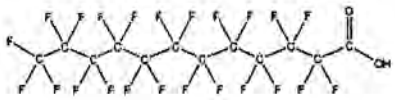
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid

LOT NUMBER: PFDoA0418

STRUCTURE:

CAS #: 307-55-1



2018/06/26
EGI
2 x ampoules

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) 04/18/2018
EXPIRY DATE: (mm/dd/yyyy) 04/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS Data (Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/24/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

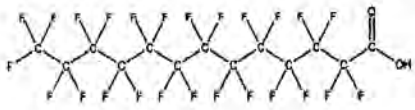
[redacted]

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid
LOT NUMBER: PFTrDA0218

STRUCTURE:



CAS #: 72629-94-8

2018/06/26
Tafashni
2X ampules.

MOLECULAR FORMULA:	$C_{13}HF_{25}O_2$	**MOLECULAR WEIGHT:**	664.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% 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: [redacted] **Date:** 02/20/2018 (mm/dd/yyyy)
B.G Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

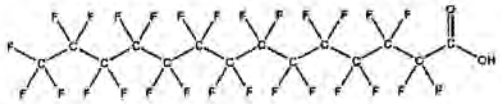
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid
LOT NUMBER: PFTeDA0917

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml
MOLECULAR WEIGHT: 714.11
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/21/2017
EXPIRY DATE: (mm/dd/yyyy) 09/21/2022
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)

GSZ 2017/11/30
2 ampules

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, General Manager **Date:** 09/21/2017 (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

Date Received: 2017.09.26 - 2 ampoules - HPLC
Date Received: 2018.02.02 - 2 ampoules - HPLC
Date Received: 2018.04.10 - 2 ampoules - HPLC
Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

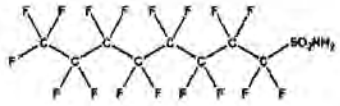
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0618I

STRUCTURE:



CAS #: 754-91-6

Received on:
2018/07/18
TK
1 x Ampoule

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)	06/20/2018		
EXPIRY DATE: (mm/dd/yyyy)	06/20/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Erna Gitej
FW: F4G *B815075
Hi team,
Please proceed with F4

Date Received:2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

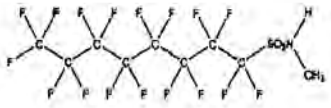
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0518M

STRUCTURE:



CAS #: 31506-32-8

Received on:
2018/10/23
TK4
1 x Ampoule

MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/07/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

Date Received: 2018.11.23 - 2 ampoules - HPLC

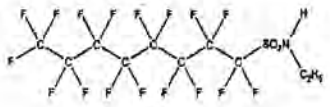
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0518M

STRUCTURE:



CAS #: 4151-50-2

Received on:
2018/07/23
TK9
1x Ampoule

MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/12/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

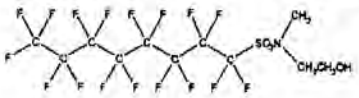
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0418M
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 24448-09-7



20181061126
Tefashirt
2 x Ampoules

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)	05/17/2018 (HRGC/LRMS) 05/03/2018 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	05/17/2023		
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:** 05/25/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

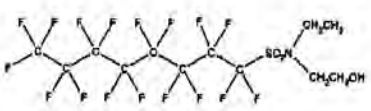
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0518M
COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 1691-99-2



2018/06/26
Tajeshwi
2X ampoules.

MOLECULAR FORMULA:	$C_{12}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	571.25
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: mm/dd/yyyy	06/04/2018 (HRGC/LRMS) 05/30/2018 (LC/MS)		
EXPIRY DATE: mm/dd/yyyy	06/04/2023		
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:** 06/04/2018 mm/dd/yyyy
B.G. Chittim, General Manager

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

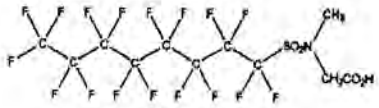
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0118
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 2355-31-9



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_4S$ **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
recd: 2018/04/10

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 molety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 01/26/2018 (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

Date Received: 2018.06.26 - 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

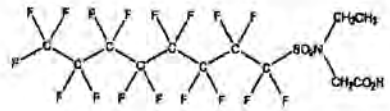
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSAA
COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid
LOT NUMBER: NEtFOSAA0118

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) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
RECOMMENDED STORAGE: Refrigerate ampoule

2 ampules
rec'd: 2018/04/10

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.
- Contains ~ 0.2% of sodium perfluoro-1-octanesulfonate (L-PFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 02/05/2018 (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

Form#:27, Issued: 2004-11-10
Revision#:8, Revised: 2018-01-22

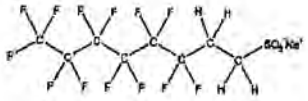
Date Received: 2018.06.26- 2 ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS
LOT NUMBER: 62FTS0416
COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE:



CAS #: Not available

2018/06/26
Tajashri
8x Ampoules.

MOLECULAR FORMULA:	$C_8H_5F_{13}SO_3Na$		**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)	04/03/2018			
EXPIRY DATE: (mm/dd/yyyy)	04/03/2023			
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 ~ 0.3% of sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2FTS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 04/09/2018 (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

Form#:37, Issued 2004-11-10
Revisions(s), Revised 2018-01-22

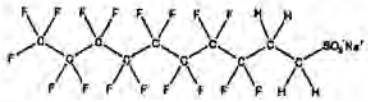
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.09 - 2 ampoules - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0118
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: 01/24/2018
EXPIRY DATE: 01/24/2023
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)

2 ampules
recd: 2018/06/10 DM3

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 01/31/2018 (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

Date Received: 2018.06.26 - 2 Ampoules - HPLC
Date Received: 2018.07.18 - 1 ampoule - HPLC
Date Received: 2018.07.23 - 1 ampoule - HPLC
Date Received: 2018.08.29 - 2 ampoules - HPLC
Date Received: 2018.10.17 - 2 ampoules - HPLC
Date Received: 2018.11.23 - 2 ampoules - HPLC

TUNE CHECK

Instrument: Agilent 6470 LC/MS/MS

Instrument Serial Number: SG1611G001

Maxxam Instrument Identification: LCMS04

Mass Calibration Performed: November 15, 2018

Tune Check Performed: November 15, 2018

Mass Assignment Reference Table ____ Page 2

Analyte Precursor Ion Verification ____ Page 6

Analyte Product Ion Verification ____ Page 32

Extracted and Injection Internal Standard Precursor Ion Verification ____ Page 64

Extracted and Injection Internal Standard Product Ion Verification ____ Page 88

Reviewed by:

Adam Robinson, Supervisor – Liquid Chromatography

2018/11/16
Date

Mass Assignments – Analytes, Extracted Internal Standards and Injection Internal Standards

Compound	Abbreviation	Precursor Ion (m/z)	Precursor Ion Formula	Quant Ion (m/z)	Quantitation Ion Formula	Confirmation Ion (m/z)	Confirmation Ion Formula
Native Analytes							
Perfluorobutanoic acid	PFBA	213.0	$[CF_3(CF_2)_2CO_2]^-$	169.0	$[CF_3(CF_2)_2]^-$	[1] N/A	N/A
Perfluorobutanesulfonate	PFBS	298.9	$[CF_3(CF_2)_3SO_3]^-$	80.0	$[SO_3]^-$	99.0	$[FSO_3]^-$
Perfluoropentanoic acid	PFPeA	263.0	$[CF_3(CF_2)_3CO_2]^-$	219.0	$[CF_3(CF_2)_3]^-$	[1] N/A	N/A
Perfluorohexanoic acid	PFHxA	313.0	$[CF_3(CF_2)_4CO_2]^-$	269.0	$[CF_3(CF_2)_4]^-$	119.0	$[CF_3(CF_2)]^-$
Perfluorohexanesulfonate	PFHxS	398.9	$[CF_3(CF_2)_5SO_3]^-$	80.0	$[SO_3]^-$	99.0	$[FSO_3]^-$
Perfluoroheptanoic acid	PFHpA	363.0	$[CF_3(CF_2)_5CO_2]^-$	319.0	$[CF_3(CF_2)_5]^-$	169.0	$[CF_3(CF_2)_2]^-$
Perfluoroheptanesulfonate	PFHpS	448.9	$[CF_3(CF_2)_6SO_3]^-$	80.0	$[SO_3]^-$	99.0	$[FSO_3]^-$
Perfluorooctanoic acid	PFOA	413.0	$[CF_3(CF_2)_6CO_2]^-$	369.0	$[CF_3(CF_2)_6]^-$	169.0	$[CF_3(CF_2)_2]^-$
Perfluorooctanesulfonate	PFOS	498.9	$[CF_3(CF_2)_7SO_3]^-$	80.0	$[SO_3]^-$	99.0	$[FSO_3]^-$
Perfluorononanoic acid	PFNA	463.0	$[CF_3(CF_2)_7CO_2]^-$	419.0	$[CF_3(CF_2)_7]^-$	219.0	$[CF_3(CF_2)_3]^-$
Perfluorodecanoic acid	PFDA	513.0	$[CF_3(CF_2)_8CO_2]^-$	469.0	$[CF_3(CF_2)_8]^-$	219.0	$[CF_3(CF_2)_3]^-$
Perfluorodecanesulfonate	PFDS	598.9	$[CF_3(CF_2)_9SO_3]$-	80.0	$[SO_3]^-$	99.0	$[FSO_3]^-$
Perfluoroundecanoic acid	PFUnA	563.0	$[CF_3(CF_2)_9CO_2]^-$	519.0	$[CF_3(CF_2)_9]^-$	269.0	$[CF_3(CF_2)_4]^-$
Perfluorododecanoic acid	PFDoA	613.0	$[CF_3(CF_2)_{10}CO_2]^-$	569.0	$[CF_3(CF_2)_{10}]^-$	319.0	$[CF_3(CF_2)_5]^-$
Perfluorotridecanoic acid	PFTrDA	663.0	$[CF_3(CF_2)_{11}CO_2]^-$	619.0	$[CF_3(CF_2)_{11}]^-$	319.0	$[CF_3(CF_2)_5]^-$
Perfluorotetradecanoic acid	PFTeDA	713.0	$[CF_3(CF_2)_{12}CO_2]^-$	669.0	$[CF_3(CF_2)_{12}]^-$	319.0	$[CF_3(CF_2)_5]^-$
Perfluorooctane sulfonamide	PFOSA	498.0	$[CF_3(CF_2)_7SO_2NH]^-$	78.0	$[SO_2N]^-$	477.9	$[(CF_2)_8SO_2N]^-$
N-methylperfluorooctane sulfonamide	MeFOSA	512.0	$[CF_3(CF_2)_7SO_2N(CH_3)]^-$	169.0	$[CF_3(CF_2)_2]^-$	219.0	$[CF_3(CF_2)_3]^-$
N-ethylperfluorooctane sulfonamide	EtFOSA	526.0	$[CF_3(CF_2)_7SO_2N(C_2H_5)]^-$	169.0	$[CF_3(CF_2)_2]^-$	219.0	$[CF_3(CF_2)_3]^-$
N-methylperfluorooctane sulfonamidoethanol	MeFOSE	616.0	$[CF_3(CF_2)_7SO_2N(CH_3)C_2H_4OH{\cdot}CH_3CO_2]^-$	59.0	$[CH_3CO_2]^-$	[1] N/A	N/A
N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	630.0	$[CF_3(CF_2)_7SO_2N(C_2H_5)C_2H_4OH{\cdot}CH_3CO_2]^-$	59.0	$[CH_3CO_2]^-$	[1] N/A	N/A
N-methylperfluorooctanesufonamidoacetic acid	MeFOSAA	570.0	$[CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2]^-$	419.0	$[CF_3(CF_2)_7]^-$	482.9	$[CF_3(CF_2)_7SO_2]^-$
N-ethylperfluorooctanesufonamidoacetic acid	EtFOSAA	584.0	$[CF_3(CF_2)_7SO_2N(CH_2CH_3)CH_2CO_2]^-$	419.0	$[CF_3(CF_2)_7]^-$	482.9	$[CF_3(CF_2)_7SO_2]^-$
6:2 Fluorotelomersulfonate	6:2FTS	427.0	$[CF_3(CF_2)_5CH_2CH_2SO_3]^-$	407.0	$[CF_3(CF_2)_4CFCHCH_2SO_3]^-$	81.0	$[SO_2OH]^-$
8:2 Fluorotelomersulfonate	8:2FTS	527.0	$[CF_3(CF_2)_7CH_2CH_2SO_3]^-$	507.0	$[CF_3(CF_2)_6CFCHCH_2SO_3]^-$	81.0	$[SO_2OH]^-$
Mass-labeled Extracted Internal Standards							
$^{13}C_4$-Perfluorobutanoic acid	MPFBA	217.0	$[^{13}CF_3(^{13}CF_2)_2{}^{13}CO_2]^-$	172.0	$[^{13}CF_3(^{13}CF_2)_2]^-$	N/A	N/A

Compound	Abbreviation	Precursor Ion (m/z)	Precursor Ion Formula	Quant Ion (m/z)	Quantitation Ion Formula	Confirmation Ion (m/z)	Confirmation Ion Formula
$^{13}C_5$-Perfluoropentanoic acid	MPFPeA	268.0	$[^{13}CF_3(^{13}CF_2)_3{}^{13}CO_2]^-$	223.0	$[^{13}CF_3(^{13}CF_2)_3]^-$	N/A	N/A
$^{13}C_2$-Perfluorohexanoic acid	MPFHxA	315.0	$[CF_3(CF_2)_3(^{13}CF_2){}^{13}CO_2]^-$	270.0	$[CF_3(CF_2)_3{}^{13}CF_2]^-$	N/A	N/A
$^{18}O_2$-Perfluorohexanesulfonate	MPFHxS	402.9	$[CF_3(CF_2)_5S(^{18}O)_2O]^-$	84.0	$[S(^{18}O)_2O]^-$	N/A	N/A
$^{13}C_4$-Perfluoroheptanoic acid	MPFHpA	367.0	$[CF_3CF_2(^{13}CF_2)_3{}^{13}CO_2]^-$	322.0	$[CF_3CF_2(^{13}CF_2)_4]^-$	N/A	N/A
$^{13}C_4$-Perfluorooctanoic acid	MPFOA	417.0	$[CF_3(CF_2)_3(^{13}CF_2)_3{}^{13}CO_2]^-$	372.0	$[CF_3(CF_2)_3(^{13}CF_2)_3]^-$	N/A	N/A
$^{13}C_4$-Perfluorooctanesulfonate	MPFOS	502.9	$[CF_3(CF_2)_3(^{13}CF_2)_4SO_3]^-$	80.0	$[SO_3]^-$	N/A	N/A
$^{13}C_5$-Perfluorononanoic acid	MPFNA	468.0	$[CF_3(CF_2)_3(^{13}CF_2)_4{}^{13}CO_2]^-$	423.0	$[CF_3(CF_2)_3(^{13}CF_2)_4]^-$	N/A	N/A
$^{13}C_2$-Perfluorodecanoic acid	MPFDA	515.0	$[CF_3(CF_2)_7(^{13}CF_2){}^{13}CO_2]^-$	470.0	$[CF_3(CF_2)_7{}^{13}CF_2]^-$	N/A	N/A
$^{13}C_2$-Perfluoroundecanoic acid	MPFUnA	565.0	$[CF_3(CF_2)_8(^{13}CF_2){}^{13}CO_2]^-$	520.0	$[CF_3(CF_2)_8{}^{13}CF_2]^-$	N/A	N/A
$^{13}C_2$-Perfluorododecanoic acid	MPFDoA	615.0	$[CF_3(CF_2)_9(^{13}CF_2){}^{13}CO_2]^-$	570.0	$[CF_3(CF_2)_9{}^{13}CF_2]^-$	N/A	N/A
$^{13}C_2$-Perfluorotetradecanoic acid	MPFTeDA	715.0	$[CF_3(CF_2)_{12}(^{13}CF_2){}^{13}CO_2]^-$	669.9	$[CF_3(CF_2)_{12}]^-$	N/A	N/A
$^{13}C_8$-Perfluorooctane sulfonamide	MPFOSA	506.0	$[^{13}CF_3(^{13}CF_2)_7SO_2NH]^-$	78.0	$[SO_2N]^-$	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamide	D_3-MeFOSA	515.0	$[CF_3(CF_2)_7SO_2N(CD_3)]^-$	169.0	$[CF_3(CF_2)_2]^-$	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamide	D_5-EtFOSA	531.0	$[CF_3(CF_2)_7SO_2N(C_2D_5)]^-$	169.0	$[CF_3(CF_2)_2]^-$	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamidoethanol-d_4	D_7-MeFOSE	623.0	$[CF_3(CF_2)_7SO_2N(CD_3)CD_2CD_2OH \cdot CH_3CO_2]^-$	59.0	$[CH_3CO_2]^-$	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamidoethanol-d_4	D_9-EtFOSE	639.0	$[CF_3(CF_2)_7SO_2N(CD_2CD_3)CD_2CD_2OH \cdot CH_3CO_2]^-$	59.0	$[CH_3CO_2]^-$	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamidoacetic acid	D_3-MeFOSAA	573.0	$[CF_3(CF_2)_7SO_2N(CD_3)CH_2CO_2]^-$	419.0	$[CF_3(CF_2)_7]^-$	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamidoacetic acid	D_5-EtFOSAA	589.0	$[CF_3(CF_2)_7SO_2N(CD_2CD_3)CH_2CO_2]^-$	419.0	$[CF_3(CF_2)_7]^-$	N/A	N/A
$^{13}C_2$-Fluorotelomersulfonate (6:2)	M2-6:2FTS	429.0	$[CF_3(CF_2)_5(^{13}CH_2)_2SO_3]^-$	81.0	$[SO_2OH]^-$	N/A	N/A
$^{13}C_2$-Fluorotelomersulfonate (8:2)	M2-8:2FTS	529.0	$[CF_3(CF_2)_7(^{13}CH_2)_2SO_3]^-$	81.0	$[SO_2OH]^-$	N/A	N/A
Injection Internal Standards							
$^{13}C_6$-Perfluorohexanoic acid	$^{13}C_6$-PFHxA	319.0	$[^{13}CF_3(^{13}CF_2)_4{}^{13}CO_2]^-$	274.0	$[^{13}CF_3(^{13}CF_2)_4]^-$	N/A	N/A
$^{13}C_9$-Perfluorodecanoic acid	$^{13}C_9$-PFDA	522.0	$[CF_3(^{13}CF_2)_8{}^{13}CO_2]^-$	477.0	$[CF_3(^{13}CF_2)_8]^-$	N/A	N/A

[1] Confirmation ion not monitored.

m/z = mass-to-charge ratio and represents the mass of the ion divided by its electronic charge.

Tune Check Summary Table

Compound	Abbreviation	Precursor Ion (m/z)			Quantitation Ion (m/z)			Confirmation Ion (m/z)		
		Target	Monitored	±0.5 amu	Target	Monitored	±0.5 amu	Target	Monitored	±0.5 amu
Native Analytes										
Perfluorobutanoic acid	PFBA	213.0	**212.9**	*212.5 – 213.5*	169.0	**169.0**	*168.5 – 169.5*	[1] N/A	N/A	N/A
Perfluorobutanesulfonate	PFBS	298.9	**298.9**	*298.4 – 299.4*	80.0	**79.9**	*79.5 – 80.5*	99.0	**98.9**	*98.5 – 99.5*
Perfluoropentanoic acid	PFPeA	263.0	**262.9**	*268.5 – 269.5*	219.0	**218.9**	*218.5 – 219.5*	[1] N/A	N/A	N/A
Perfluorohexanoic acid	PFHxA	313.0	**312.9**	*312.5 – 313.5*	269.0	**269.0**	*268.5 – 269.5*	119.0	**119.0**	*118.5 – 119.5*
Perfluorohexanesulfonate	PFHxS	398.9	**398.9**	*398.4 – 399.4*	80.0	**79.9**	*79.5 – 80.5*	99.0	**98.9**	*98.5 – 99.5*
Perfluoroheptanoic acid	PFHpA	363.0	**362.9**	*362.5 – 363.5*	319.0	**319.0**	*318.5 – 319.5*	169.0	**168.9**	*168.5 – 169.5*
Perfluoroheptanesulfonate	PFHpS	448.9	**448.9**	*448.4 – 449.4*	80.0	**79.9**	*79.5 – 80.5*	99.0	**98.9**	*98.5 – 99.5*
Perfluorooctanoic acid	PFOA	413.0	**412.9**	*412.5 – 413.5*	369.0	**368.9**	*368.5 – 369.5*	169.0	**168.9**	*168.5 – 169.5*
Perfluorooctanesulfonate	PFOS	498.9	**498.9**	*498.4 – 499.4*	80.0	**80.0**	*79.5 – 80.5*	99.0	**99.0**	*98.5 – 99.5*
Perfluorononanoic acid	PFNA	463.0	**462.9**	*462.5 – 463.5*	419.0	**418.9**	*418.5 – 419.5*	219.0	**218.9**	*218.5 – 219.5*
Perfluorodecanoic acid	PFDA	513.0	**512.9**	*512.5 – 513.5*	469.0	**469.0**	*468.5 – 469.5*	219.0	**218.9**	*218.5 – 219.5*
Perfluorodecanesulfonate	PFDS	598.9	**598.9**	*598.4 – 599.4*	80.0	**79.9**	*79.5 – 80.5*	99.0	**98.9**	*98.5 – 99.5*
Perfluoroundecanoic acid	PFUnA	563.0	**562.9**	*562.5 – 563.5*	519.0	**518.9**	*518.5 – 519.5*	269.0	**268.9**	*268.5 – 269.5*
Perfluorododecanoic acid	PFDoA	613.0	**612.9**	*612.5 – 613.5*	569.0	**568.9**	*568.5 – 569.5*	319.0	**318.9**	*318.5 – 319.5*
Perfluorotridecanoic acid	PFTrDA	663.0	**662.9**	*662.5 – 663.5*	619.0	**618.9**	*618.5 – 619.5*	319.0	**318.9**	*318.5 – 319.5*
Perfluorotetradecanoic acid	PFTeDA	713.0	**712.9**	*712.5 – 713.5*	669.0	**668.9**	*668.5 – 669.5*	319.0	**319.0**	*318.5 – 319.5*
Perfluorooctane sulfonamide	PFOSA	498.0	**497.9**	*497.5 – 498.5*	78.0	**78.0**	*77.5 – 78.5*	477.9	**477.9**	*477.4 – 478.4*
N-methylperfluorooctane sulfonamide	MeFOSA	512.0	**511.9**	*511.5 – 512.5*	169.0	**168.9**	*168.5 – 169.5*	219.0	**219.0**	*218.5 – 219.5*
N-ethylperfluorooctane sulfonamide	EtFOSA	526.0	**525.9**	*525.5 – 526.5*	169.0	**168.9**	*168.5 – 169.5*	219.0	**219.0**	*218.5 – 219.5*
N-methylperfluorooctane sulfonamidoethanol	MeFOSE	616.0	**615.9**	*615.5 – 616.5*	59.0	**59.0**	*58.5 – 59.5*	[1] N/A	N/A	N/A
N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	630.0	**629.9**	*629.5 – 630.5*	59.0	**59.0**	*58.5 – 59.5*	[1] N/A	N/A	N/A
N-methylperfluorooctanesulfonamidoacetic acid	MeFOSAA	570.0	**569.9**	*569.5 – 570.5*	419.0	**419.0**	*418.5 – 419.5*	482.9	**482.9**	*482.4 – 483.4*
N-ethylperfluorooctanesulfonamidoacetic acid	EtFOSAA	584.0	**583.9**	*583.5 – 584.5*	419.0	**418.9**	*418.5 – 419.5*	482.9	**482.9**	*482.4 – 483.4*
6:2 Fluorotelomersulfonate	6:2FTS	427.0	**426.9**	*426.5 – 427.5*	407.0	**406.9**	*406.5 – 407.5*	81.0	**80.9**	*80.5 – 81.5*

Compound	Abbreviation	Precursor Ion (m/z)			Quantitation Ion (m/z)			Confirmation Ion (m/z)		
		Target	Monitored	±0.5 amu	Target	Monitored	±0.5 amu	Target	Monitored	±0.5 amu
8:2 Fluorotelomersulfonate	8:2FTS	527.0	**526.9**	*526.5 – 527.5*	507.0	**506.9**	*506.5 – 507.5*	81.0	**81.0**	*80.5 – 81.5*
Mass-labeled Extracted Internal Standards										
$^{13}C_4$-Perfluorobutanoic acid	MPFBA	217.0	**216.9**	*216.5 – 217.5*	172.0	**172.0**	*171.5 – 172.5*	N/A	N/A	N/A
$^{13}C_5$-Perfluoropentanoic acid	MPFPeA	268.0	**267.9**	*267.5 – 268.5*	223.0	**223.0**	*222.5 – 223.5*	N/A	N/A	N/A
$^{13}C_2$-Perfluorohexanoic acid	MPFHxA	315.0	**314.9**	*314.5 – 315.5*	270.0	**270.0**	*269.5 – 270.5*	N/A	N/A	N/A
$^{18}O_2$-Perfluorohexanesulfonate	MPFHxS	402.9	**402.9**	*402.4 – 403.4*	84.0	**84.0**	*83.5 – 84.5*	N/A	N/A	N/A
$^{13}C_4$-Perfluoroheptanoic acid	MPFHpA	367.0	**366.9**	*366.5 – 367.5*	322.0	**322.0**	*321.5 – 322.5*	N/A	N/A	N/A
$^{13}C_4$-Perfluorooctanoic acid	MPFOA	417.0	**416.9**	*416.5 – 417.5*	372.0	**372.0**	*371.5 – 372.5*	N/A	N/A	N/A
$^{13}C_4$-Perfluorooctanesulfonate	MPFOS	502.9	**502.9**	*502.4 – 503.4*	80.0	**80.0**	*79.5 – 80.5*	N/A	N/A	N/A
$^{13}C_5$-Perfluorononanoic acid	MPFNA	468.0	**467.9**	*467.5 – 468.5*	423.0	**422.9**	*422.5 – 423.5*	N/A	N/A	N/A
$^{13}C_2$-Perfluorodecanoic acid	MPFDA	515.0	**514.9**	*514.5 – 515.5*	470.0	**470.0**	*469.5 – 470.5*	N/A	N/A	N/A
$^{13}C_2$-Perfluoroundecanoic acid	MPFUnA	565.0	**564.9**	*564.5 – 565.5*	520.0	**519.9**	*519.5 – 520.5*	N/A	N/A	N/A
$^{13}C_2$-Perfluorododecanoic acid	MPFDoA	615.0	**614.9**	*614.5 – 615.5*	570.0	**569.8**	*569.5 – 570.5*	N/A	N/A	N/A
$^{13}C_2$-Perfluorotetradecanoic acid	MPFTeDA	715.0	**714.9**	*714.5 – 715.5*	670.0	**669.9**	*669.5 – 670.5*	N/A	N/A	N/A
$^{13}C_8$-Perfluorooctane sulfonamide	MPFOSA	506.0	**505.9**	*505.5 – 506.5*	78.0	**77.9**	*77.5 – 78.5*	N/A	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamide	D_3-MeFOSA	515.0	**514.9**	*514.5 – 515.5*	169.0	**168.9**	*168.5 – 169.5*	N/A	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamide	D_5-EtFOSA	531.0	**530.9**	*530.5 – 531.5*	169.0	**168.9**	*168.5 – 169.5*	N/A	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamidoethanol-d_4	D_7-MeFOSE	623.0	**622.9**	*622.5 – 623.5*	59.0	**59.0**	*58.5 – 59.5*	N/A	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamidoethanol-d_4	D_9-EtFOSE	639.0	**639.0**	*638.5 – 639.5*	59.0	**59.0**	*58.5 – 59.5*	N/A	N/A	N/A
N-methyl-d_3-perfluorooctanesulfonamidoacetic acid	D_3-MeFOSAA	573.0	**572.9**	*572.5 – 573.5*	419.0	**419.0**	*418.5 – 419.5*	N/A	N/A	N/A
N-ethyl-d_5-perfluorooctanesulfonamidoacetic acid	D_5-EtFOSAA	589.0	**588.9**	*588.5 – 589.5*	419.0	**418.9**	*418.5 – 419.5*	N/A	N/A	N/A
$^{13}C_2$-Fluorotelomersulfonate (6:2)	M2-6:2FTS	429.0	**428.9**	*428.5 – 429.5*	81.0	**80.9**	*80.5 – 81.5*	N/A	N/A	N/A
$^{13}C_2$-Fluorotelomersulfonate (8:2)	M2-8:2FTS	529.0	**528.9**	*528.5 – 529.5*	81.0	**81.0**	*80.5 – 81.5*	N/A	N/A	N/A
Injection Internal Standards										
$^{13}C_6$-Perfluorohexanoic acid	$^{13}C_6$-PFHxA	319.0	**318.9**	*318.5 – 319.5*	274.0	**274.0**	*273.5 – 274.5*	N/A	N/A	N/A
$^{13}C_9$-Perfluorodecanoic acid	$^{13}C_9$-PFDA	522.0	**521.9**	*521.5 – 522.5*	477.0	**477.0**	*476.5 – 477.5*	N/A	N/A	N/A

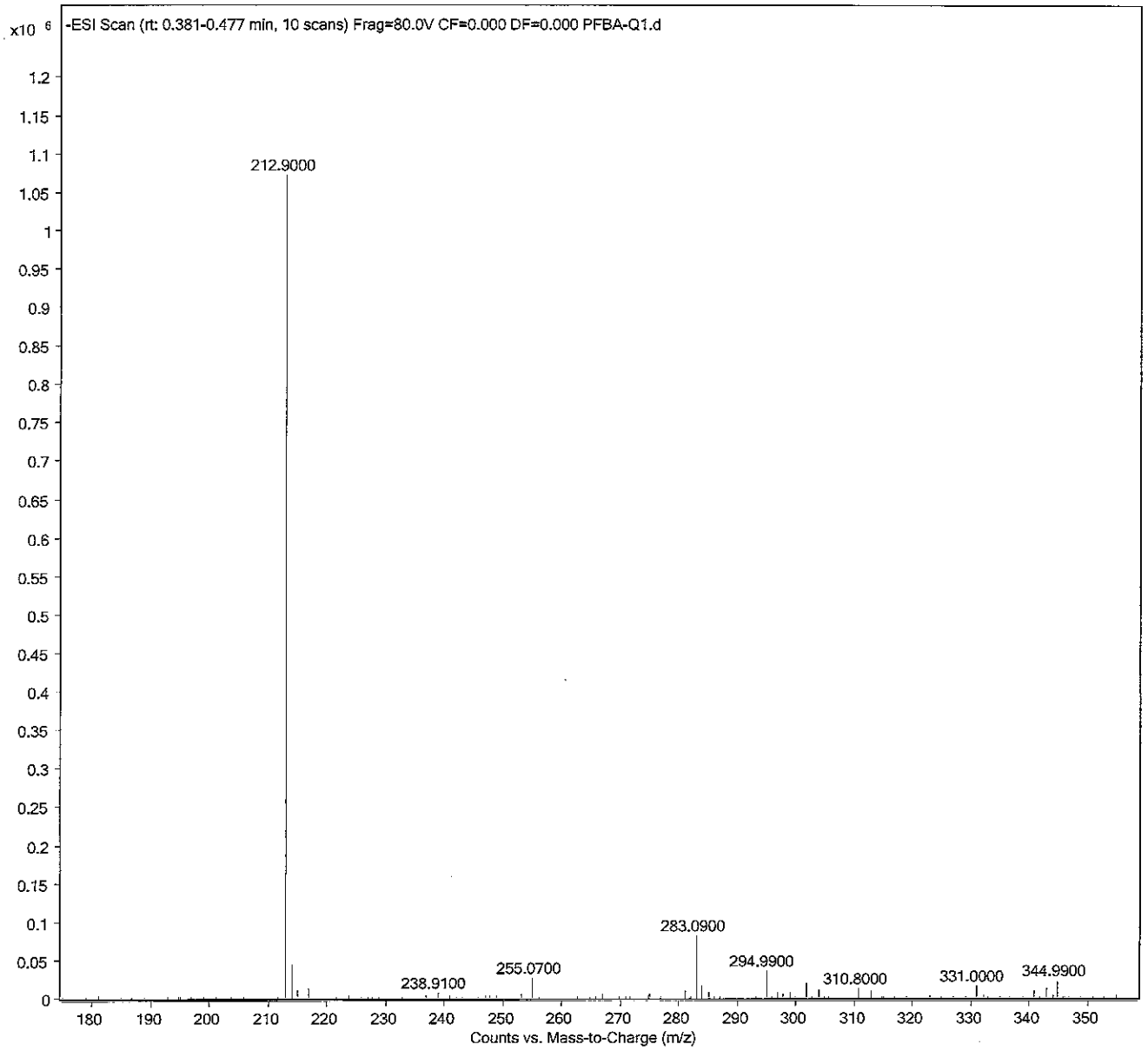
[1] Confirmation ion not monitored.

m/z = mass-to-charge ratio and represents the mass of the ion divided by its electronic charge.

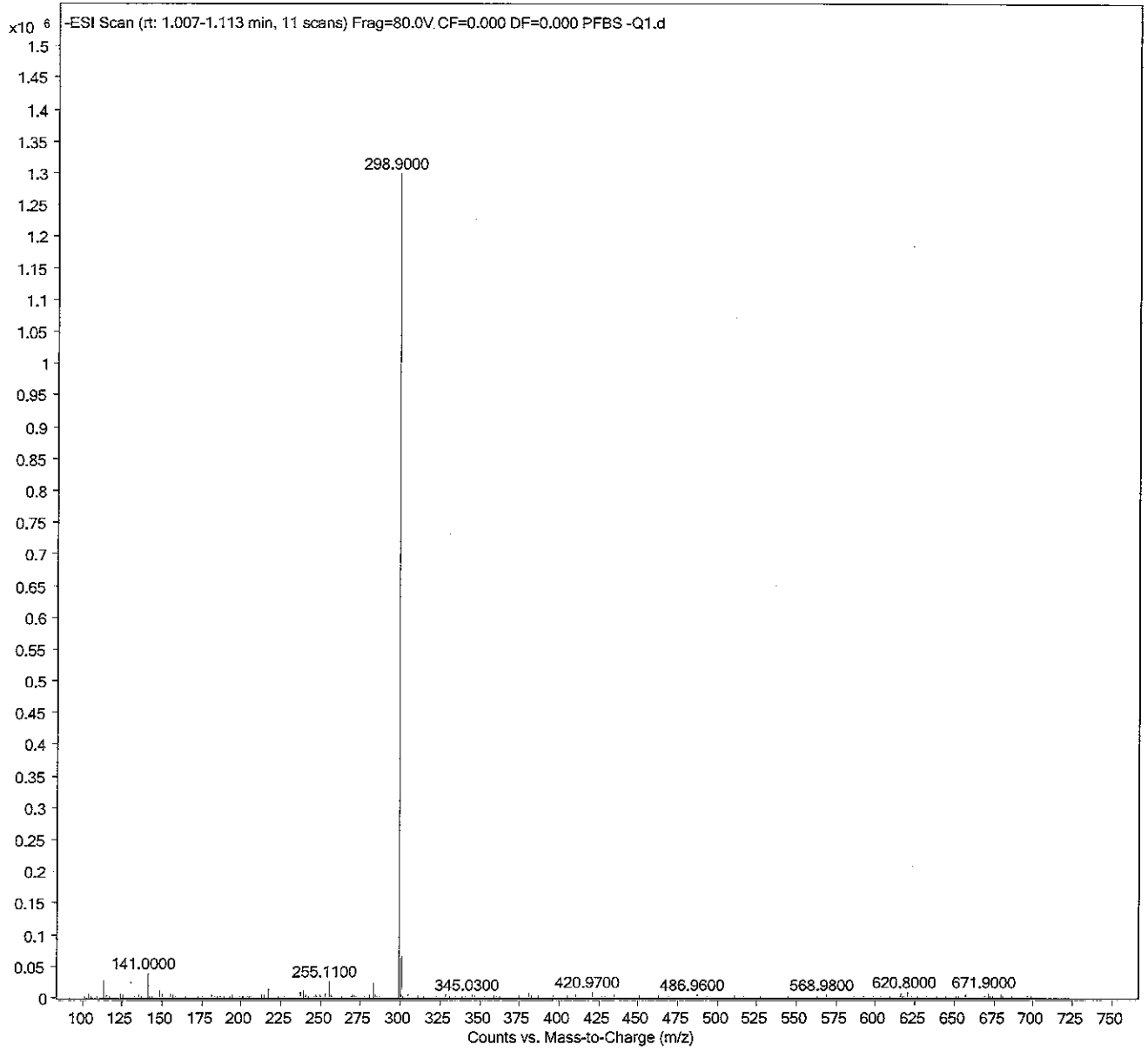
Analyte Precursor Ion Verification

Sample Name	PFBA -Q1	**Position**	P2-A1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFBA-Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 2:40:47 PM

Maxxam Analytics

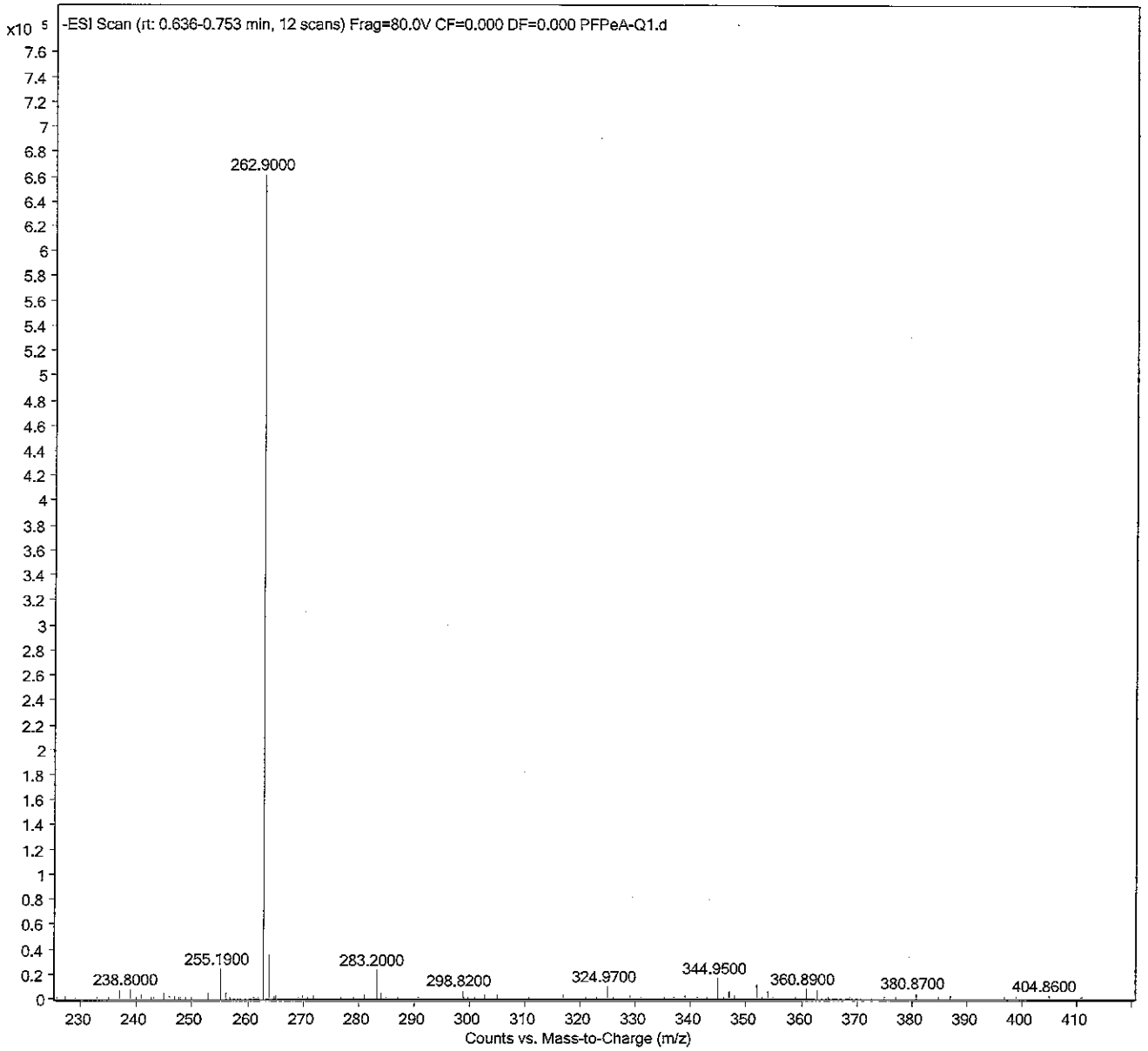


Sample Name	PFBS -Q1	**Position**	P2-A2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFBS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 2:46:17 PM



Maxxam Analytics

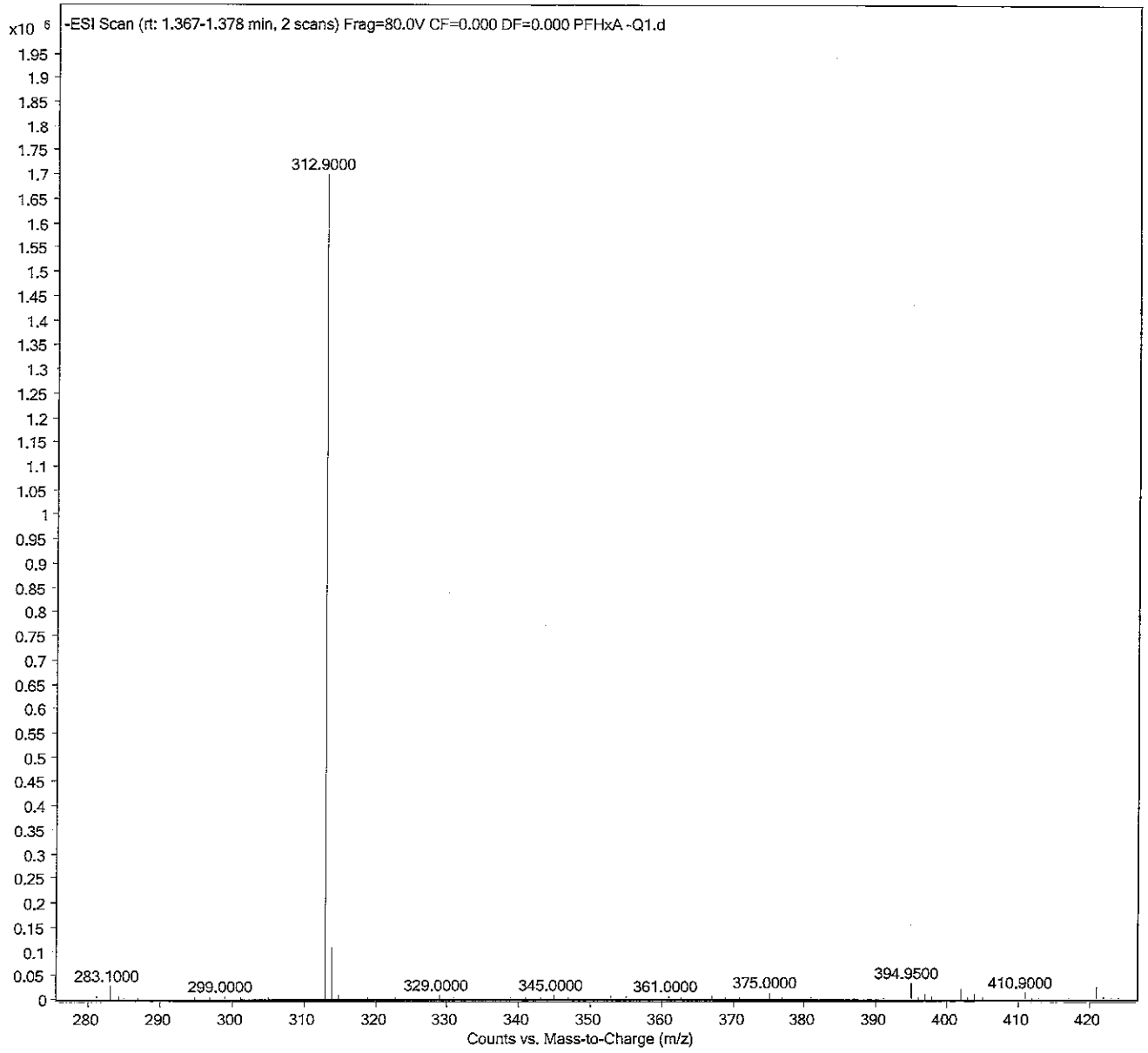
Sample Name	PFPeA -Q1	**Position**	P2-A3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFPeA-Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 2:51:48 PM



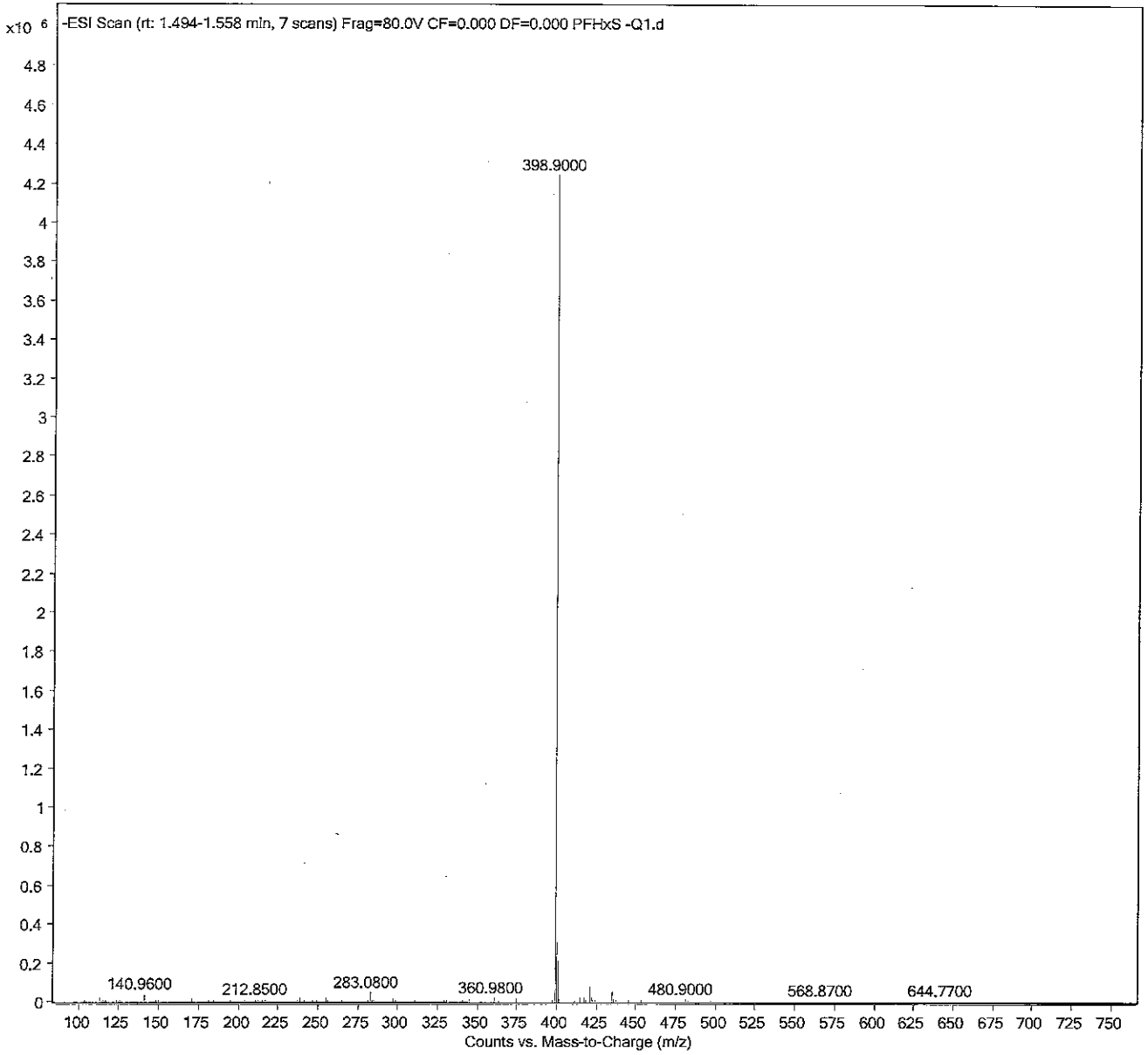
MaxXam Analytics

Sample Name	PFHxA -Q1	**Position**	P2-A4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHxA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 2:57:18 PM

Maxxam Analytics

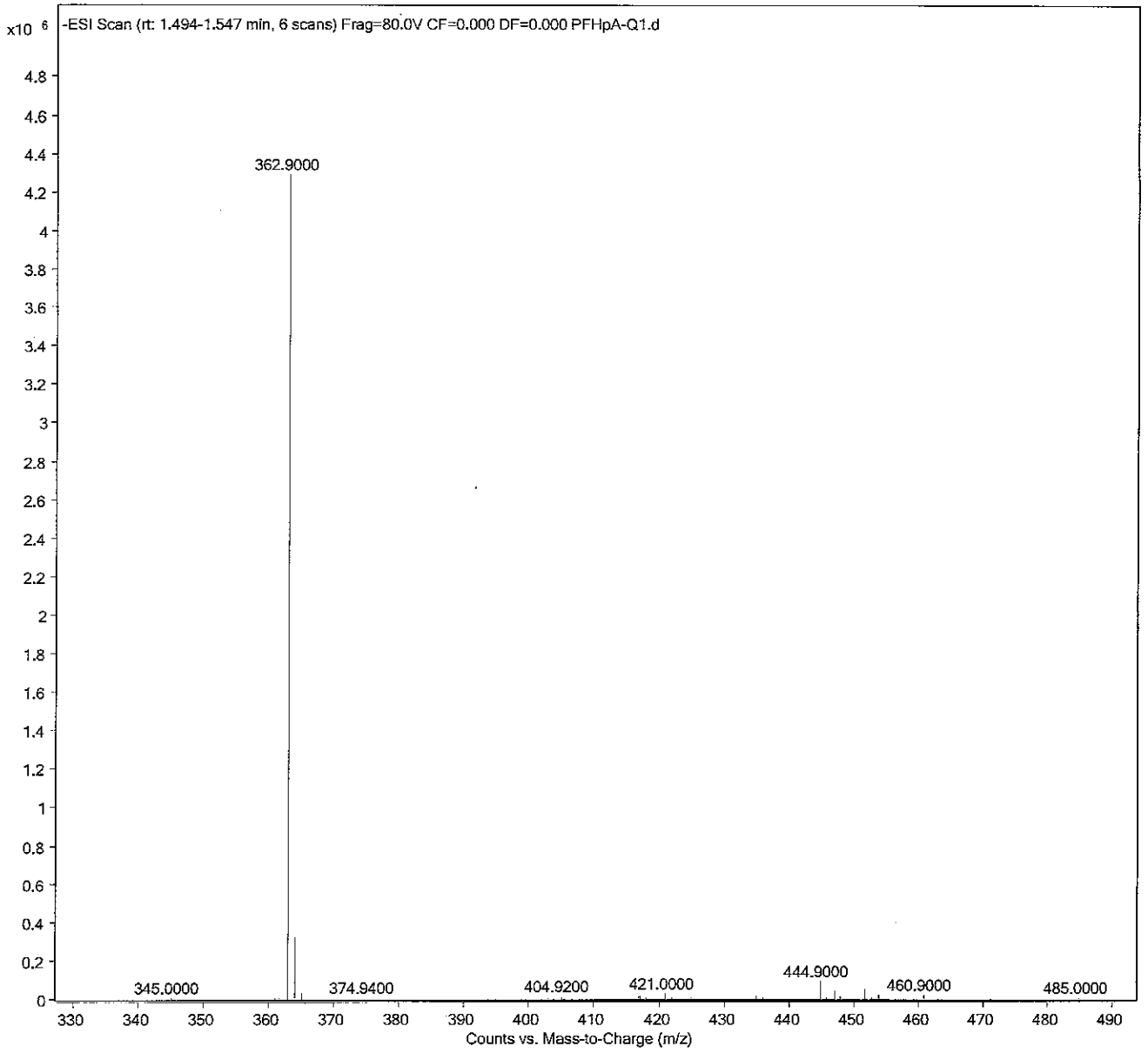


Sample Name	PFHxS -Q1	**Position**	P2-A5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHxS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:02:48 PM



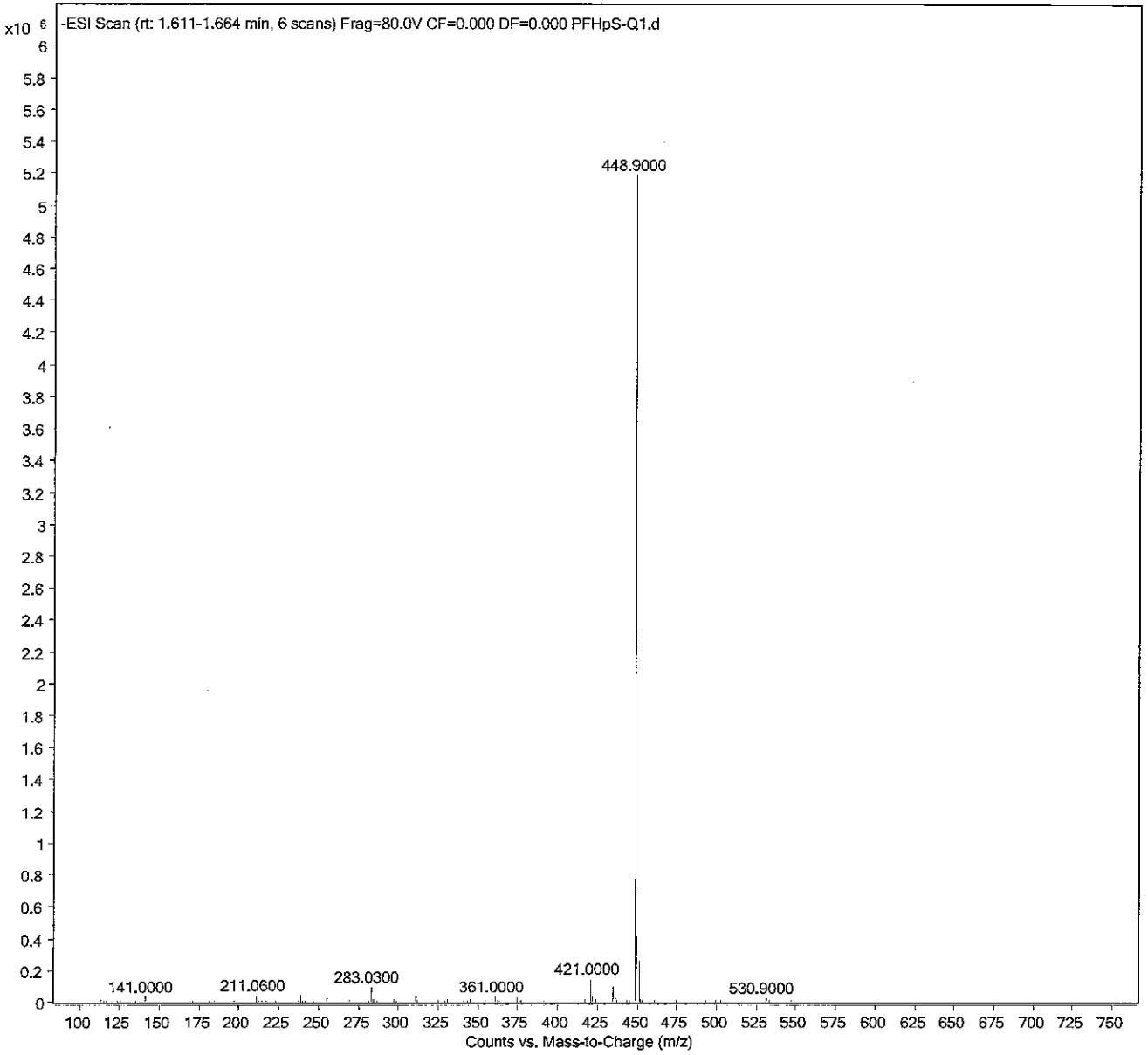
Maxxam Analytics

Sample Name	PFHpA-Q1	**Position**	P2-A6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHpA-Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:08:18 PM



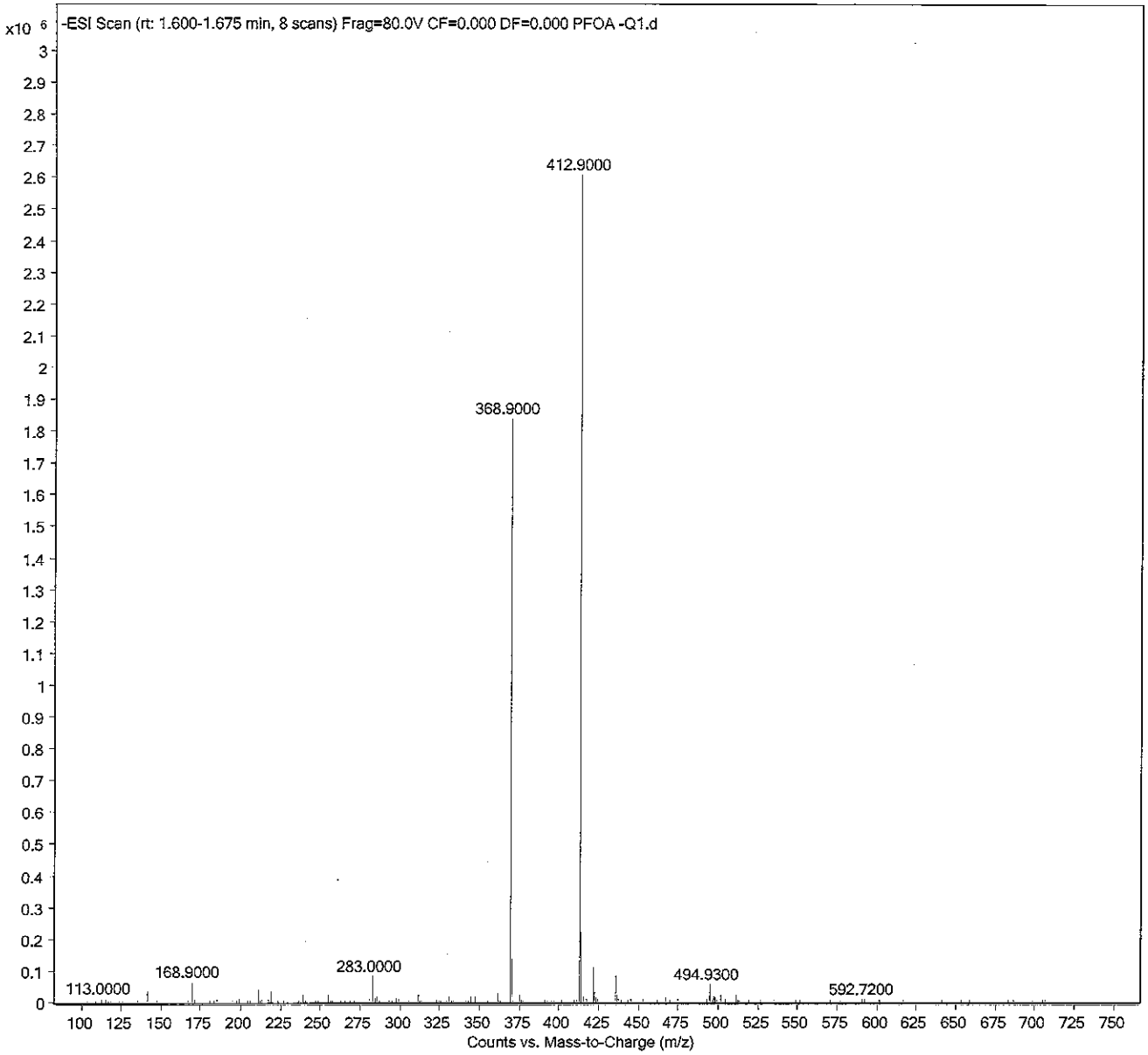
MaxXam Analytics

Sample Name	PFHpS-Q1	**Position**	P2-A7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHpS-Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:13:48 PM



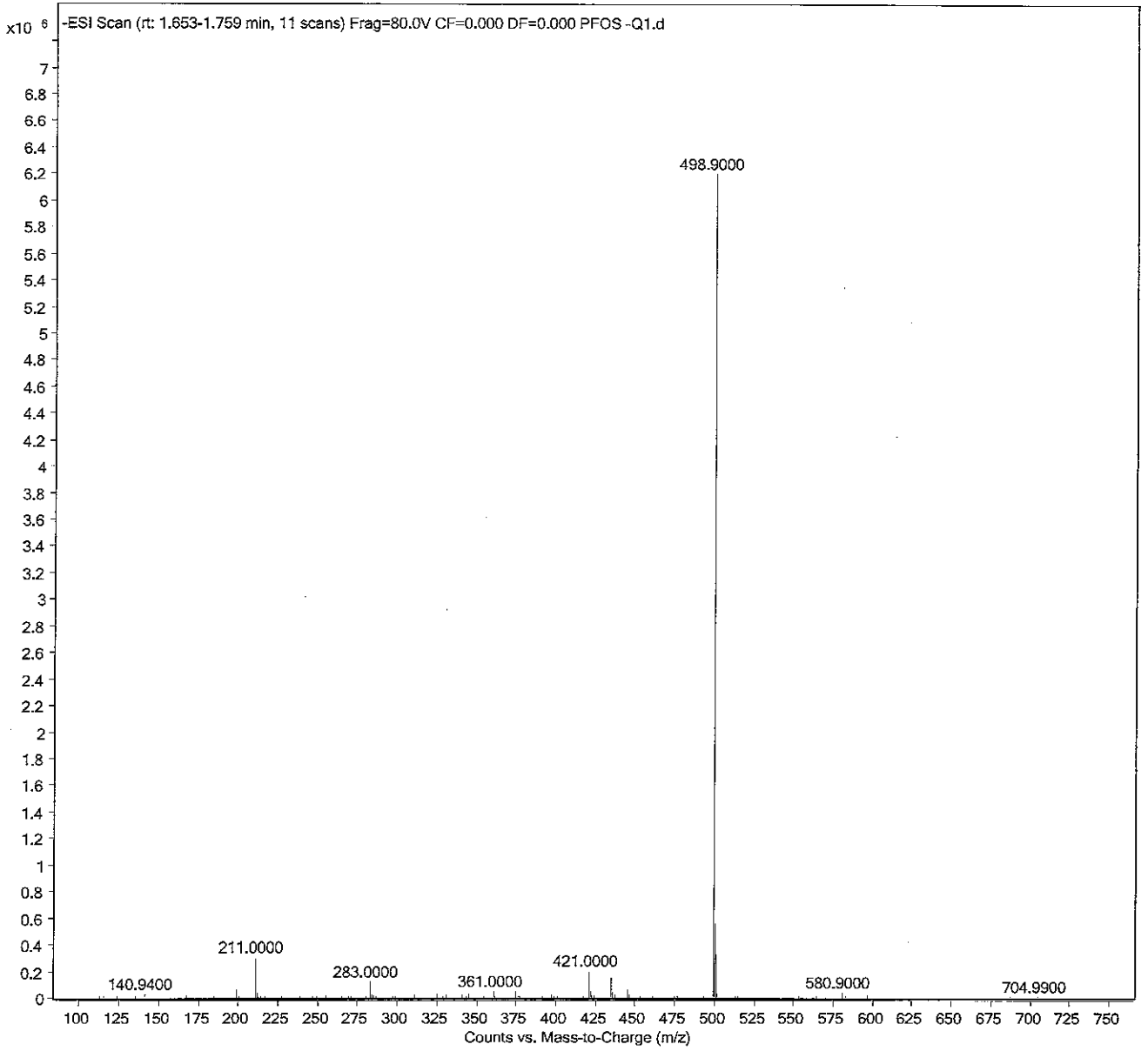
MaxxAm Analytics

Sample Name	PFOA -Q1	**Position**	P2-A8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:19:18 PM



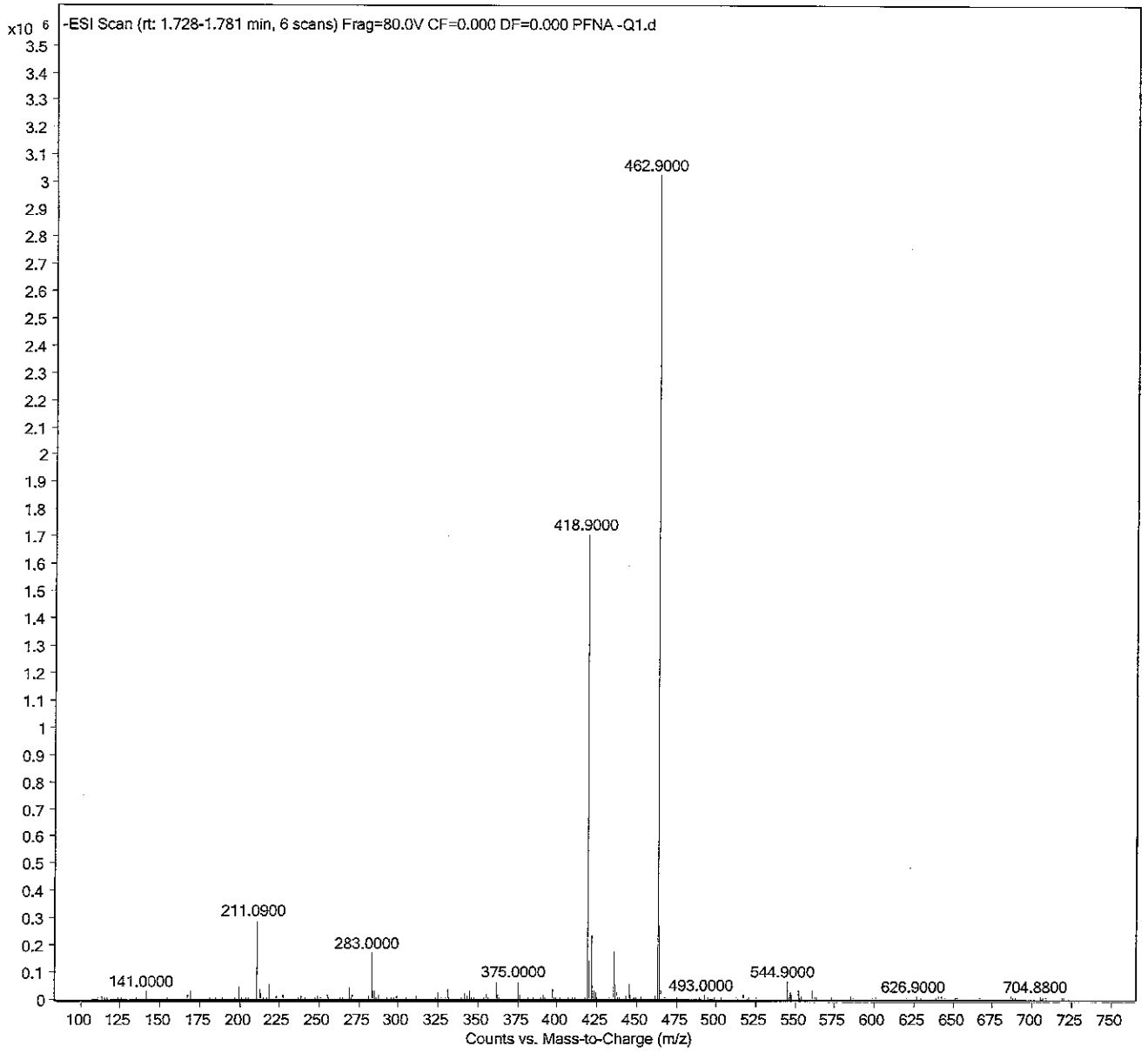
MaxxAm Analytics

Sample Name	PFOS -Q1	**Position**	P2-A9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:24:48 PM

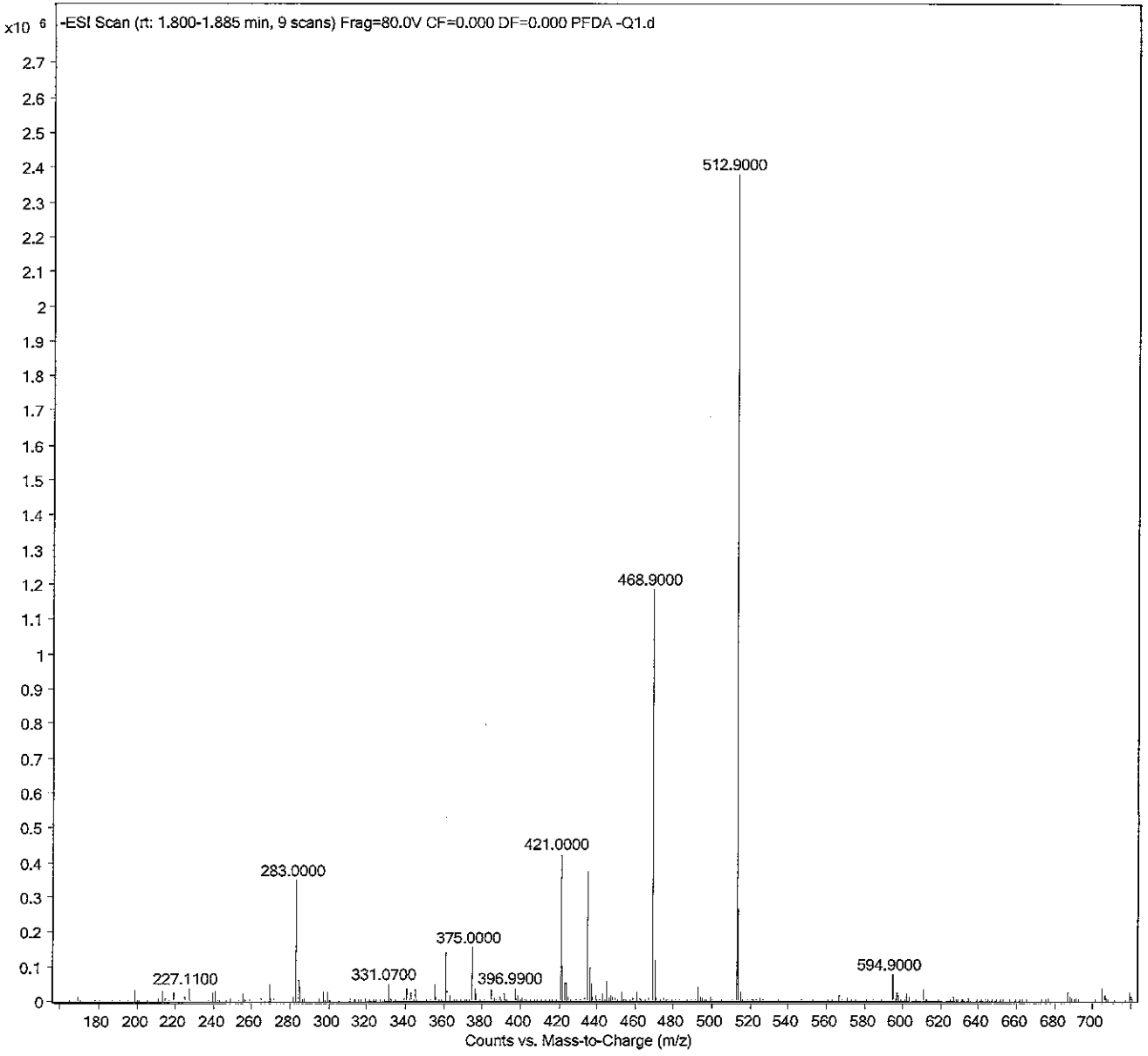


MaxXam Analytics

Sample Name	PFNA -Q1	**Position**	P2-B1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFNA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:30:18 PM

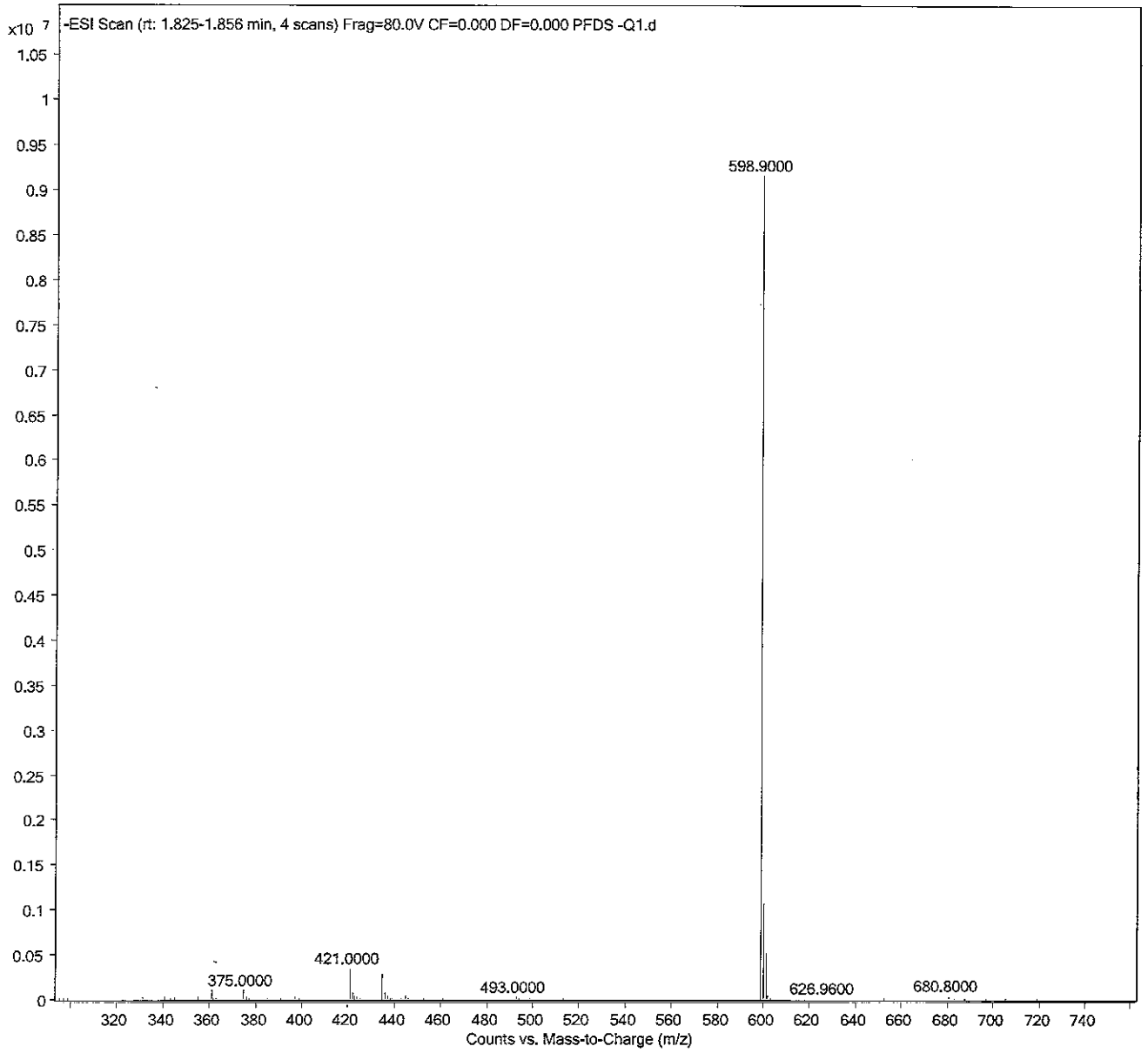


Sample Name	PFDA -Q1	**Position**	P2-B2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:35:48 PM



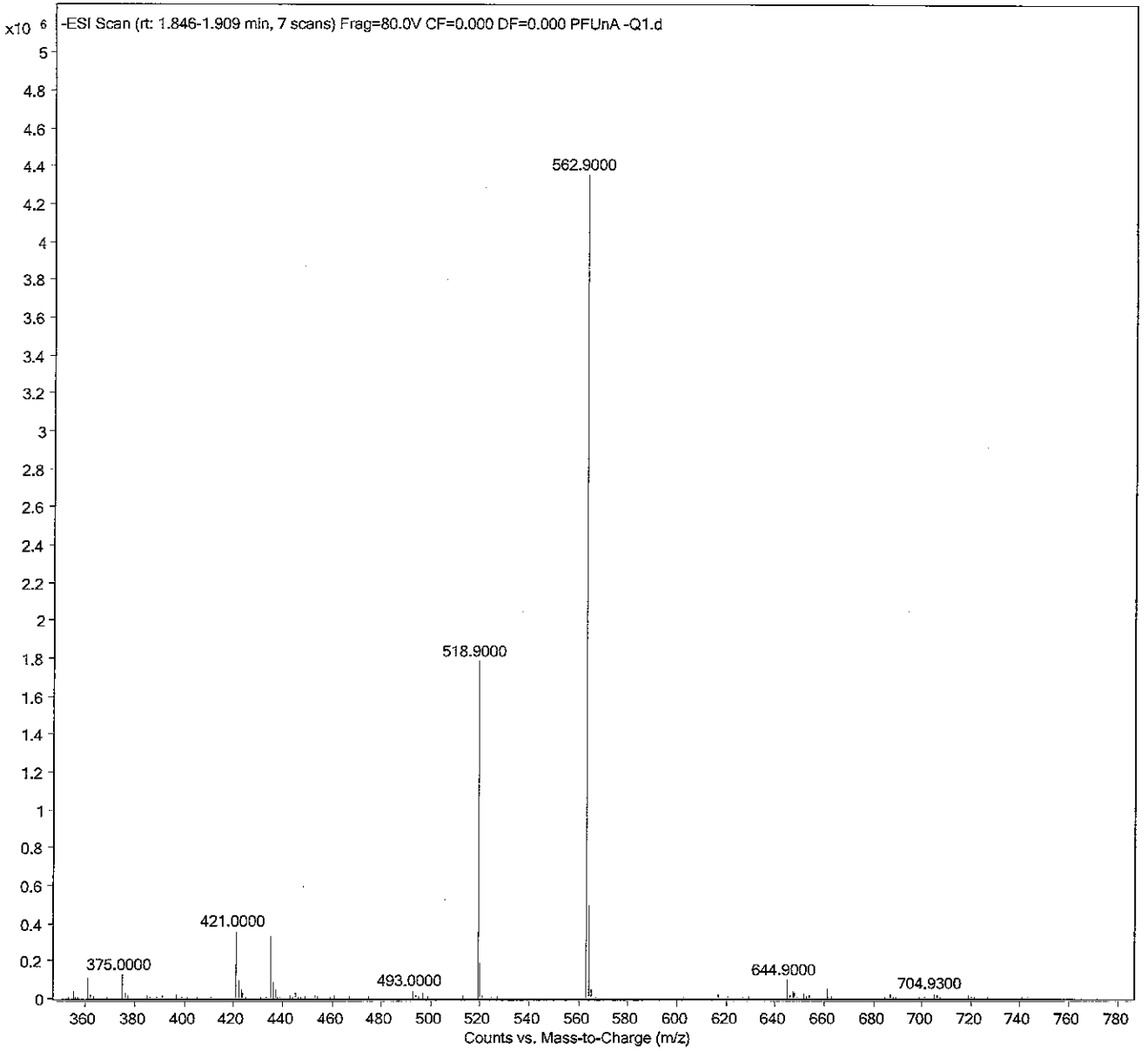
Maxxam Analytics

Sample Name	PFDS -Q1	**Position**	P2-B3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:41:18 PM



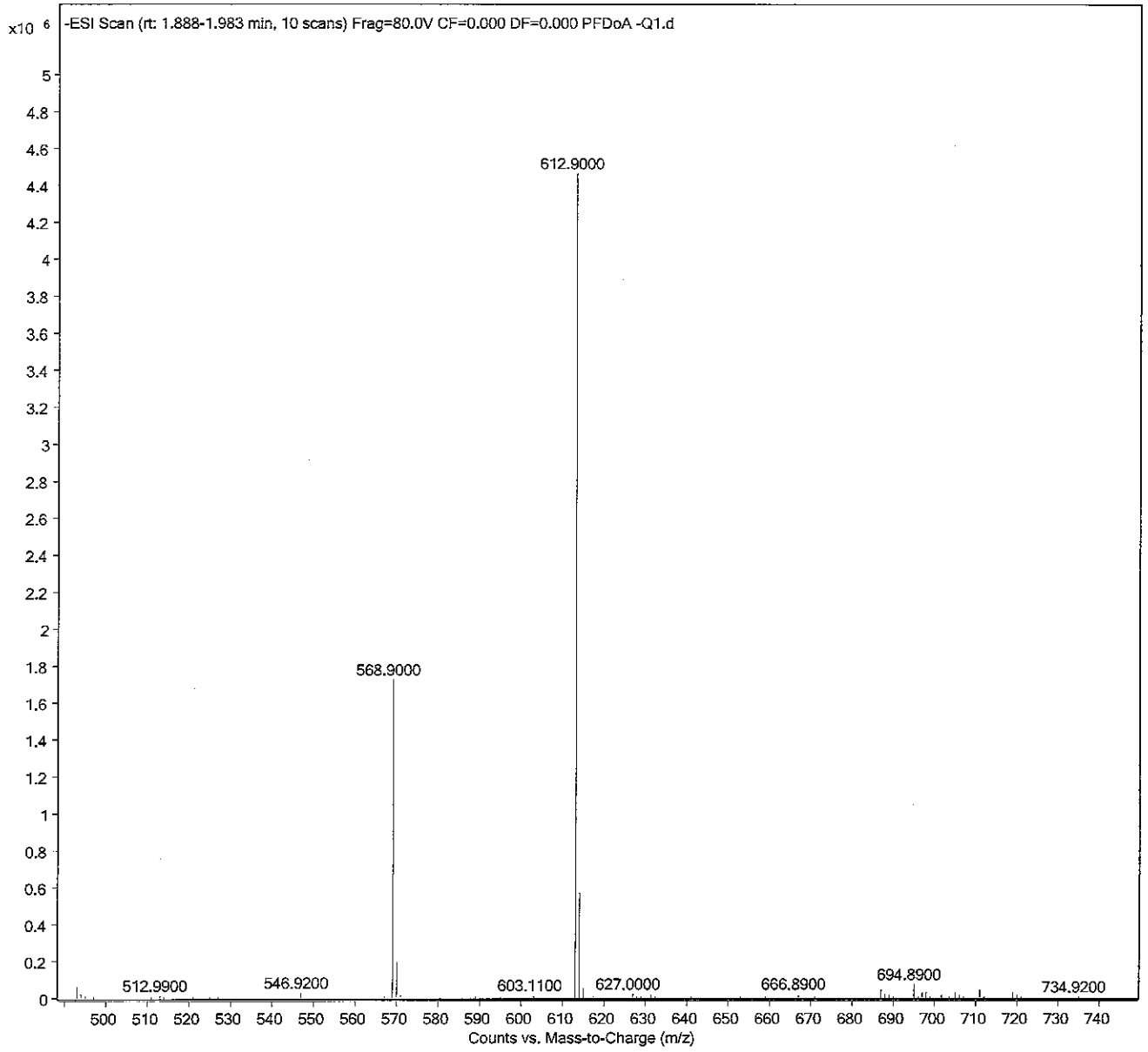
MaxxAm Analytics

Sample Name	PFUnA -Q1	**Position**	P2-B4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFUnA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:46:48 PM



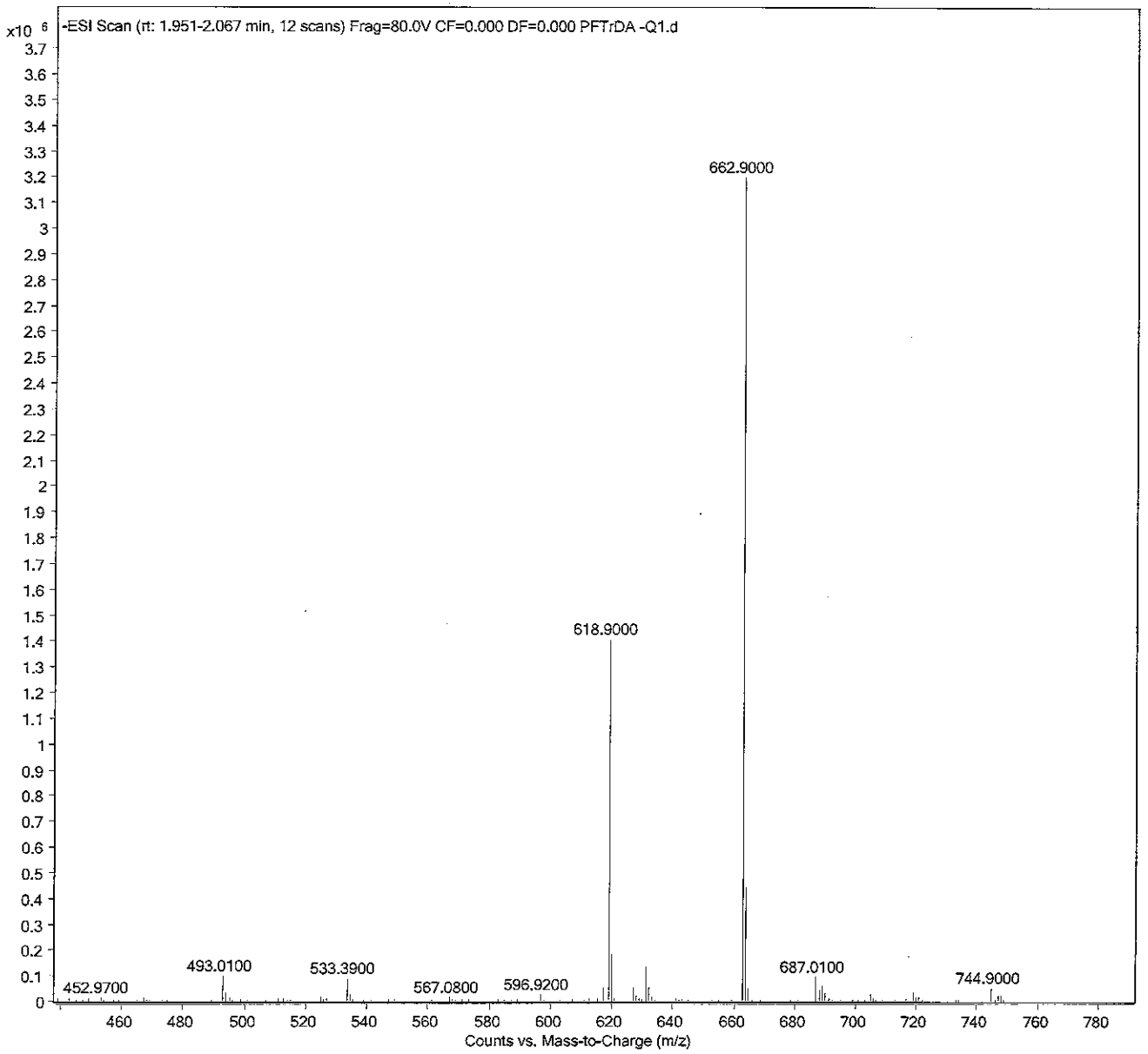
MaxXam Analytics

Sample Name	PFDoA -Q1	**Position**	P2-B5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDoA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:52:18 PM



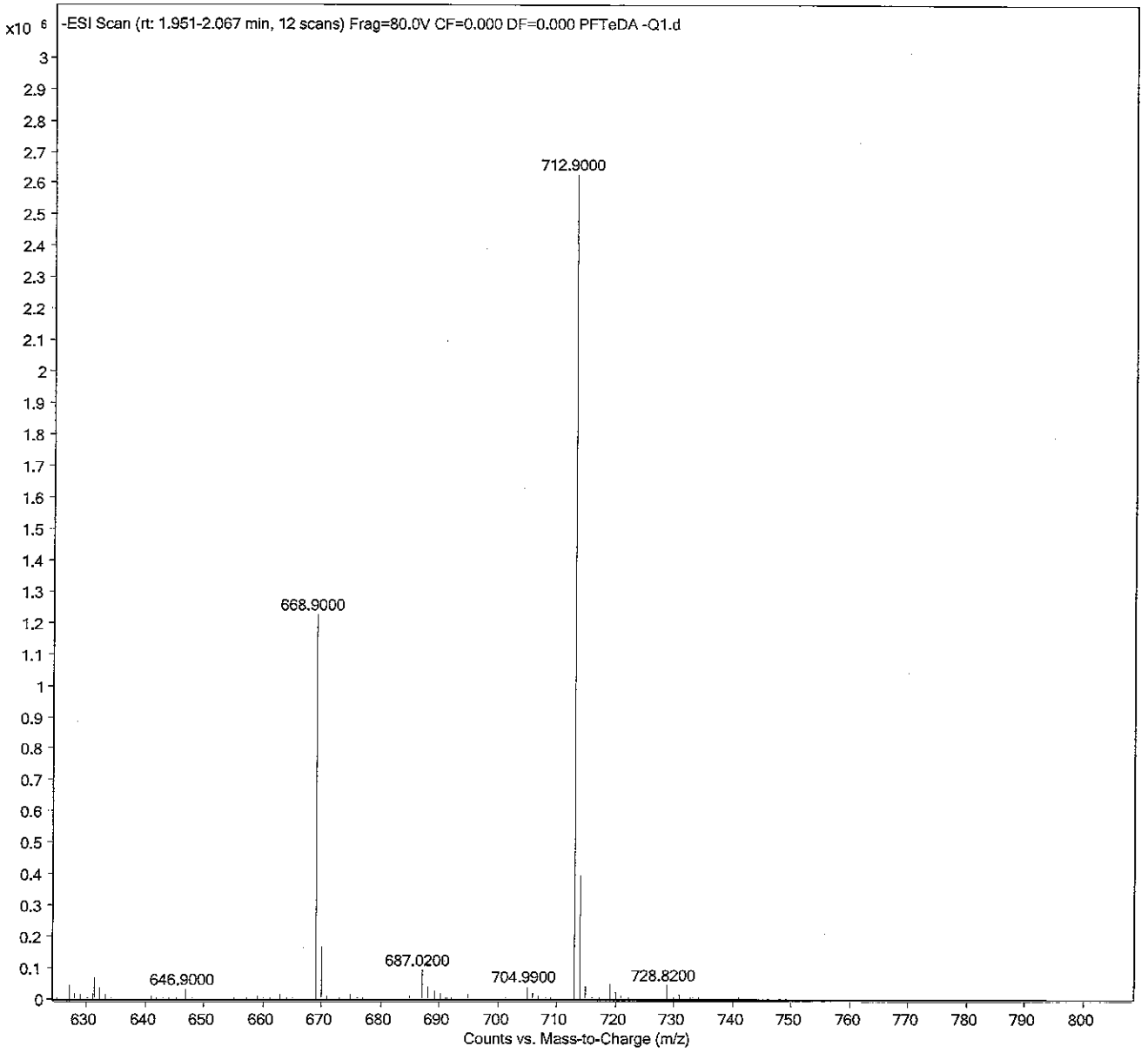
Maxxam Analytics

Sample Name	PFTrDA -Q1	**Position**	P2-B6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFTrDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 3:57:48 PM



MaxXam Analytics

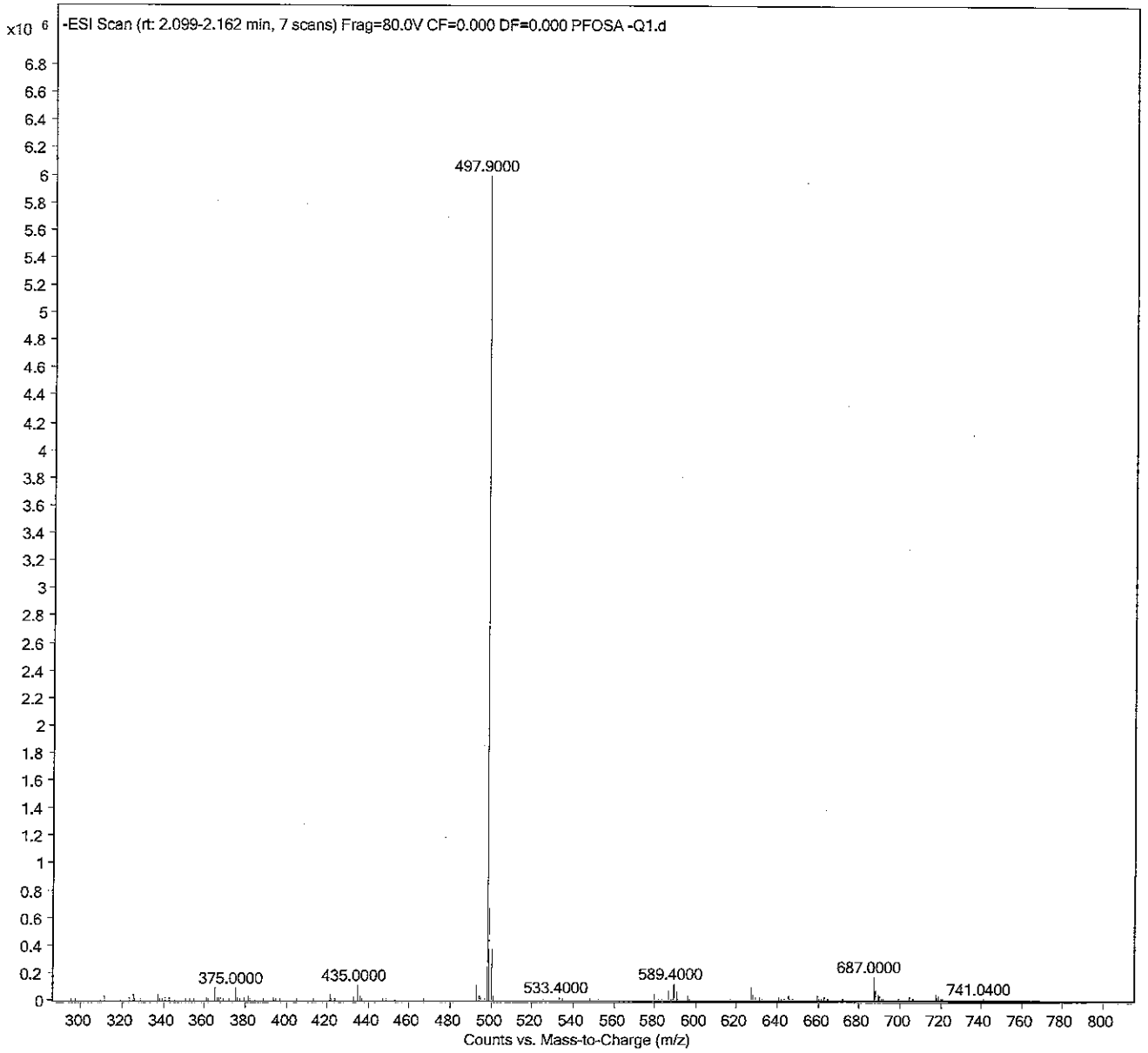
Sample Name	PFTeDA -Q1	**Position**	P2-B7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFTeDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:03:18 PM



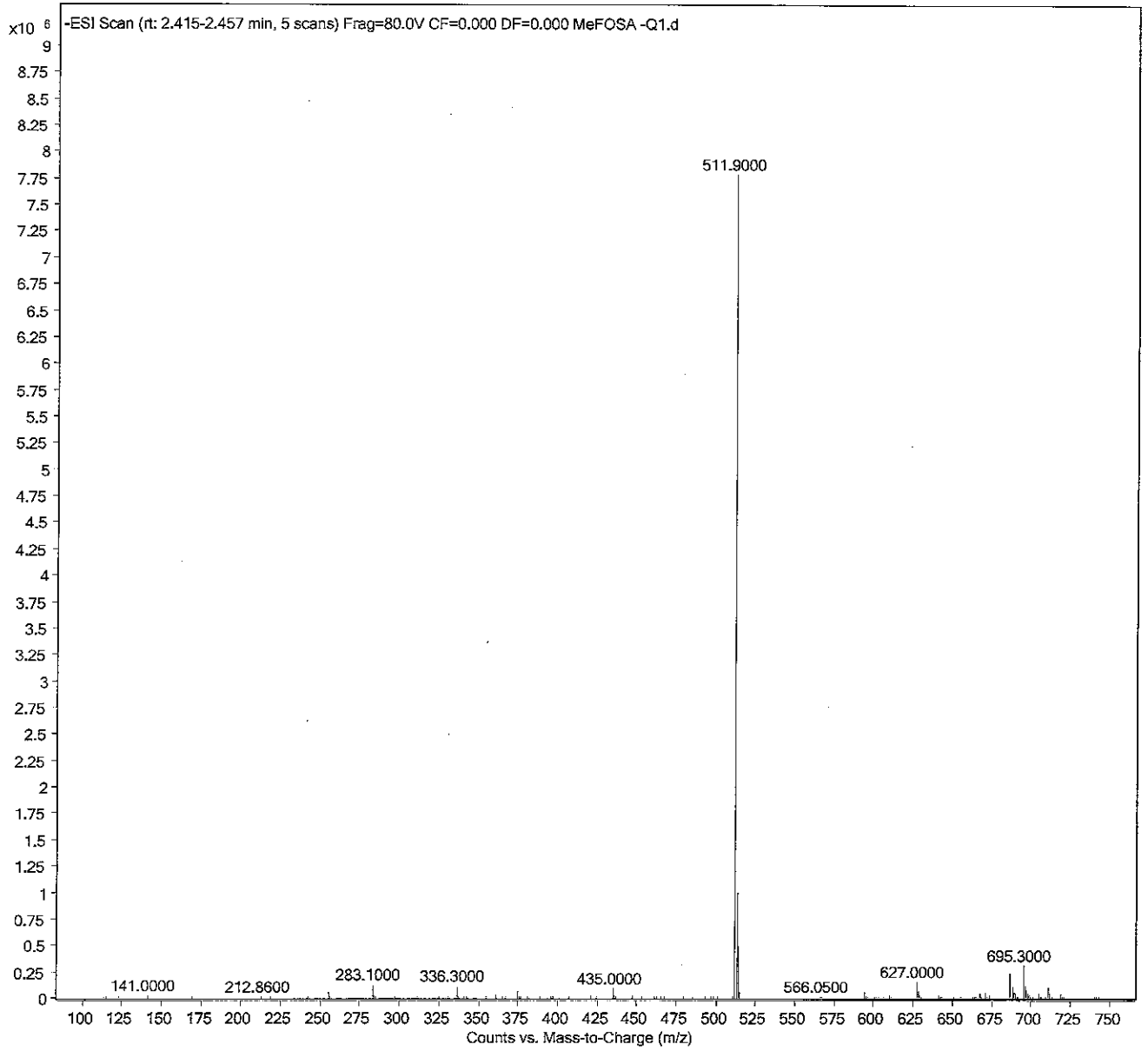
MaxXam Analytics

Sample Name	PFOSA -Q1	**Position**	P2-B8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:08:48 PM

MaxXam Analytics



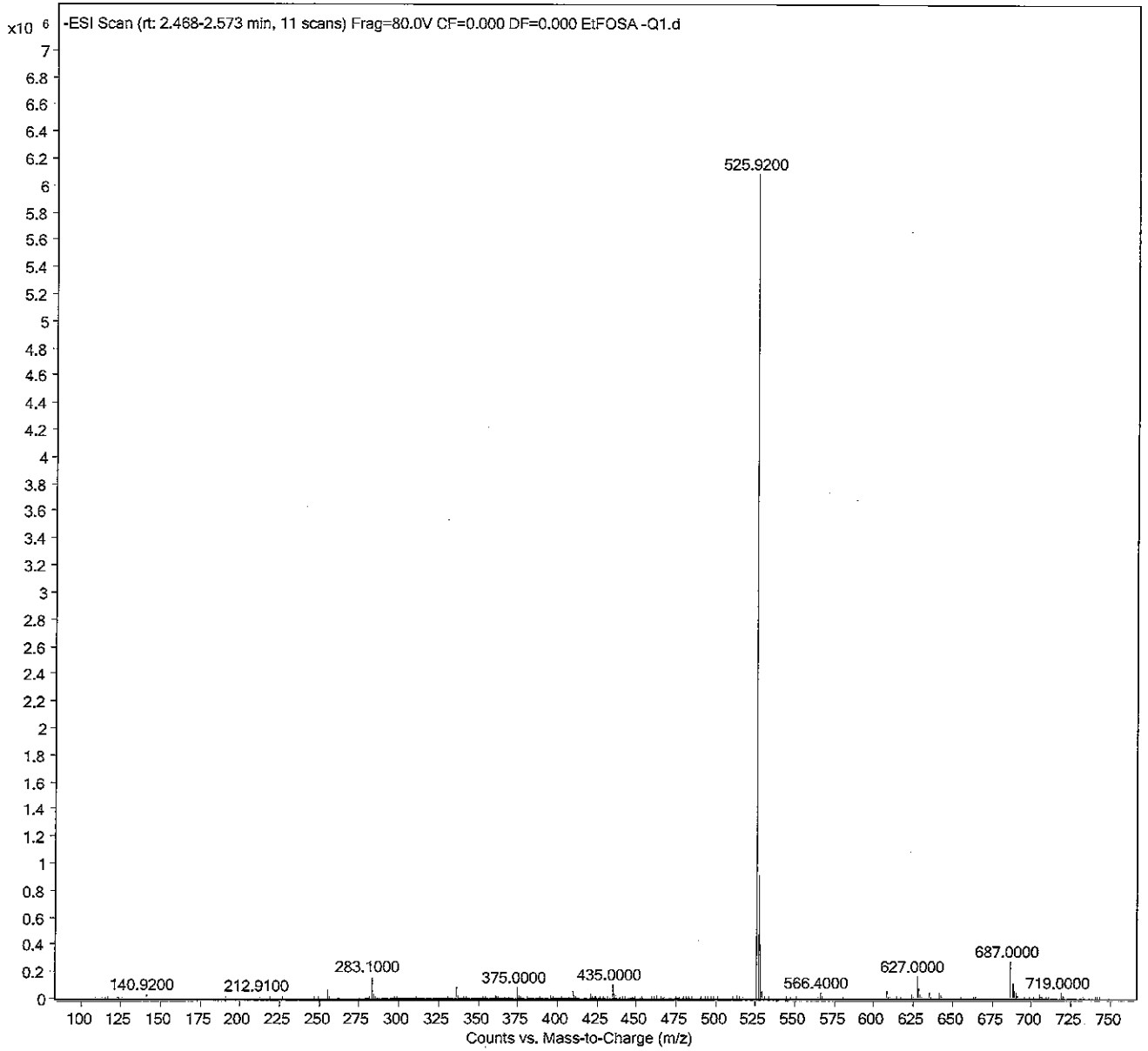
Sample Name	MeFOSA -Q1	**Position**	P2-B9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:14:18 PM



MaxXam Analytics

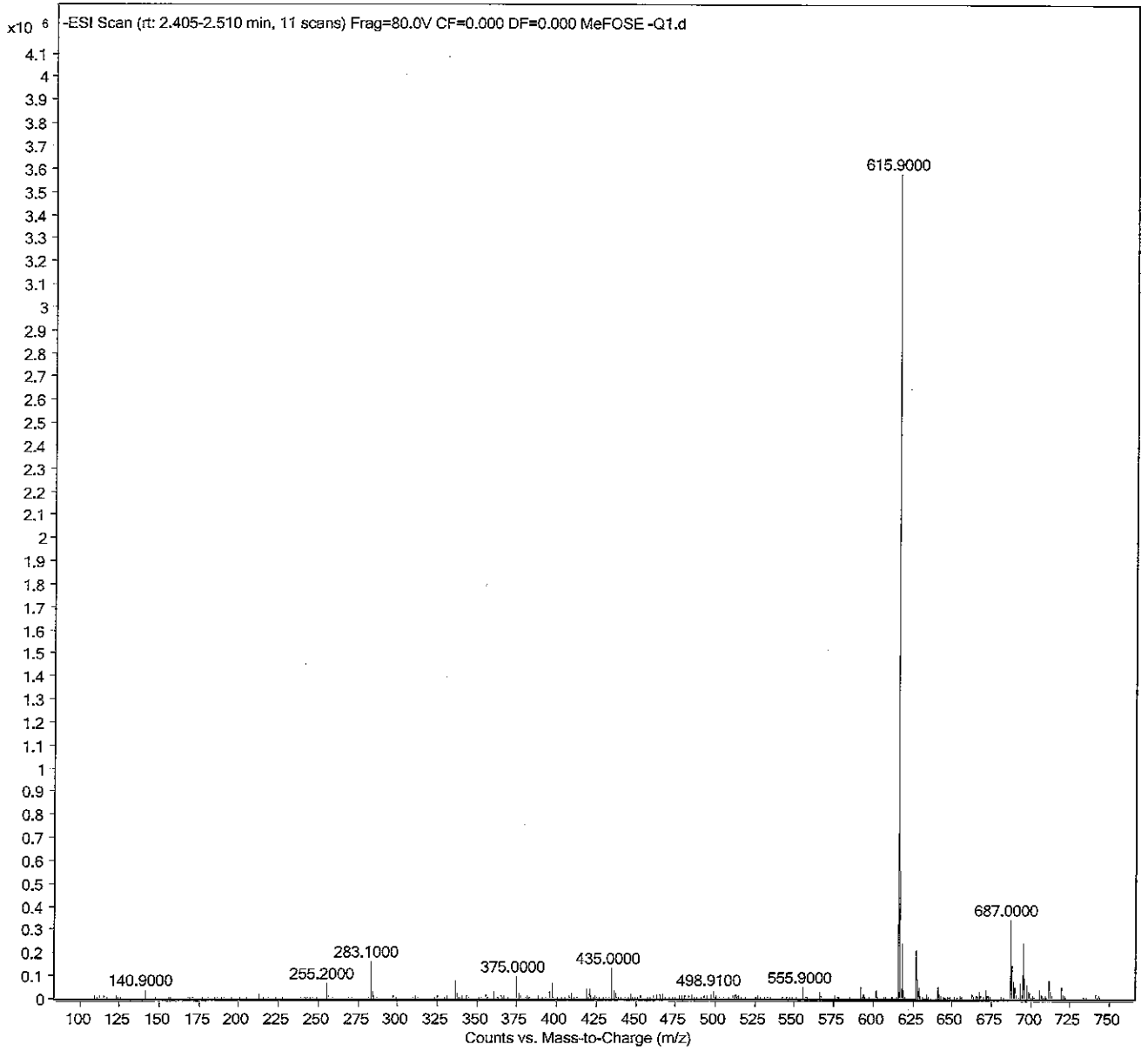
Sample Name	EtFOSA -Q1	**Position**	P2-C1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:19:48 PM

MaxxAm Analytics

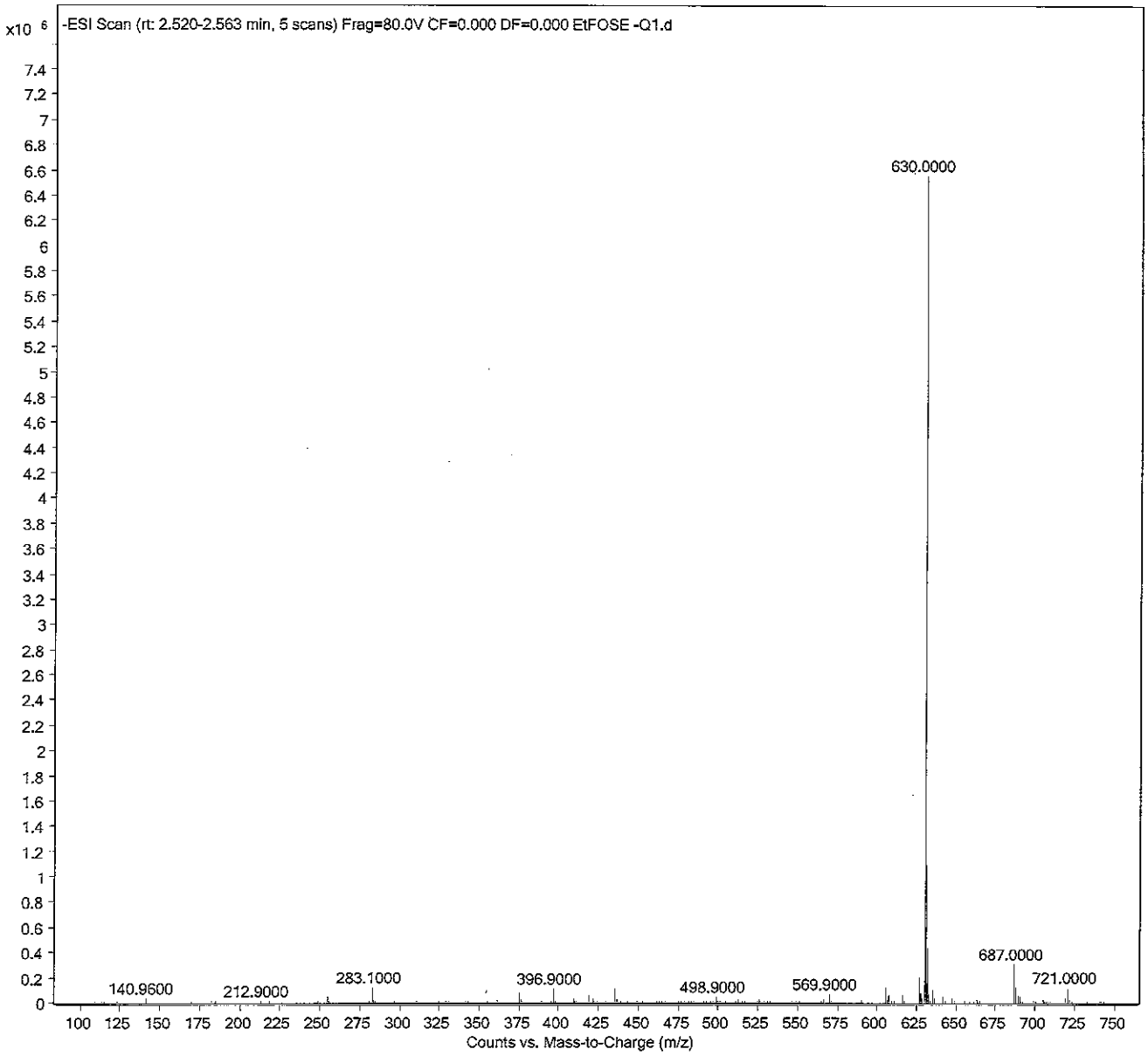


Sample Name	MeFOSE -Q1	**Position**	P2-C2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSE -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:25:18 PM

MaxXam Analytics

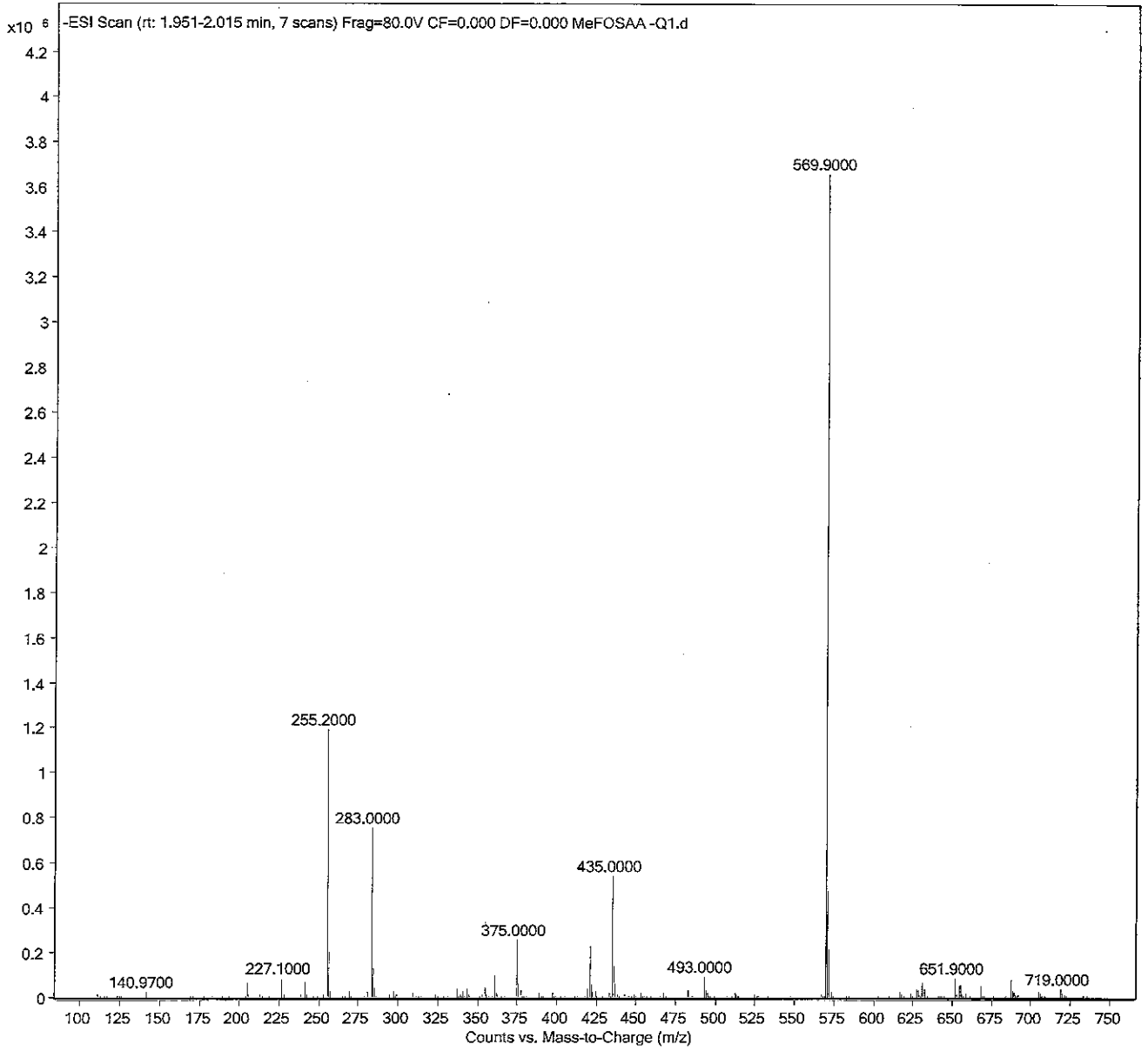


Sample Name	EtFOSE -Q1	**Position**	P2-C3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSE -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:30:48 PM



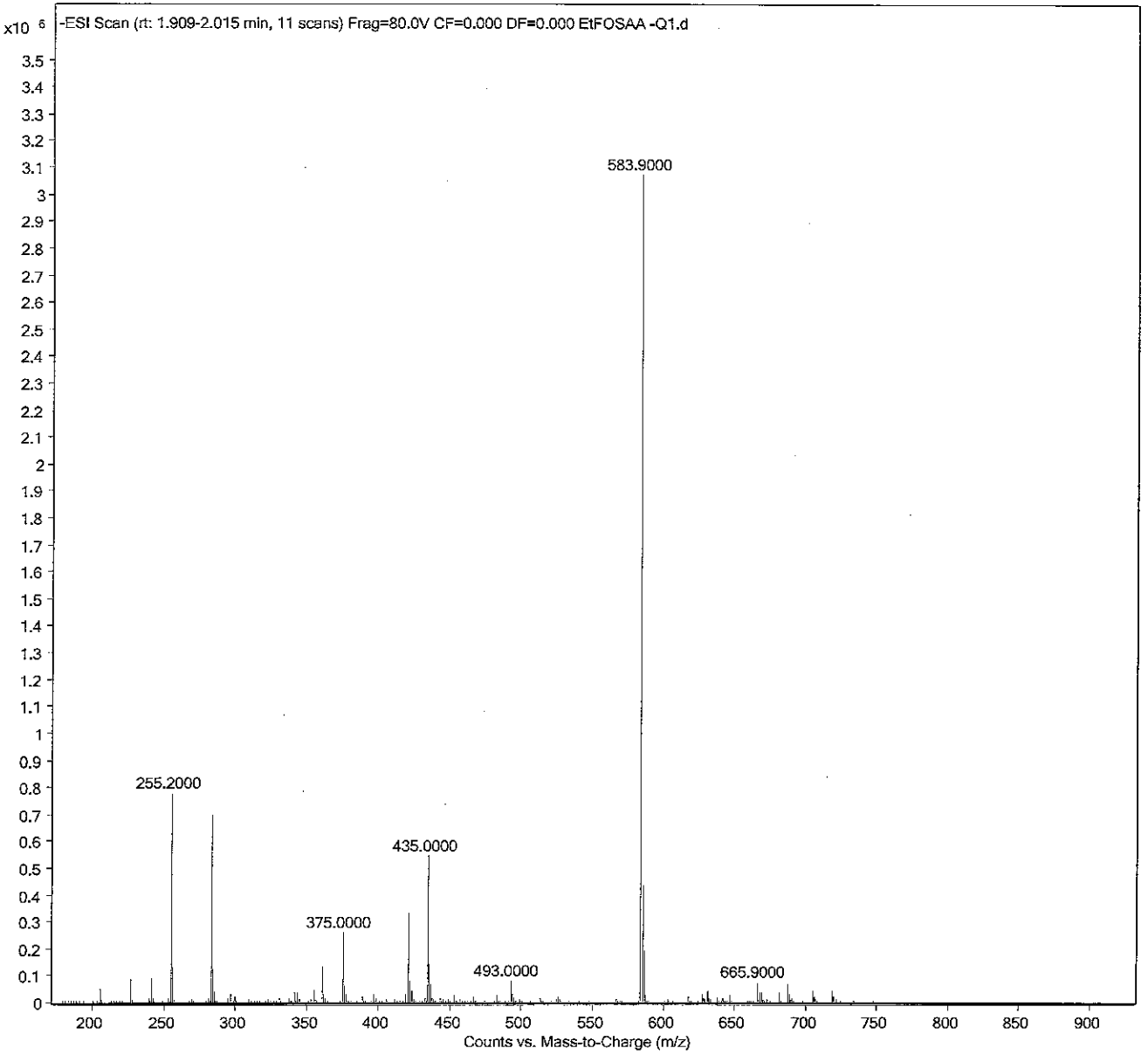
MaxXam Analytics

Sample Name	MeFOSAA -Q1	**Position**	P2-C4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSAA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:36:18 PM



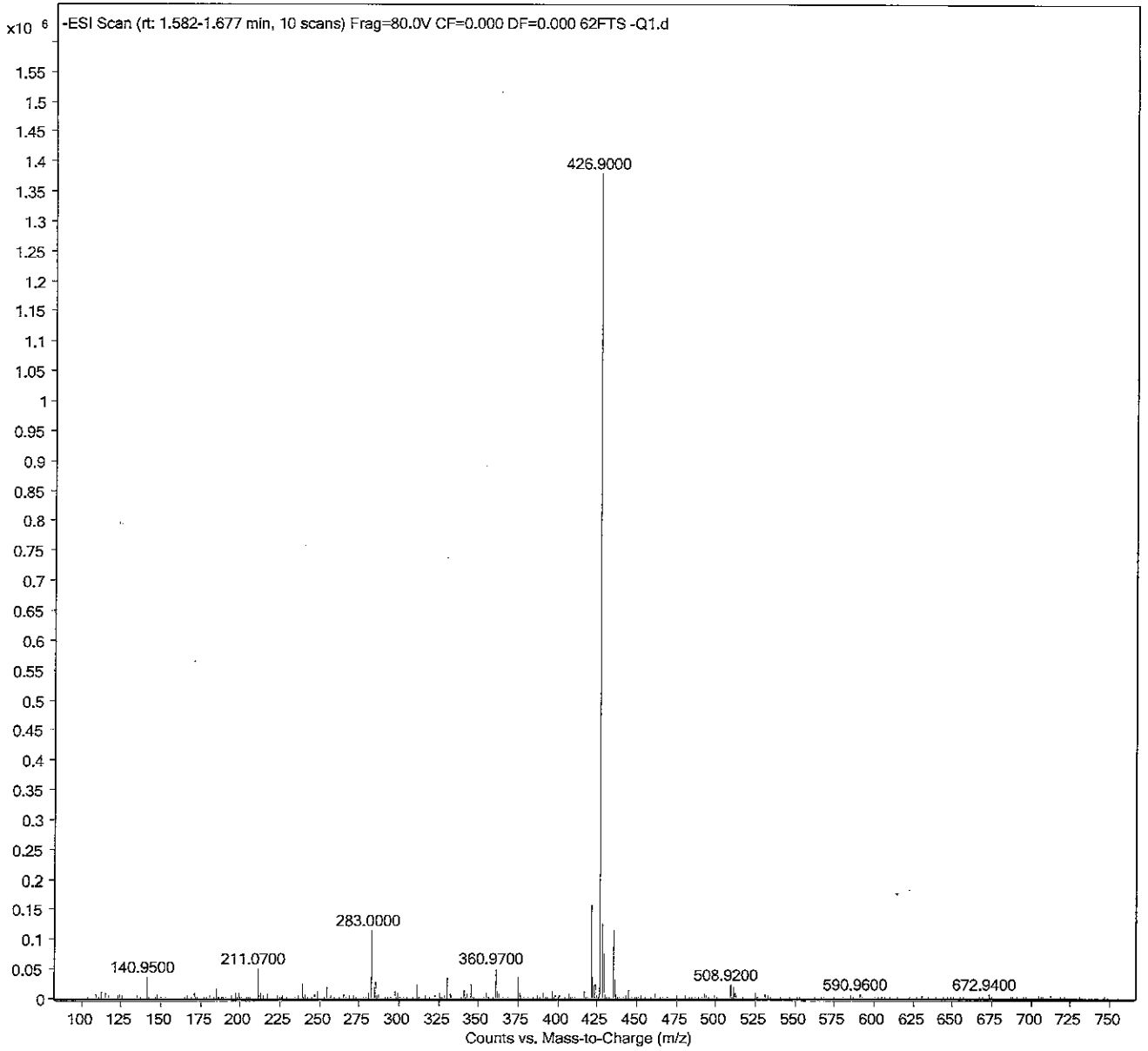
MaxXam Analytics

Sample Name	EtFOSAA -Q1	**Position**	P2-C5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSAA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:41:48 PM



MaxXam Analytics

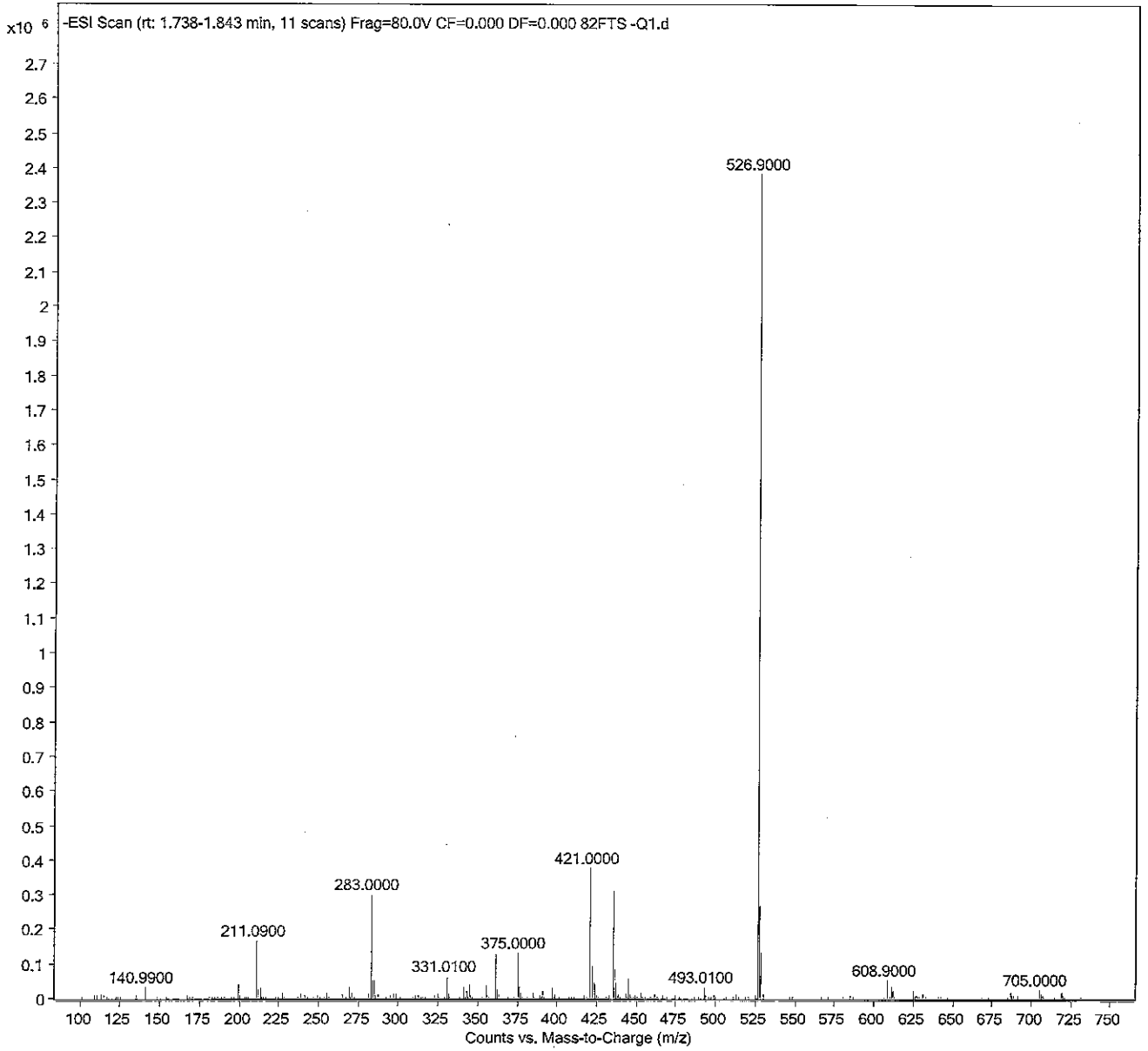
Sample Name	6:2FTS -Q1	**Position**	P2-C6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	62FTS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:47:18 PM



MaxXam Analytics

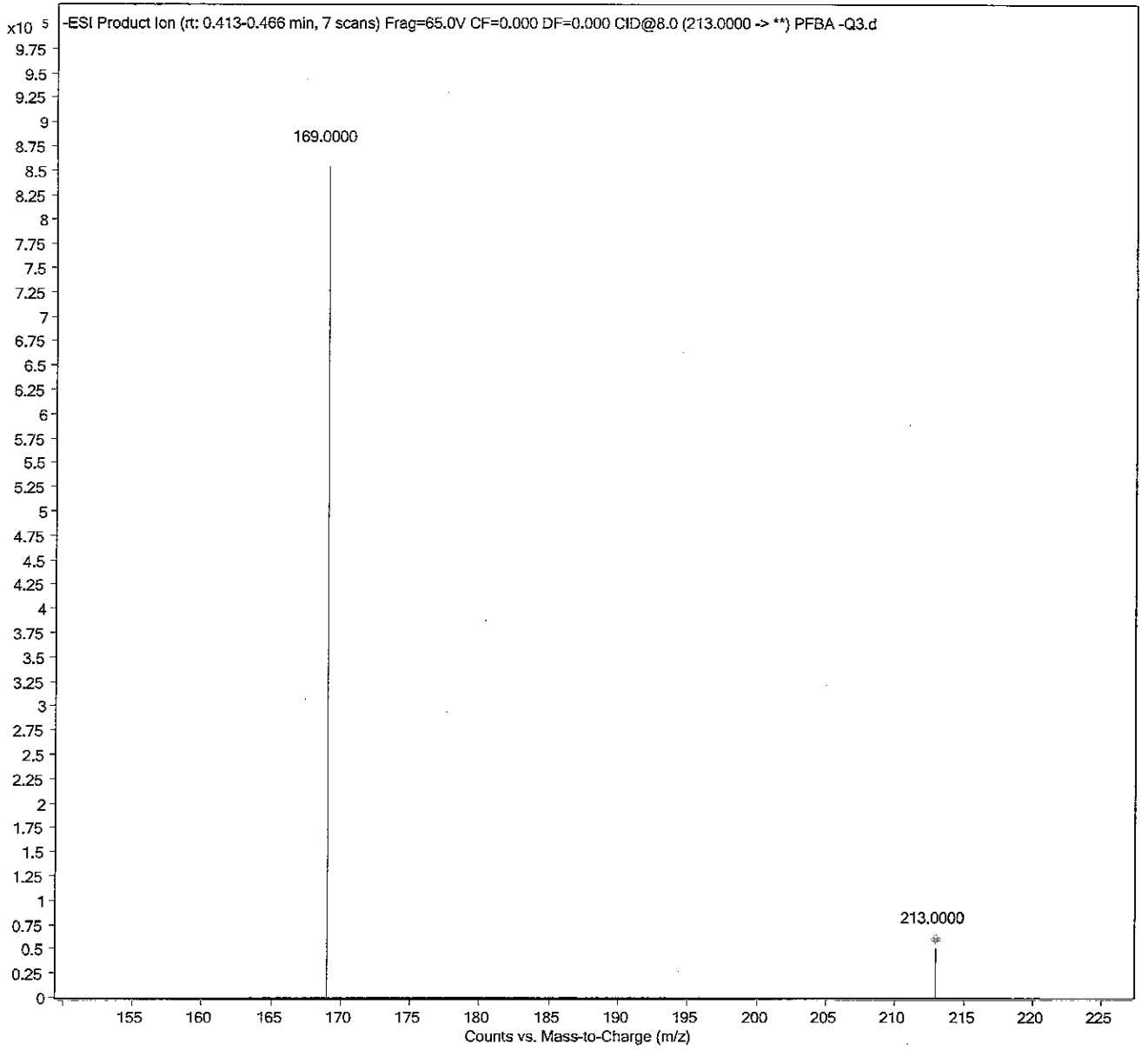
Sample Name	8:2FTS -Q1	**Position**	P2-C7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	82FTS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 4:52:48 PM

MaxXam Analytics



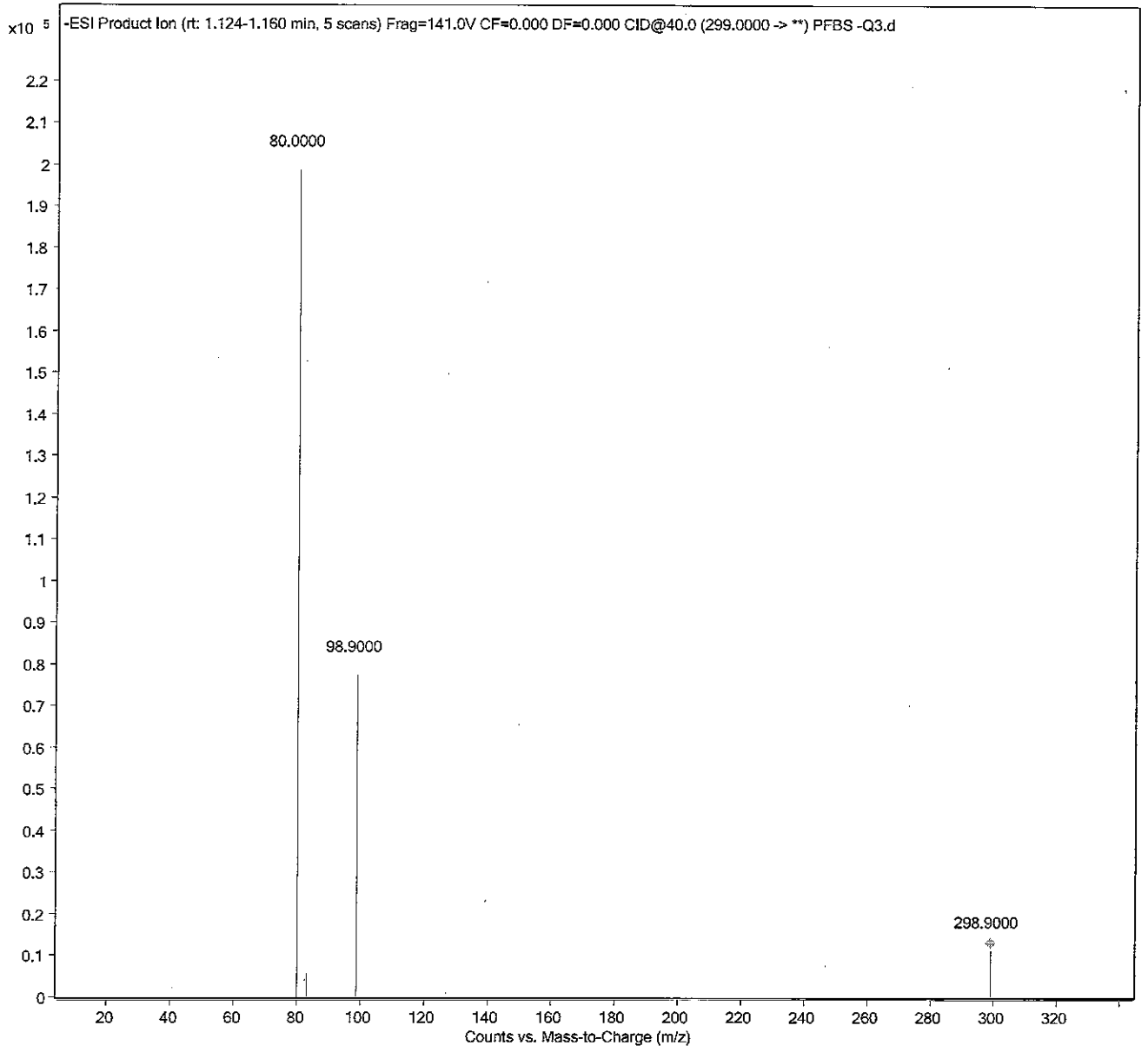
Analyte Product Ion Verification

Sample Name	PFBA -Q3	**Position**	P2-A1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFBA -Q3.d
ACQ Method	PFC_MassVerification-PFBA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 4:58:18 PM



MaxXam Analytics

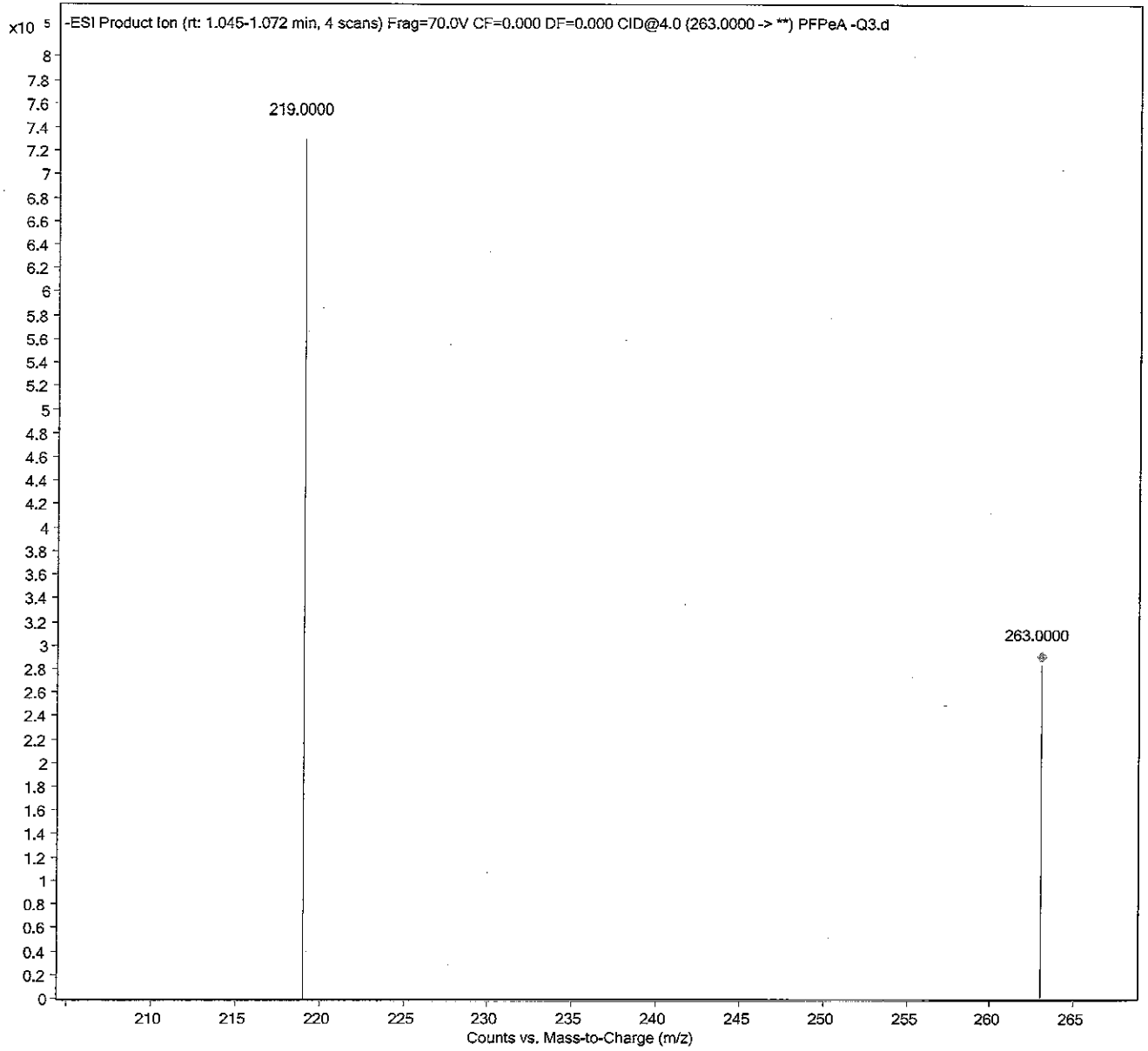
Sample Name	PFBS -Q3	**Position**	P2-A2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFBS -Q3.d
ACQ Method	PFC_MassVerification-PFBS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:03:48 PM



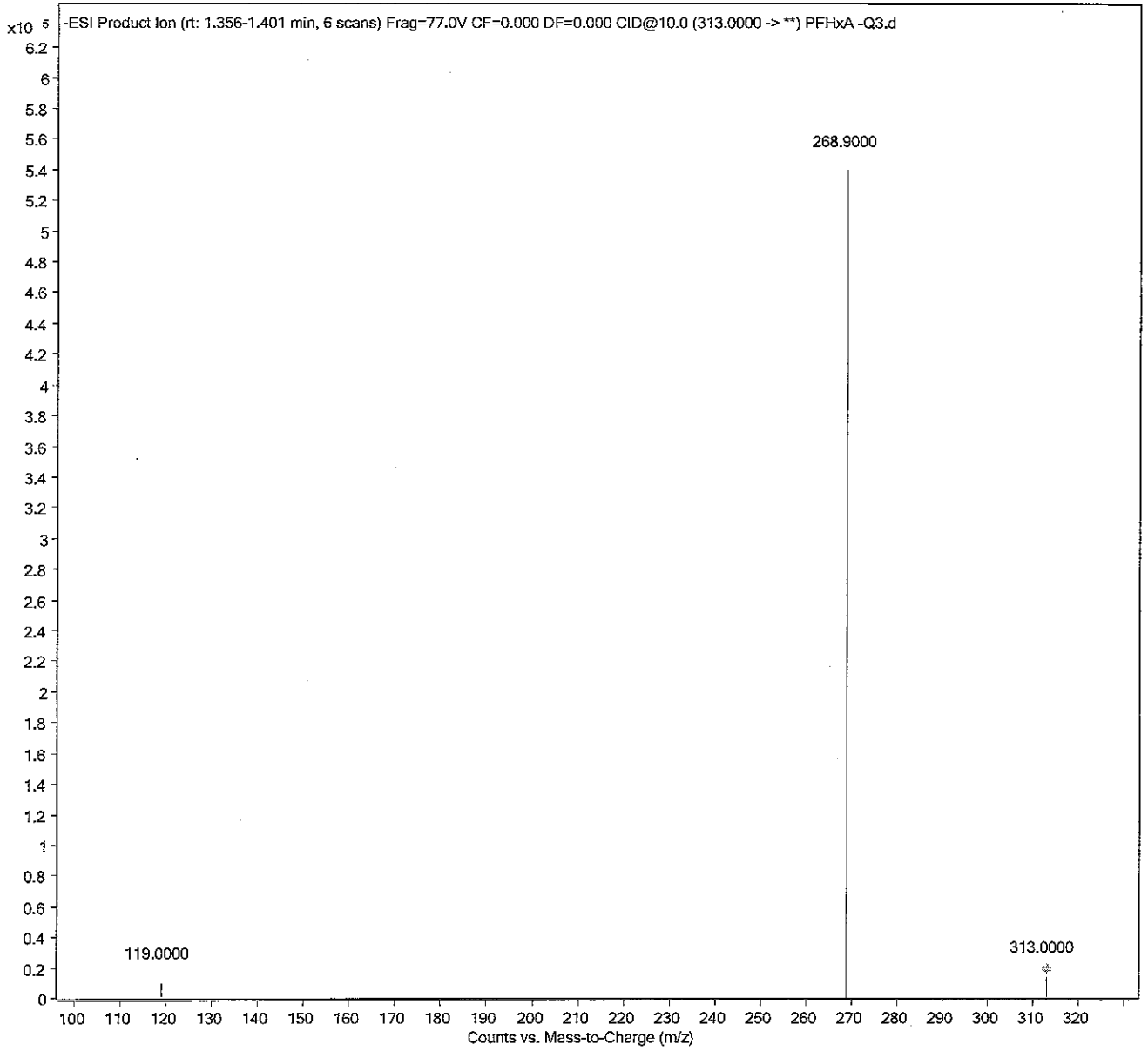
Maxxam Analytics

Sample Name	PFPeA -Q3	**Position**	P2-A3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFPeA -Q3.d
ACQ Method	PFC_MassVerification-PFPeA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:09:18 PM

Maxxam Analytics

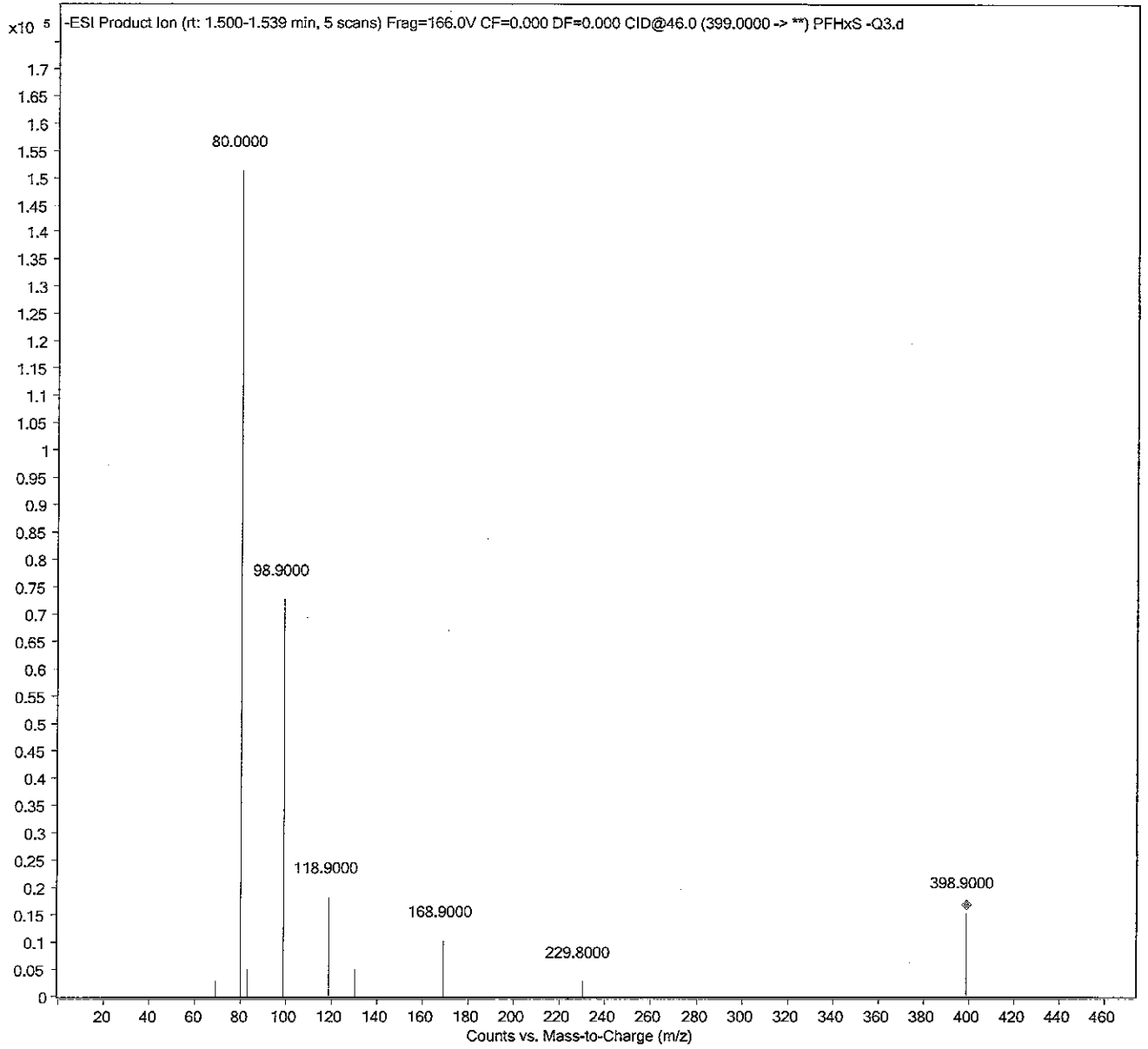


Sample Name	PFHxA -Q3	**Position**	P2-A4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHxA -Q3.d
ACQ Method	PFC_MassVerification-PFHxA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:14:48 PM

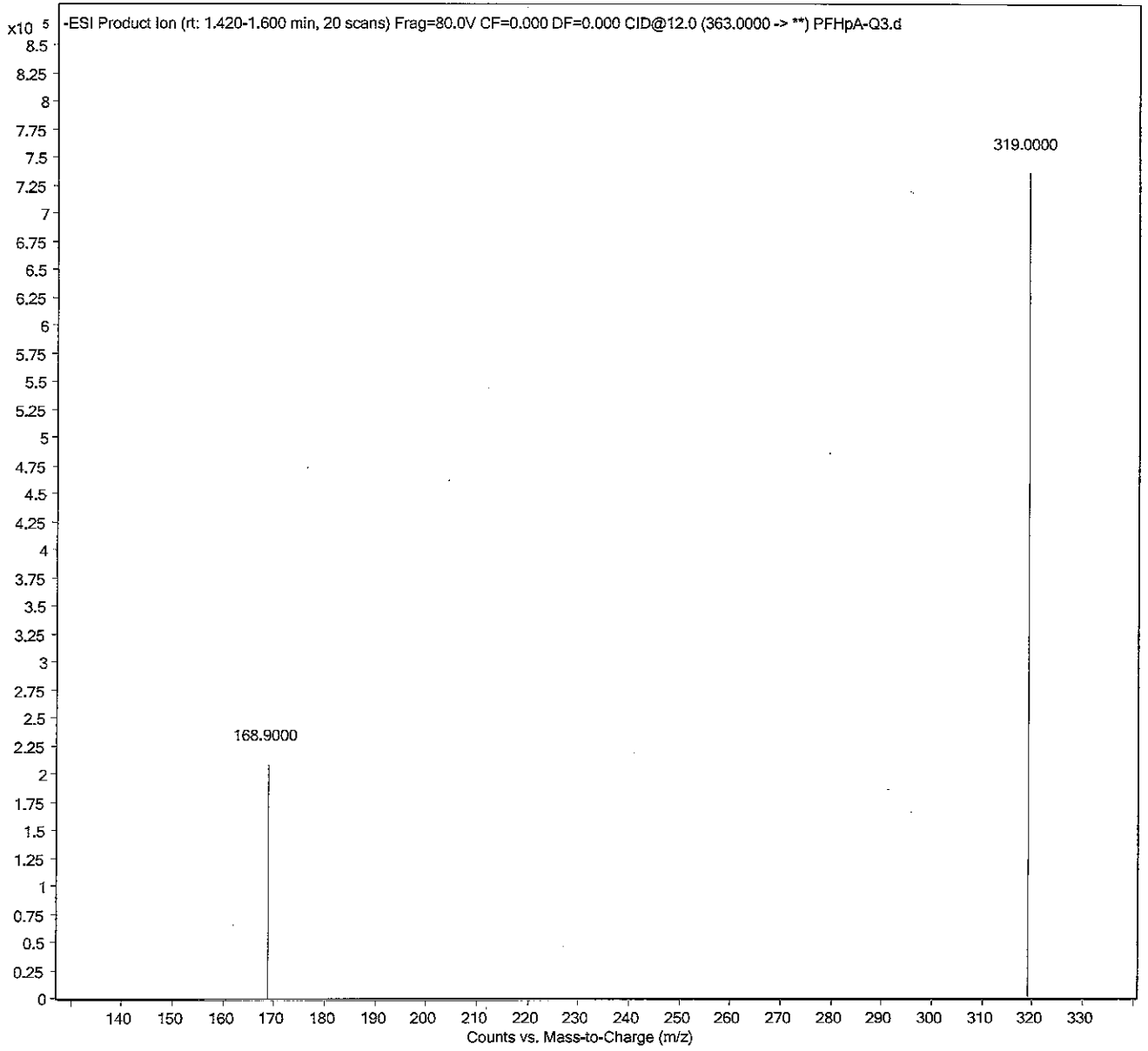


Maxxam Analytics

Sample Name	PFHxS -Q3	**Position**	P2-A5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHxS -Q3.d
ACQ Method	PFC_MassVerification-PFHxS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:20:18 PM



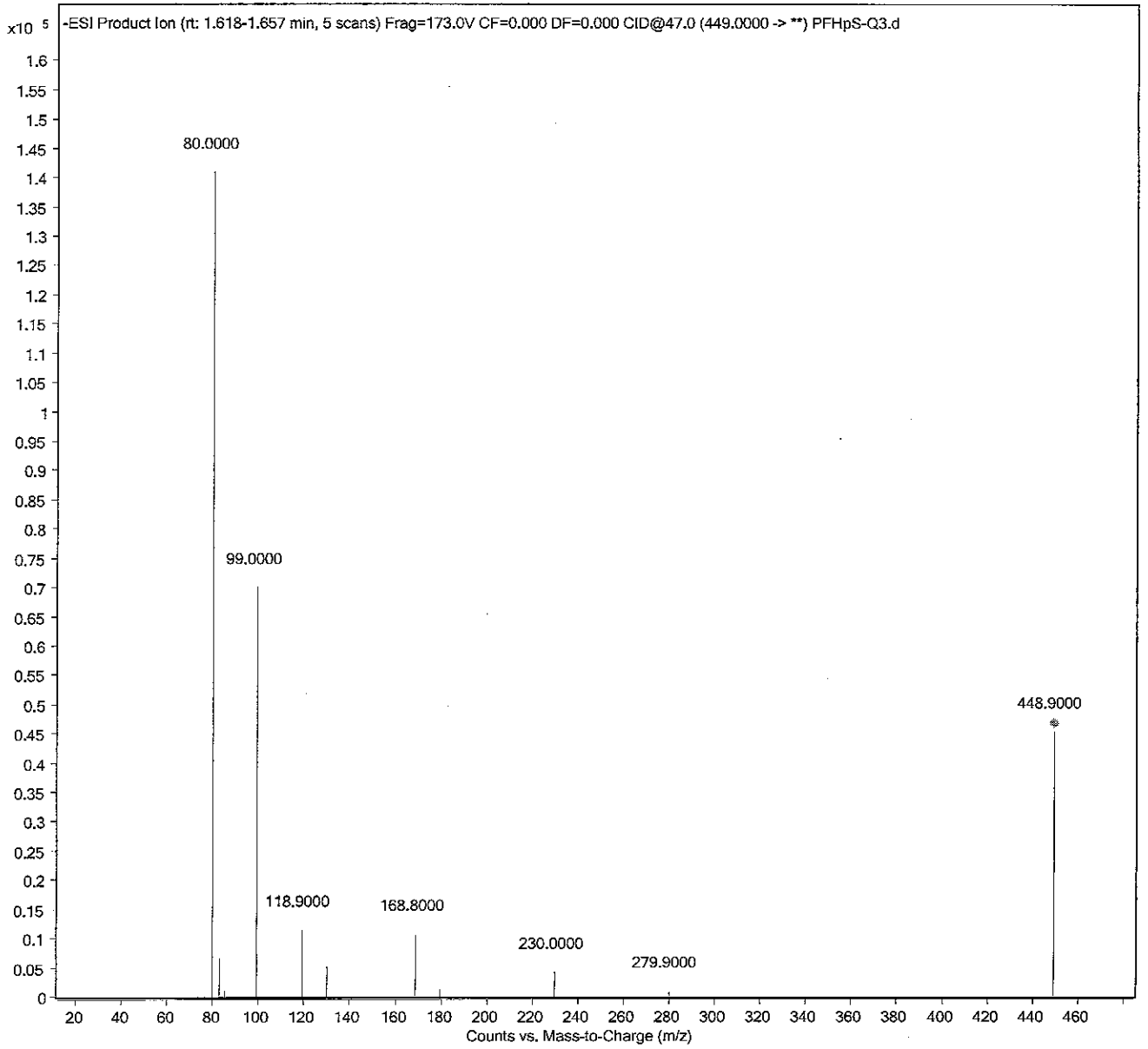
Sample Name	PFHpA-Q3	**Position**	P2-A6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHpA-Q3.d
ACQ Method	PFC_MassVerification-PFHpA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:25:48 PM



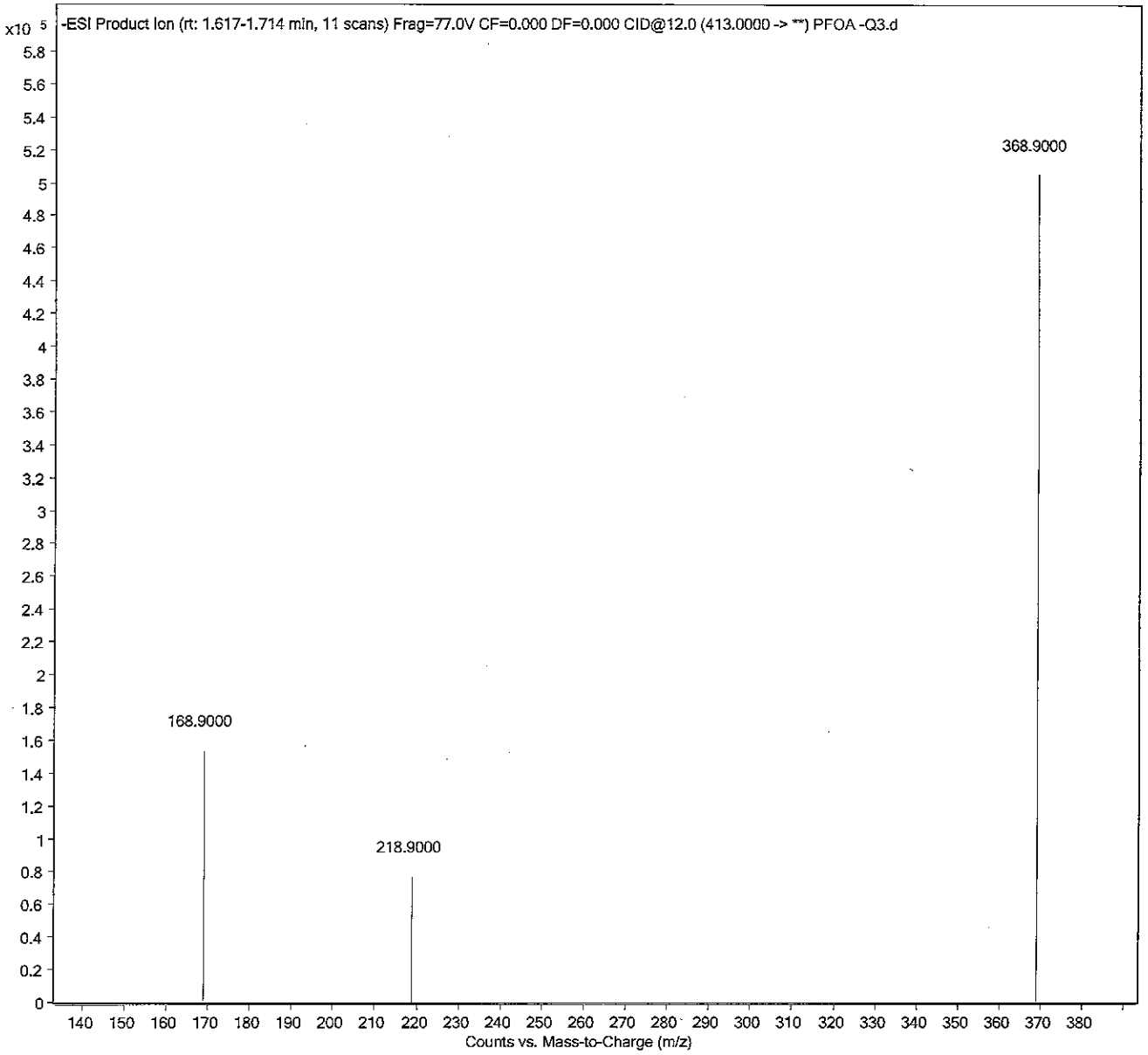
MaxXam Analytics

Sample Name	PFHpS-Q3	**Position**	P2-A7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFHpS-Q3.d
ACQ Method	PFC_MassVerification-PFHpS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:31:18 PM

MaxXam Analytics

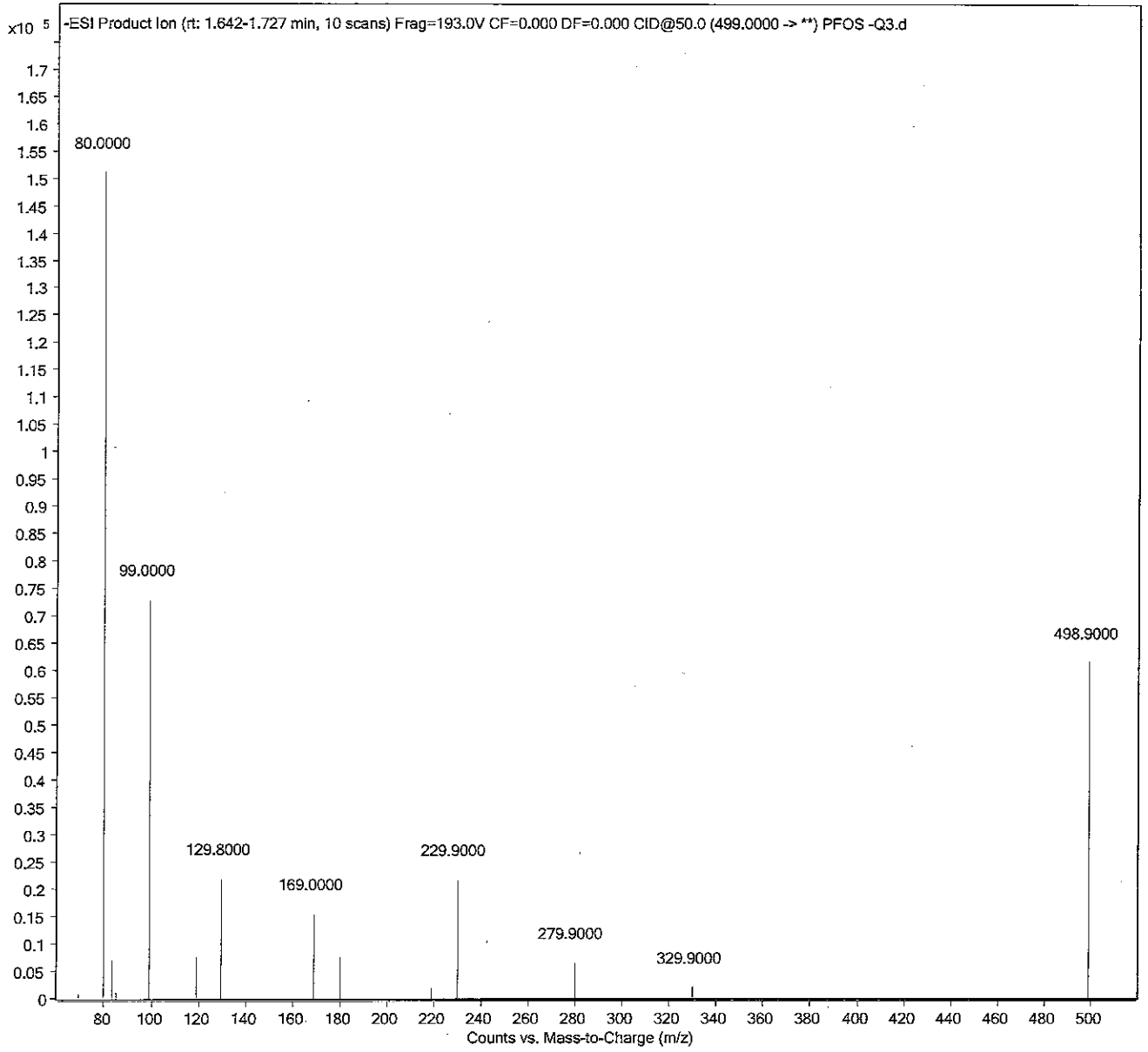


Sample Name	PFOA -Q3	**Position**	P2-A8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOA -Q3.d
ACQ Method	PFC_MassVerification-PFOA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:36:48 PM



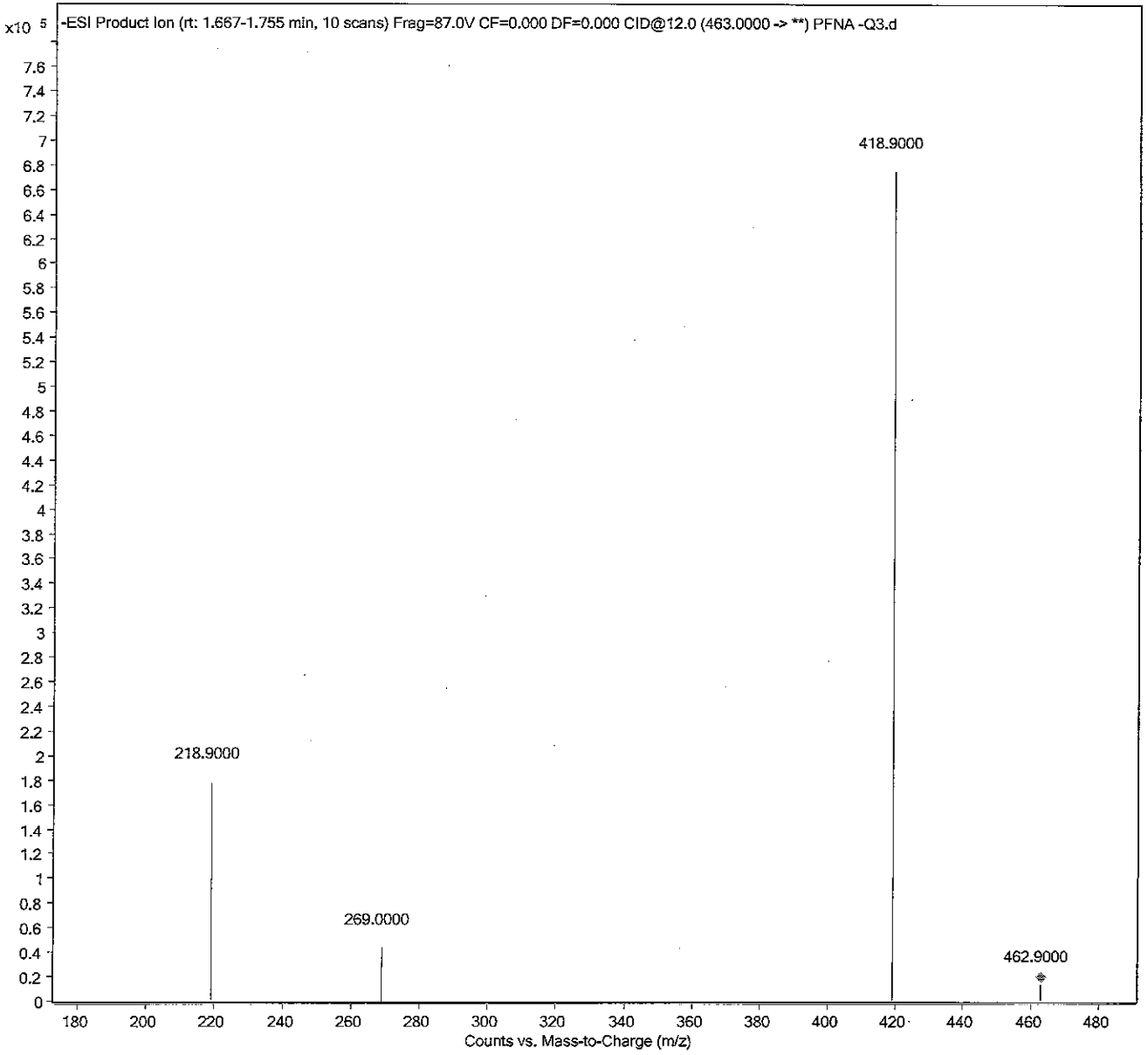
Maxxam Analytics

Sample Name	PFOS -Q3	**Position**	P2-A9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOS -Q3.d
ACQ Method	PFC_MassVerification-PFOS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:42:19 PM

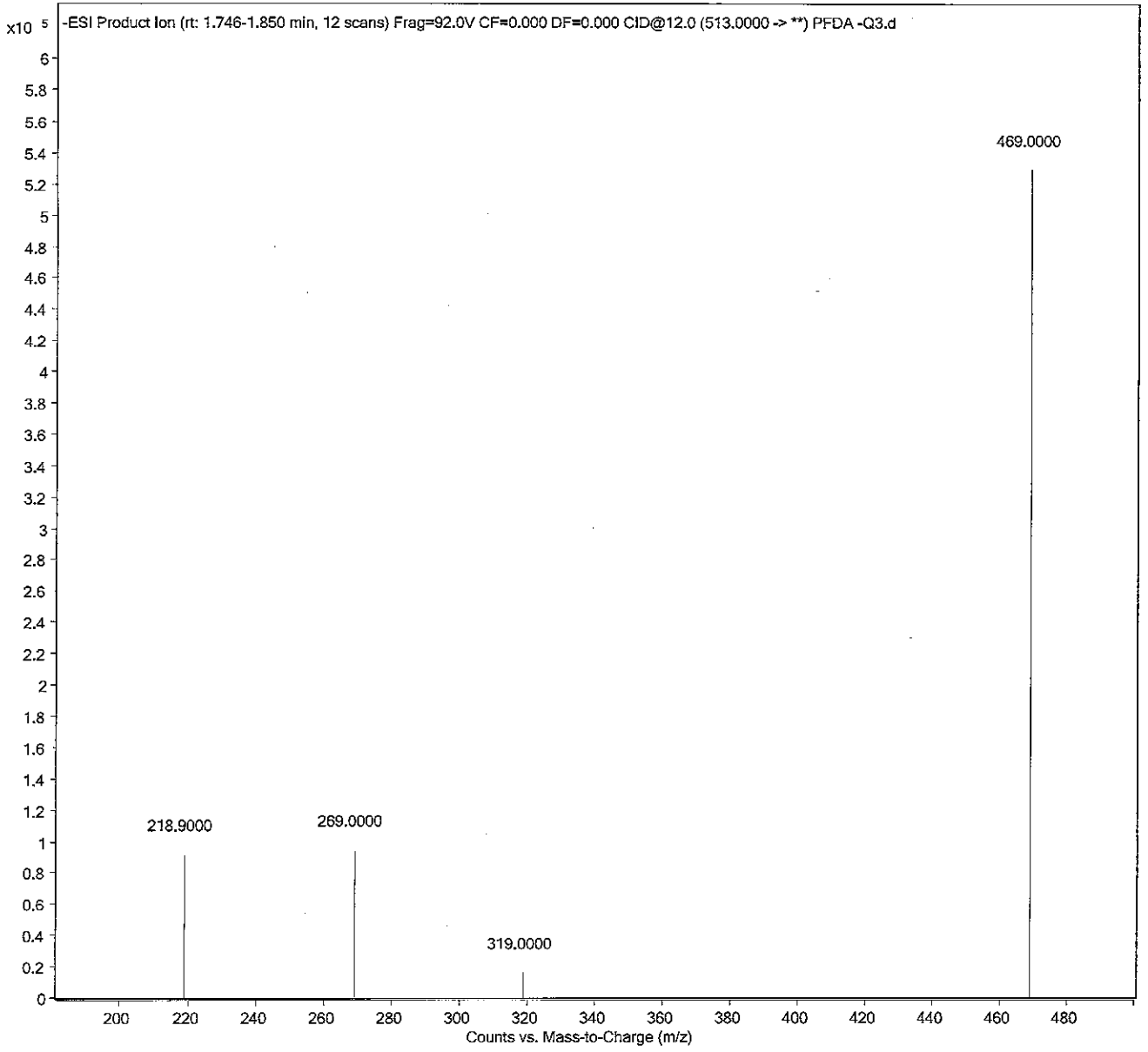


Maxxam Analytics

Sample Name	PFNA -Q3	**Position**	P2-B1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFNA -Q3.d
ACQ Method	PFC_MassVerification-PFNA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:47:48 PM

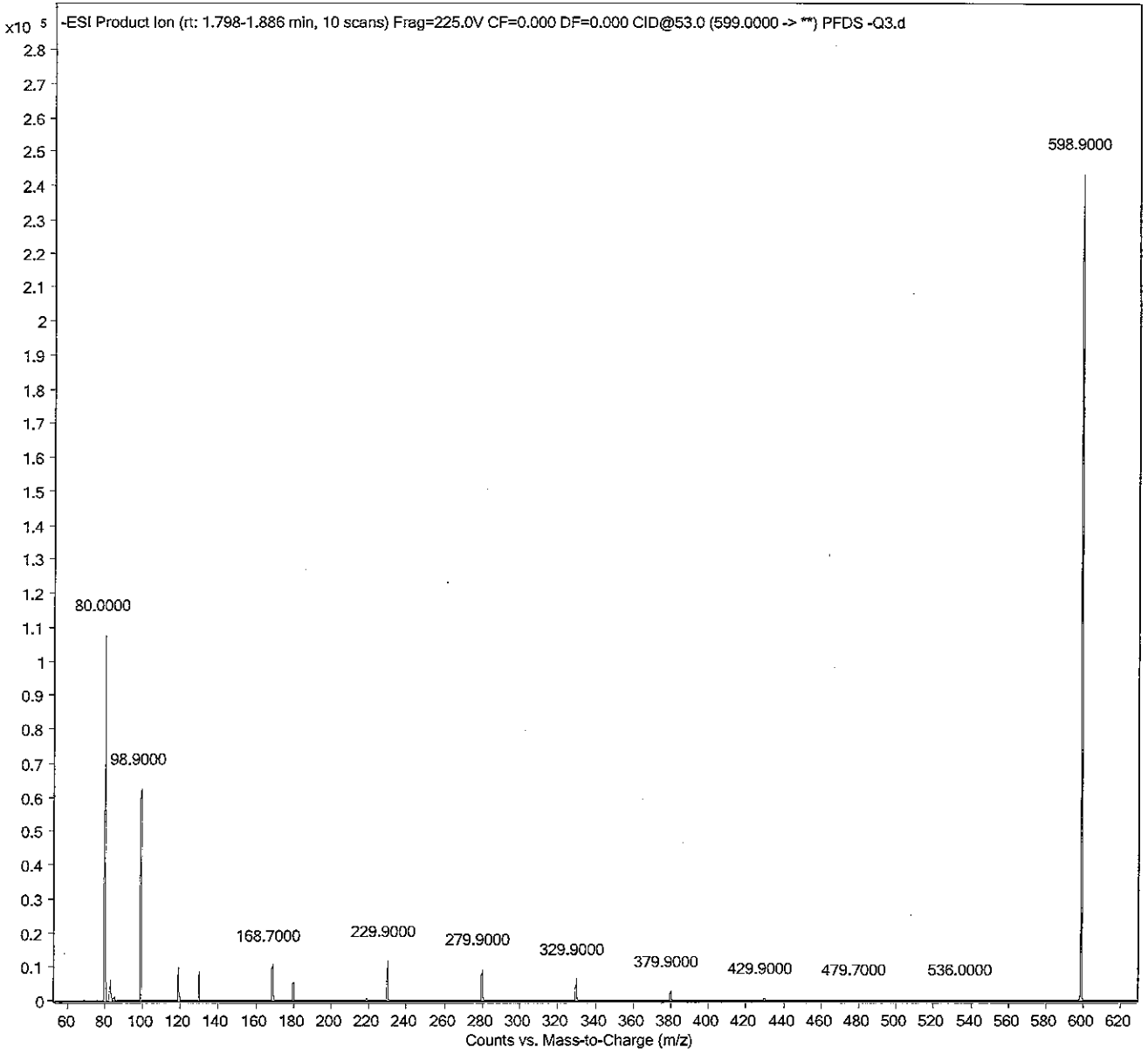


Sample Name	PFDA -Q3	**Position**	P2-B2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDA -Q3.d
ACQ Method	PFC_MassVerification-PFDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:53:18 PM



MaxXam Analytics

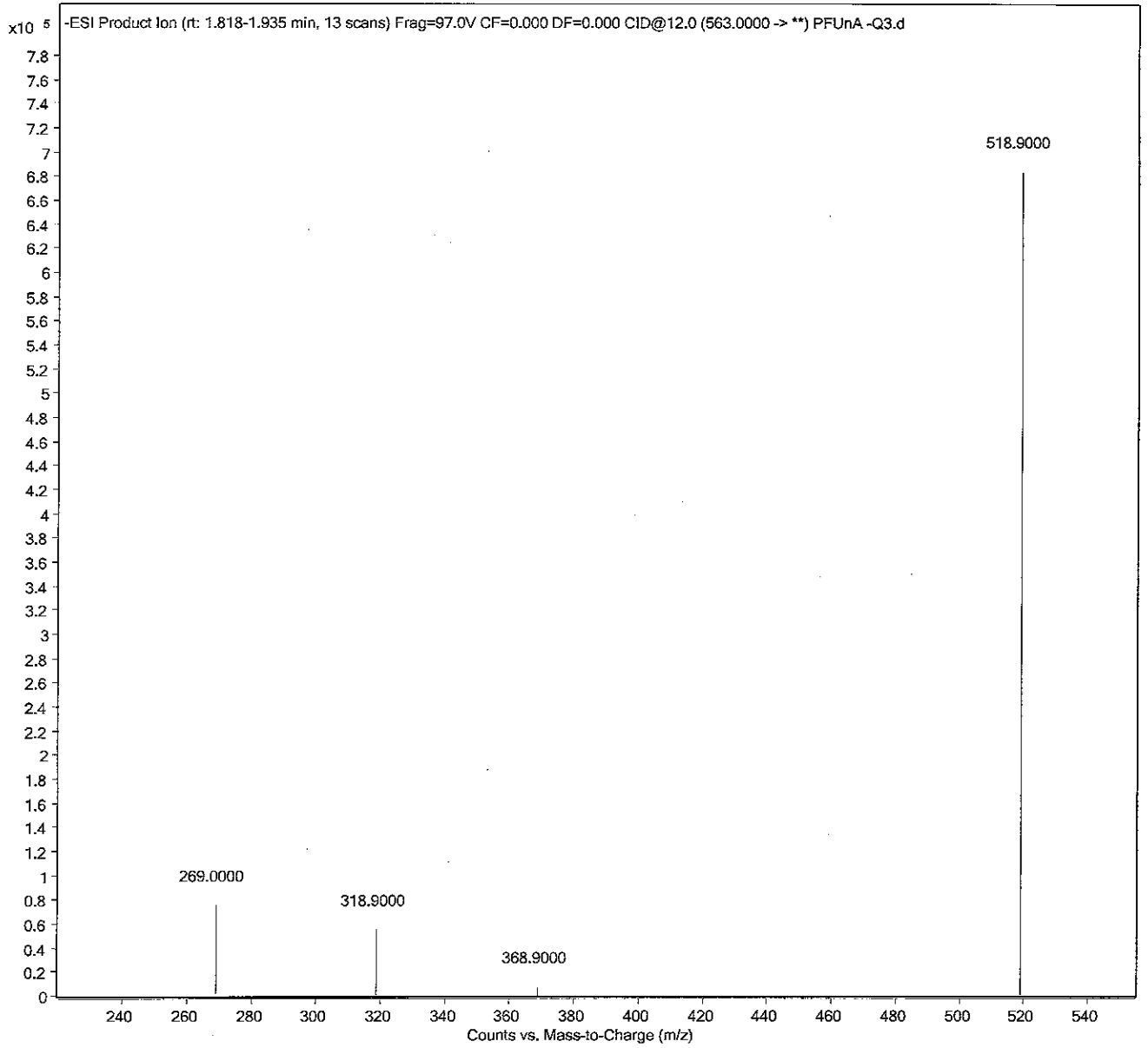
Sample Name	PFDS -Q3	**Position**	P2-B3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDS -Q3.d
ACQ Method	PFC_MassVerification-PFDS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 5:58:48 PM



MaxxAm Analytics

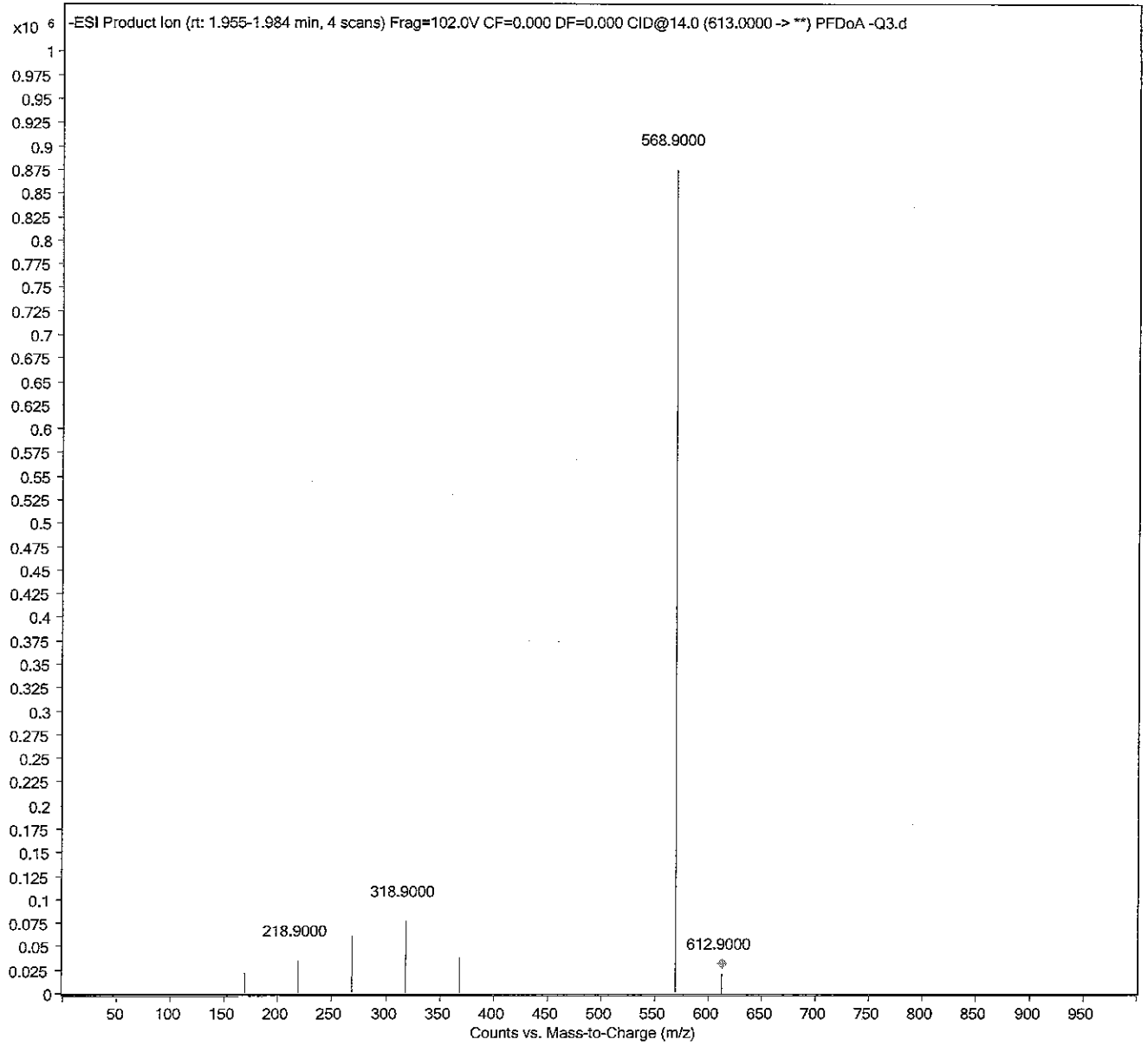
Sample Name	PFUnA -Q3	**Position**	P2-B4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFUnA -Q3.d
ACQ Method	PFC_MassVerification-PFUnA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:04:18 PM

MaxXam Analytics

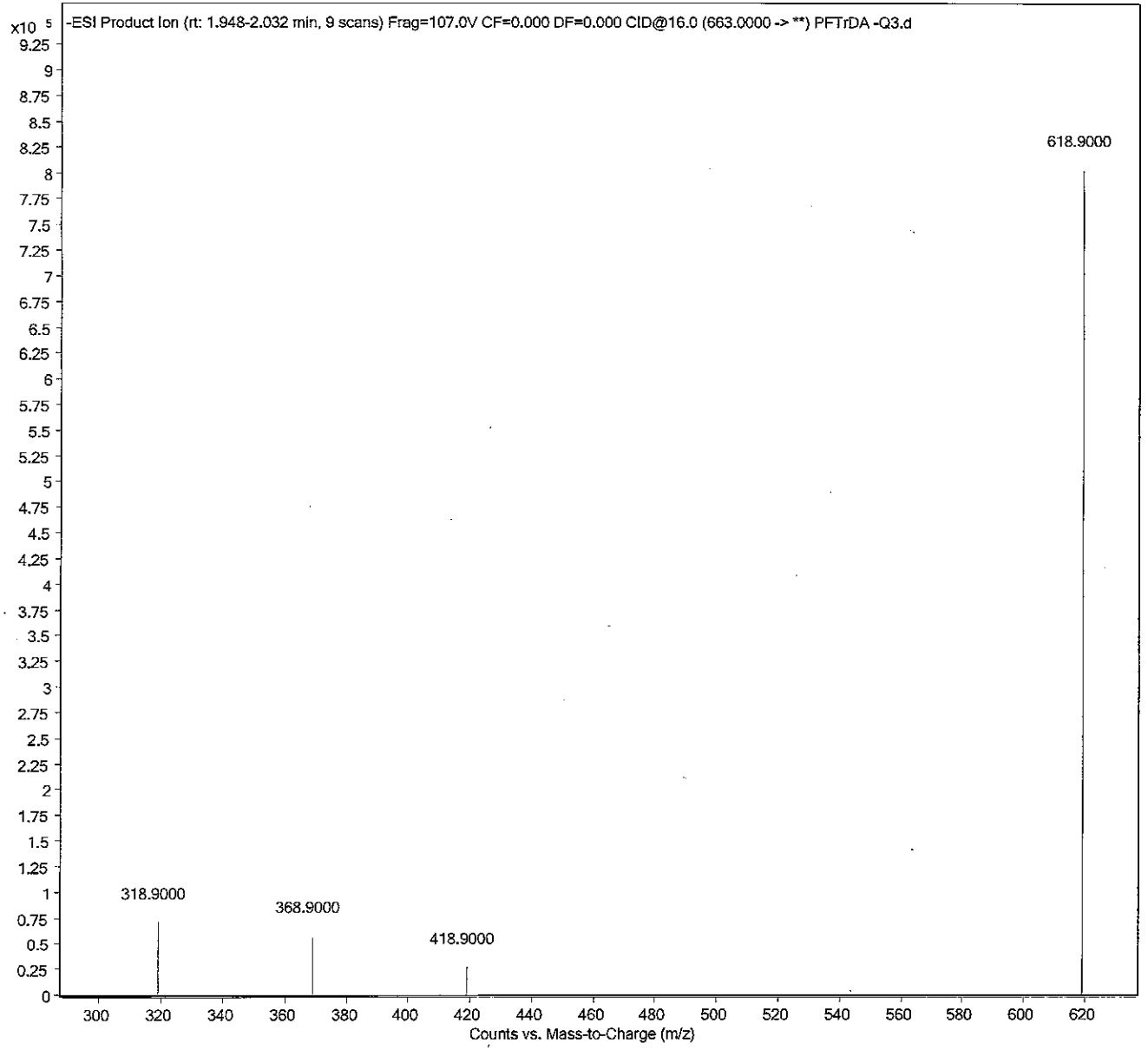


Sample Name	PFDoA -Q3	**Position**	P2-B5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFDoA -Q3.d
ACQ Method	PFC_MassVerification-PFDoA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:09:48 PM

MaxXam Analytics

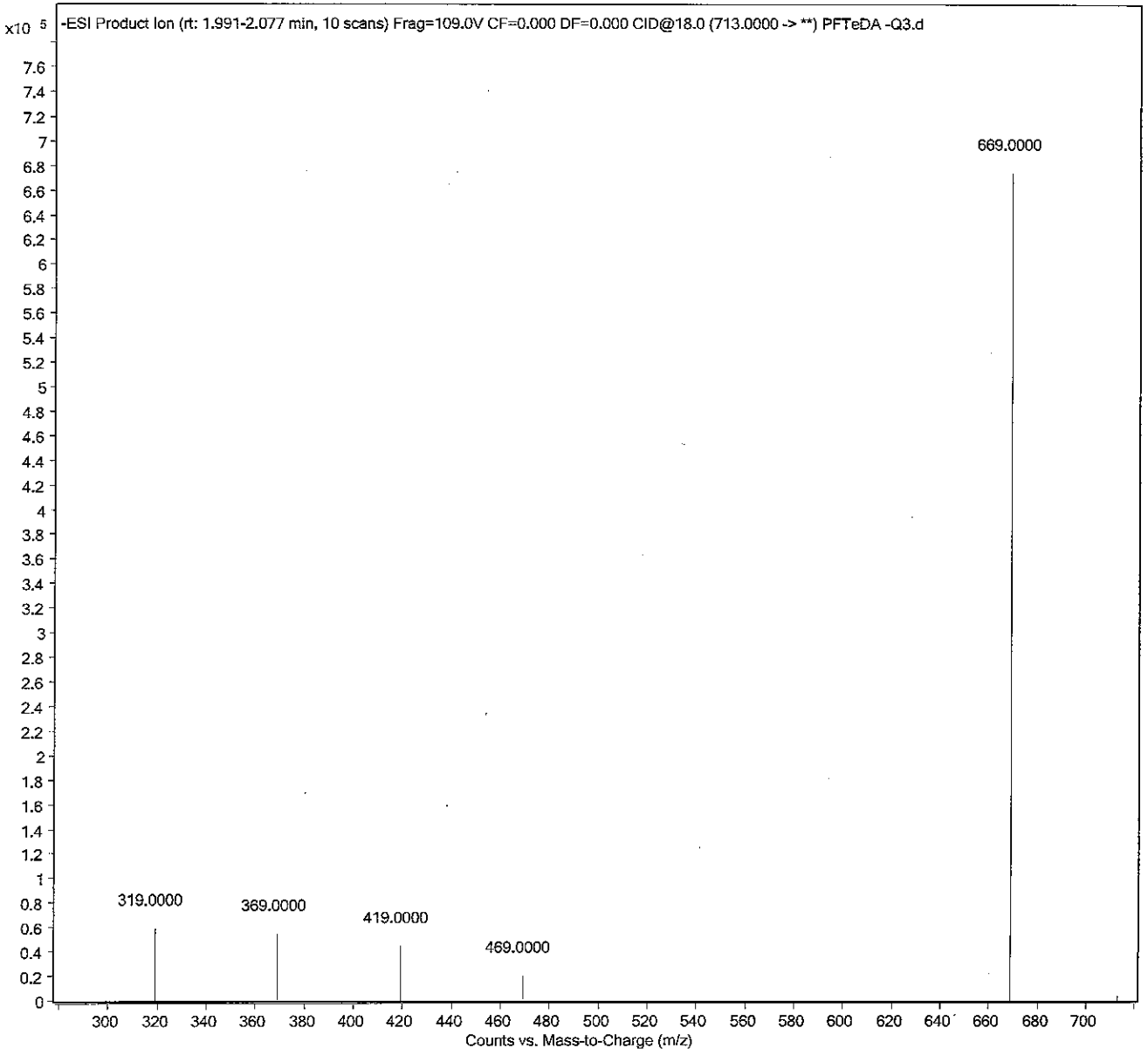


Sample Name	PFTrDA -Q3	**Position**	P2-B6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFTrDA -Q3.d
ACQ Method	PFC_MassVerification-PFTrDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:15:18 PM



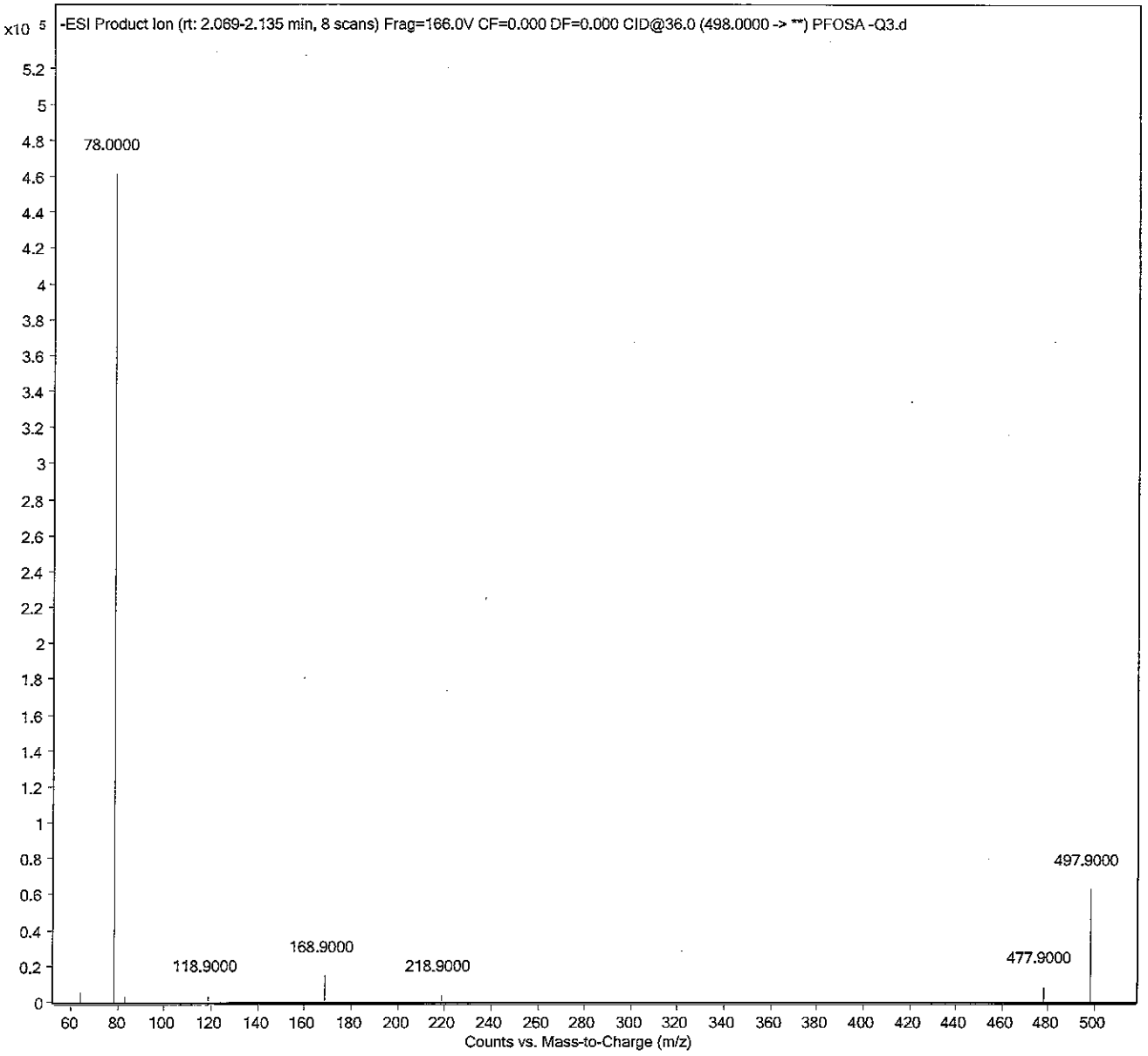
MaxxAm Analytics

Sample Name	PFTeDA -Q3	**Position**	P2-B7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFTeDA -Q3.d
ACQ Method	PFC_MassVerification-PFTeDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:20:49 PM



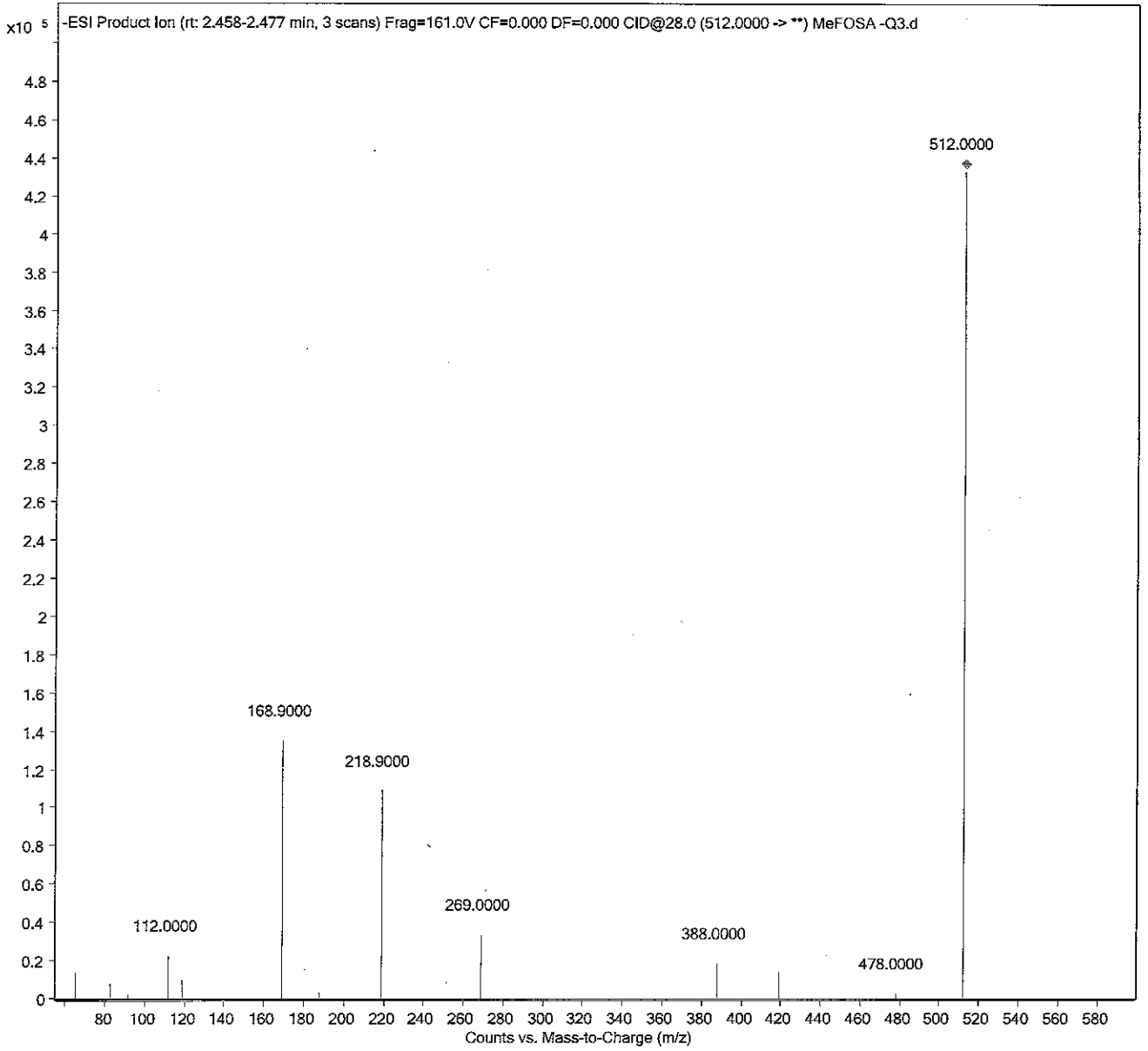
Maxxam Analytics

Sample Name	PFOSA -Q3	**Position**	P2-B8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	PFOSA -Q3.d
ACQ Method	PFC_MassVerification-PFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:26:18 PM



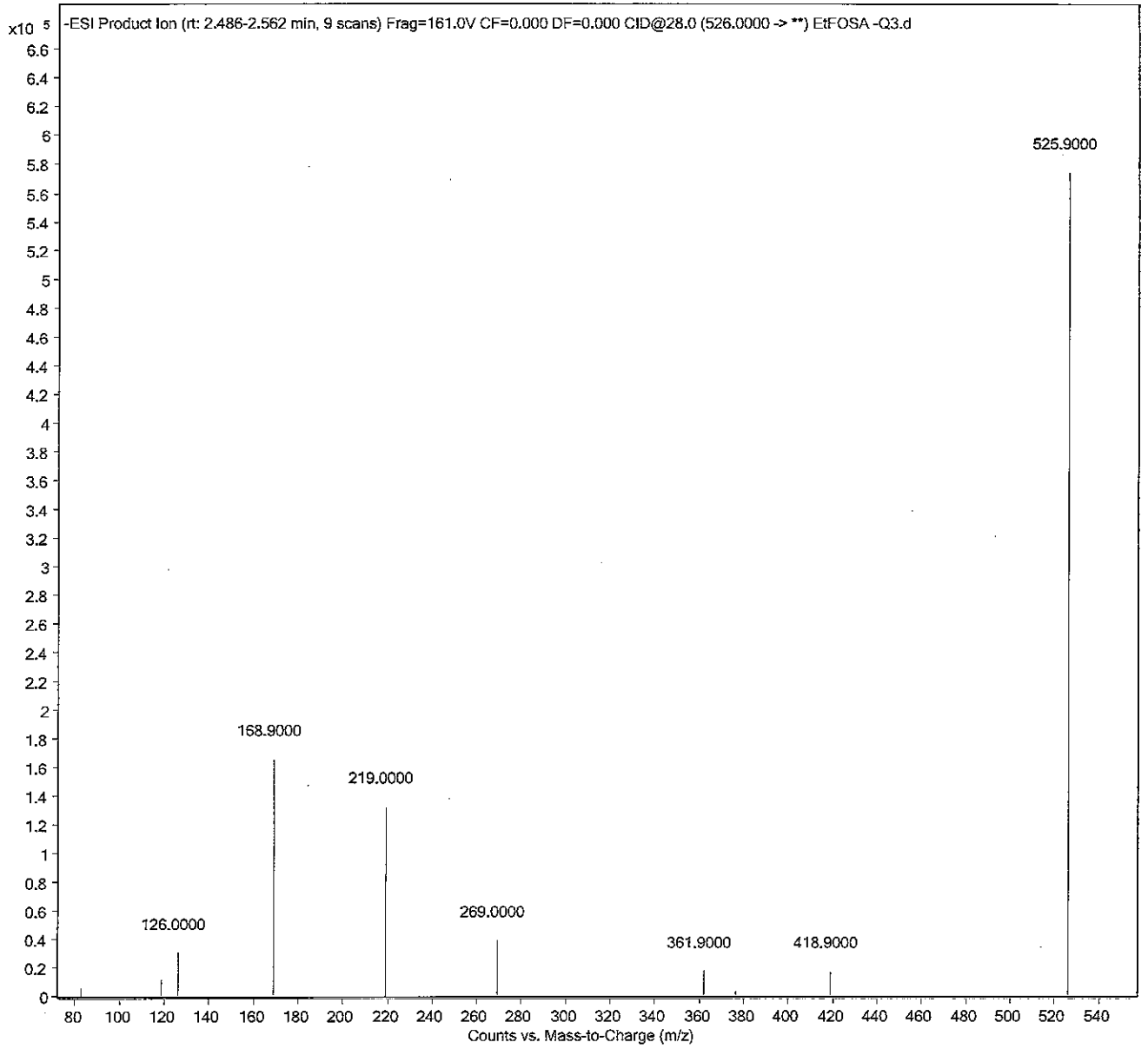
Maxxam Analytics

Sample Name	MeFOSA -Q3	**Position**	P2-B9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSA -Q3.d
ACQ Method	PFC_MassVerification-MeFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:31:48 PM



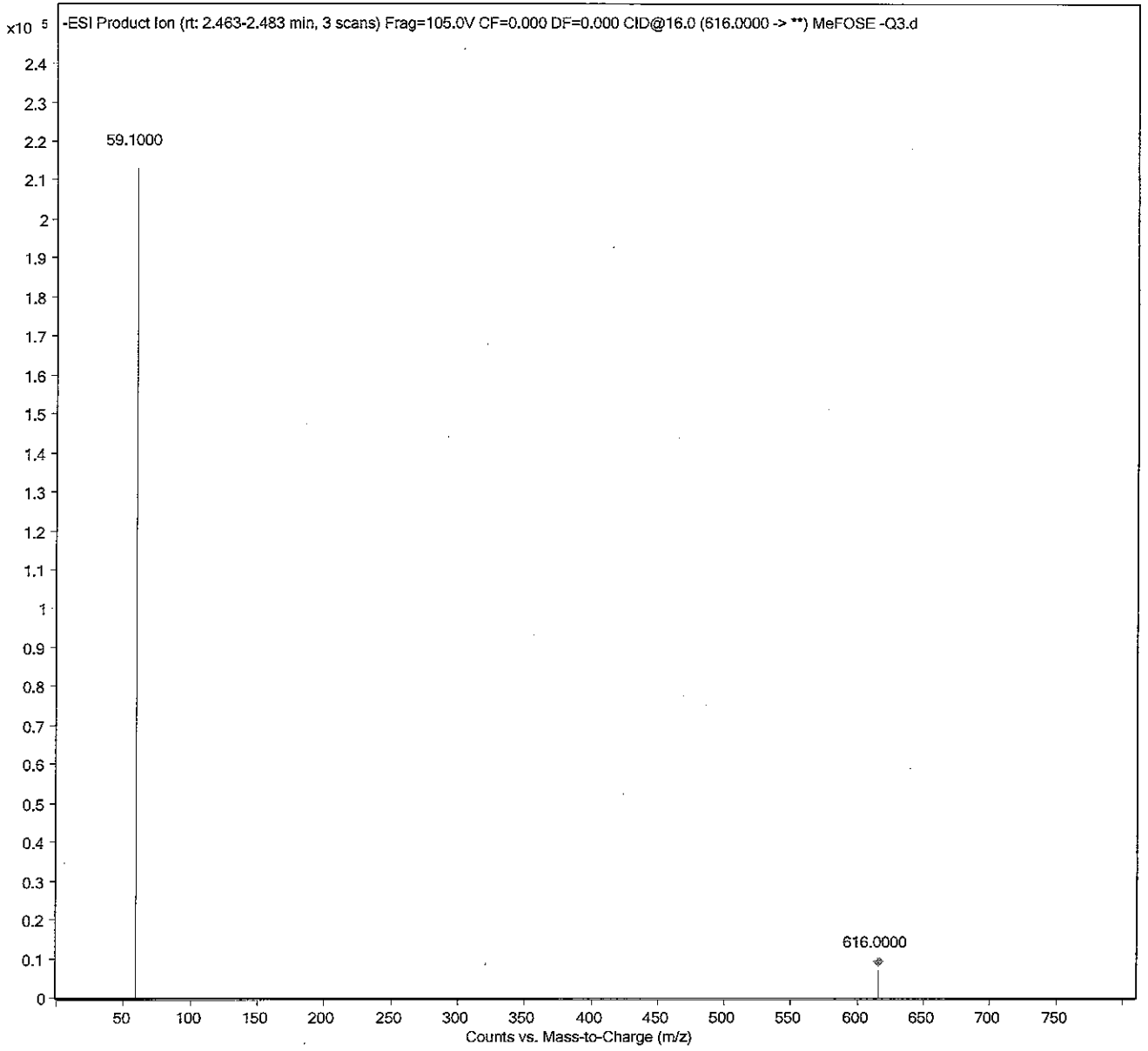
MaxXam Analytics

Sample Name	EtFOSA -Q3	**Position**	P2-C1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSA -Q3.d
ACQ Method	PFC_MassVerification-EtFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:37:18 PM



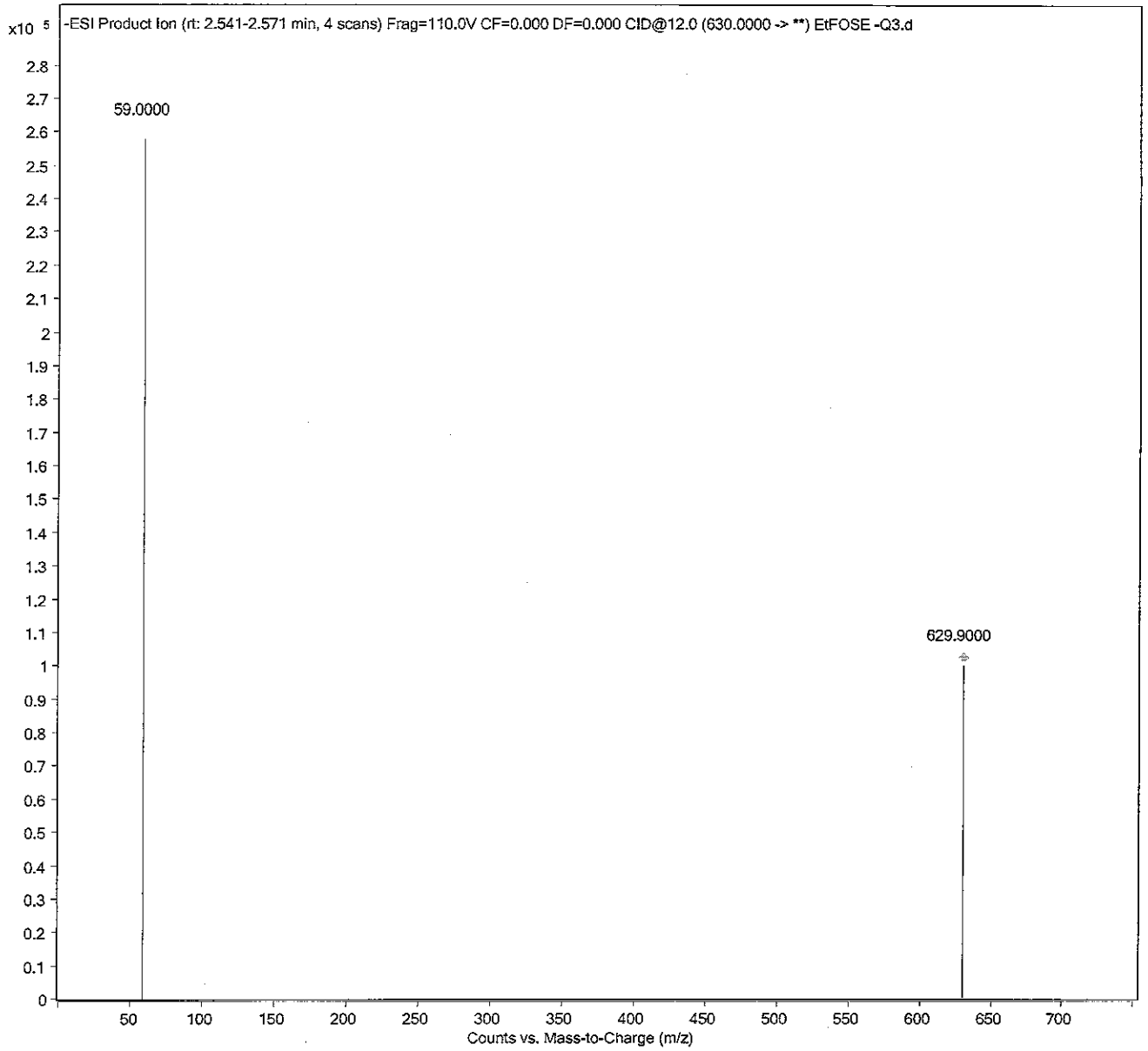
Maxxam Analytics

Sample Name	MeFOSE -Q3	**Position**	P2-C2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSE -Q3.d
ACQ Method	PFC_MassVerification-MeFOSE-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:42:48 PM



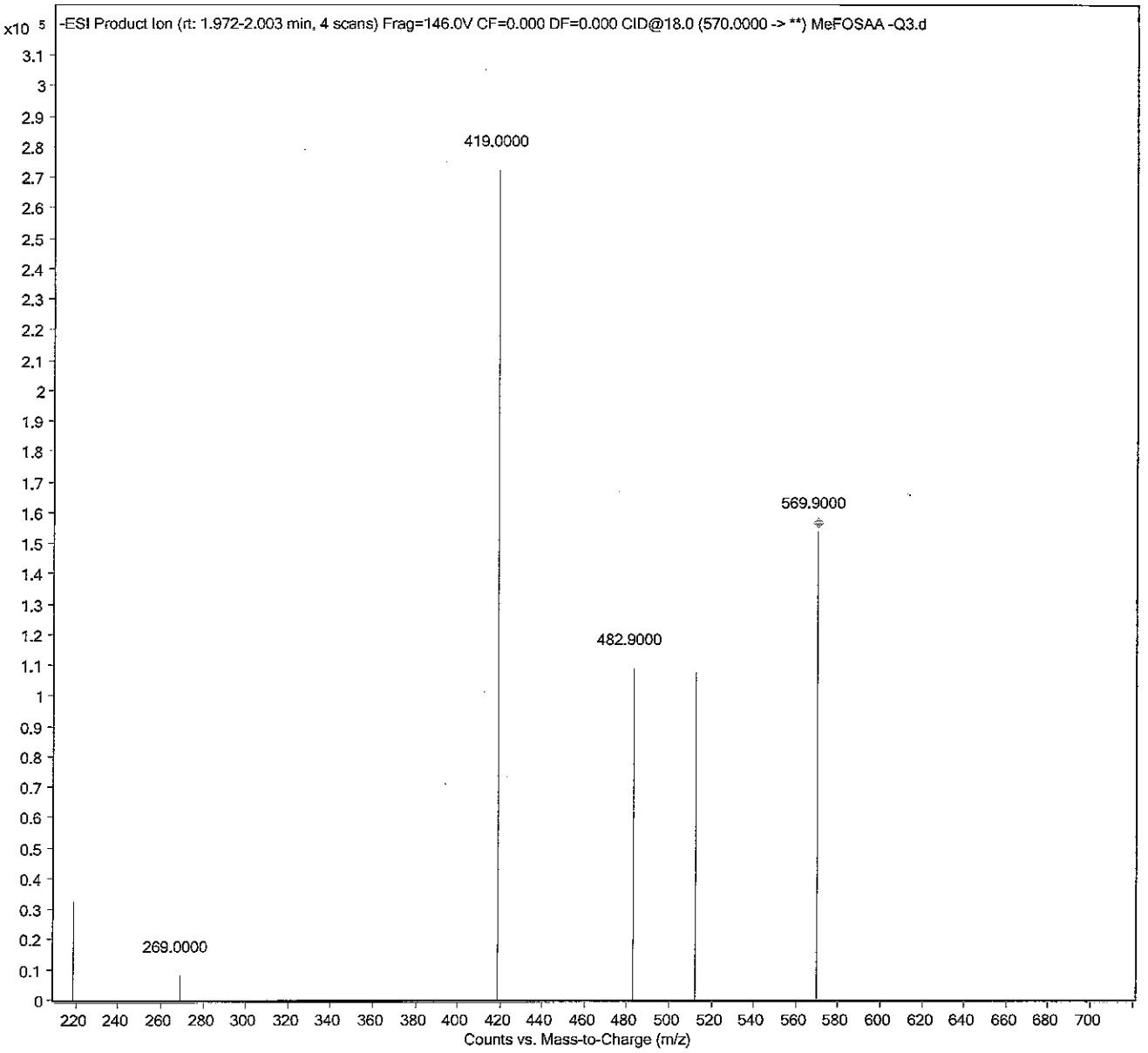
MaxxAm Analytics

Sample Name	EtFOSE -Q3	**Position**	P2-C3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSE -Q3.d
ACQ Method	PFC_MassVerification-EtFOSE-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:48:18 PM



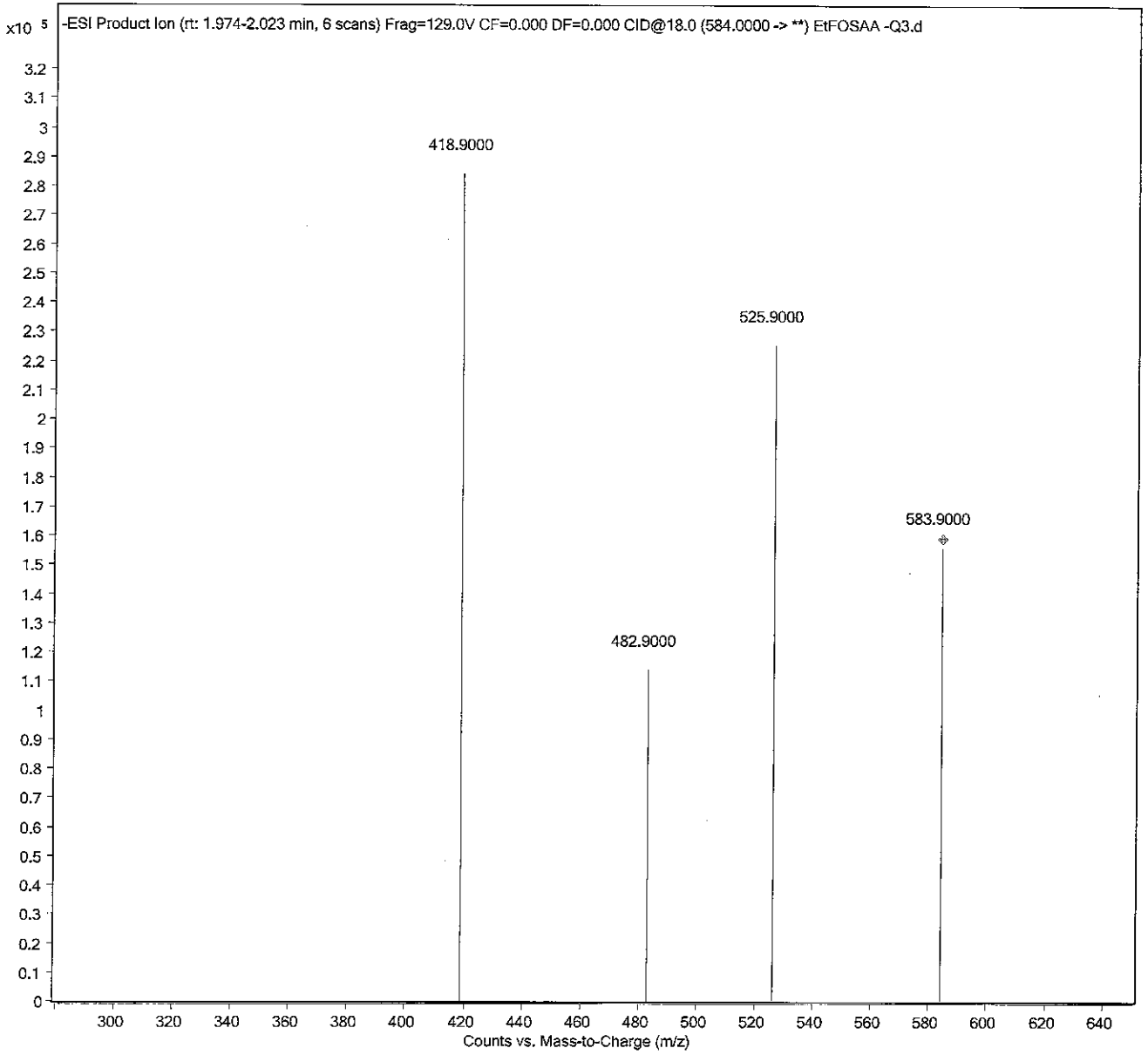
Maxxam Analytics

Sample Name	MeFOSAA -Q3	**Position**	P2-C4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MeFOSAA -Q3.d
ACQ Method	PFC_MassVerification-MeFOSAA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:53:48 PM



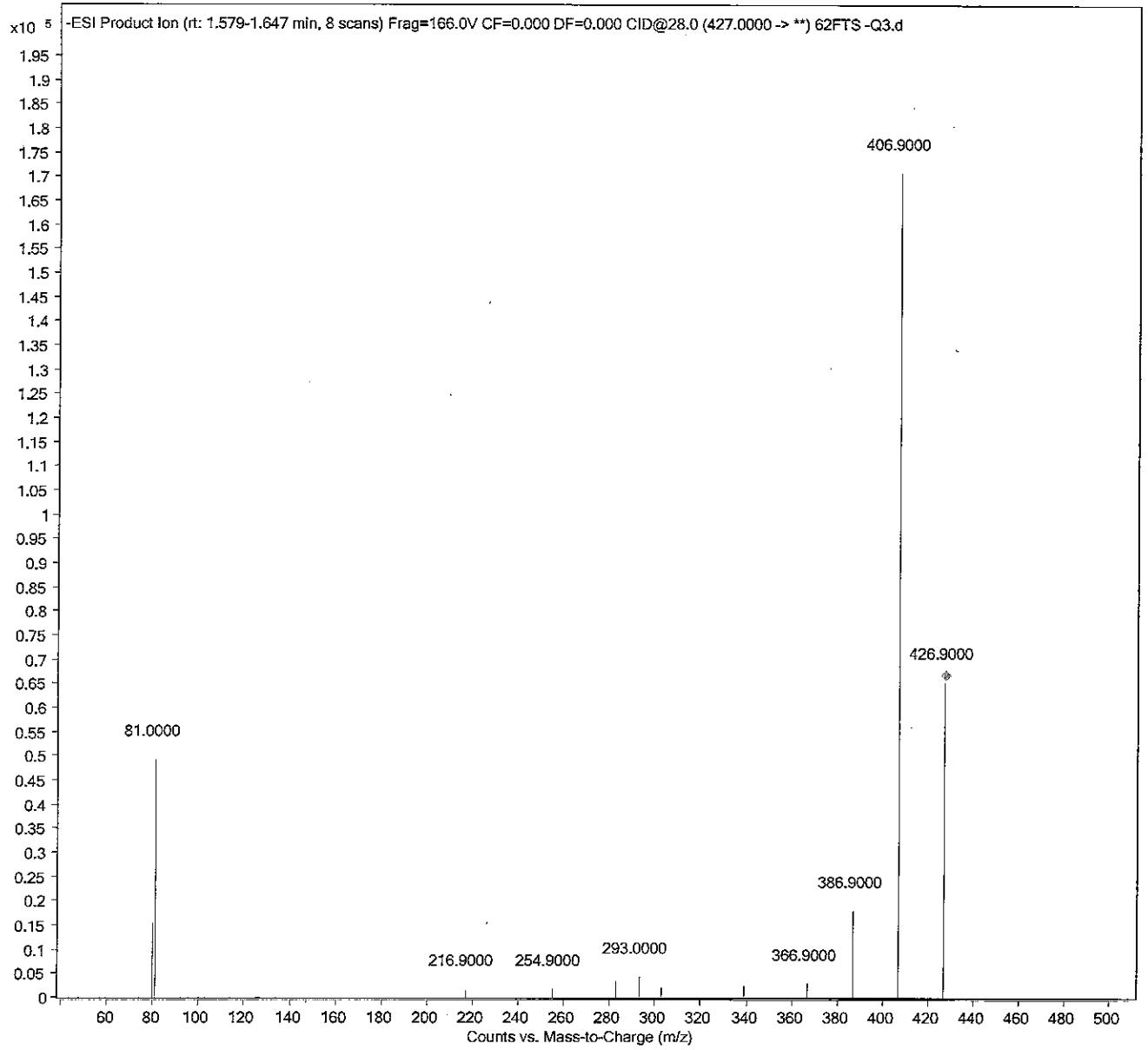
MaxxAm Analytics

Sample Name	EtFOSAA -Q3	**Position**	P2-C5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	EtFOSAA -Q3.d
ACQ Method	PFC_MassVerification-EtFOSAA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 6:59:18 PM



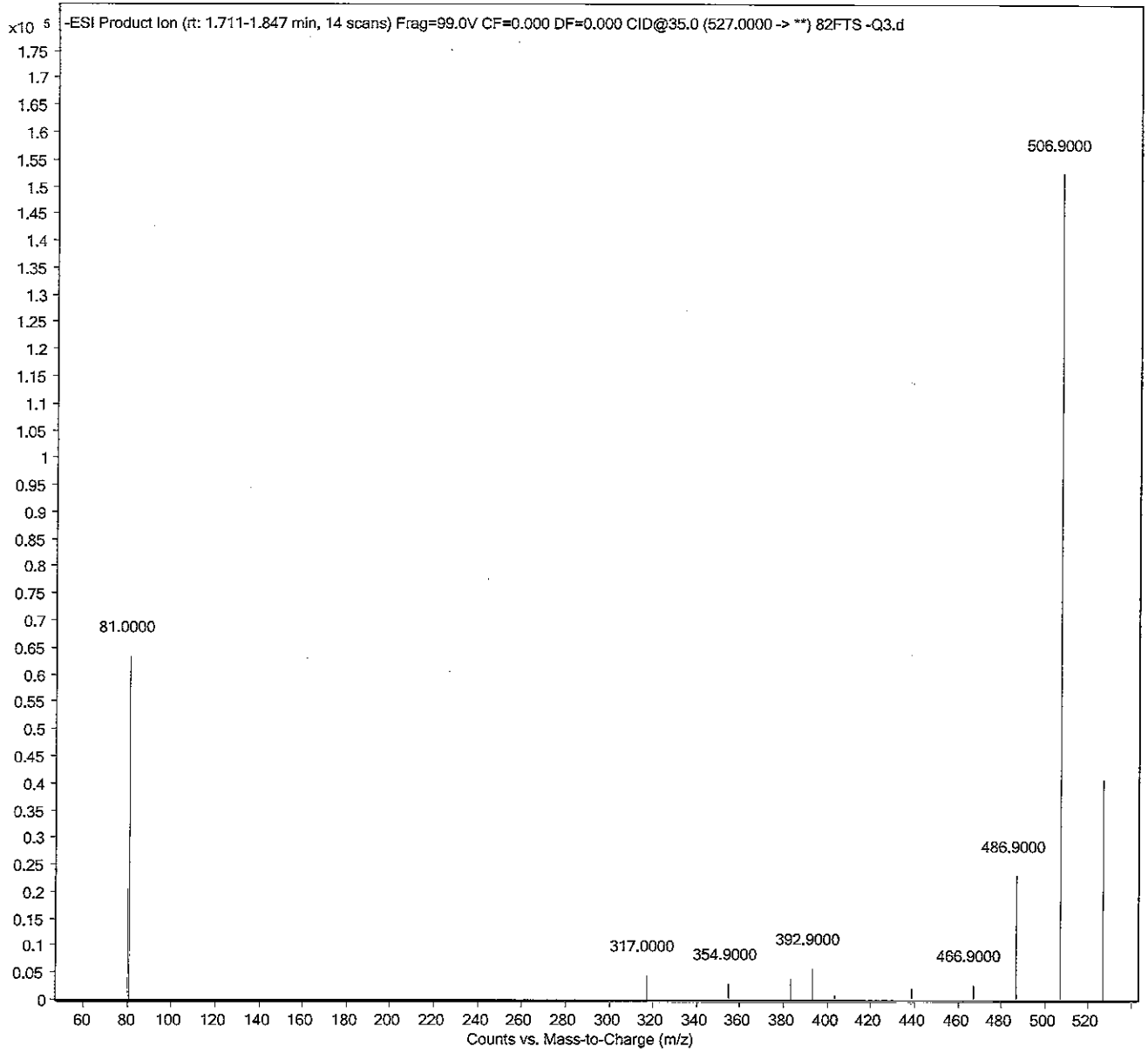
Maxxam Analytics

Sample Name	6:2FTS -Q3	**Position**	P2-C6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	62FTS -Q3.d
ACQ Method	PFC_MassVerification-6-2FTS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 7:04:49 PM



Maxxam Analytics

Sample Name	8:2FTS -Q3	**Position**	P2-C7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	82FTS -Q3.d
ACQ Method	PFC_MassVerification-8-2FTS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 7:10:19 PM



Maxxam Analytics

Worklist Report

Agilent Technologies

Maxxam Analytics

Instrument Name: LCMS04 **Worklist Path:** D:\MassHunter\Worklists\PFCs\Mass Verification_Q1_181115.wkl

Operator Name: ---
Run Type: Standard Start
Part of Method to Run: Acquisition Only
Execution of Acquisition-DA: Synchronous
Acquisition Method Path: D:\MassHunter\Acquisition Method
DA Method Path: D:\MassHunter\methods
Data File Path: D:\MassHunter\data\Mass Verification\20181115
Pre-Worklist Script: ---
Post-Worklist Script: ---
Acquisition Clean Up Script: ---
Overlapped Injection: Yes
Clear Sample Selection After Run: Yes
Wait Time for Ready(Min): 10
Threshold Disk Value(GB): 10
Comment: ---

Plate Barcode:

Plate	Barcode
P2	

Worklist Table

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
1	PFBA -Q1	P2-A1	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFBA-Q1.d	Sample	As Method	PFAS-Q1
2	PFBS -Q1	P2-A2	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFBS -Q1.d	Sample	As Method	PFAS-Q1
3	PFPeA -Q1	P2-A3	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFPeA-Q1.d	Sample	As Method	PFAS-Q1
4	PFHxA -Q1	P2-A4	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHxA -Q1.d	Sample	As Method	PFAS-Q1

901 of 1313

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
5	PFHxS -Q1	P2-A5	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHxS -Q1.d	Sample	As Method	PFAS-Q1
6	PFHpA-Q1	P2-A6	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHpA-Q1.d	Sample	As Method	PFAS-Q1
7	PFHpS-Q1	P2-A7	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHpS-Q1.d	Sample	As Method	PFAS-Q1
8	PFOA -Q1	P2-A8	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOA -Q1.d	Sample	As Method	PFAS-Q1
9	PFOS -Q1	P2-A9	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOS -Q1.d	Sample	As Method	PFAS-Q1
10	PFNA -Q1	P2-B1	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFNA -Q1.d	Sample	As Method	PFAS-Q1
11	PFDA -Q1	P2-B2	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDA -Q1.d	Sample	As Method	PFAS-Q1
12	PFDS -Q1	P2-B3	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDS -Q1.d	Sample	As Method	PFAS-Q1
13	PFUnA -Q1	P2-B4	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFUnA -Q1.d	Sample	As Method	PFAS-Q1
14	PFDoA -Q1	P2-B5	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDoA -Q1.d	Sample	As Method	PFAS-Q1
15	PFTrDA -Q1	P2-B6	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFTrDA -Q1.d	Sample	As Method	PFAS-Q1

Maxxam Analytics

902 of 1313

Worklist Report

Agilent Technologies

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
16	PFTeDA -Q1	P2-B7	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFTeDA -Q1.d	Sample	As Method	PFAS-Q1
17	PFOSA -Q1	P2-B8	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOSA -Q1.d	Sample	As Method	PFAS-Q1
18	MeFOSA -Q1	P2-B9	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSA -Q1.d	Sample	As Method	PFAS-Q1
19	EtFOSA -Q1	P2-C1	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSA -Q1.d	Sample	As Method	PFAS-Q1
20	MeFOSE -Q1	P2-C2	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSE -Q1.d	Sample	As Method	PFAS-Q1
21	EtFOSE -Q1	P2-C3	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSE -Q1.d	Sample	As Method	PFAS-Q1
22	MeFOSAA -Q1	P2-C4	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSAA -Q1.d	Sample	As Method	PFAS-Q1
23	EtFOSAA -Q1	P2-C5	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSAA -Q1.d	Sample	As Method	PFAS-Q1
24	6:2FTS -Q1	P2-C6	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\62FTS -Q1.d	Sample	As Method	PFAS-Q1
25	8:2FTS -Q1	P2-C7	D:\MassHunter\Acquisition Method\PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\82FTS -Q1.d	Sample	As Method	PFAS-Q1

Maxxam Analytics

Worklist Report

Agilent Technologies

Maxxam Analytics

Instrument Name: LCMS04 **Worklist Path:** D:\MassHunter\Worklists\PFCs\Mass Verification_Q3_181115.wkl

Operator Name: ---
Run Type: Standard Start
Part of Method to Run: Acquisition Only
Execution of Acquisition-DA: Synchronous
Acquisition Method Path: D:\MassHunter\Acquisition Method
DA Method Path: D:\MassHunter\methods
Data File Path: D:\MassHunter\data\Mass Verification\20181115
Pre-Worklist Script: ---
Post-Worklist Script: ---
Acquisition Clean Up Script: ---
Overlapped Injection: Yes
Clear Sample Selection After Run: Yes
Wait Time for Ready(Min): 10
Threshold Disk Value(GB): 10
Comment: ---

Plate Barcode:

Plate	Barcode
P2	

Worklist Table

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
1	PFBA -Q3	P2-A1	PFC_Mass Verification\PFC_MassVerification-PFBA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFBA -Q3.d	Sample	As Method	PFAS-Q1
2	PFBS -Q3	P2-A2	PFC_Mass Verification\PFC_MassVerification-PFBS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFBS -Q3.d	Sample	As Method	PFAS-Q1
3	PFPeA -Q3	P2-A3	PFC_Mass Verification\PFC_MassVerification-PFPeA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFPeA -Q3.d	Sample	As Method	PFAS-Q1
4	PFHxA -Q3	P2-A4	PFC_Mass Verification\PFC_MassVerification-PFHxA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHxA -Q3.d	Sample	As Method	PFAS-Q1
5	PFHxS -Q3	P2-A5	PFC_Mass Verification\PFC_MassVerification-PFHxS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHxS -Q3.d	Sample	As Method	PFAS-Q1

904 of 1313

Worklist Report

Agilent Technologies

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
6	PFHpA-Q3	P2-A6	PFC_Mass Verification\PFC_MassVerification-PFHpA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHpA-Q3.d	Sample	As Method	PFAS-Q1
7	PFHpS-Q3	P2-A7	PFC_Mass Verification\PFC_MassVerification-PFHpS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFHpS-Q3.d	Sample	As Method	PFAS-Q1
8	PFOA -Q3	P2-A8	PFC_Mass Verification\PFC_MassVerification-PFOA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOA -Q3.d	Sample	As Method	PFAS-Q1
9	PFOS -Q3	P2-A9	PFC_Mass Verification\PFC_MassVerification-PFOS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOS -Q3.d	Sample	As Method	PFAS-Q1
10	PFNA -Q3	P2-B1	PFC_Mass Verification\PFC_MassVerification-PFNA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFNA -Q3.d	Sample	As Method	PFAS-Q1
11	PFDA -Q3	P2-B2	PFC_Mass Verification\PFC_MassVerification-PFDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDA -Q3.d	Sample	As Method	PFAS-Q1
12	PFDS -Q3	P2-B3	PFC_Mass Verification\PFC_MassVerification-PFDS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDS -Q3.d	Sample	As Method	PFAS-Q1
13	PFUnA -Q3	P2-B4	PFC_Mass Verification\PFC_MassVerification-PFUnA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFUnA -Q3.d	Sample	As Method	PFAS-Q1
14	PFDoA -Q3	P2-B5	PFC_Mass Verification\PFC_MassVerification-PFDoA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFDoA -Q3.d	Sample	As Method	PFAS-Q1
15	PFTrDA -Q3	P2-B6	PFC_Mass Verification\PFC_MassVerification-PFTrDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFTrDA -Q3.d	Sample	As Method	PFAS-Q1
16	PFTeDA -Q3	P2-B7	PFC_Mass Verification\PFC_MassVerification-PFTeDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFTeDA -Q3.d	Sample	As Method	PFAS-Q1
17	PFOSA -Q3	P2-B8	PFC_Mass Verification\PFC_MassVerification-PFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\PFOSA -Q3.d	Sample	As Method	PFAS-Q1
18	MeFOSA -Q3	P2-B9	PFC_Mass Verification\PFC_MassVerification-MeFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSA -Q3.d	Sample	As Method	PFAS-Q1

Maxxam Analytics

905 of 1313

Worklist Report

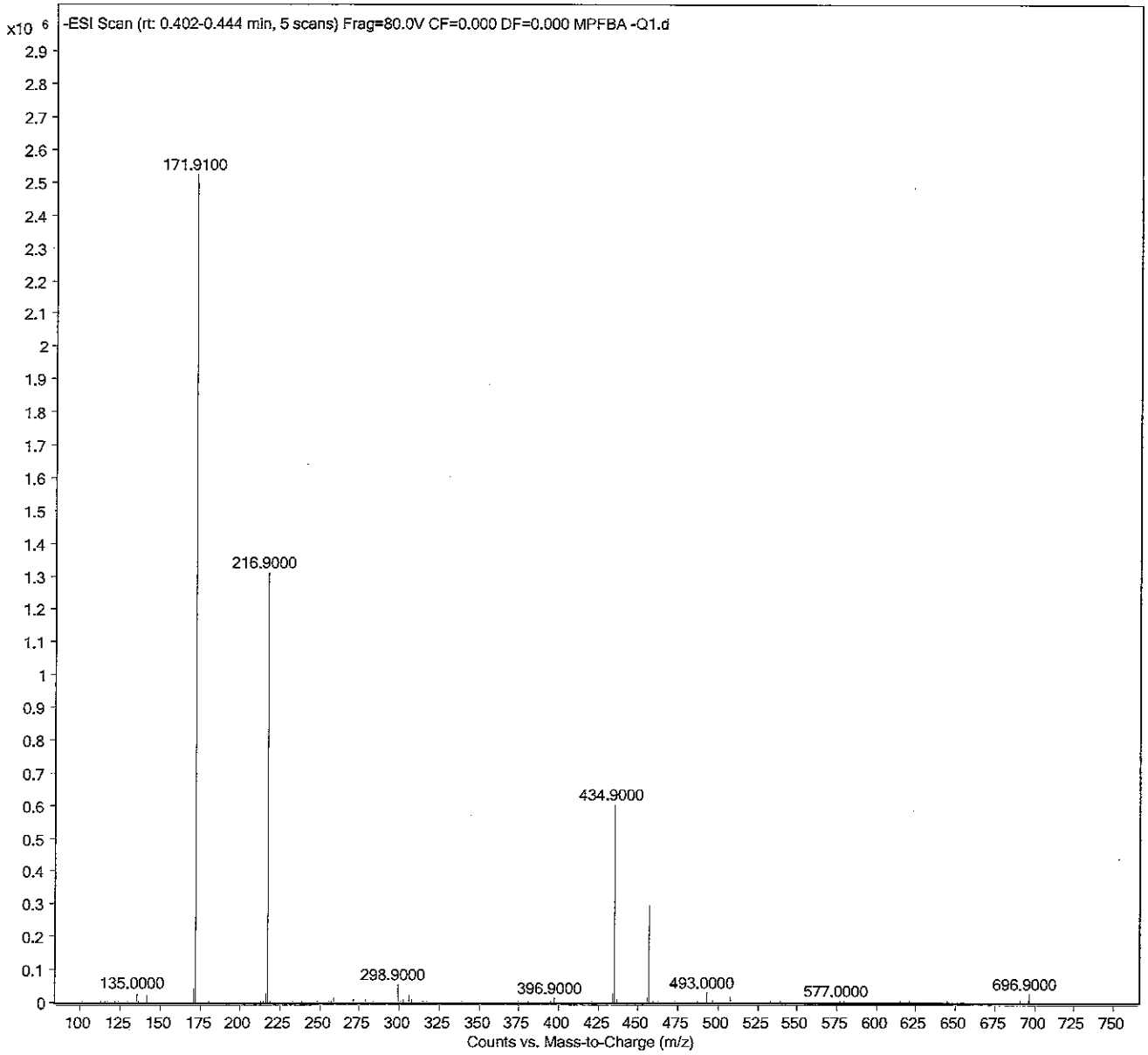
Agilent Technologies

Maxxam Analytics

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
19	EtFOSA -Q3	P2-C1	PFC_Mass Verification\PFC_MassVerification-EtFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSA -Q3.d	Sample	As Method	PFAS-Q1
20	MeFOSE -Q3	P2-C2	PFC_Mass Verification\PFC_MassVerification-MeFOSE-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSE -Q3.d	Sample	As Method	PFAS-Q1
21	EtFOSE -Q3	P2-C3	PFC_Mass Verification\PFC_MassVerification-EtFOSE-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSE -Q3.d	Sample	As Method	PFAS-Q1
22	MeFOSAA -Q3	P2-C4	PFC_Mass Verification\PFC_MassVerification-MeFOSAA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MeFOSAA -Q3.d	Sample	As Method	PFAS-Q1
23	EtFOSAA -Q3	P2-C5	PFC_Mass Verification\PFC_MassVerification-EtFOSAA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\EtFOSAA -Q3.d	Sample	As Method	PFAS-Q1
24	6:2FTS -Q3	P2-C6	PFC_Mass Verification\PFC_MassVerification-6-2FTS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\62FTS -Q3.d	Sample	As Method	PFAS-Q1
25	8:2FTS -Q3	P2-C7	PFC_Mass Verification\PFC_MassVerification-8-2FTS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\82FTS -Q3.d	Sample	As Method	PFAS-Q1

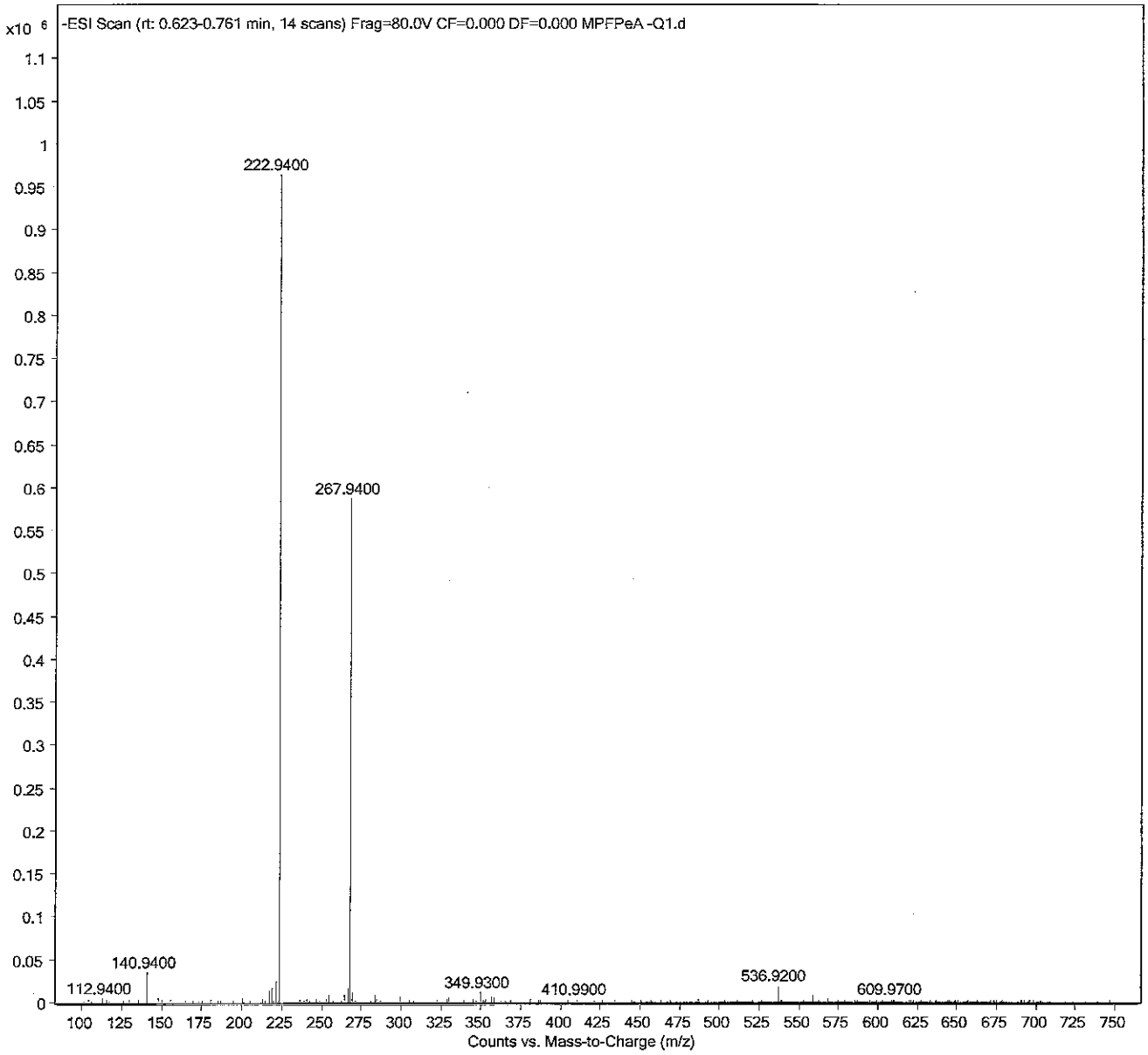
Extracted and Injection Internal Standard Precursor Ion Verification

Sample Name	MPFBA	**Position**	P2-D1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFBA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:15:48 PM



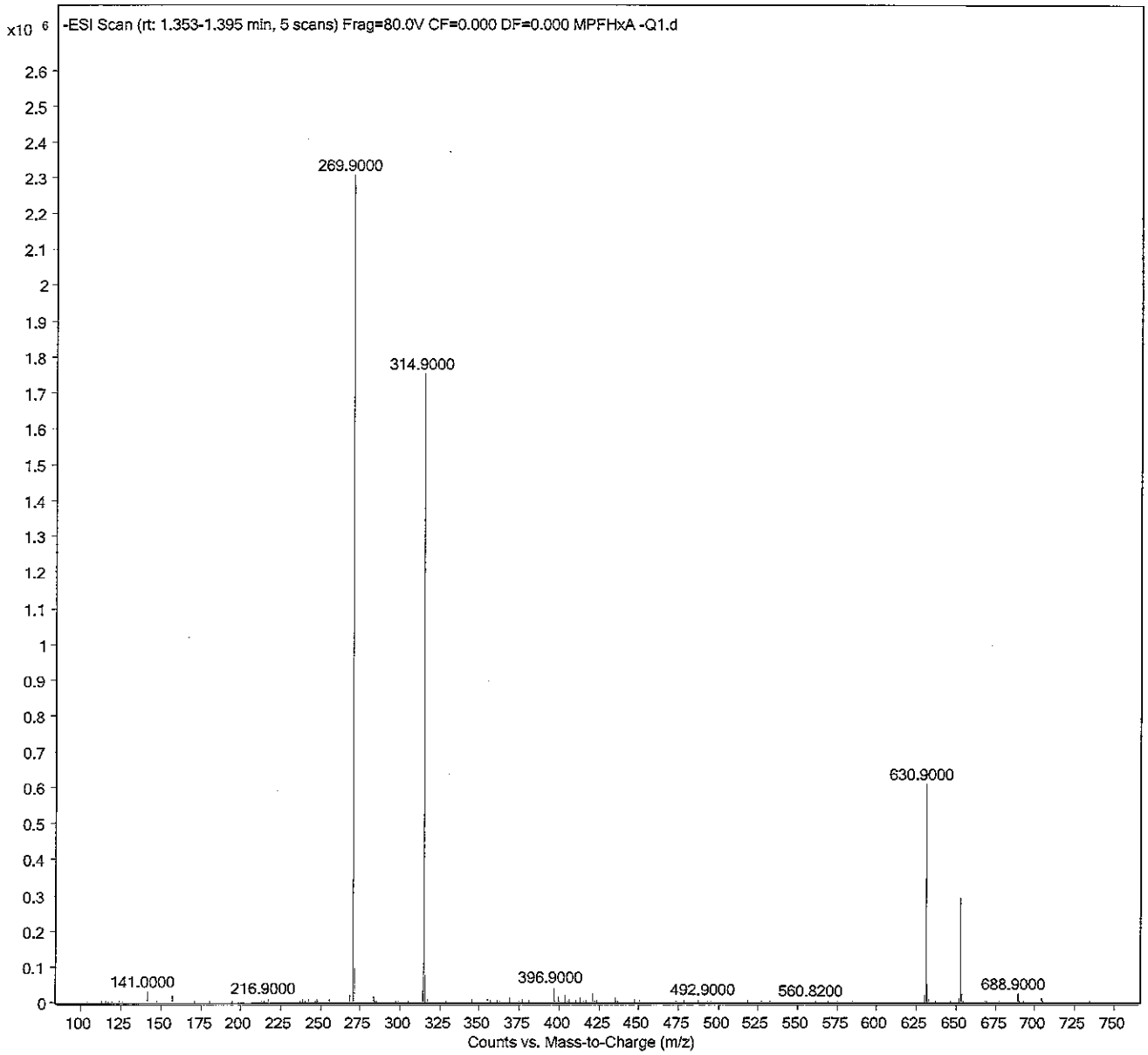
MaxXam Analytics

Sample Name	MPFPeA	**Position**	P2-D2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFPeA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:21:18 PM



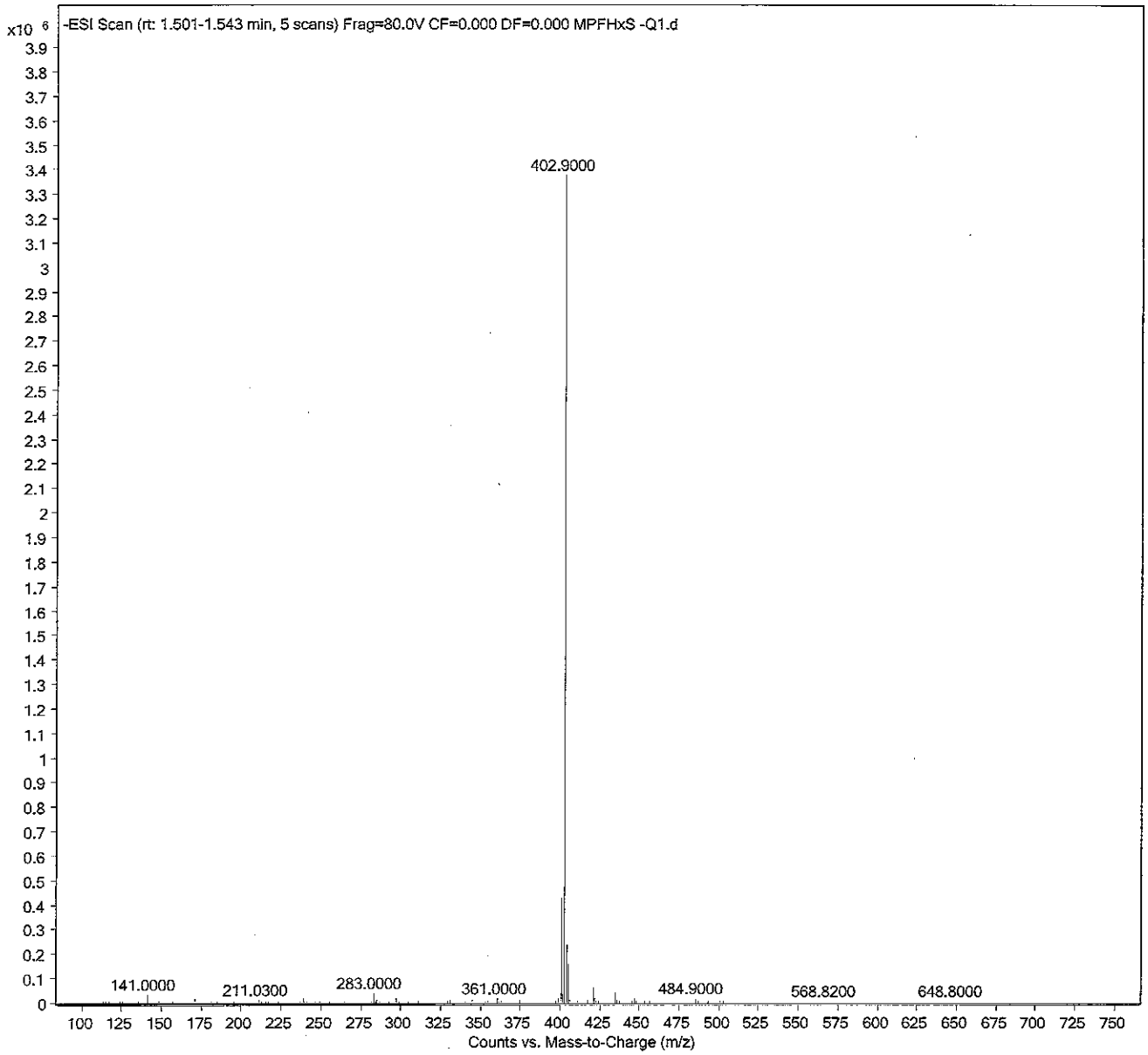
MaxXam Analytics

Sample Name	MPFHxA	**Position**	P2-D3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHxA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:26:48 PM



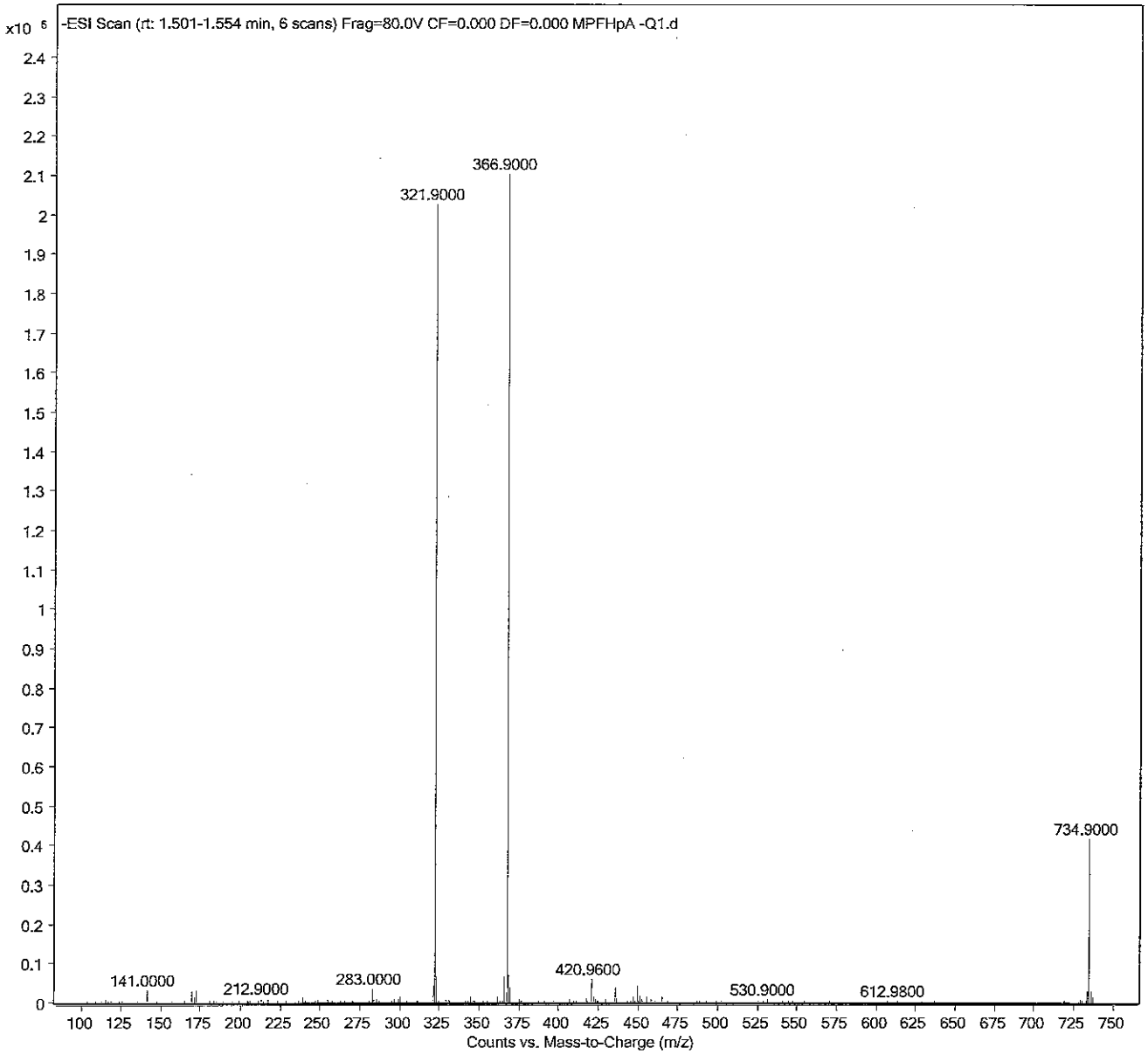
MaxxAm Analytics

Sample Name	MPFHxS	**Position**	P2-D4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHxS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:32:18 PM



MaxxAm Analytics

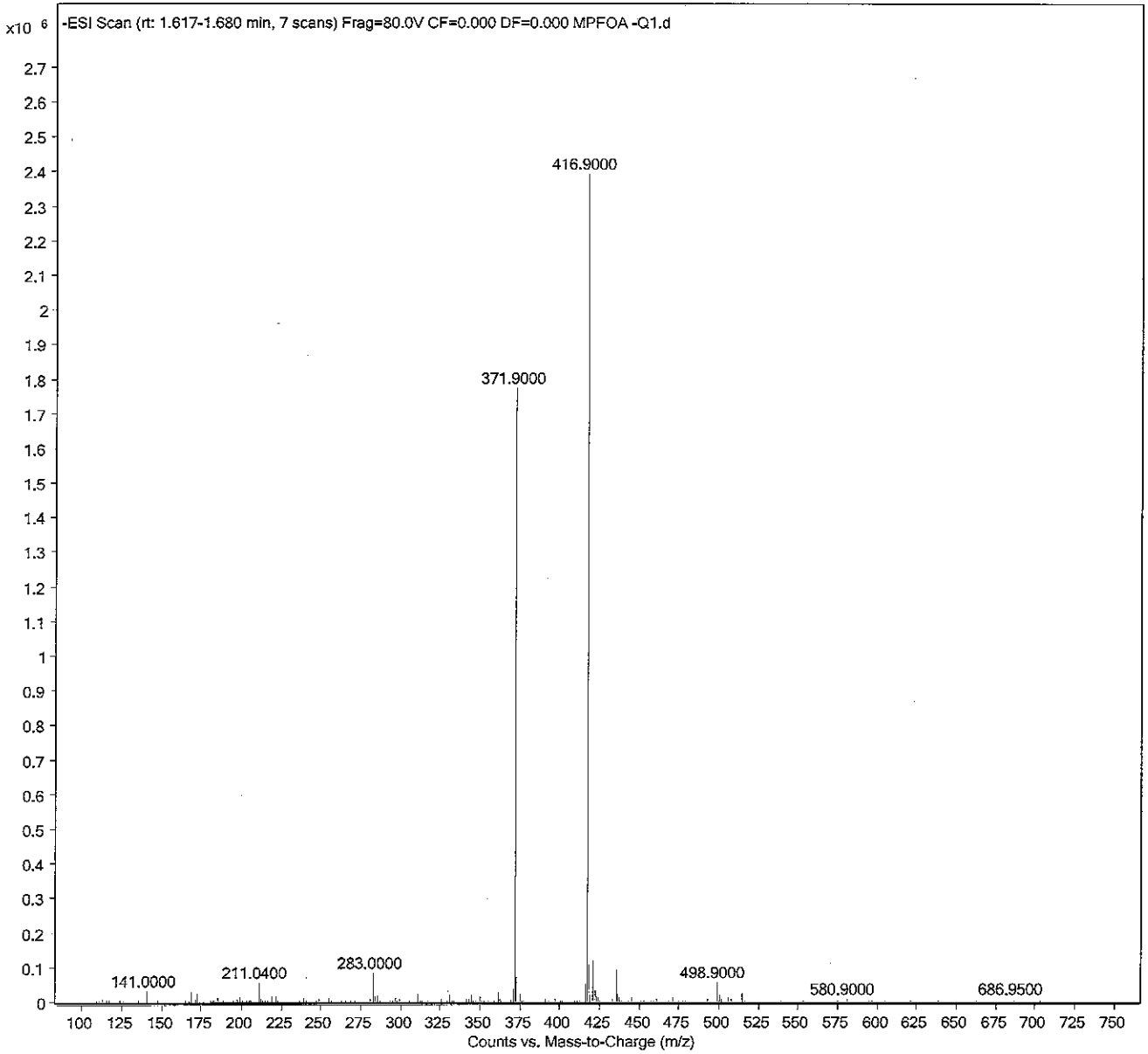
Sample Name	MPFHpA	**Position**	P2-D5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHpA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:37:48 PM



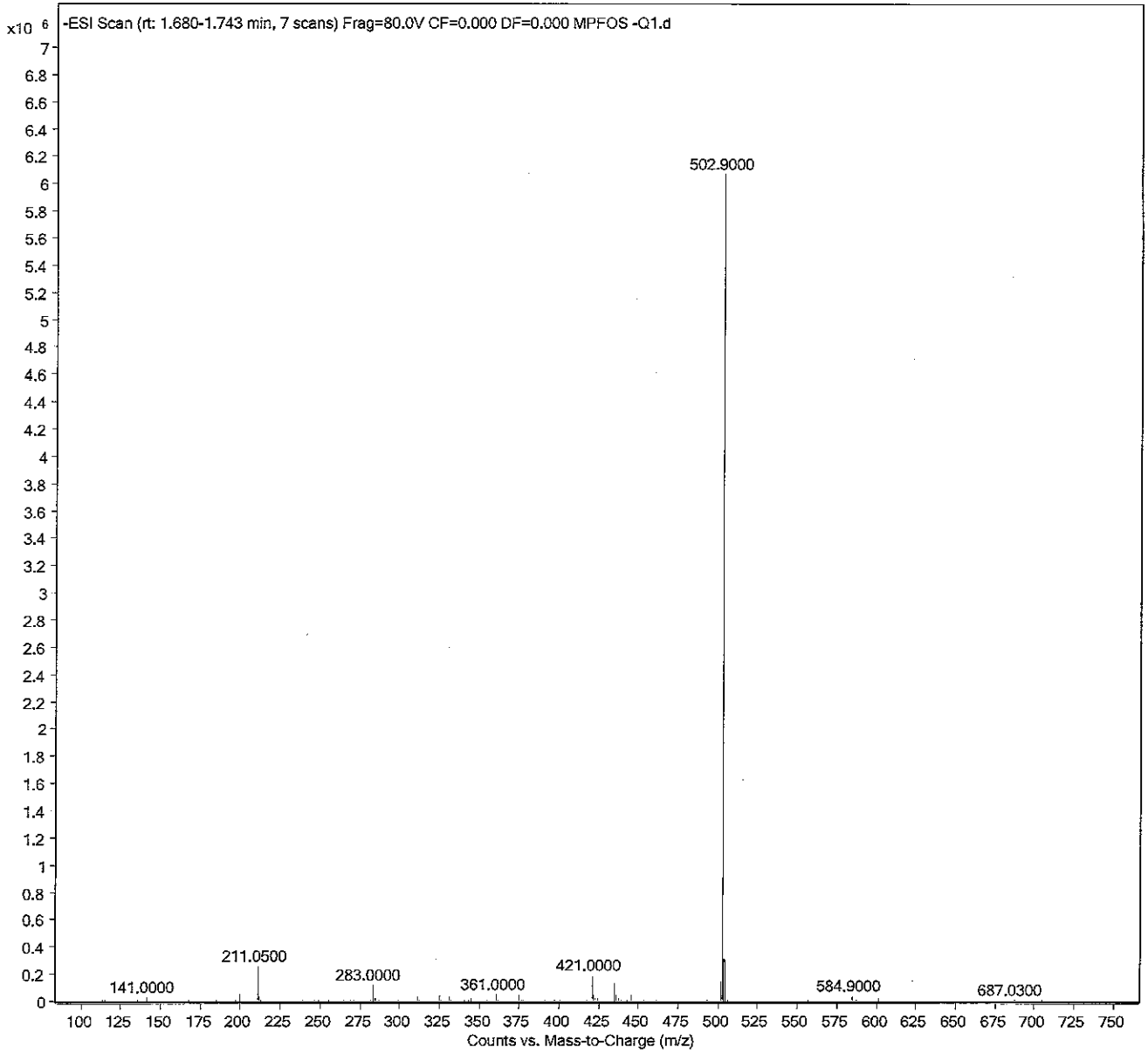
MaxXam Analytics

Sample Name	MPFOA	**Position**	P2-D6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:43:18 PM

MaxxAm Analytics



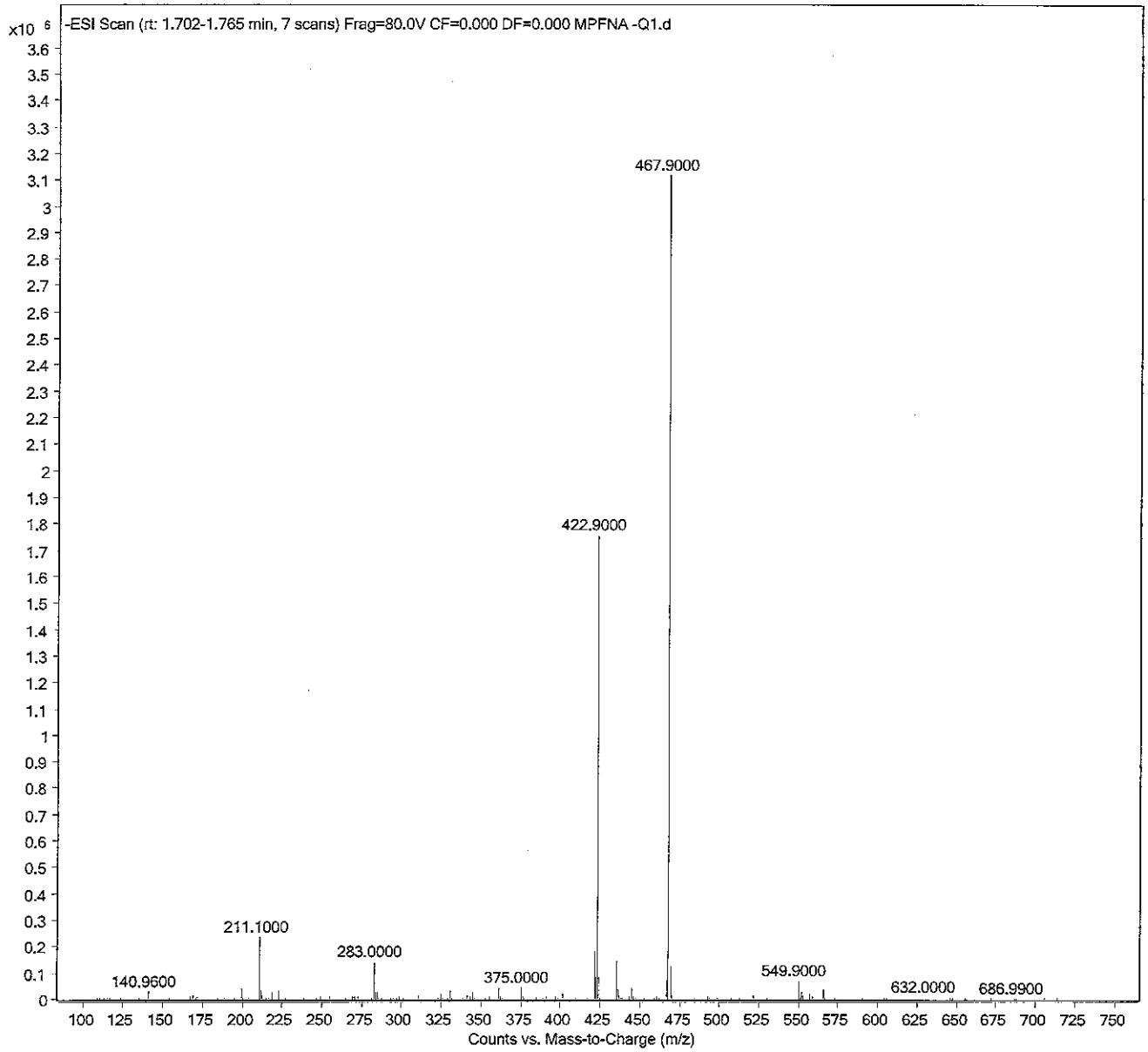
Sample Name	MPFOS	**Position**	P2-D7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:48:48 PM



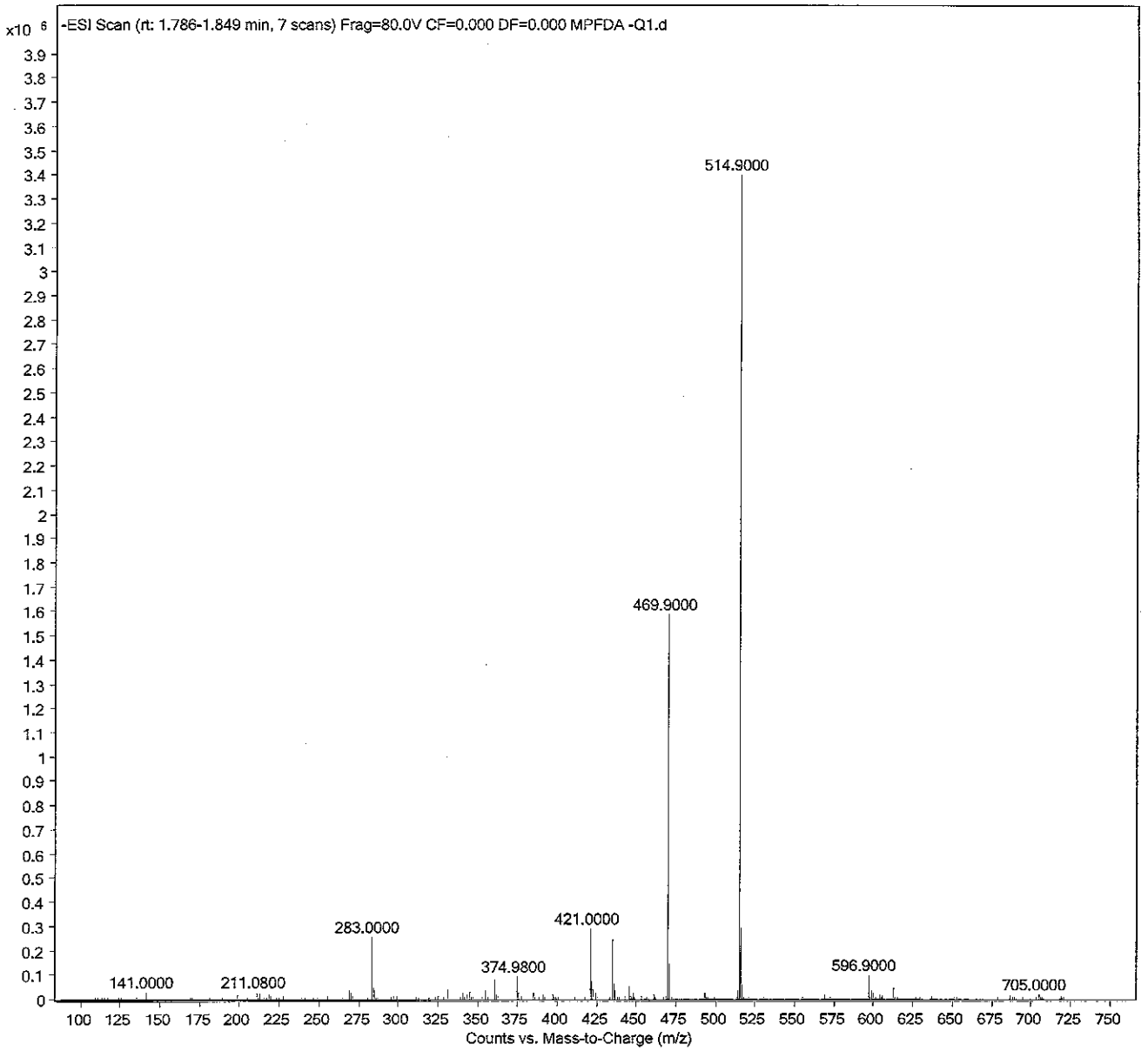
MaxXam Analytics

Sample Name	MPFNA	**Position**	P2-D8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFNA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:54:18 PM

MaxxAm Analytics

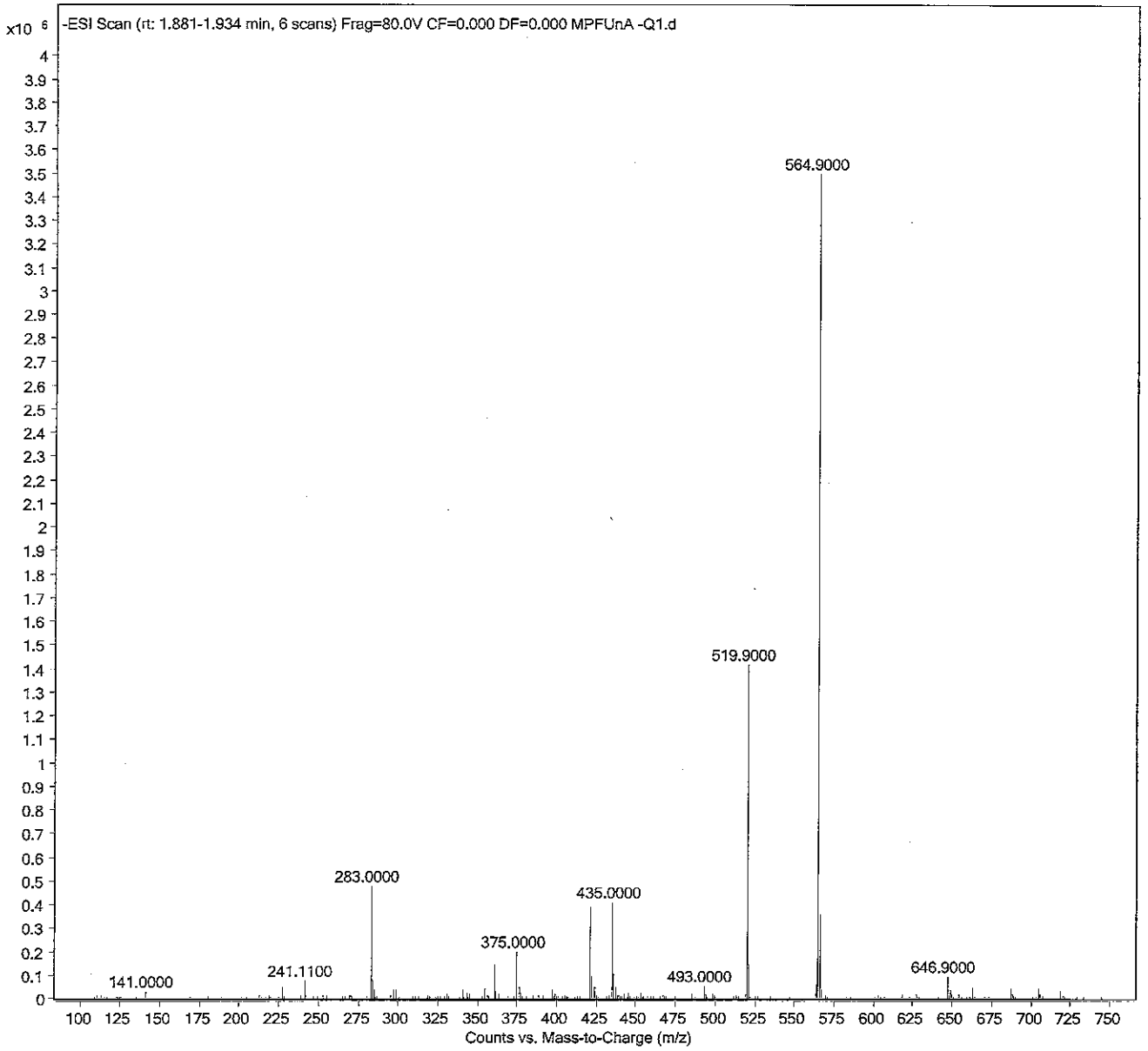


Sample Name	MPFDA	**Position**	P2-D9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 7:59:49 PM



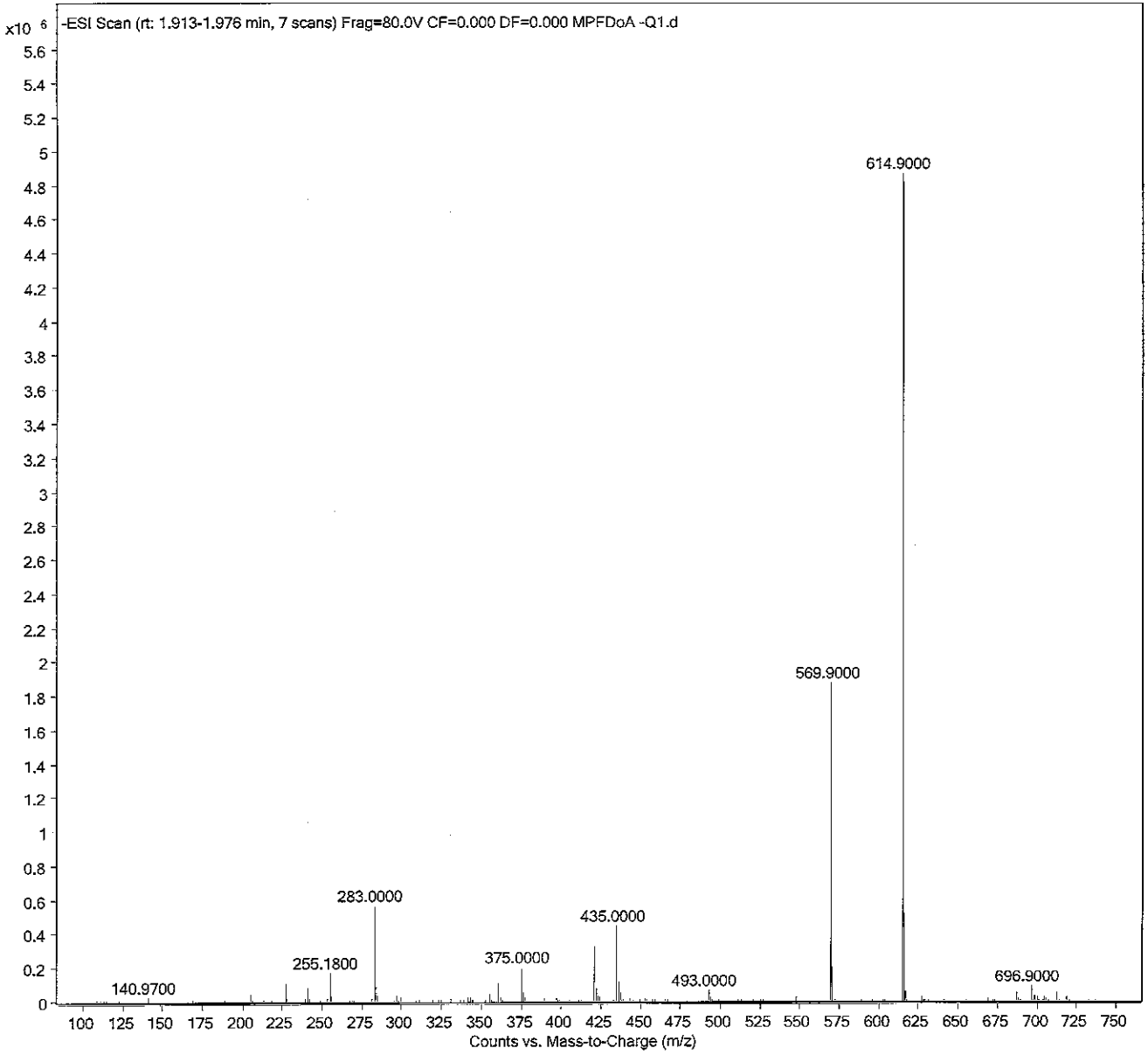
MaxXam Analytics

Sample Name	MPFUnA	**Position**	P2-E1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFUnA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:05:18 PM



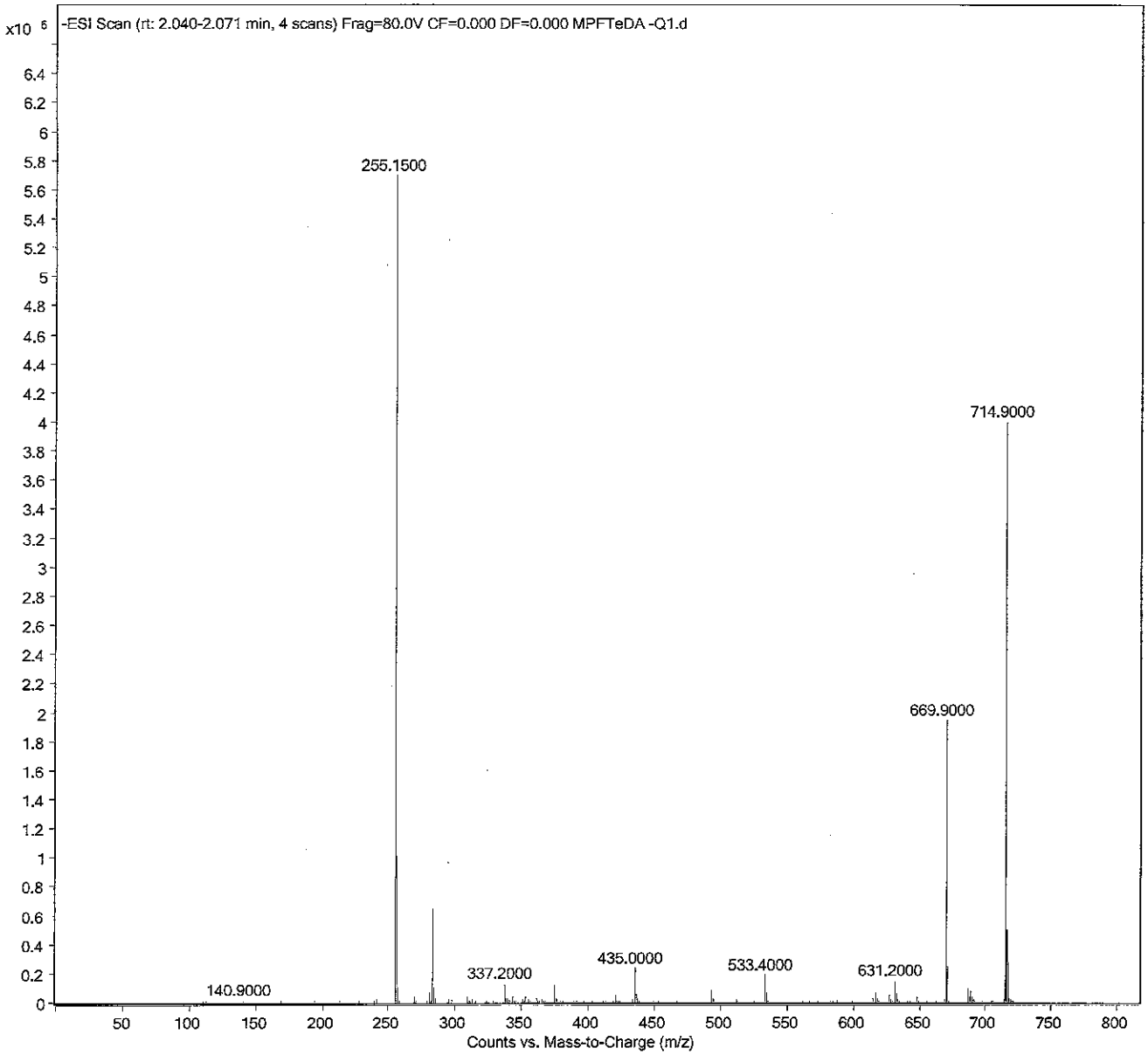
MaxXam Analytics

Sample Name	MPFDoA	**Position**	P2-E2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFDoA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:10:48 PM



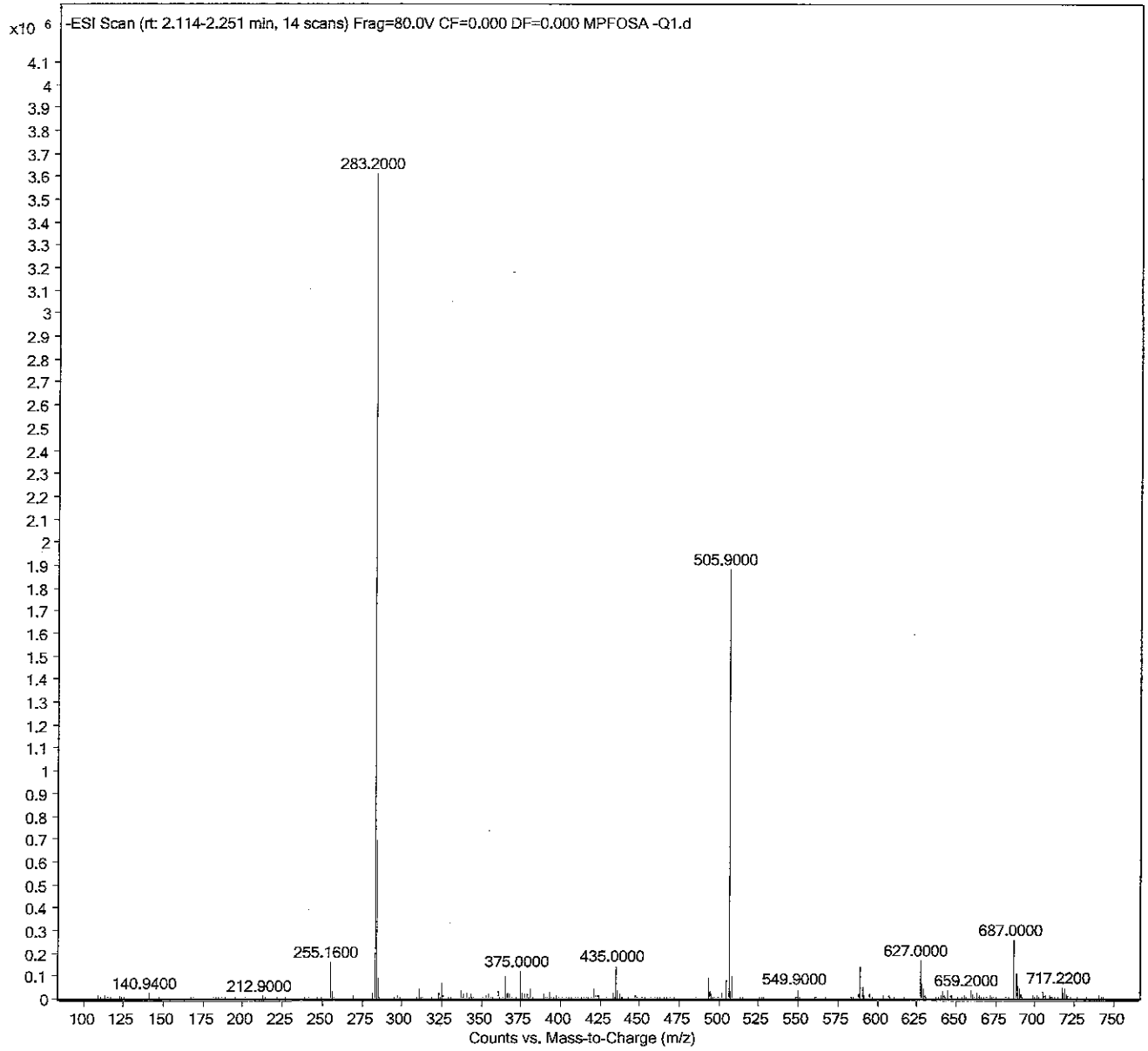
MaxXam Analytics

Sample Name	MPFTeDA	**Position**	P2-E3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFTeDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:16:18 PM



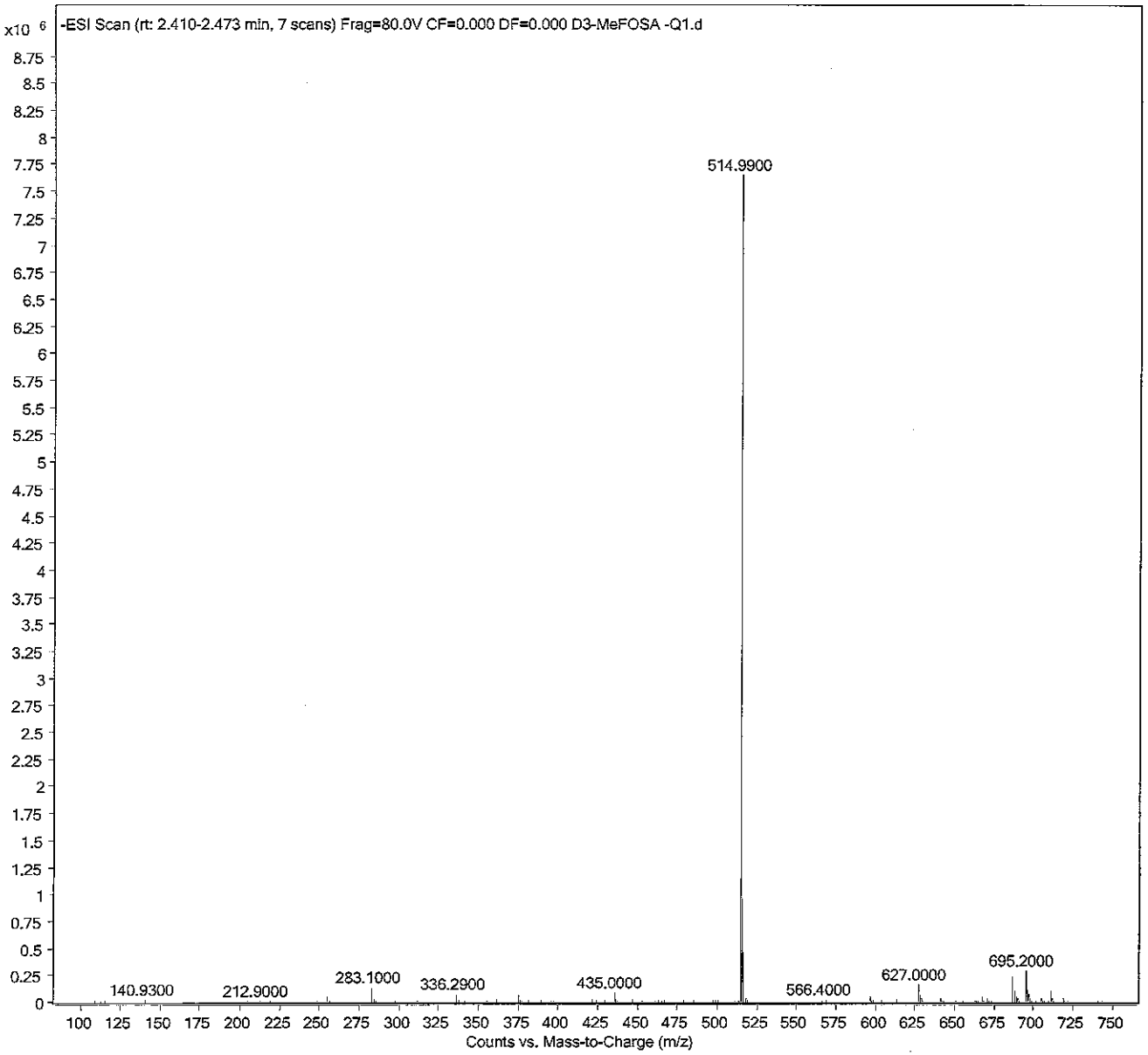
MaxXam Analytics

Sample Name	MPFOSA	**Position**	P2-E4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:21:48 PM



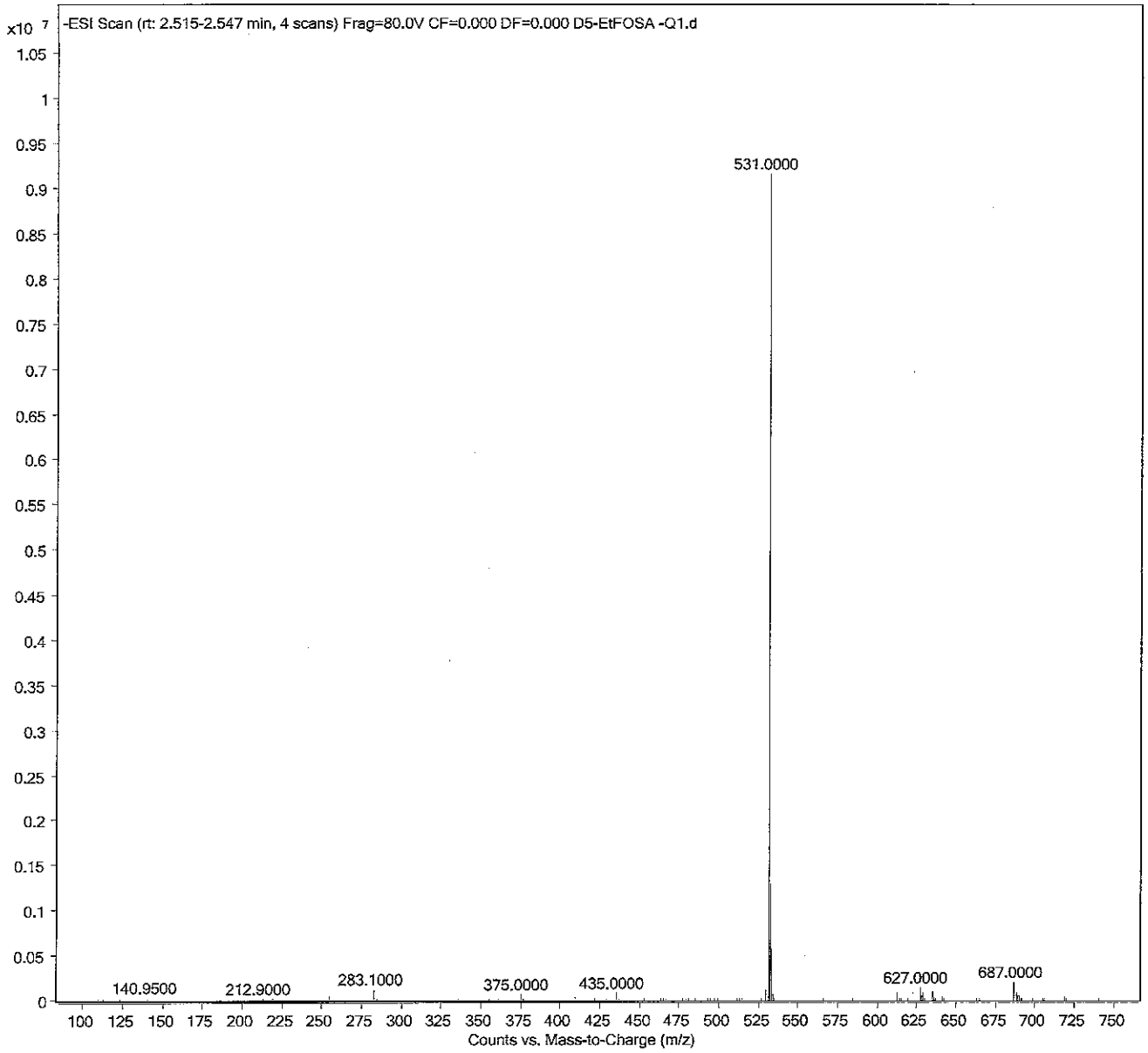
MaxXam Analytics

Sample Name	D3-MeFOSA	**Position**	P2-E5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D3-MeFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:27:18 PM



MaxXam Analytics

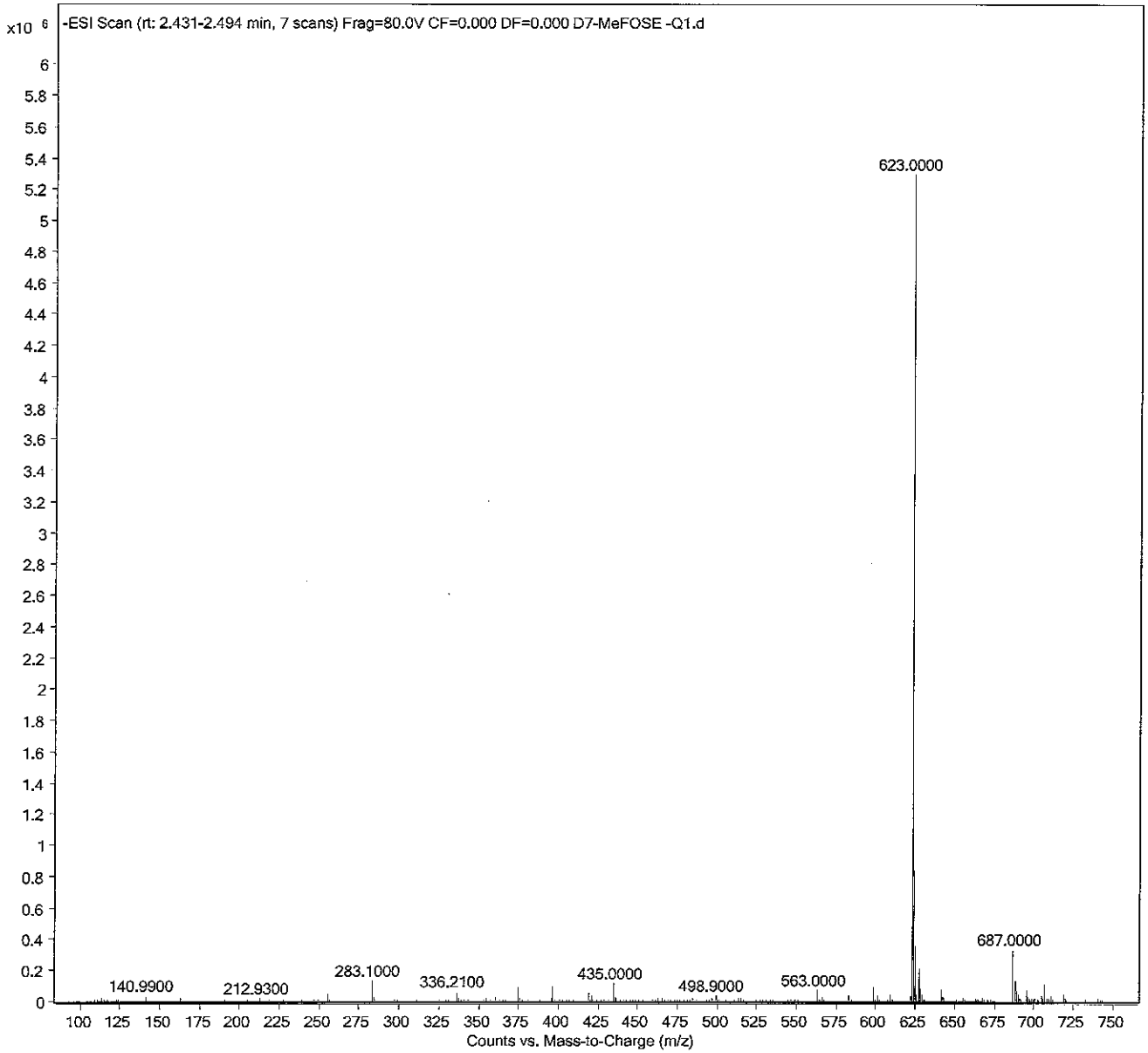
Sample Name	D5-EtFOSA	**Position**	P2-E6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D5-EtFOSA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:32:48 PM



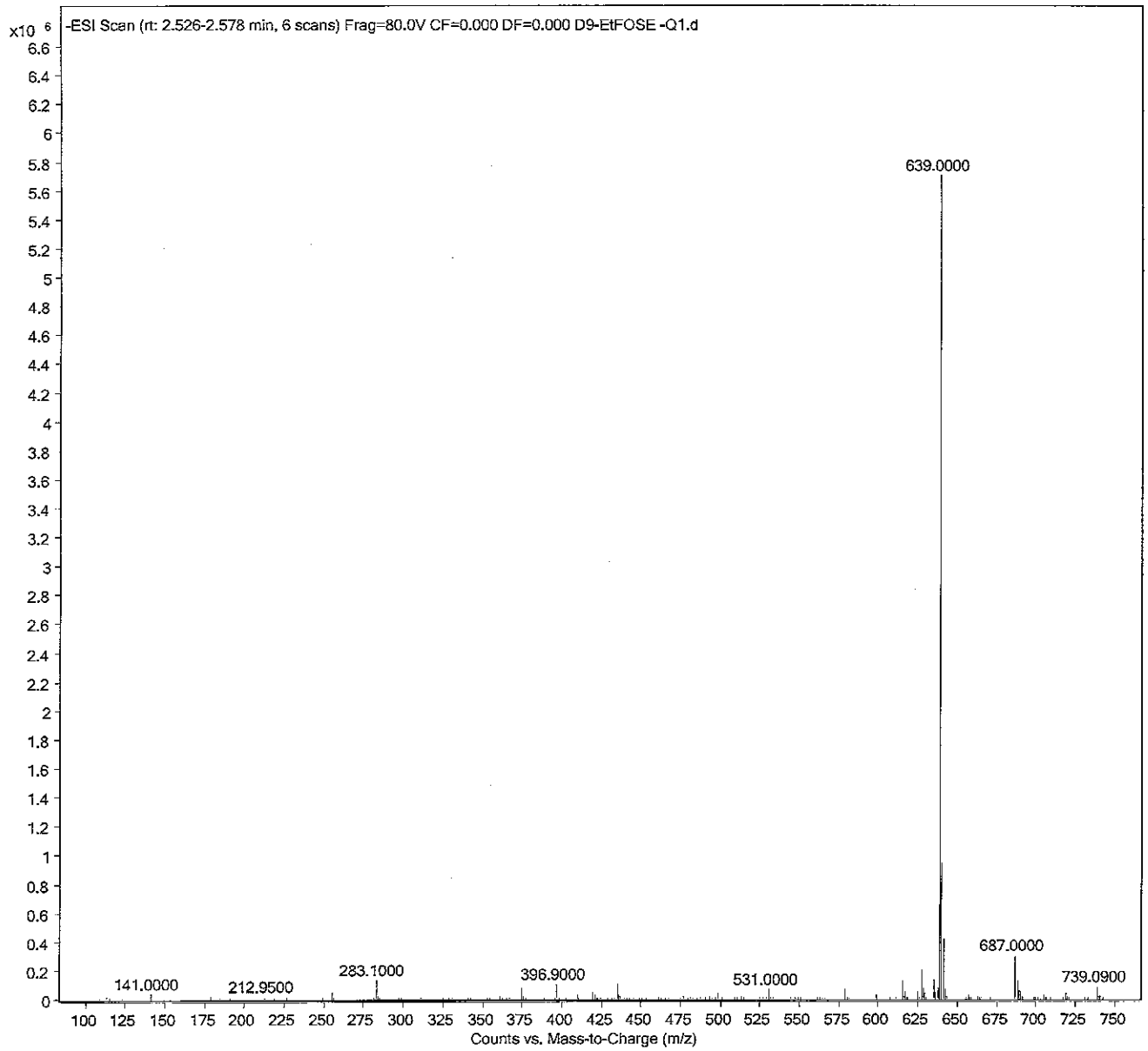
MaxXam Analytics

Sample Name	D7-MeFOSE	**Position**	P2-E7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D7-MeFOSE -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:38:18 PM

MaxxAm Analytics

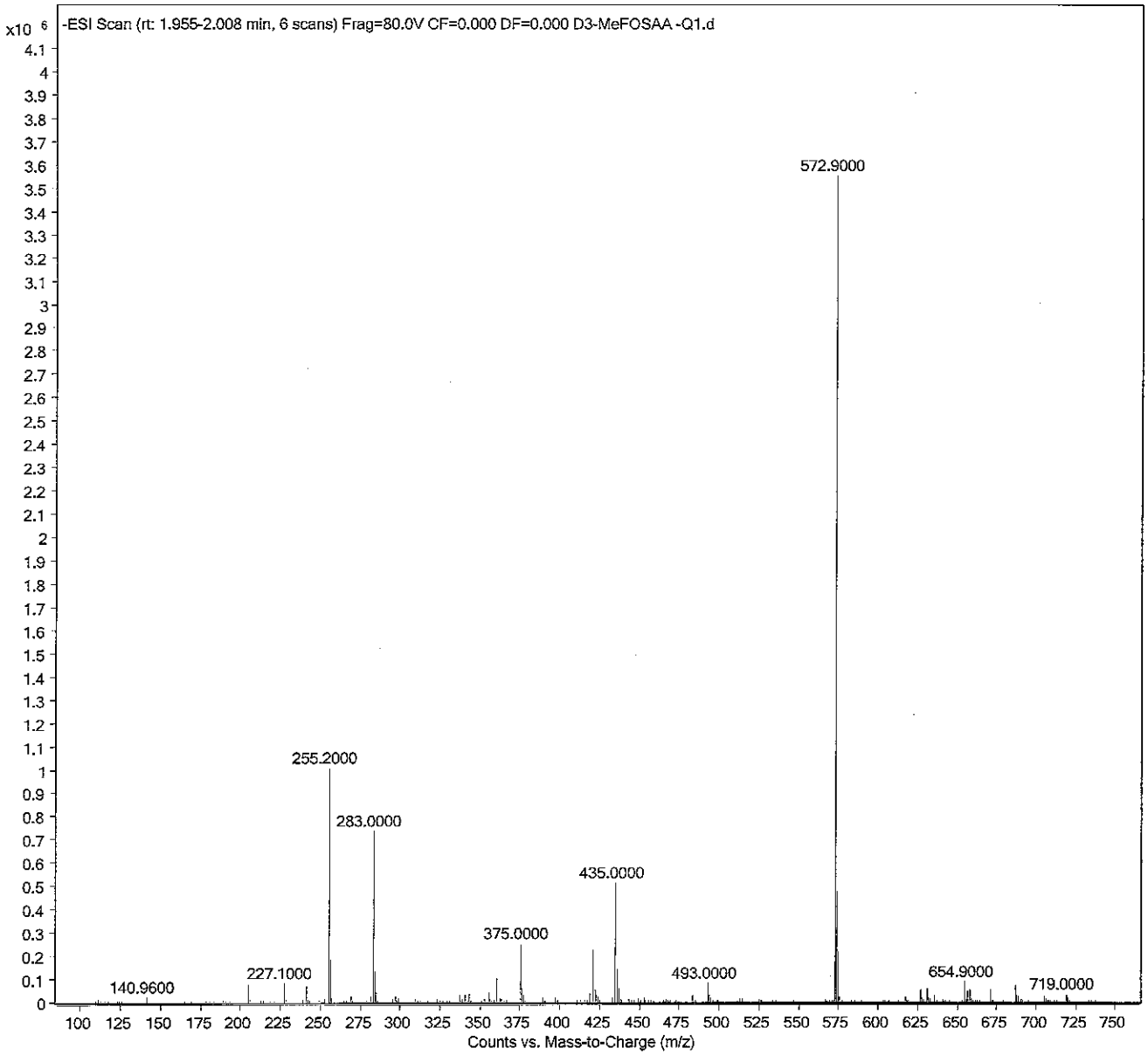


Sample Name	D9-EtFOSE	**Position**	P2-E8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D9-EtFOSE -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:43:48 PM



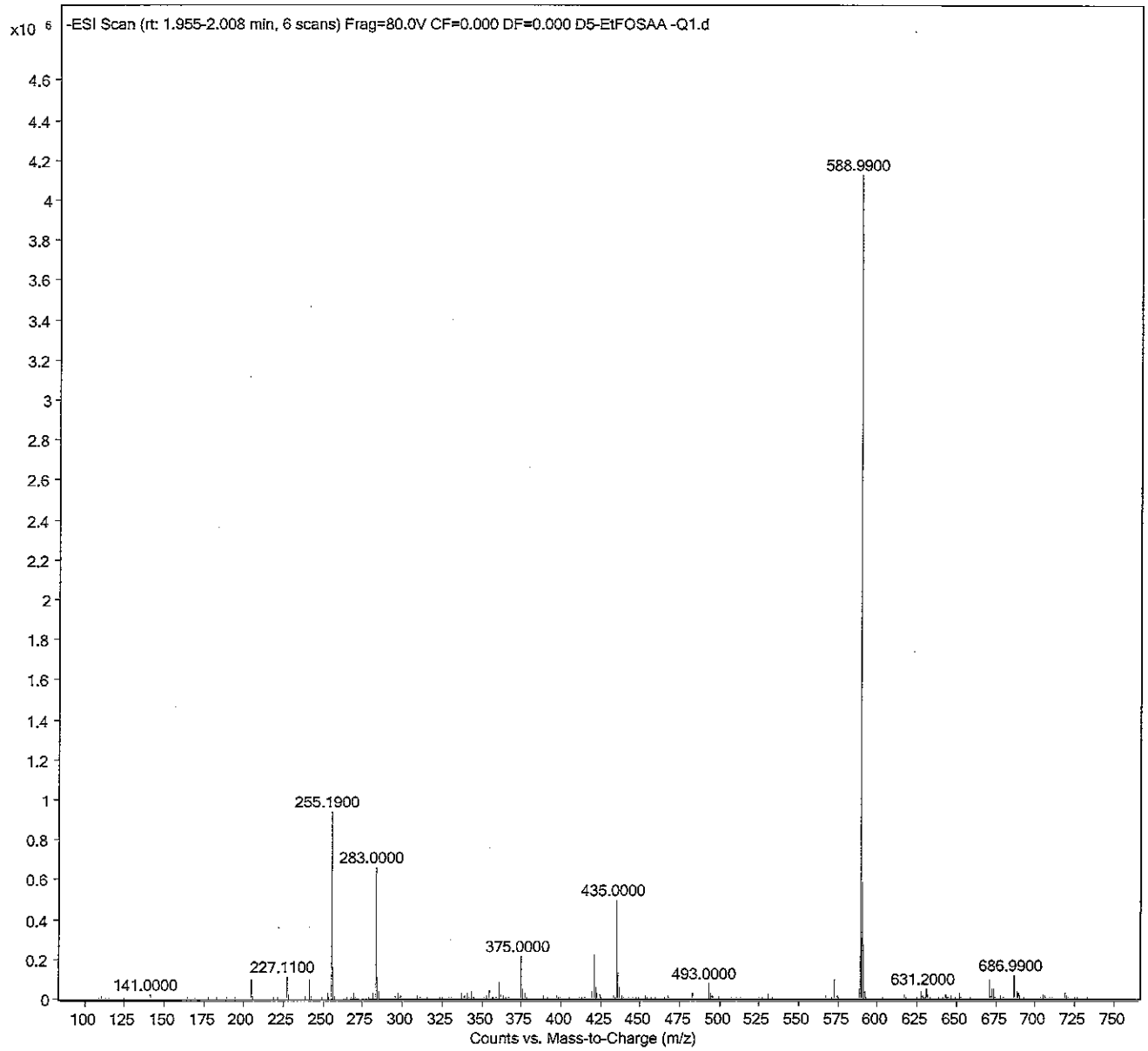
MaxxAm Analytics

Sample Name	D3-MeFOSAA	**Position**	P2-E9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D3-MeFOSAA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:49:18 PM



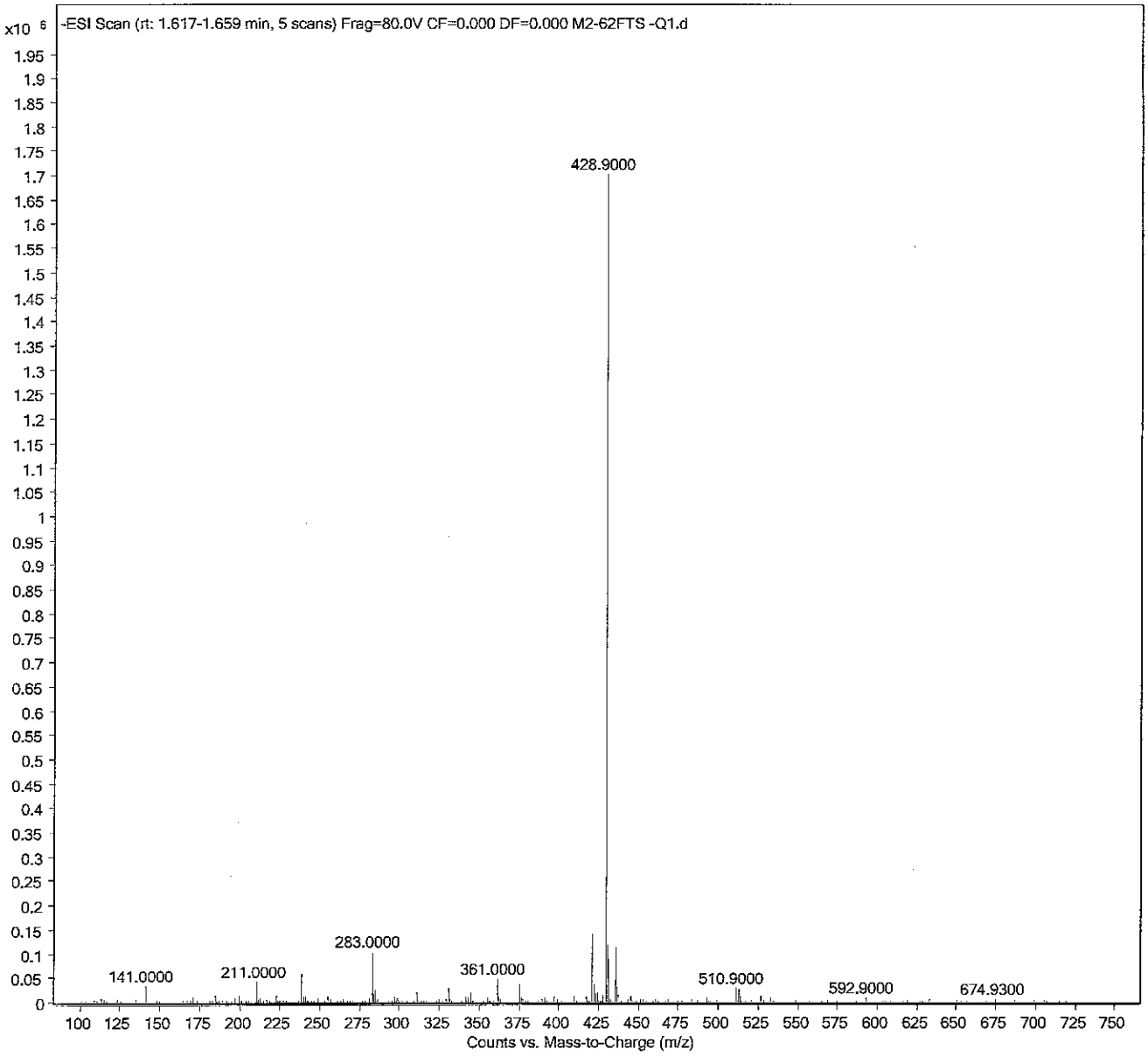
MaxXam Analytics

Sample Name	D5-EtFOSAA	**Position**	P2-F1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D5-EtFOSAA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 8:54:48 PM



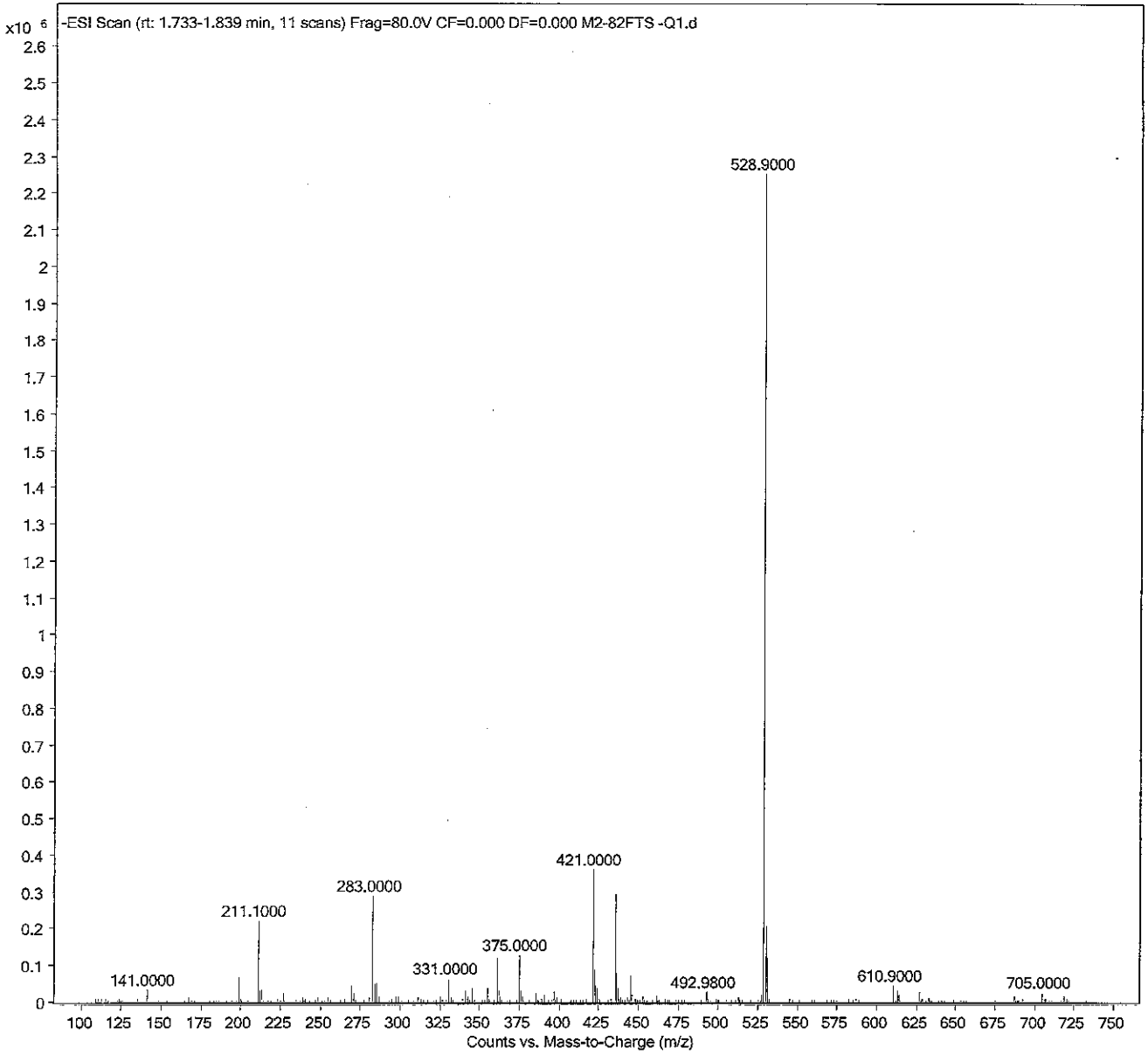
MaxXam Analytics

Sample Name	M2-6:2FTS	**Position**	P2-F2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	M2-62FTS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 9:00:18 PM



MaxXam Analytics

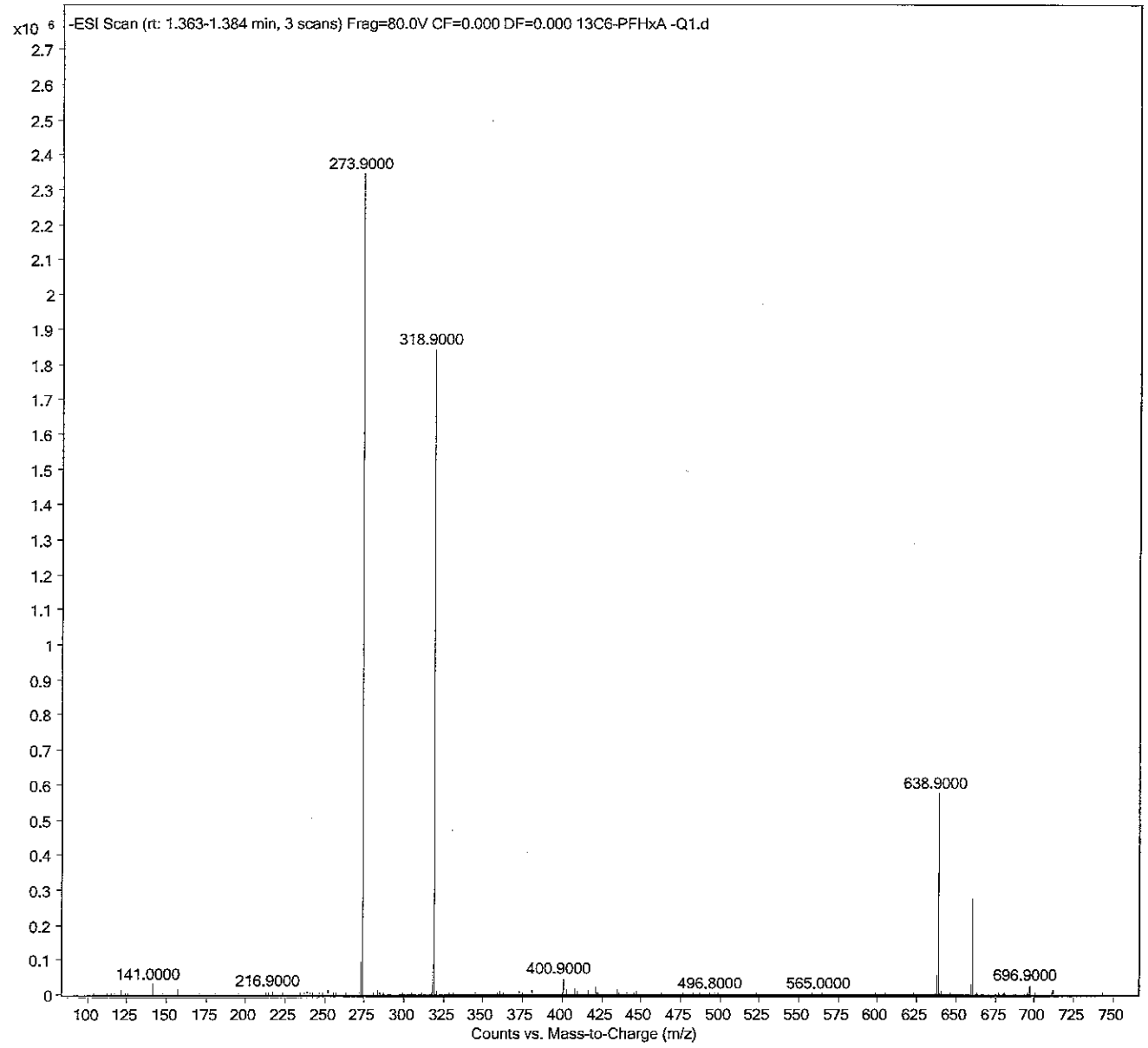
Sample Name	M2-8:2FTS	**Position**	P2-F3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	M2-82FTS -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 9:05:48 PM



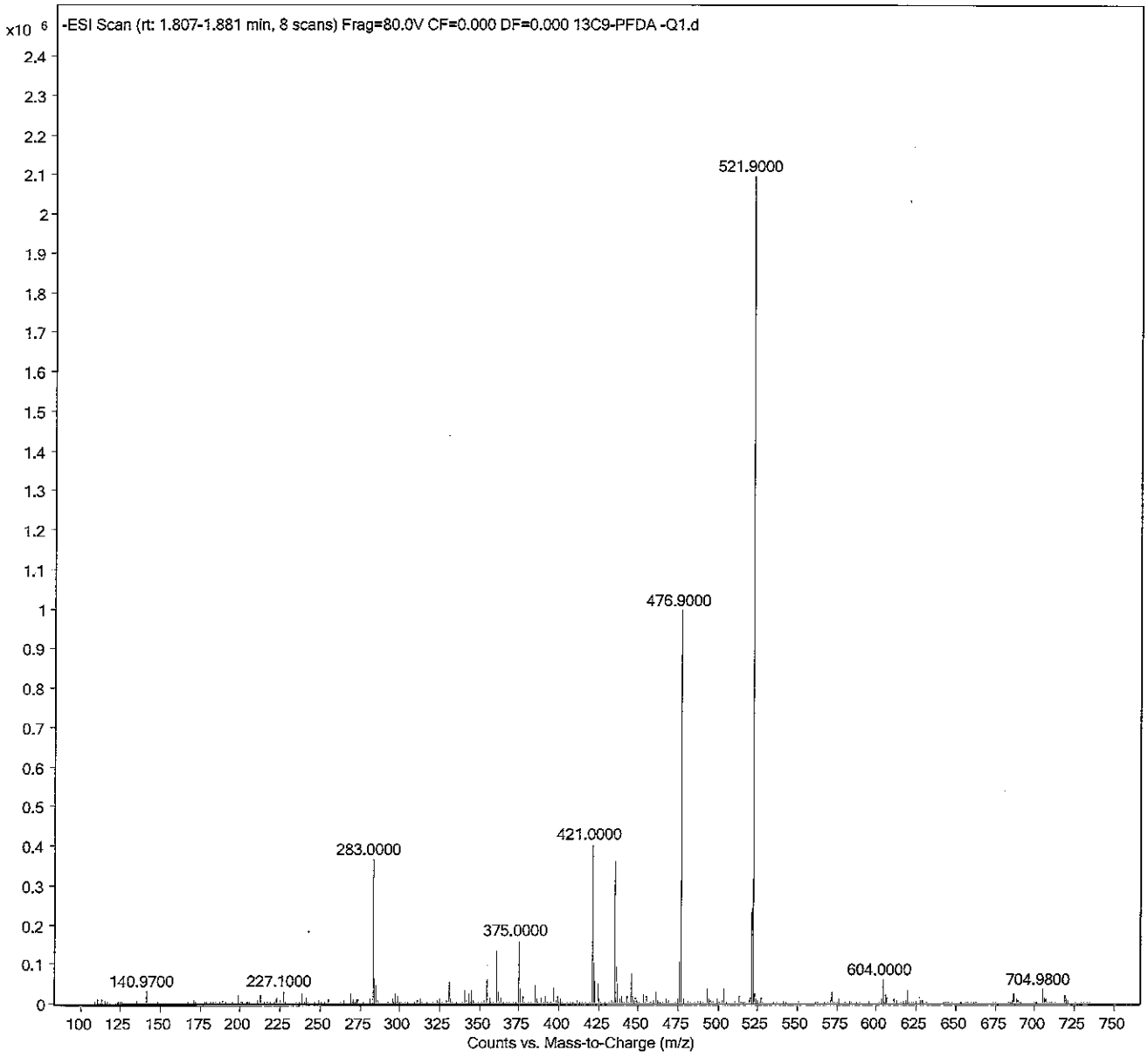
MaxxAm Analytics

Sample Name	13C6-PFHxA	**Position**	P2-F4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	13C6-PFHxA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 9:11:18 PM

MaxXam Analytics



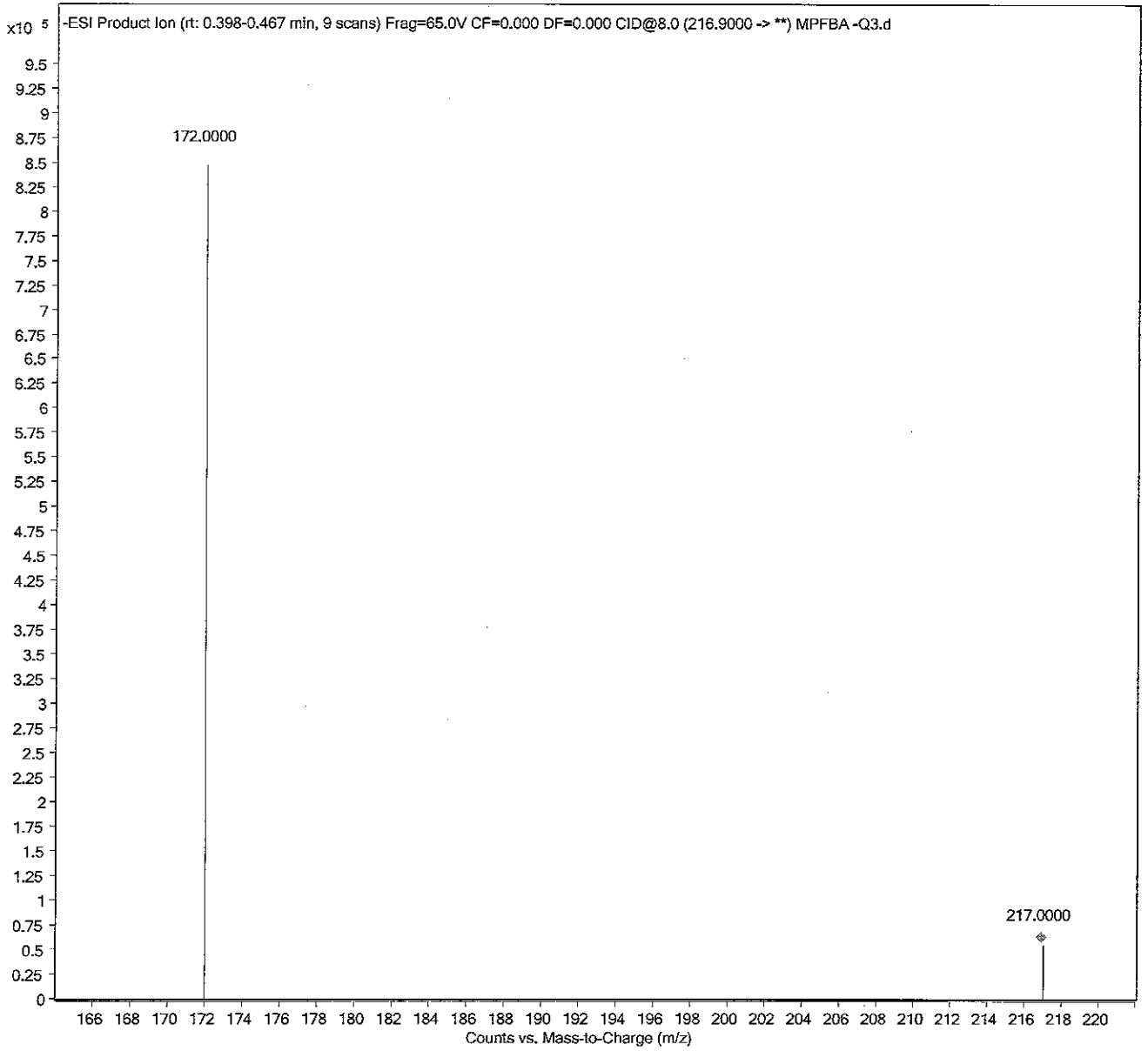
Sample Name	13C9-PFDA	**Position**	P2-F5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	13C9-PFDA -Q1.d
ACQ Method	PFC_MassVerification-Q1.m	**Comment**		**Acquired Time**	11/15/2018 9:16:48 PM



MaxXam Analytics

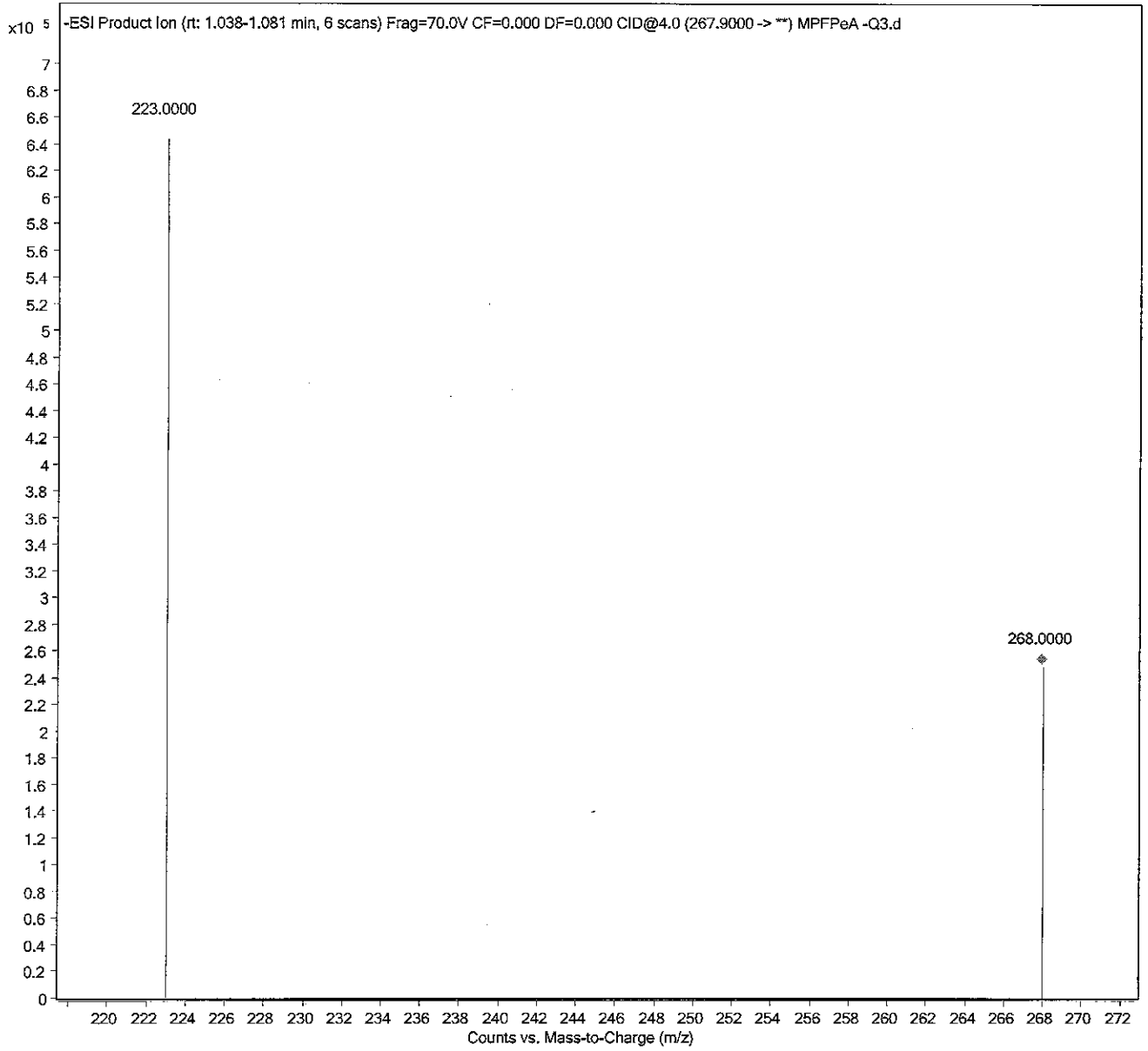
Extracted and Injection Internal Standard Product Ion Verification

Sample Name	MPFBA -Q3	**Position**	P2-D1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFBA -Q3.d
ACQ Method	PFC_MassVerification-MPFBA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:22:18 PM



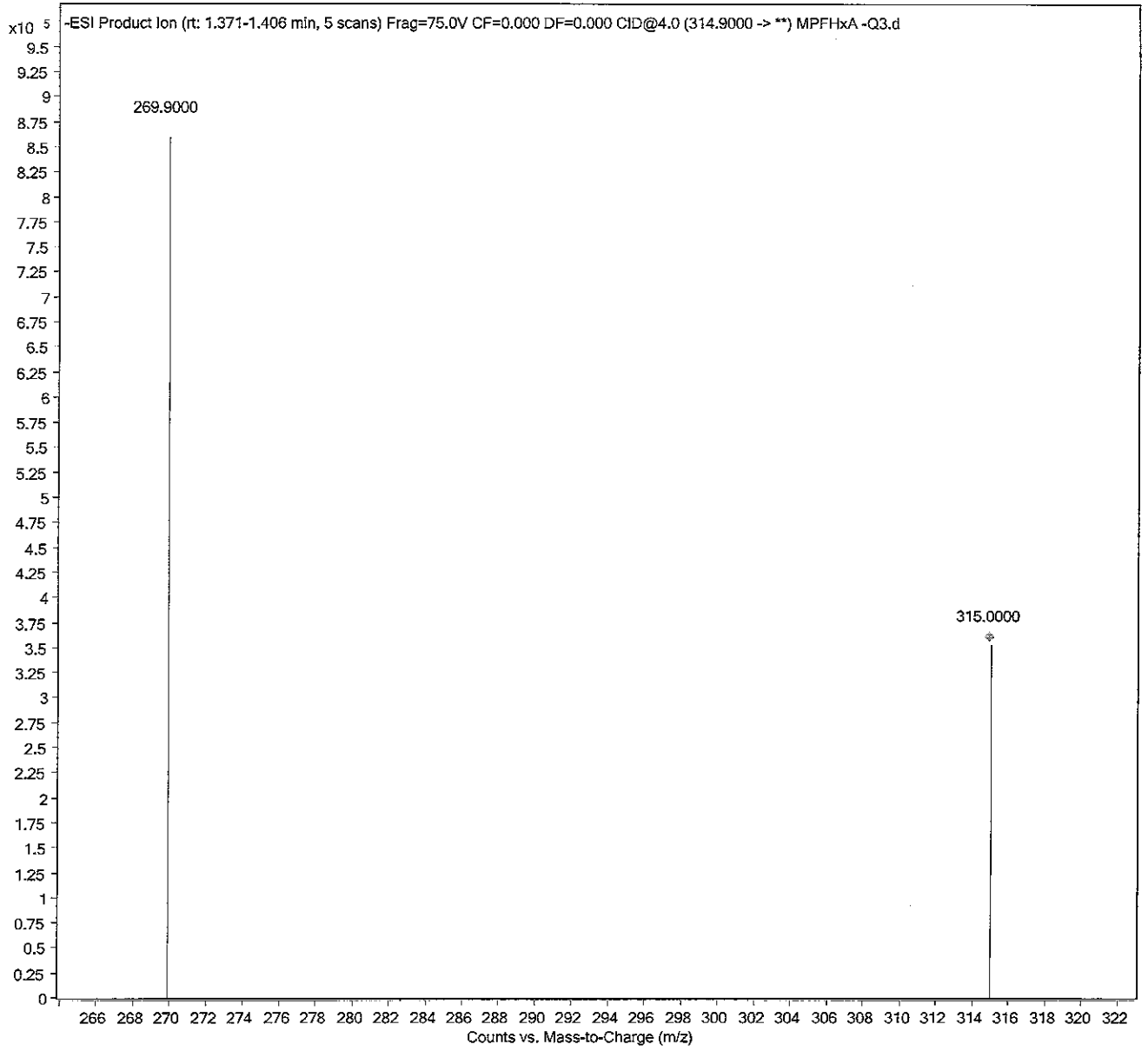
MaxXam Analytics

Sample Name	MPFPeA -Q3	**Position**	P2-D2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFPeA -Q3.d
ACQ Method	PFC_MassVerification-MPFPeA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:27:48 PM

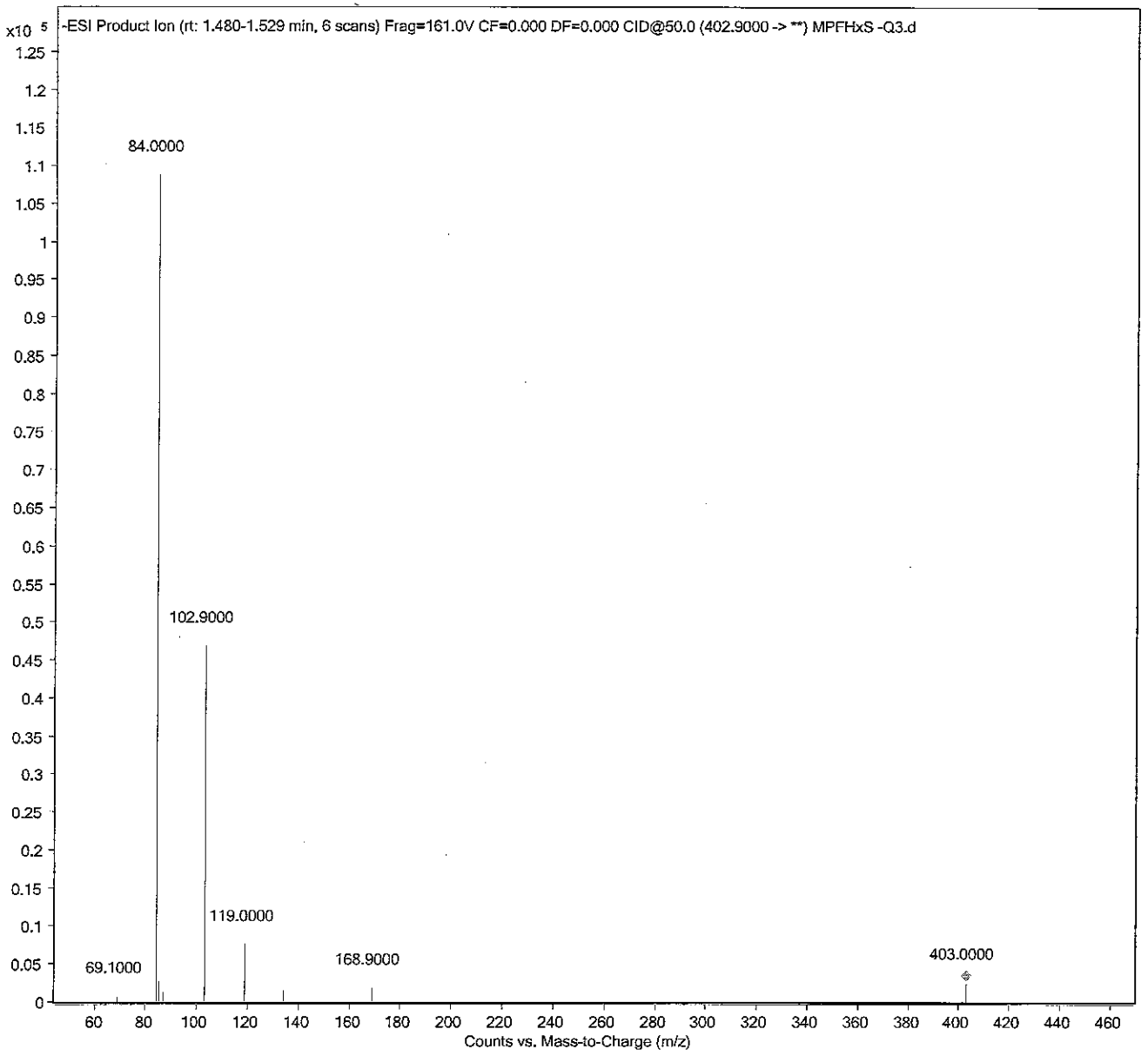


Maxxam Analytics

Sample Name	MPFHxA -Q3	**Position**	P2-D3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHxA -Q3.d
ACQ Method	PFC_MassVerification-MPFHxA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:33:18 PM

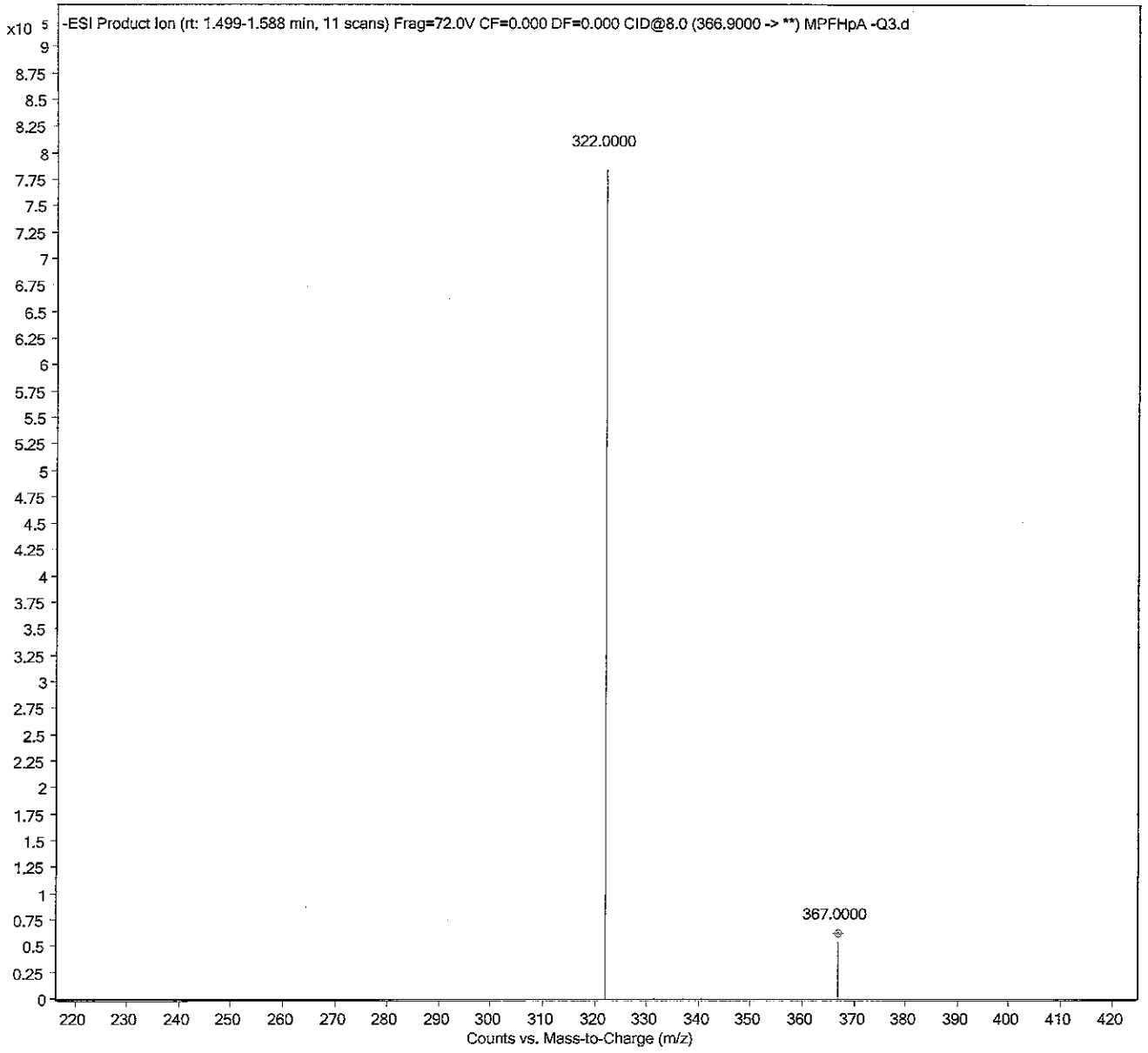


Sample Name	MPFHxS -Q3	**Position**	P2-D4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHxS -Q3.d
ACQ Method	PFC_MassVerification-MPFHxS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:38:48 PM



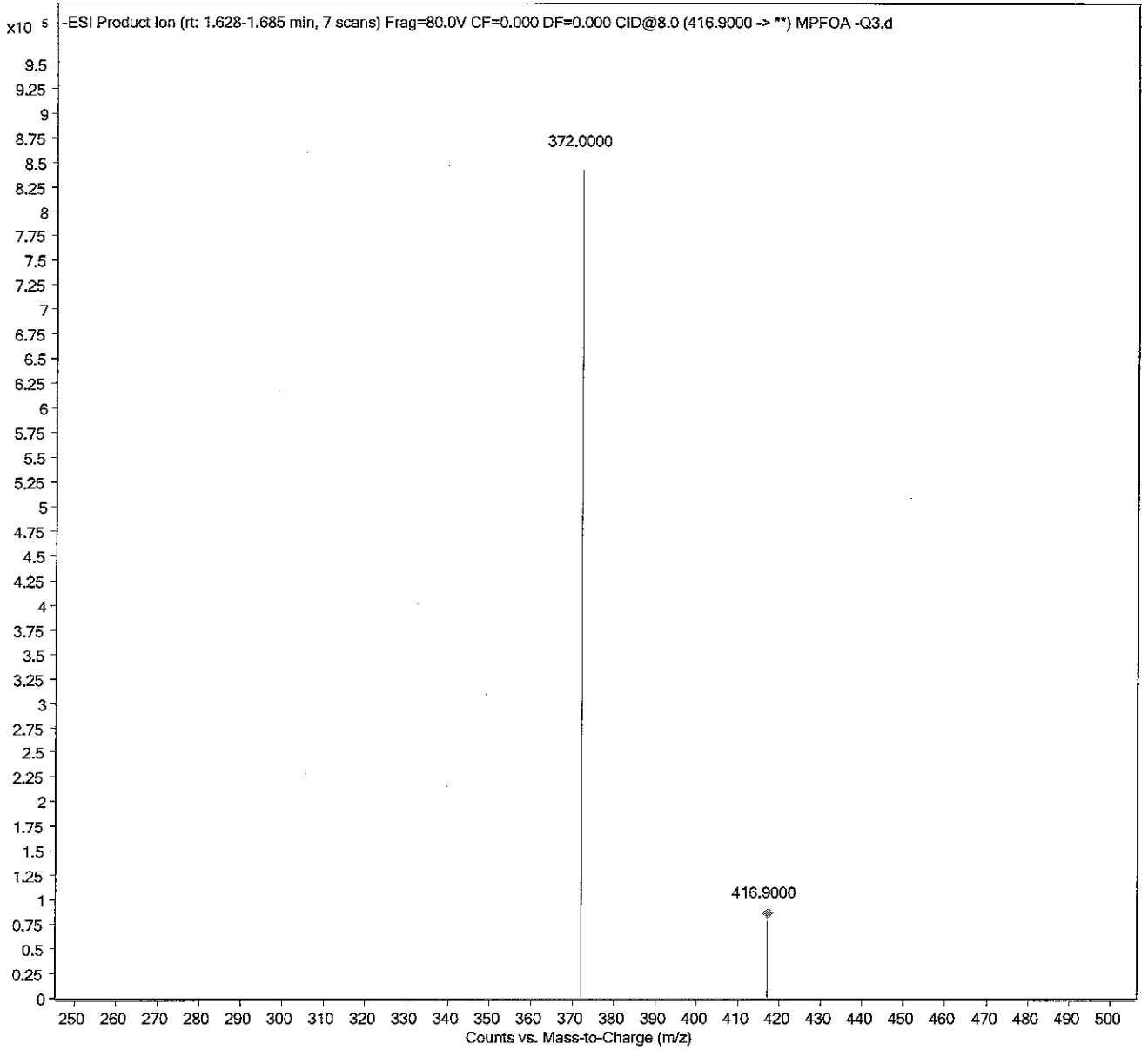
MaxXam Analytics

Sample Name	MPFHpA -Q3	**Position**	P2-D5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFHpA -Q3.d
ACQ Method	PFC_MassVerification-MPFHpA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:44:18 PM

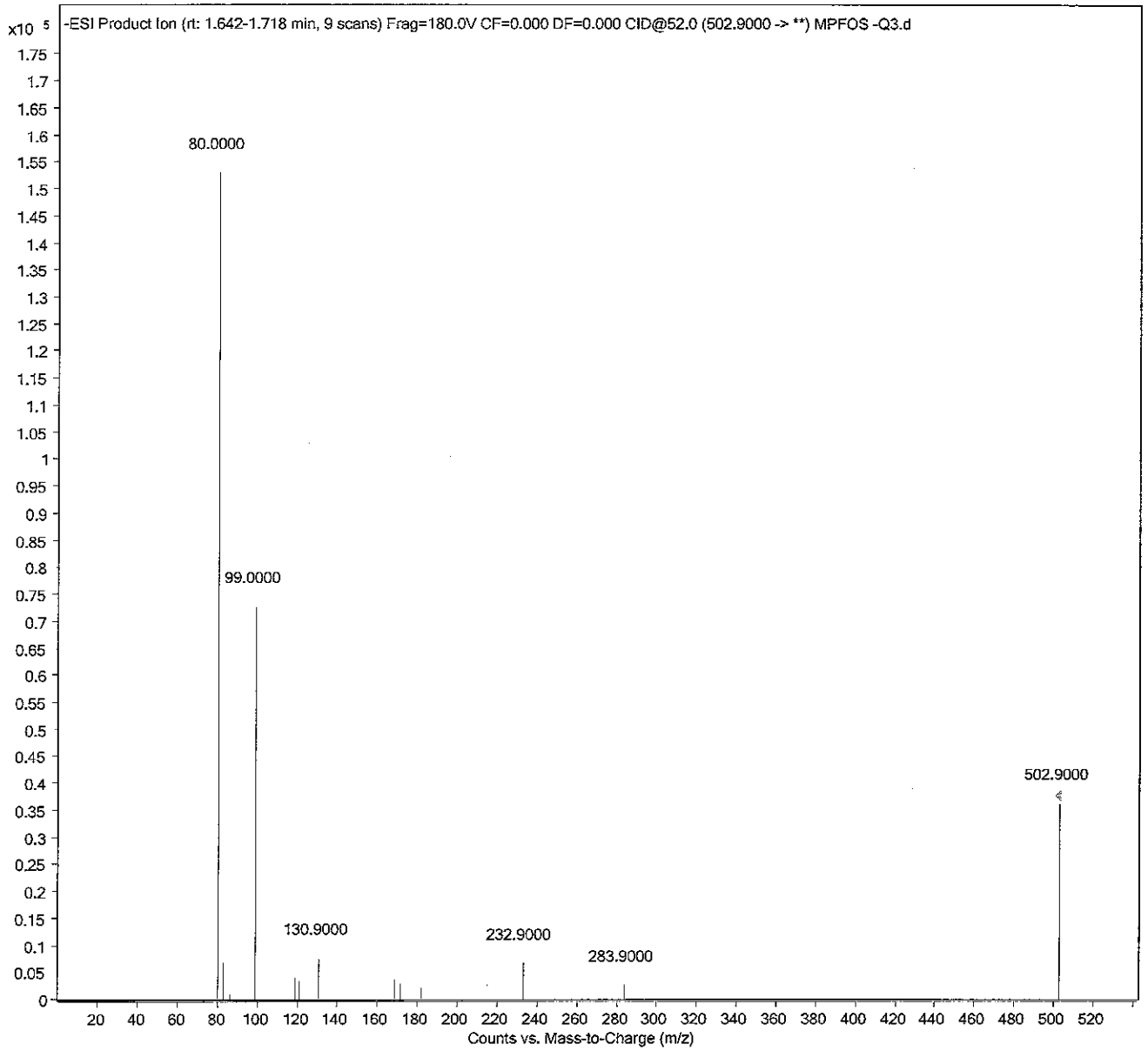


MaxXam Analytics

Sample Name	MPFOA -Q3	**Position**	P2-D6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOA -Q3.d
ACQ Method	PFC_MassVerification-MPFOA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:49:48 PM

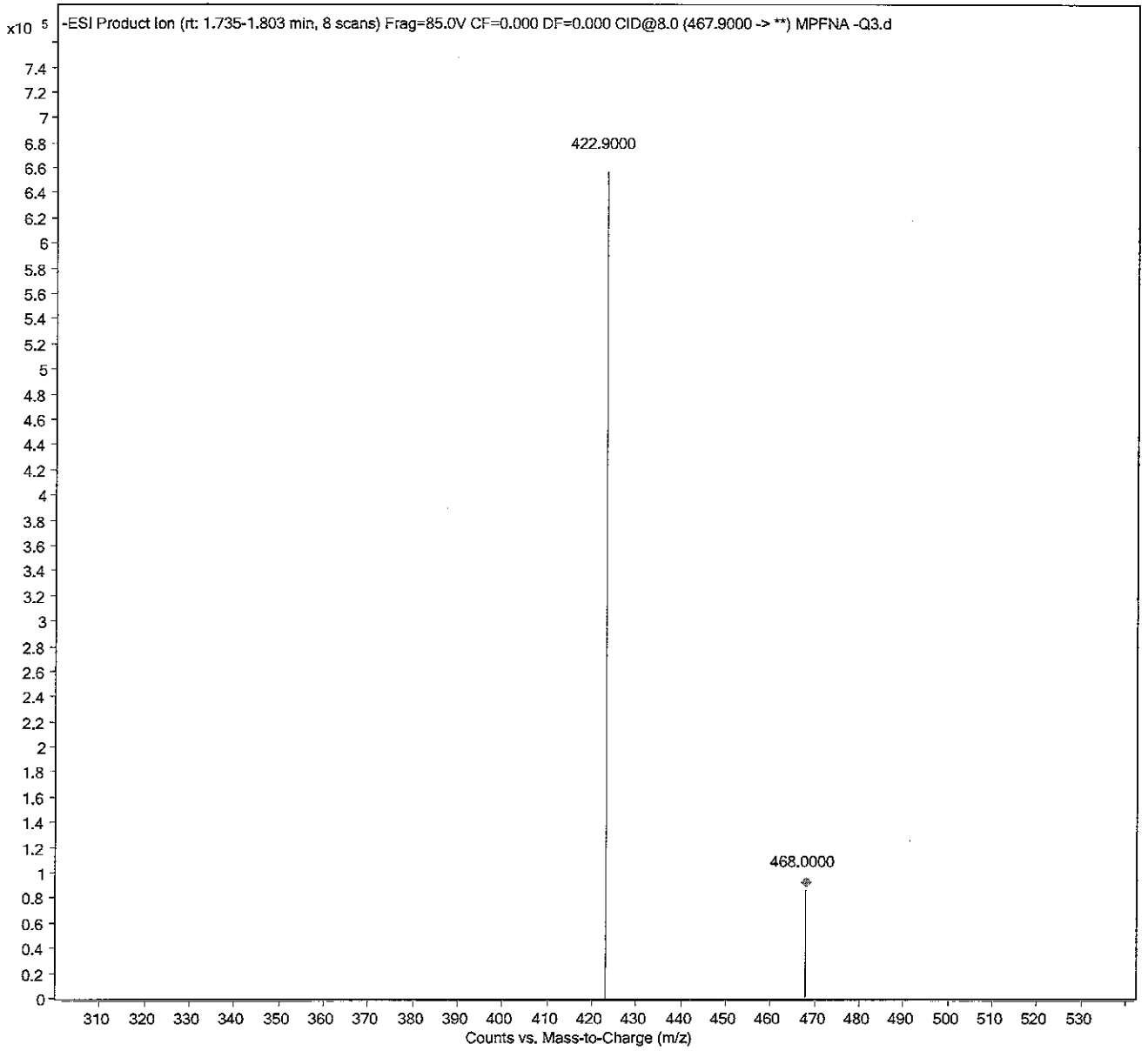


Sample Name	MPFOS -Q3	**Position**	P2-D7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOS -Q3.d
ACQ Method	PFC_MassVerification-MPFOS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 9:55:19 PM



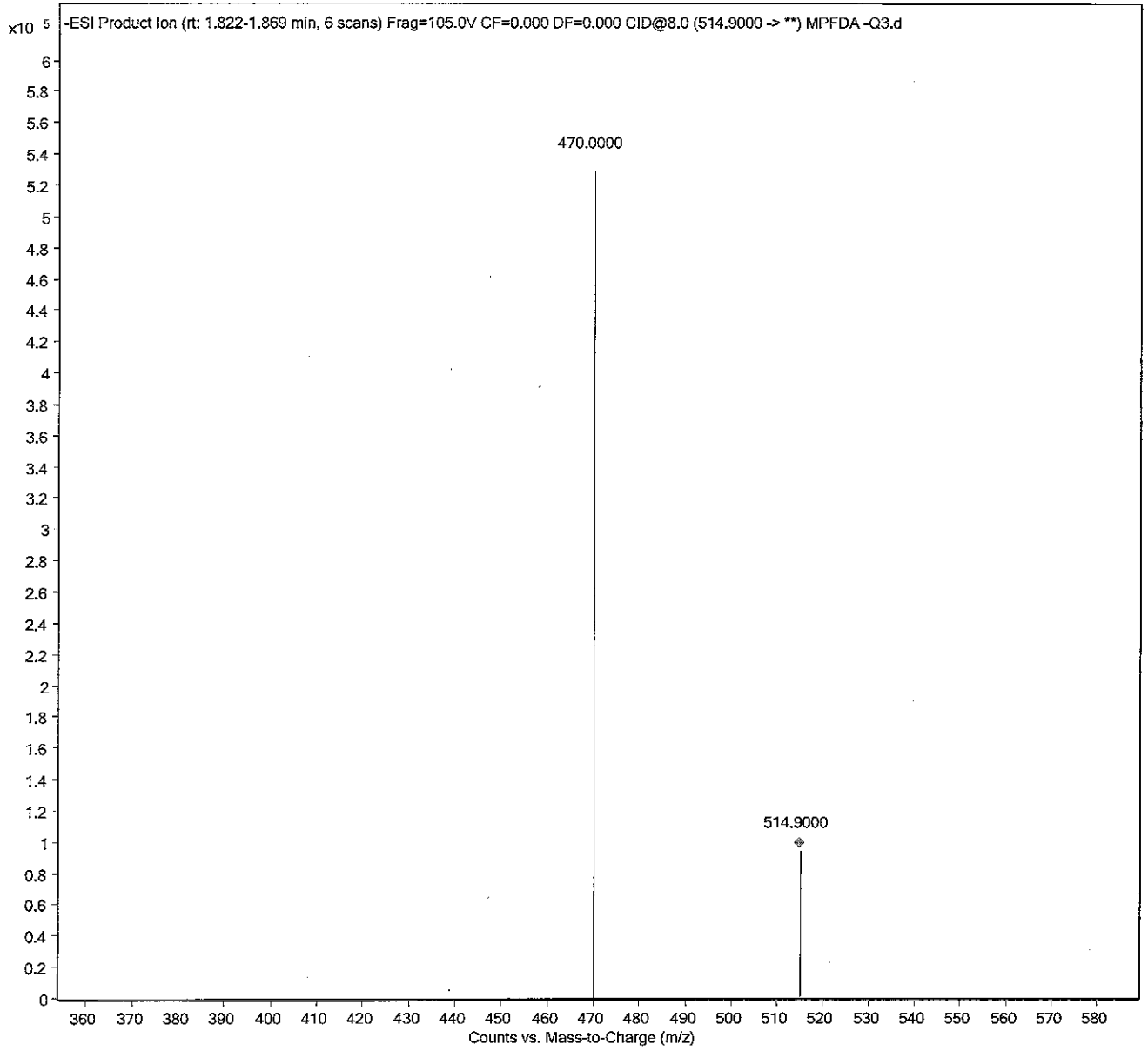
Maxxam Analytics

Sample Name	MPFNA -Q3	**Position**	P2-D8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFNA -Q3.d
ACQ Method	PFC_MassVerification-MPFNA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:00:49 PM



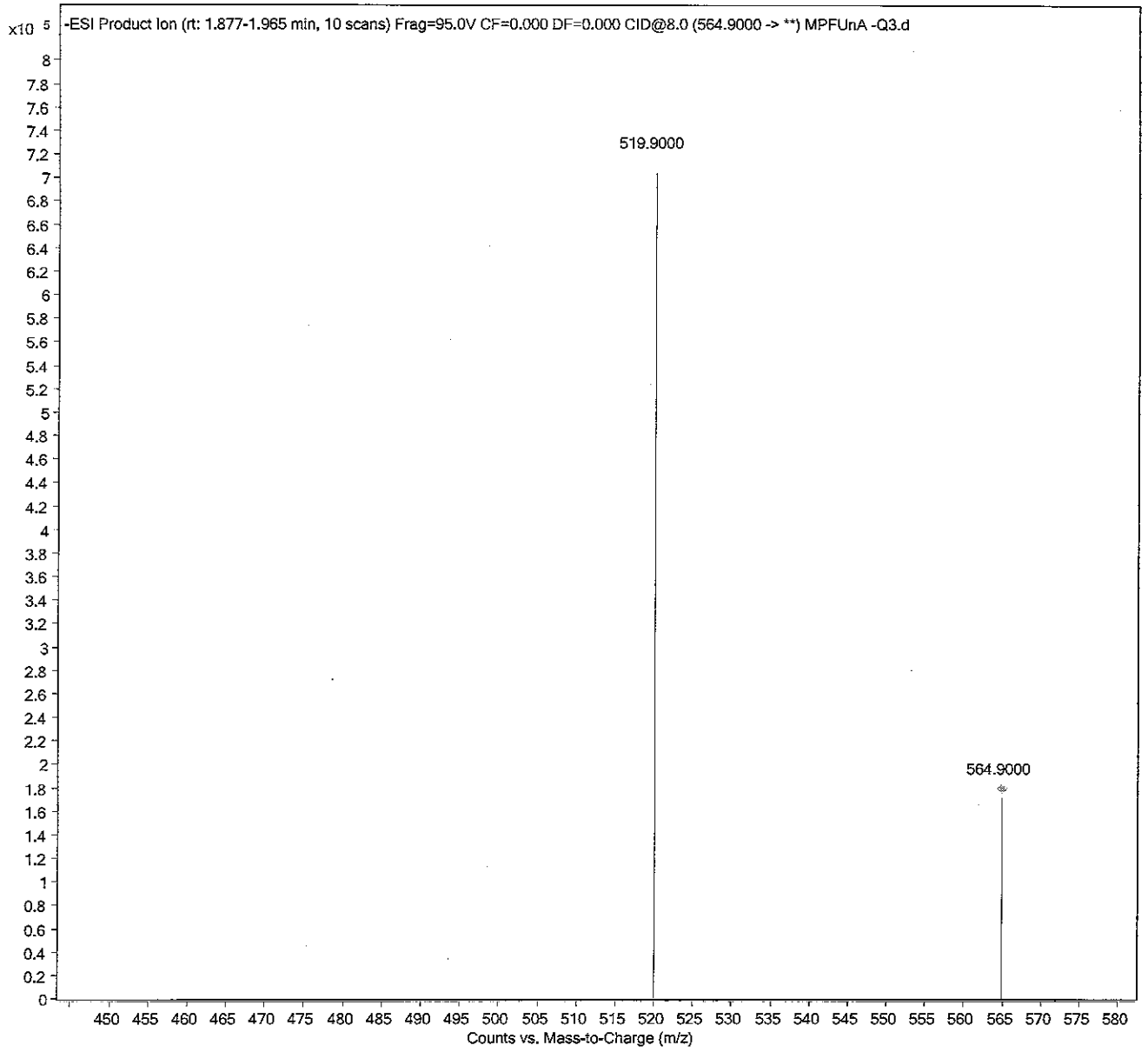
MaxXam Analytics

Sample Name	MPFDA -Q3	**Position**	P2-D9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFDA -Q3.d
ACQ Method	PFC_MassVerification-MPFDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:06:19 PM



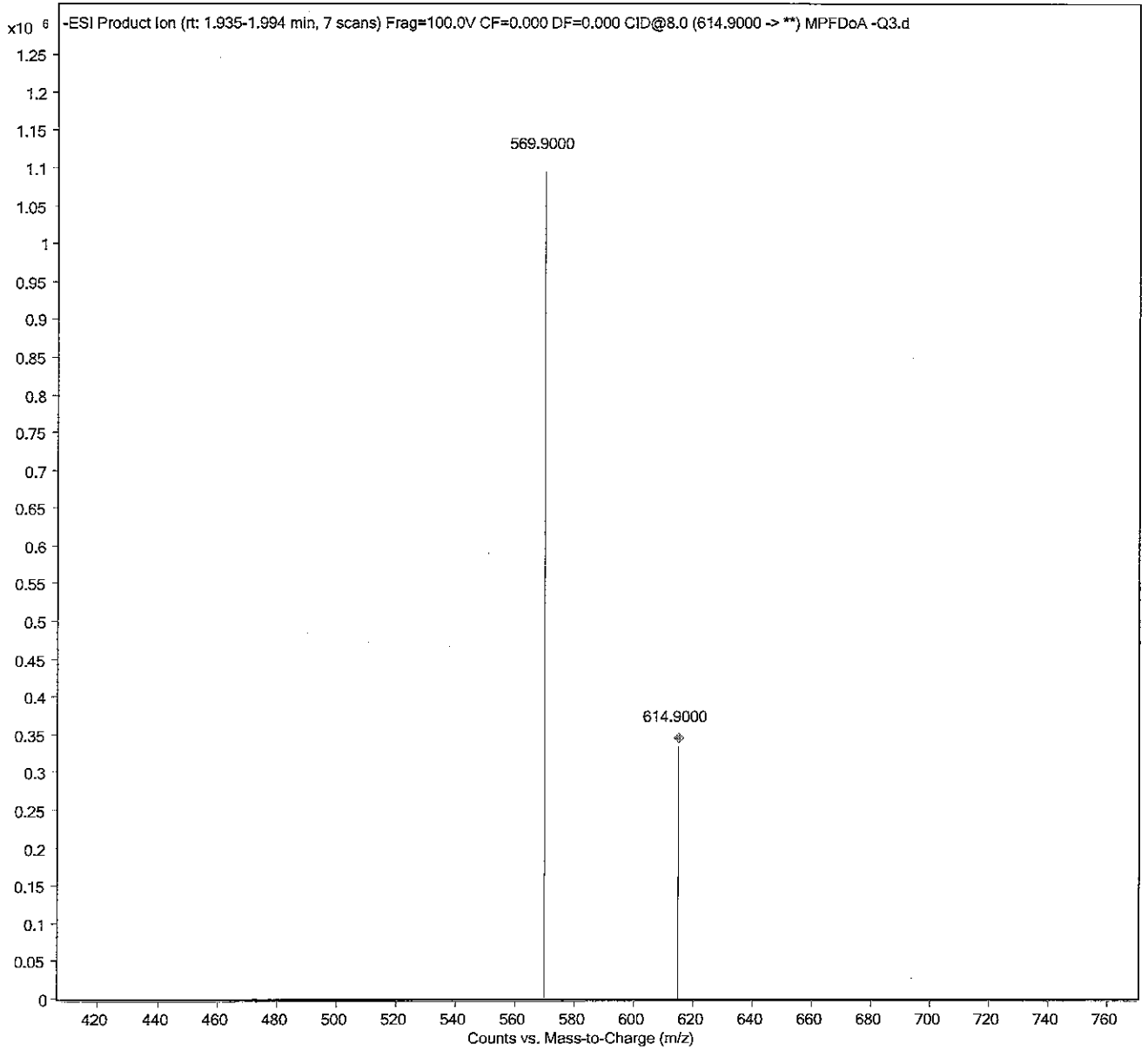
Maxxam Analytics

Sample Name	MPFUnA -Q3	**Position**	P2-E1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFUnA -Q3.d
ACQ Method	PFC_MassVerification-MPFUnA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:11:48 PM



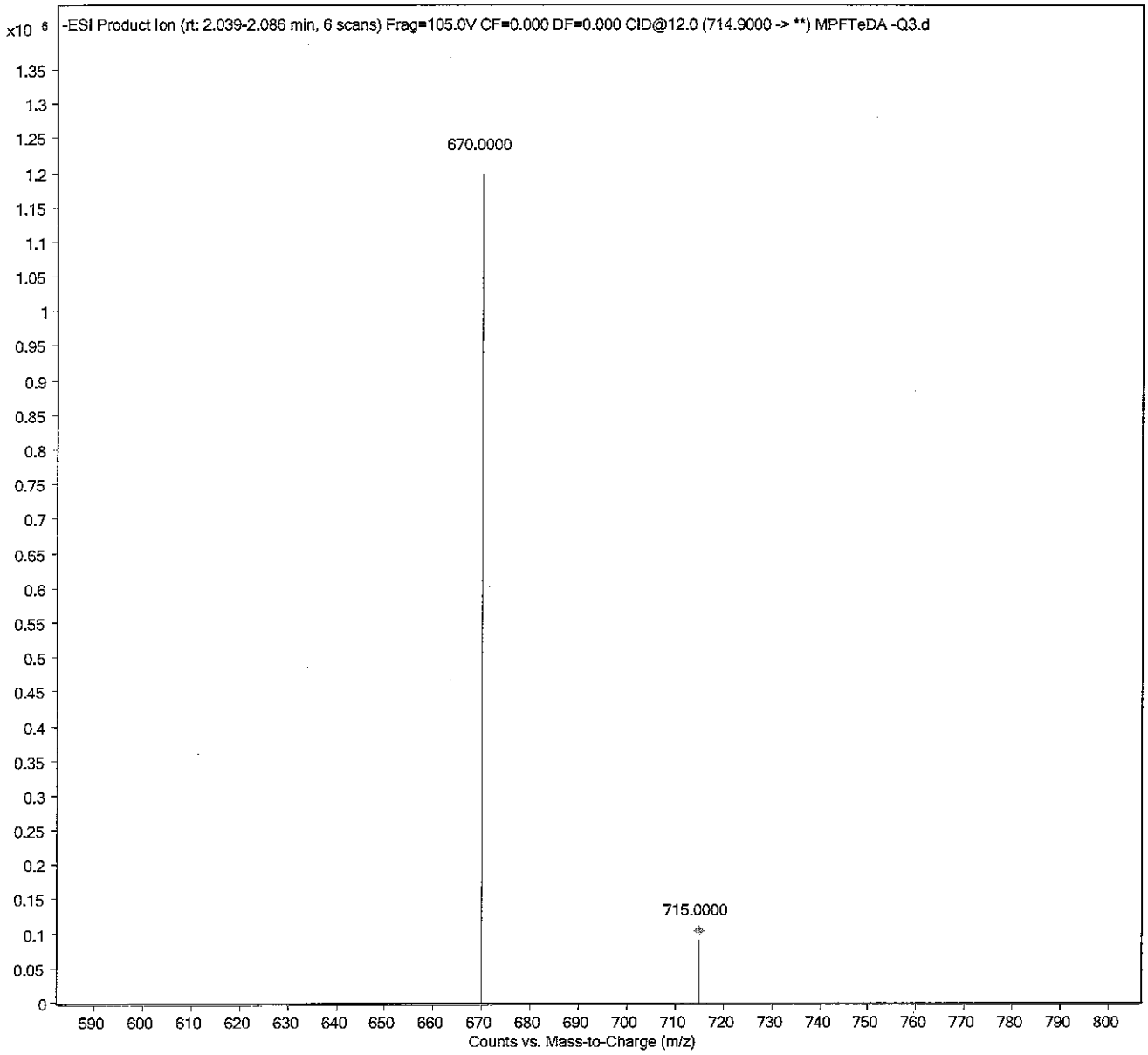
Maxxam Analytics

Sample Name	MPFDoA -Q3	**Position**	P2-E2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFDoA -Q3.d
ACQ Method	PFC_MassVerification-MPFDoA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:17:18 PM



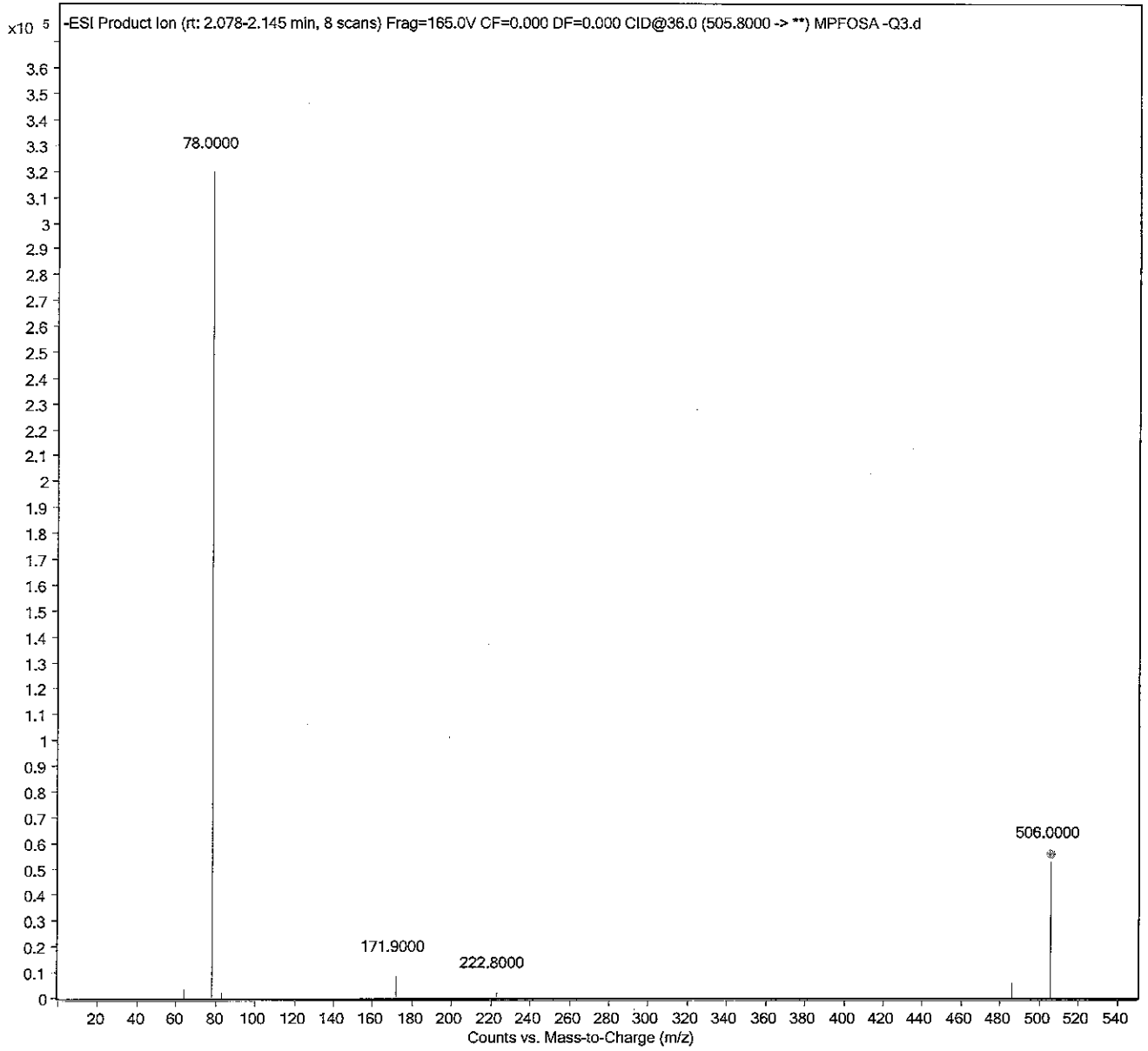
MaxXam Analytics

Sample Name	MPFTeDA -Q3	**Position**	P2-E3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFTeDA -Q3.d
ACQ Method	PFC_MassVerification-MPFTeDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:22:48 PM



MaxXam Analytics

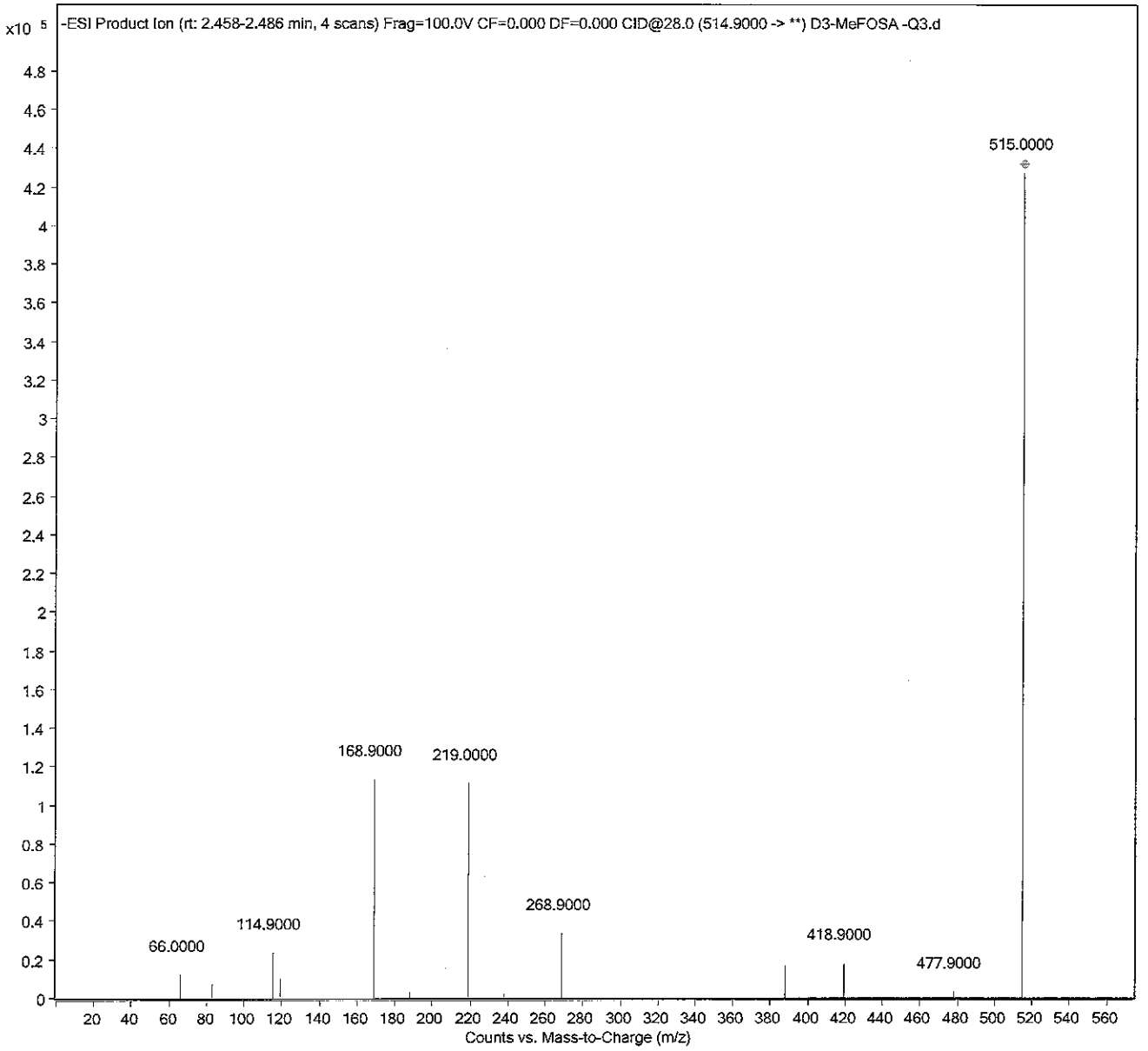
Sample Name	MPFOSA -Q3	**Position**	P2-E4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	MPFOSA -Q3.d
ACQ Method	PFC_MassVerification-MPFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:28:18 PM



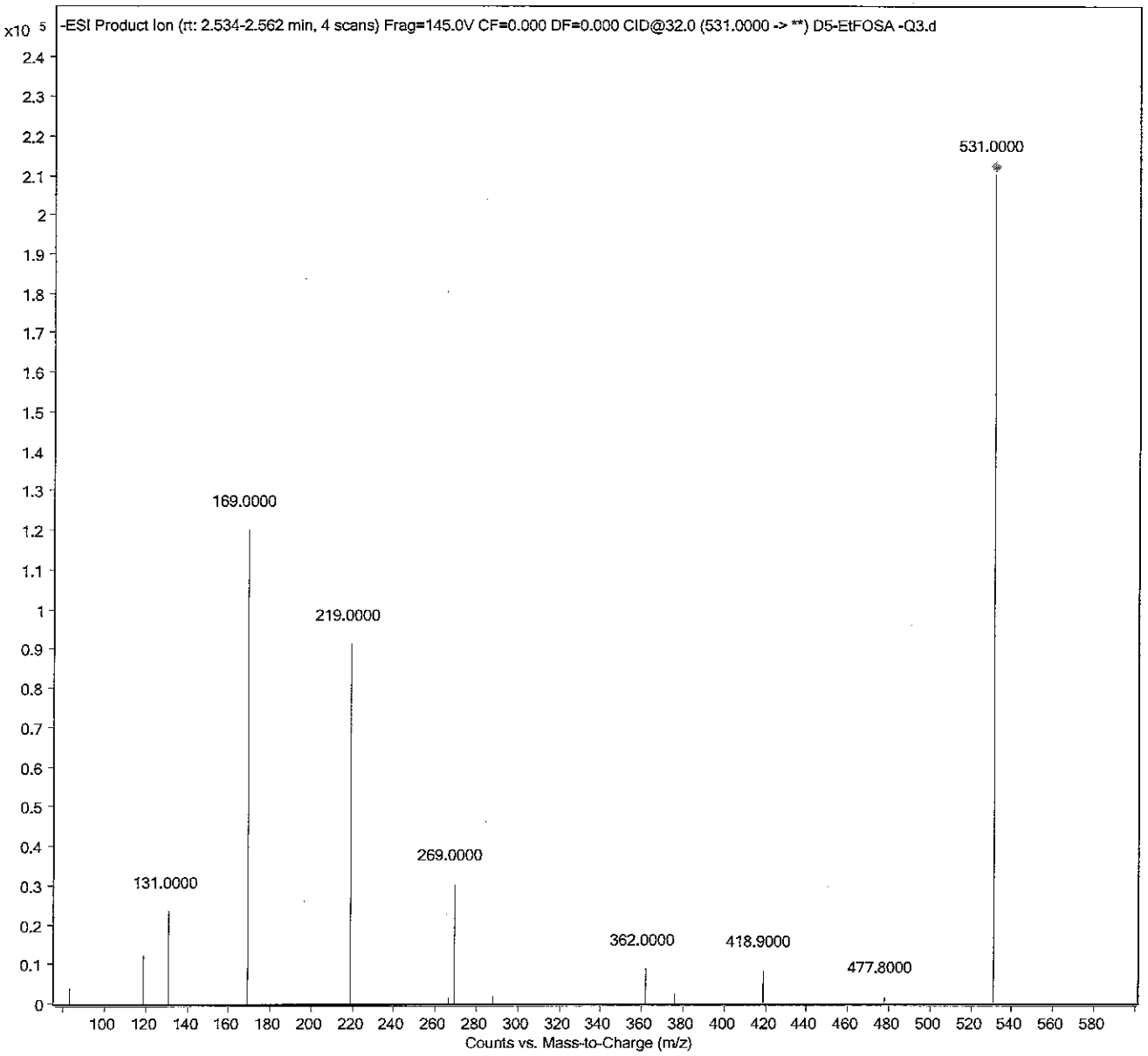
Maxxam Analytics

Sample Name	D3-MeFOSA -Q3	**Position**	P2-E5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D3-MeFOSA -Q3.d
ACQ Method	PFC_MassVerification-D3-MeFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:33:48 PM

MaxXam Analytics

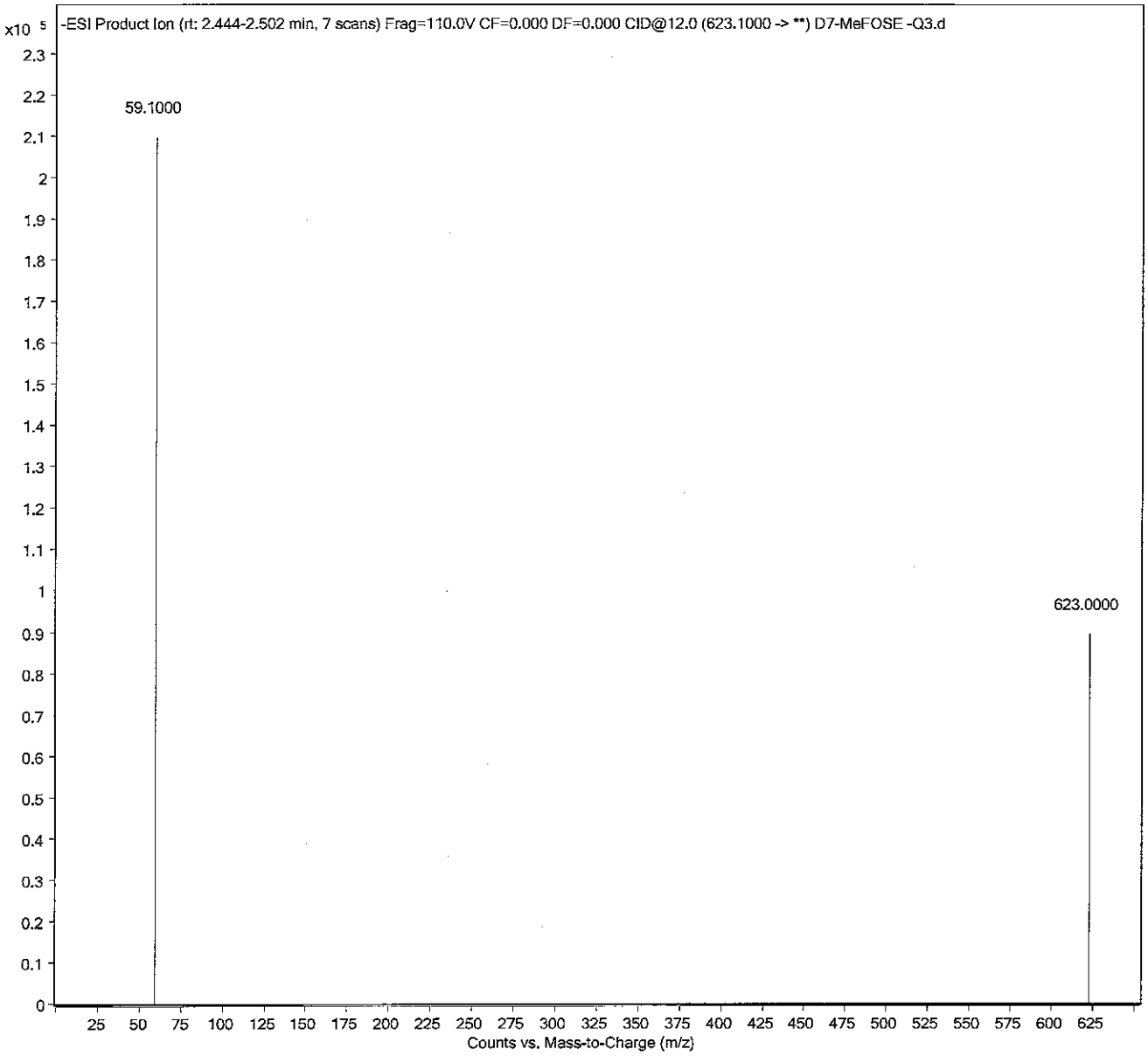


Sample Name	D5-EtFOSA -Q3	**Position**	P2-E6	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D5-EtFOSA -Q3.d
ACQ Method	PFC_MassVerification-D5-EtFOSA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:39:18 PM



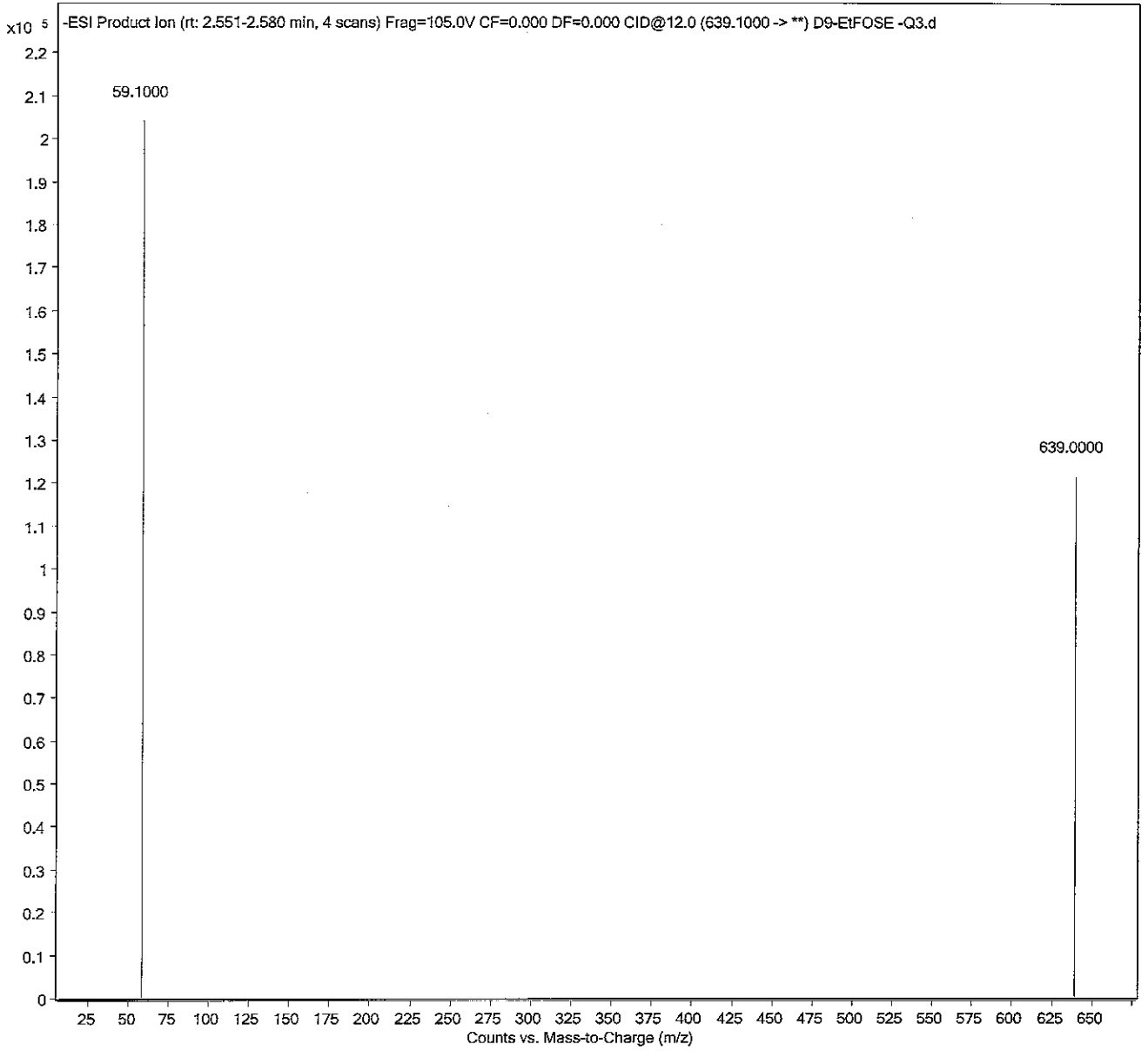
MaxXam Analytics

Sample Name	D7-MeFOSE -Q3	**Position**	P2-E7	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D7-MeFOSE -Q3.d
ACQ Method	PFC_MassVerification-D7-MeFOSE-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:44:48 PM



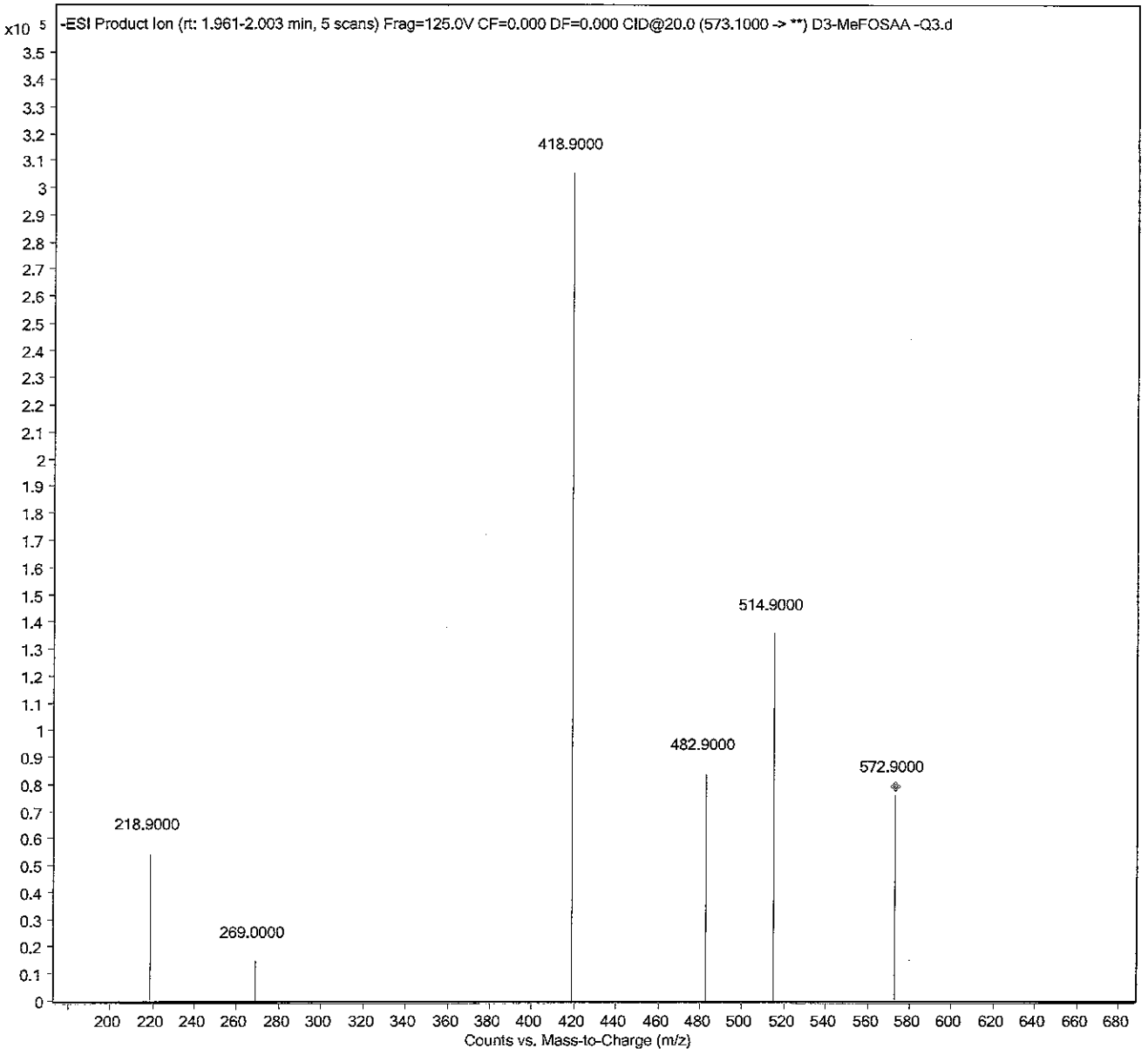
MaxxAm Analytics

Sample Name	D9-EtFOSE -Q3	**Position**	P2-E8	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D9-EtFOSE -Q3.d
ACQ Method	PFC_MassVerification-D9-EtFOSE-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:50:19 PM

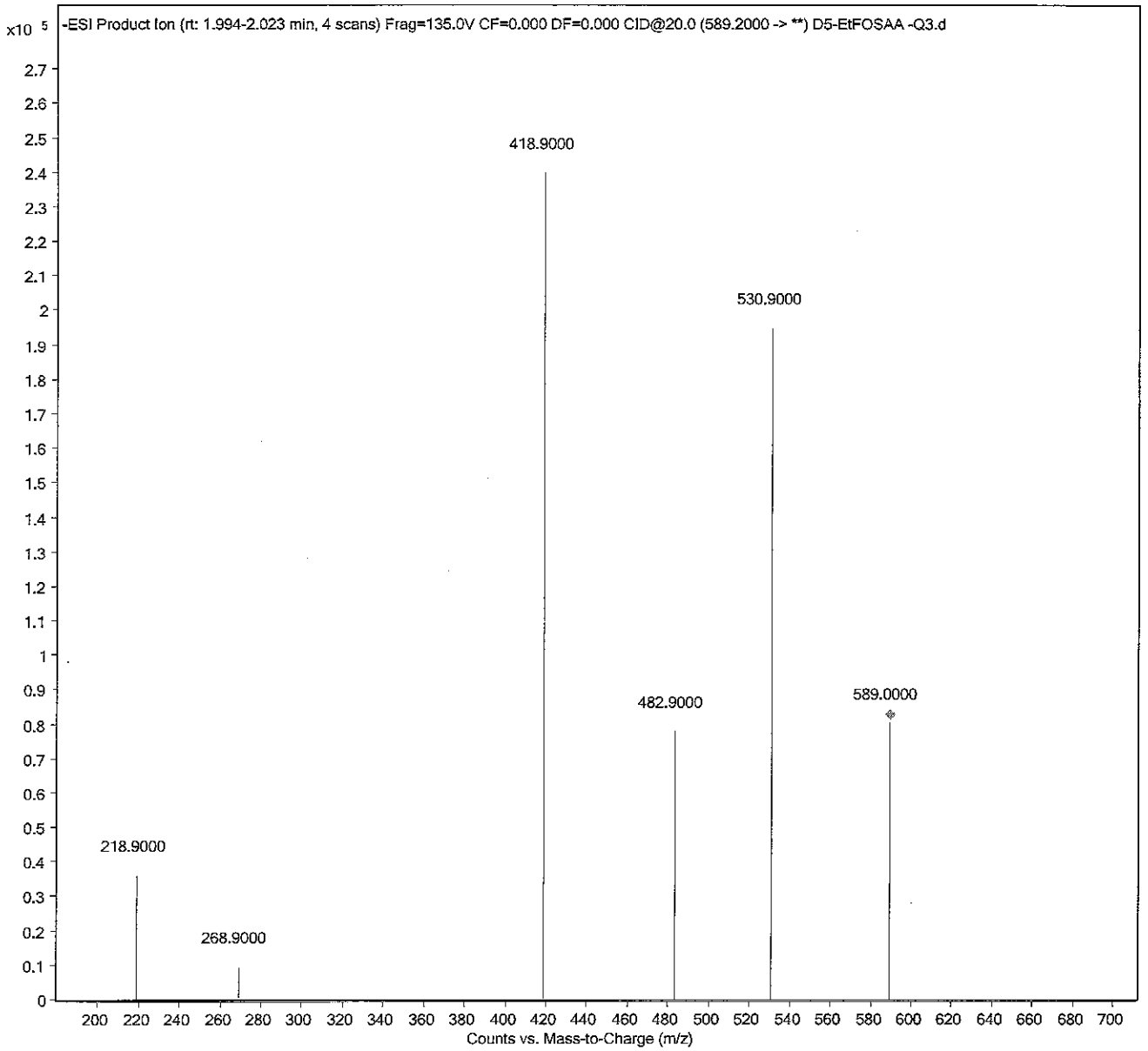


MaxxAm Analytics

Sample Name	D3-MeFOSAA -Q3	**Position**	P2-E9	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D3-MeFOSAA -Q3.d
ACQ Method	PFC_MassVerification-D3-MeFOSAA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 10:55:48 PM

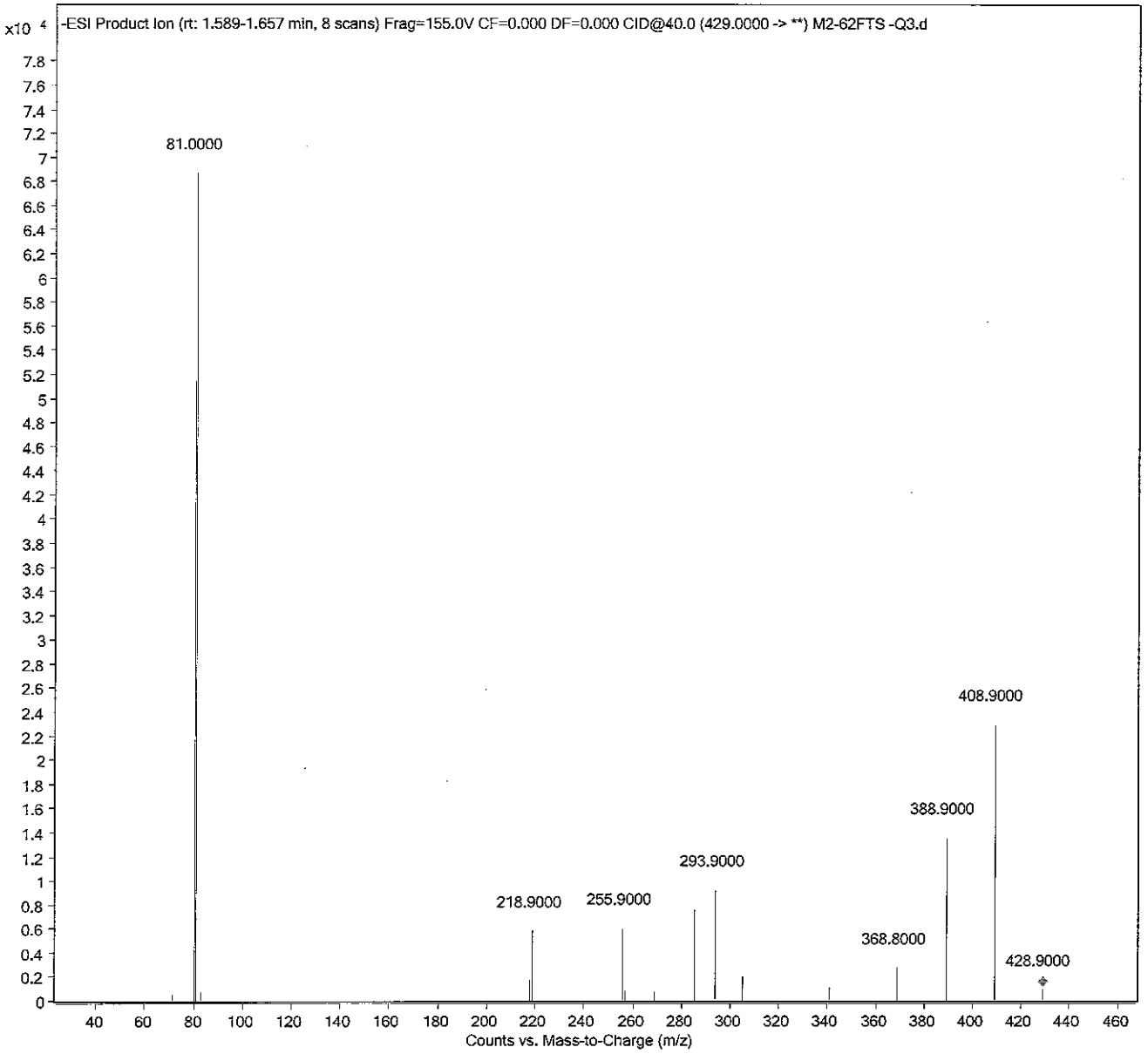


Sample Name	D5-EtFOSAA -Q3	**Position**	P2-F1	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	D5-EtFOSAA -Q3.d
ACQ Method	PFC_MassVerification-D5-EtFOSAA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 11:01:18 PM



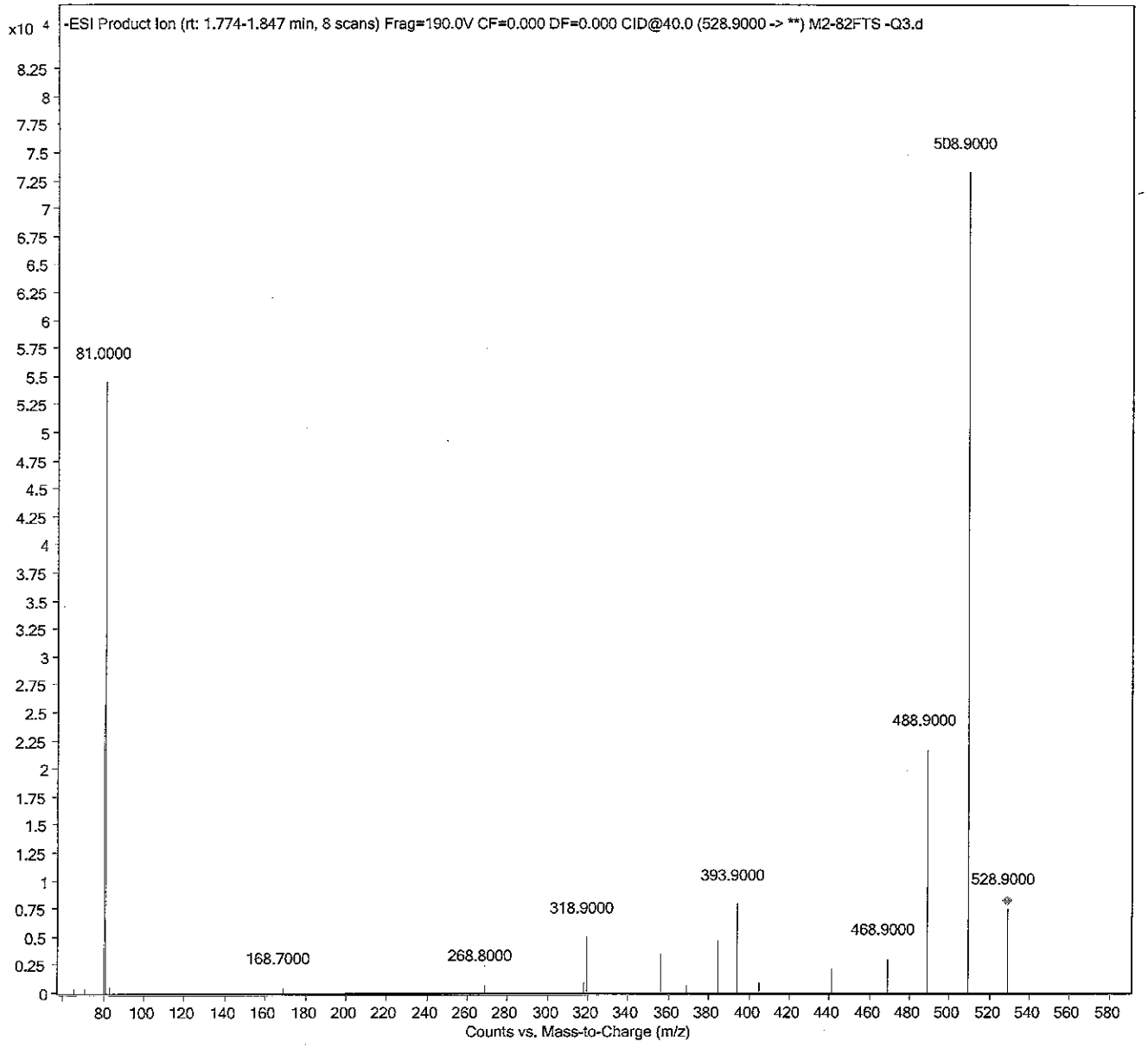
Sample Name	M2-6:2FTS -Q3	**Position**	P2-F2	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	M2-62FTS -Q3.d
ACQ Method	PFC_MassVerification-M26-2FTS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 11:06:48 PM

Maxxam Analytics

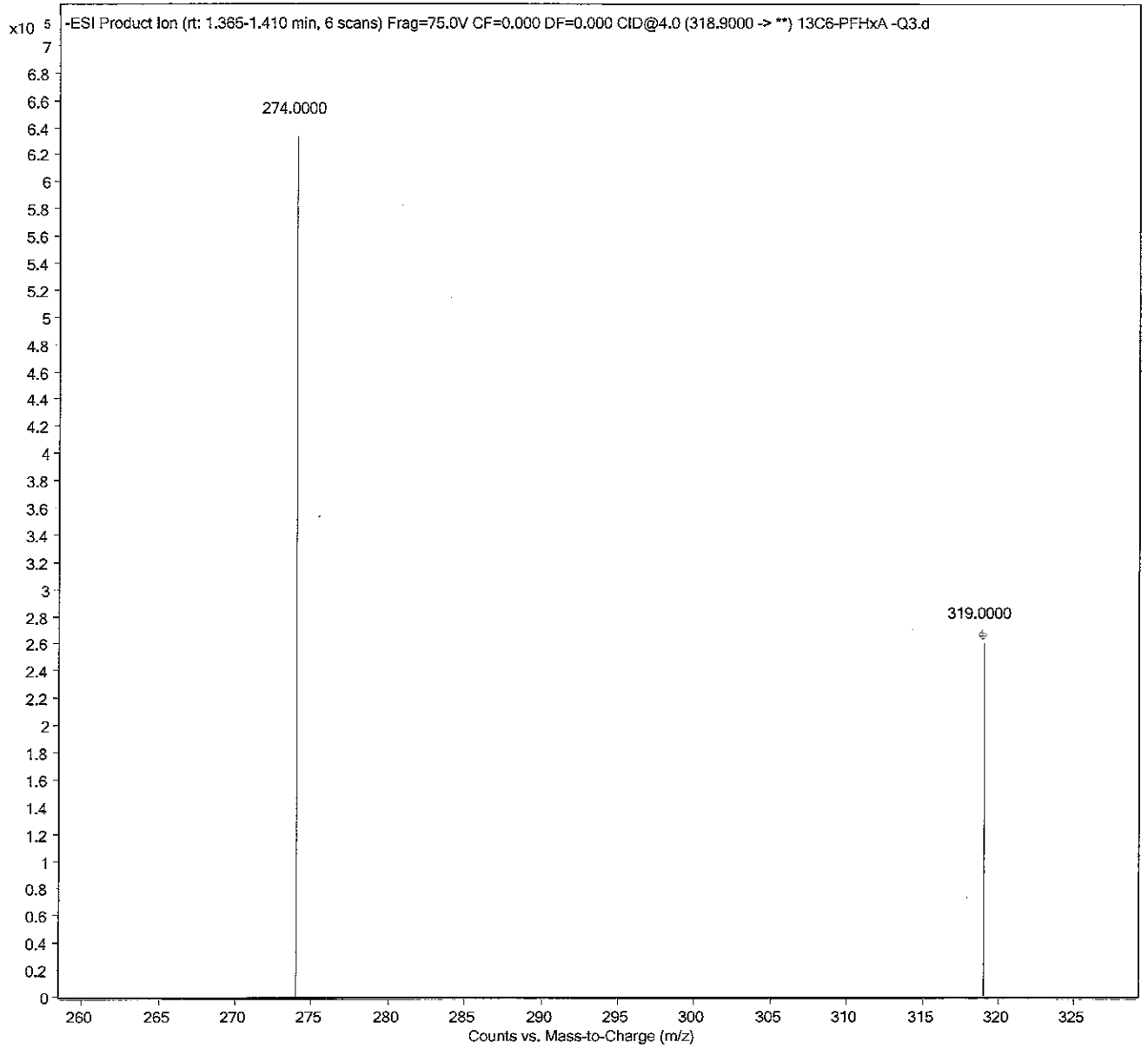


Sample Name	M2-8:2FTS -Q3	**Position**	P2-F3	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	M2-82FTS -Q3.d
ACQ Method	PFC_MassVerification-M2-8-2FTS-Q3.m	**Comment**		**Acquired Time**	11/15/2018 11:12:18 PM

Maxxam Analytics

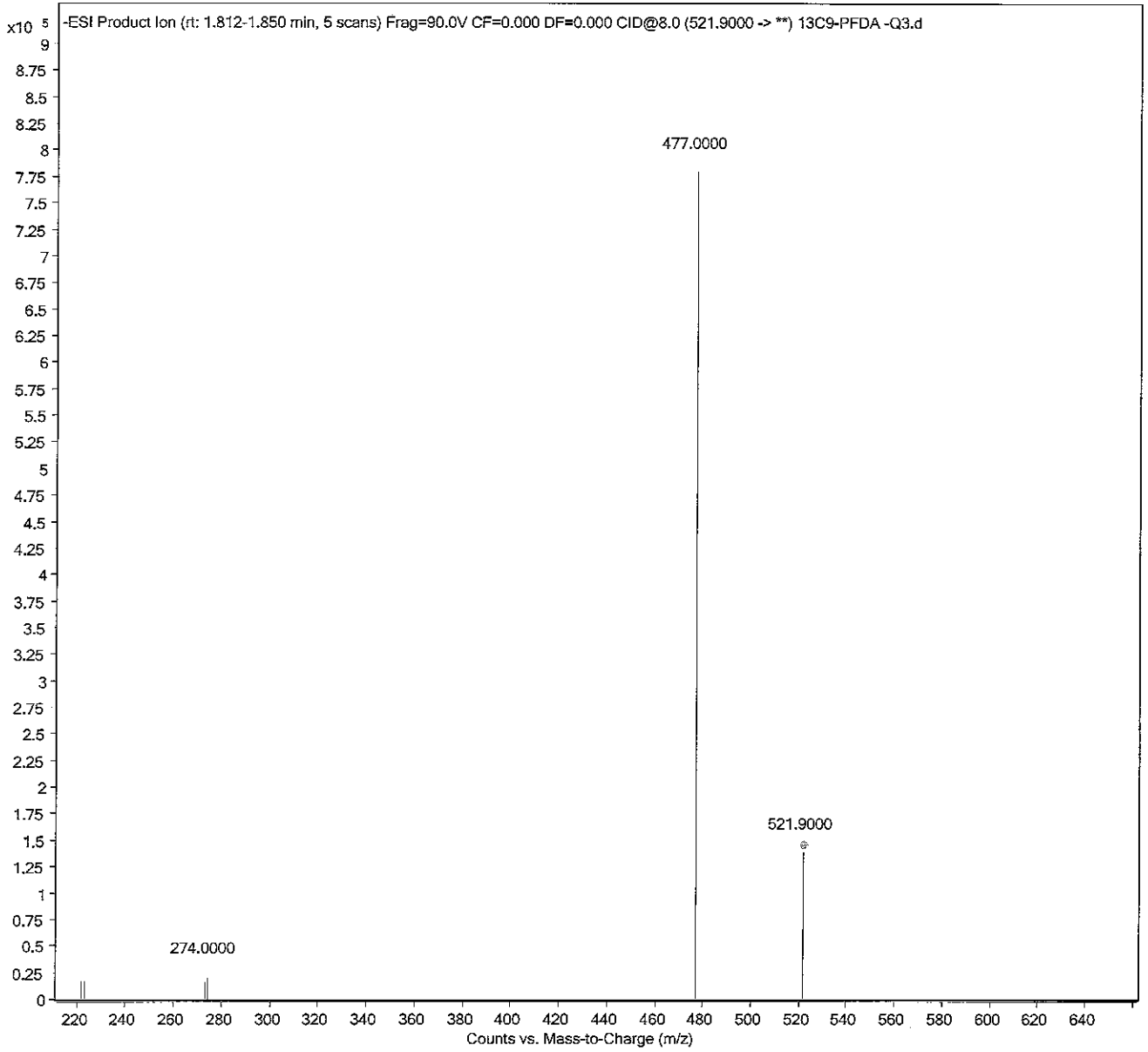


Sample Name	13C6-PFHxA -Q3	**Position**	P2-F4	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	13C6-PFHxA -Q3.d
ACQ Method	PFC_MassVerification-13C6-PFHxA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 11:17:48 PM



Maxxam Analytics

Sample Name	13C9-PFDA -Q3	**Position**	P2-F5	**Instrument Name**	LCMS04
User Name		**Inj Vol**	10	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Not Applicable	**Data Filename**	13C9-PFDA -Q3.d
ACQ Method	PFC_MassVerification-13C9-PFDA-Q3.m	**Comment**		**Acquired Time**	11/15/2018 11:23:18 PM



Maxxam Analytics

Worklist Report

Agilent Technologies

Maxxam Analytics

Instrument Name: LCMS04 **Worklist Path:** D:\MassHunter\Worklists\PFCs\Mass Verification_IS_Q1&Q3_181115.wkl

Operator Name: AD
Run Type: Standard Start
Part of Method to Run: Acquisition Only
Execution of Acquisition-DA: Synchronous
Acquisition Method Path: D:\MassHunter\Acquisition Method
DA Method Path: D:\MassHunter\methods
Data File Path: D:\MassHunter\data\Mass Verification\20181115_IS
Pre-Worklist Script: ---
Post-Worklist Script: ---
Acquisition Clean Up Script: ---
Overlapped Injection: Yes
Clear Sample Selection After Run: Yes
Wait Time for Ready(Min): 10
Threshold Disk Value(GB): 10
Comment: ---

Plate Barcode:

Plate	Barcode
P2	

Worklist Table

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
1	MPFBA	P2-D1	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFBA -Q1.d	Sample	As Method	PFAS-Q1
2	MPFPeA	P2-D2	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFPeA -Q1.d	Sample	As Method	PFAS-Q1
3	MPFHxA	P2-D3	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHxA -Q1.d	Sample	As Method	PFAS-Q1
4	MPFHxS	P2-D4	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHxS -Q1.d	Sample	As Method	PFAS-Q1
5	MPFHpA	P2-D5	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHpA -Q1.d	Sample	As Method	PFAS-Q1

955 of 1313

Worklist Report

Agilent Technologies

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
6	MPFOA	P2-D6	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOA -Q1.d	Sample	As Method	PFAS-Q1
7	MPFOS	P2-D7	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOS -Q1.d	Sample	As Method	PFAS-Q1
8	MPFNA	P2-D8	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFNA -Q1.d	Sample	As Method	PFAS-Q1
9	MPFDA	P2-D9	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFDA -Q1.d	Sample	As Method	PFAS-Q1
10	MPFUnA	P2-E1	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFUnA -Q1.d	Sample	As Method	PFAS-Q1
11	MPFDoA	P2-E2	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFDoA -Q1.d	Sample	As Method	PFAS-Q1
12	MPFTeDA	P2-E3	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFTeDA -Q1.d	Sample	As Method	PFAS-Q1
13	MPFOSA	P2-E4	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOSA -Q1.d	Sample	As Method	PFAS-Q1
14	D3-MeFOSA	P2-E5	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D3-MeFOSA -Q1.d	Sample	As Method	PFAS-Q1
15	D5-EtFOSA	P2-E6	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D5-EtFOSA -Q1.d	Sample	As Method	PFAS-Q1
16	D7-MeFOSE	P2-E7	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D7-MeFOSE -Q1.d	Sample	As Method	PFAS-Q1
17	D9-EtFOSE	P2-E8	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D9-EtFOSE -Q1.d	Sample	As Method	PFAS-Q1

Maxxam Analytics

958 of 1313

Maxxam Analytics

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
18	D3-MeFOSAA	P2-E9	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D3-MeFOSAA - Q1.d	Sample	As Method	PFAS-Q1
19	D5-EtFOSAA	P2-F1	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D5-EtFOSAA - Q1.d	Sample	As Method	PFAS-Q1
20	M2-6:2FTS	P2-F2	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\M2-62FTS - Q1.d	Sample	As Method	PFAS-Q1
21	M2-8:2FTS	P2-F3	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\M2-82FTS - Q1.d	Sample	As Method	PFAS-Q1
22	13C6-PFHxA	P2-F4	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\13C6-PFHxA - Q1.d	Sample	As Method	PFAS-Q1
23	13C9-PFDA	P2-F5	PFC_Mass Verification\PFC_MassVerification-Q1.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\13C9-PFDA - Q1.d	Sample	As Method	PFAS-Q1
24	MPFBA -Q3	P2-D1	PFC_Mass Verification\PFC_MassVerification-MPFBA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFBA -Q3.d	Sample	As Method	PFAS-Q1
25	MPFPeA -Q3	P2-D2	PFC_Mass Verification\PFC_MassVerification-MPFPeA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFPeA -Q3.d	Sample	As Method	PFAS-Q1
26	MPFHxA -Q3	P2-D3	PFC_Mass Verification\PFC_MassVerification-MPFHxA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHxA -Q3.d	Sample	As Method	PFAS-Q1
27	MPFHxS -Q3	P2-D4	PFC_Mass Verification\PFC_MassVerification-MPFHxS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHxS -Q3.d	Sample	As Method	PFAS-Q1
28	MPFHpA -Q3	P2-D5	PFC_Mass Verification\PFC_MassVerification-MPFHpA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFHpA -Q3.d	Sample	As Method	PFAS-Q1
29	MPFOA -Q3	P2-D6	PFC_Mass Verification\PFC_MassVerification-MPFOA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOA -Q3.d	Sample	As Method	PFAS-Q1

957 of 1313

Maxxam Analytics

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
30	MPFOS -Q3	P2-D7	PFC_Mass Verification\PFC_MassVerification-MPFOS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOS -Q3.d	Sample	As Method	PFAS-Q1
31	MPFNA -Q3	P2-D8	PFC_Mass Verification\PFC_MassVerification-MPFNA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFNA -Q3.d	Sample	As Method	PFAS-Q1
32	MPFDA -Q3	P2-D9	PFC_Mass Verification\PFC_MassVerification-MPFDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFDA -Q3.d	Sample	As Method	PFAS-Q1
33	MPFUnA -Q3	P2-E1	PFC_Mass Verification\PFC_MassVerification-MPFUnA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFUnA -Q3.d	Sample	As Method	PFAS-Q1
34	MPFDoA -Q3	P2-E2	PFC_Mass Verification\PFC_MassVerification-MPFDoA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFDoA -Q3.d	Sample	As Method	PFAS-Q1
35	MPFTeDA -Q3	P2-E3	PFC_Mass Verification\PFC_MassVerification-MPFTeDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFTeDA -Q3.d	Sample	As Method	PFAS-Q1
36	MPFOSA -Q3	P2-E4	PFC_Mass Verification\PFC_MassVerification-MPFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\MPFOSA -Q3.d	Sample	As Method	PFAS-Q1
37	D3-MeFOSA -Q3	P2-E5	PFC_Mass Verification\PFC_MassVerification-D3-MeFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D3-MeFOSA -Q3.d	Sample	As Method	PFAS-Q1
38	D5-EtFOSA -Q3	P2-E6	PFC_Mass Verification\PFC_MassVerification-D5-EtFOSA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D5-EtFOSA -Q3.d	Sample	As Method	PFAS-Q1
39	D7-MeFOSE -Q3	P2-E7	PFC_Mass Verification\PFC_MassVerification-D7-MeFOSE-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D7-MeFOSE -Q3.d	Sample	As Method	PFAS-Q1
40	D9-EtFOSE -Q3	P2-E8	PFC_Mass Verification\PFC_MassVerification-D9-EtFOSE-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D9-EtFOSE -Q3.d	Sample	As Method	PFAS-Q1
41	D3-MeFOSAA -Q3	P2-E9	PFC_Mass Verification\PFC_MassVerification-D3-MeFOSAA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D3-MeFOSAA -Q3.d	Sample	As Method	PFAS-Q1

958 of 1313

Maxxam Analytics

	Sample Name	Sample Position	Method	Data File	Sample Type	Inj Vol (µl)	Sample Group
42	D5-EtFOSAA -Q3	P2-F1	PFC_Mass Verification\PFC_MassVerification-D5-EtFOSAA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\D5-EtFOSAA -Q3.d	Sample	As Method	PFAS-Q1
43	M2-6:2FTS -Q3	P2-F2	PFC_Mass Verification\PFC_MassVerification-M26-2FTS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\M2-62FTS -Q3.d	Sample	As Method	PFAS-Q1
44	M2-8:2FTS -Q3	P2-F3	PFC_Mass Verification\PFC_MassVerification-M2-8-2FTS-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\M2-82FTS -Q3.d	Sample	As Method	PFAS-Q1
45	13C6-PFHxA -Q3	P2-F4	PFC_Mass Verification\PFC_MassVerification-13C6-PFHxA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\13C6-PFHxA -Q3.d	Sample	As Method	PFAS-Q1
46	13C9-PFDA -Q3	P2-F5	PFC_Mass Verification\PFC_MassVerification-13C9-PFDA-Q3.m	D:\MassHunter\Data\PFC\MASS VERIFICATION\20181115\13C9-PFDA -Q3.d	Sample	As Method	PFAS-Q1



5. Initial Calibration

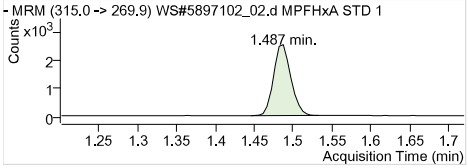
Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

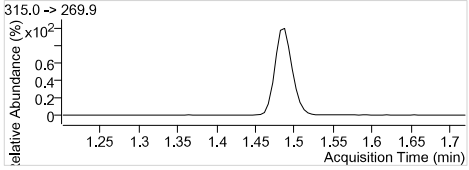
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 1**	**Instrument**	LCMS04
Data File	WS#5897102_02.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A2
Acq. Date	2018/12/21 7:26:54 PM	**Injection Volume**	Per Method
Sample Annotation	-		

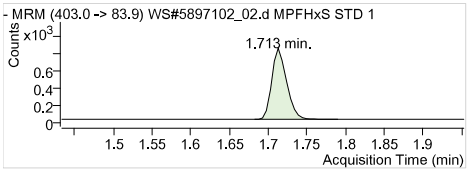
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3887	1.49	1 µg/L		
MPFHxS	1069	1.71	1 µg/L		
MPFHpA	6009	1.73	1 µg/L		
MPFOA	5261	1.91	1 µg/L		
MPFOS	1103	2.00	1 µg/L		
MPFNA	4916	2.05	1 µg/L		
MPFDA	3506	2.16	1 µg/L		
MPFUnA	3995	2.26	1 µg/L		
MPFDoA	5151	2.35	1 µg/L		
MPFTeDA	7675	2.48	1 µg/L		
13C6-PFHxA IS	15025	1.49	1 µg/L		
13C9-PFDA IS	17787	2.16	1 µg/L		

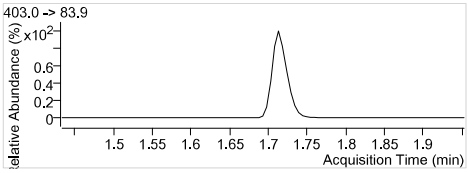
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	510	1.16	0.83	0.84 µg/L	101.74
PFHxA 1	1469	1.49	0.83	0.85 µg/L	102.64
PFHxS 1	341	1.71	0.83	0.76 µg/L	91.30
PFHpA 1	1950	1.74	0.83	0.86 µg/L	103.62
PFOA 1	2033	1.91	0.83	0.87 µg/L	105.40
PFOS 1	417	2.00	0.83	0.92 µg/L	110.79
PFNA 1	1515	2.05	0.83	0.86 µg/L	103.38
PFDA 1	1600	2.16	0.83	0.84 µg/L	101.26
PFUnA 1	1554	2.26	0.83	0.83 µg/L	100.53
PFDoA 1	1751	2.34	0.83	0.81 µg/L	98.10
PFTrDA 1	2134	2.42	0.83	0.82 µg/L	99.07
PFTeDA 1	2294	2.48	0.83	0.82 µg/L	98.31
13C2-PFHxA	3887	1.49	100.00	96.38 µg/L	96.38
18O2-PFHxS	1069	1.71	100.00	99.53 µg/L	99.53
13C4-PFHpA	6009	1.73	100.00	101.00 µg/L	101.00
13C4-PFOA	5261	1.91	100.00	96.32 µg/L	96.32
13C4-PFOS	1103	2.00	100.00	92.82 µg/L	92.82
13C5-PFNA	4916	2.05	100.00	97.48 µg/L	97.48
13C2-PFDA	3506	2.16	100.00	96.70 µg/L	96.70
13C2-PFUnA	3995	2.26	100.00	94.48 µg/L	94.48
13C2-PFDoA	5151	2.35	100.00	94.29 µg/L	94.29
13C2-PFTeDA	7675	2.48	100.00	97.81 µg/L	97.81
13C6-PFHxA	15025	1.49	100.00	102.34 µg/L	102.34
13C9-PFDA	17787	2.16	100.00	102.91 µg/L	102.91



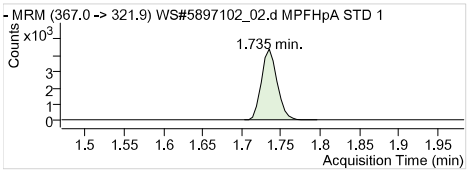


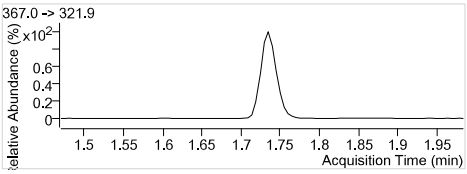
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



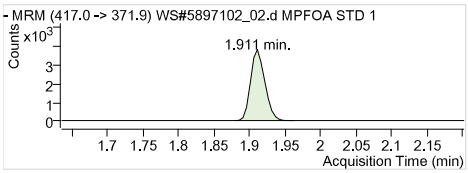


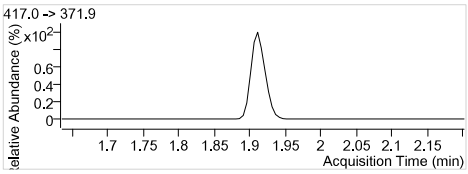
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



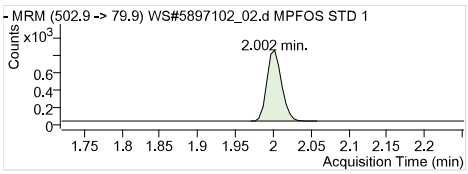


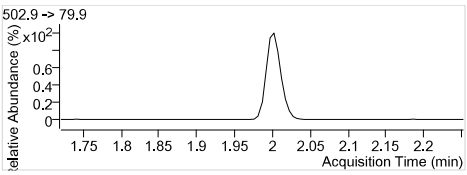
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



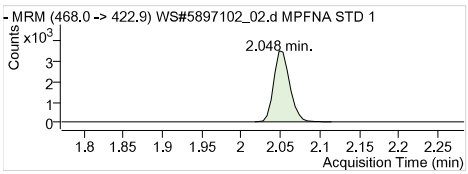


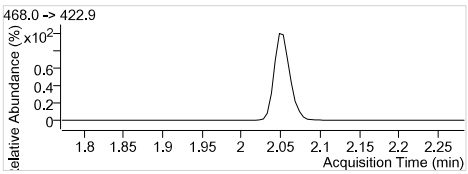
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



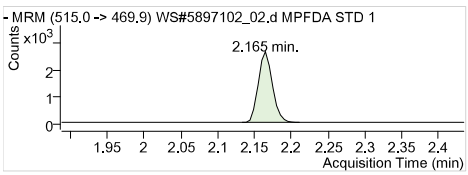


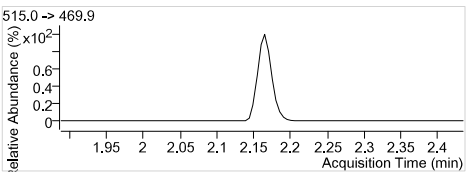
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



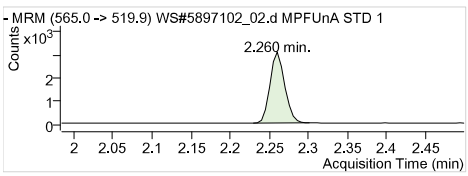


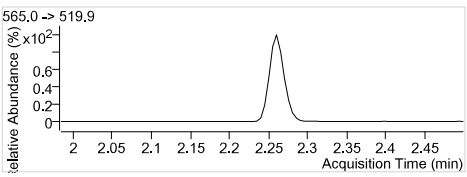
MPFNA Internal Standard
RT (Exp. RT): 2.048 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



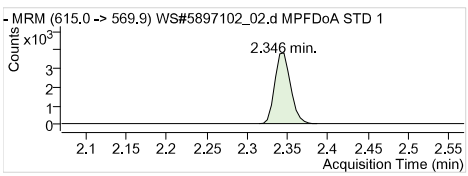


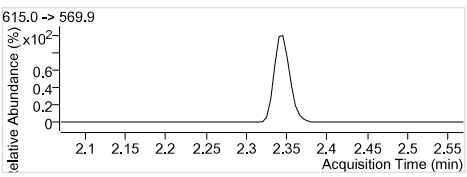
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



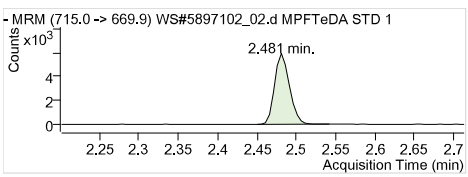


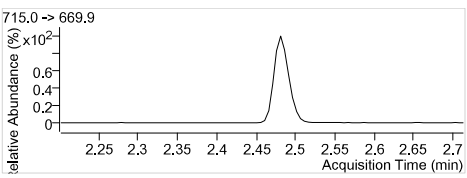
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



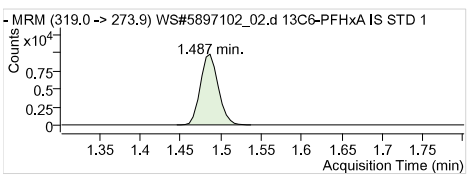


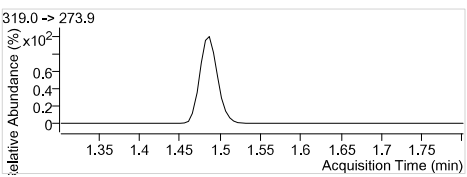
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



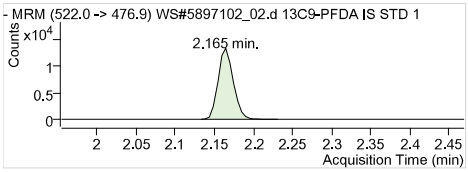


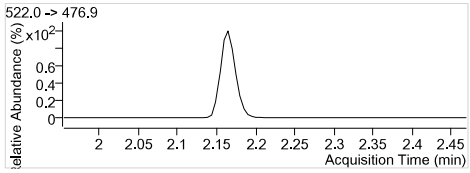
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



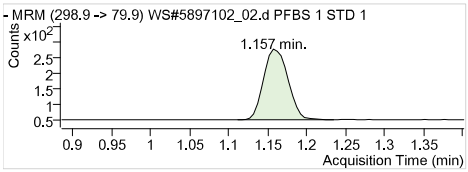


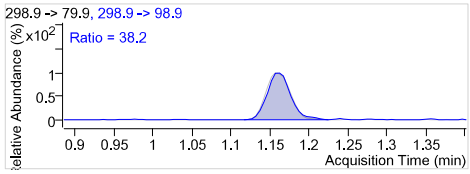
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



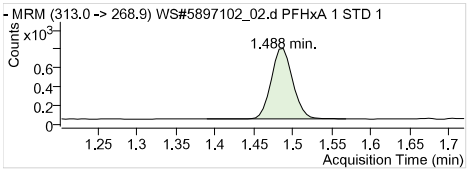


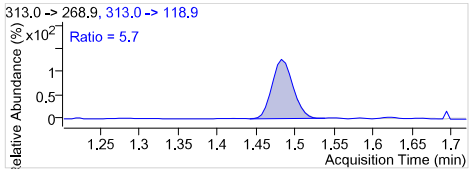
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



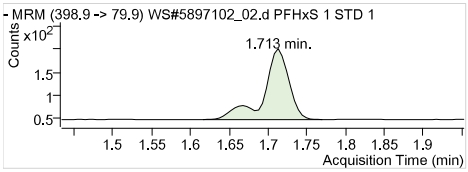


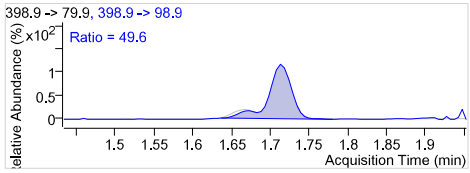
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 0.84 µg/L
Area ratio: 0.47708
Sample type: Calibration



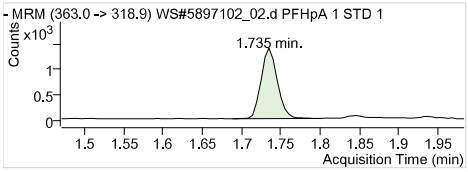


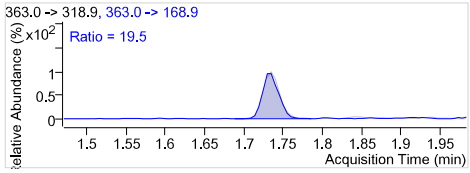
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 0.85 µg/L
Area ratio: 0.37793
Sample type: Calibration



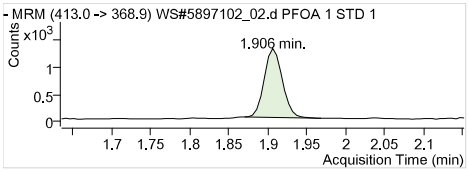


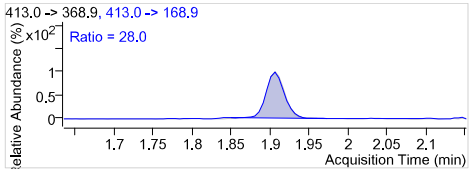
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 0.76 µg/L
Area ratio: 0.31899
Sample type: Calibration



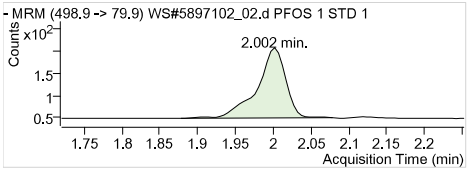


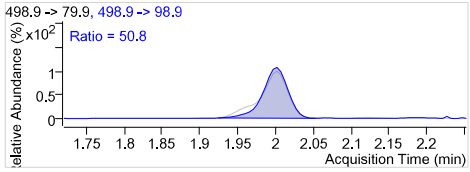
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 0.86 µg/L
Area ratio: 0.32451
Sample type: Calibration



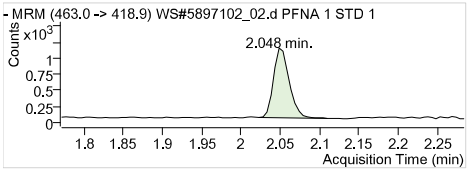


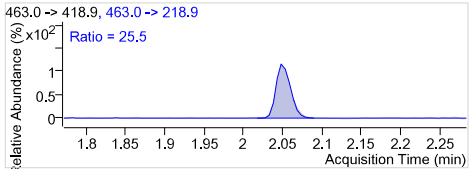
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 0.87 µg/L
Area ratio: 0.38643
Sample type: Calibration



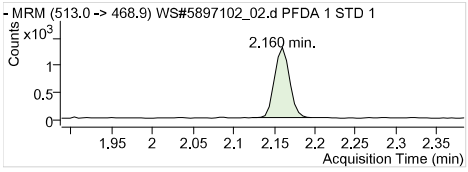


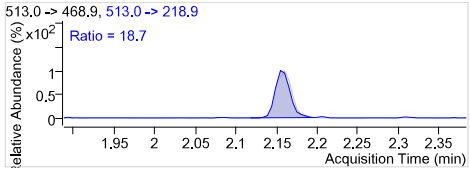
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 0.92 µg/L
Area ratio: 0.37806
Sample type: Calibration



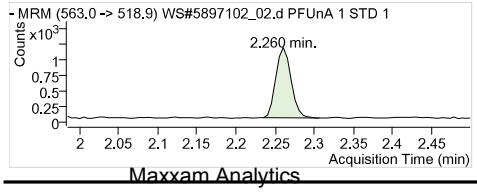


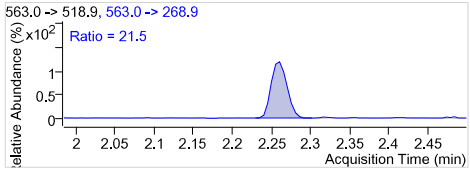
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.048 (2.053)
Calc. conc. 0.86 µg/L
Area ratio: 0.30818
Sample type: Calibration



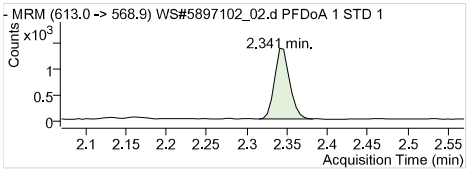


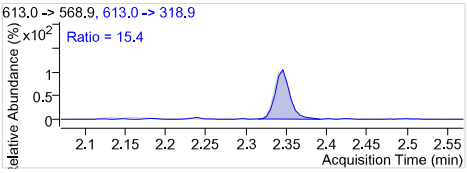
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 0.84 µg/L
Area ratio: 0.45636
Sample type: Calibration



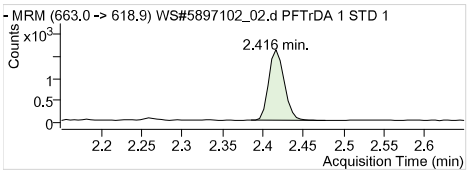


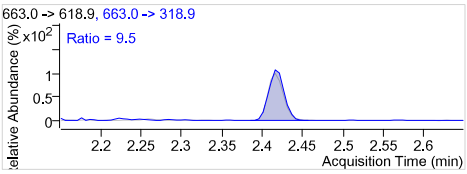
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 0.83 µg/L
Area ratio: 0.38899
Sample type: Calibration



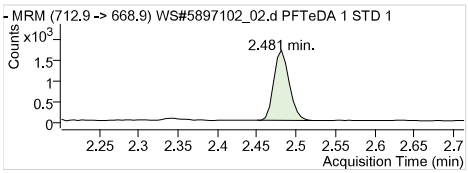


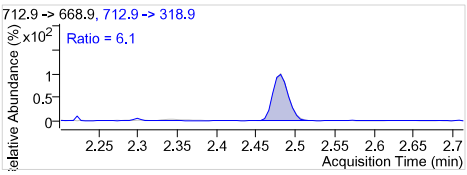
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.341 (2.346)
Calc. conc.	0.81 µg/L
Area ratio:	0.33993
Sample type:	Calibration



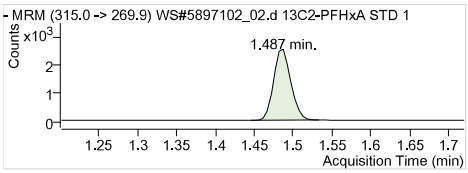


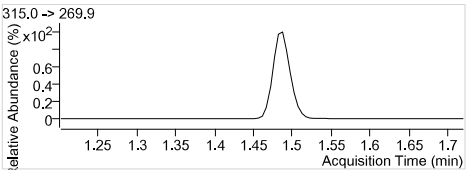
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	0.82 µg/L
Area ratio:	0.27805
Sample type:	Calibration



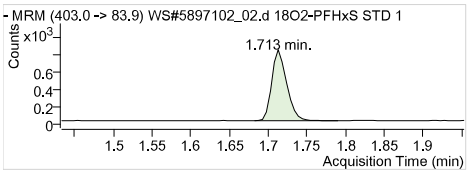


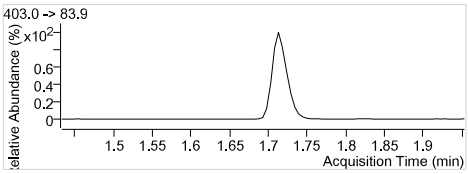
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	0.82 µg/L
Area ratio:	0.29889
Sample type:	Calibration



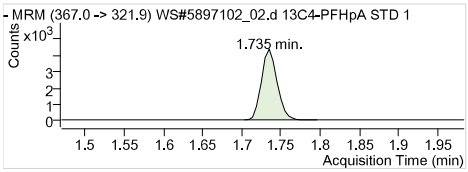


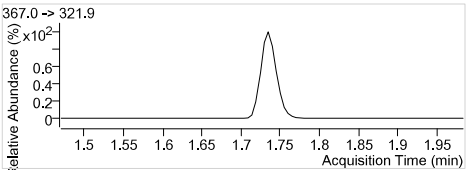
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	96.38 µg/L
Area ratio:	0.25870
Sample type:	Calibration



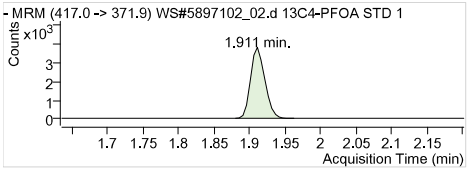


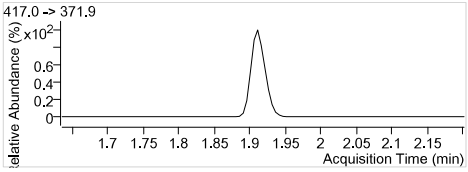
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	99.53 µg/L
Area ratio:	0.07115
Sample type:	Calibration



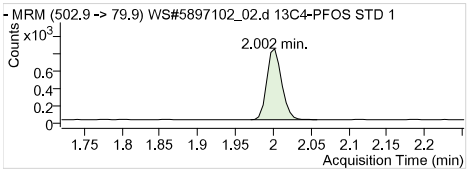


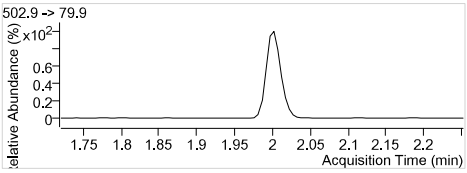
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	101.00 µg/L
Area ratio:	0.39993
Sample type:	Calibration



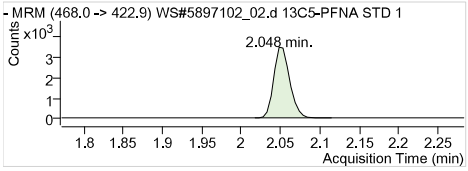


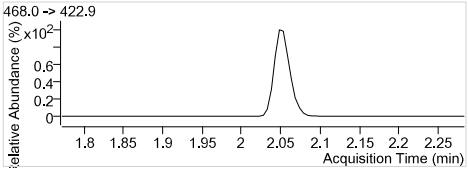
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	96.32 µg/L
Area ratio:	0.35015
Sample type:	Calibration



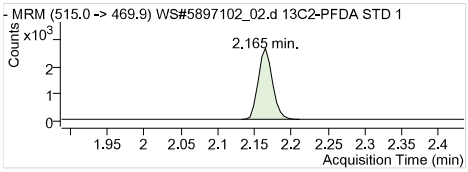


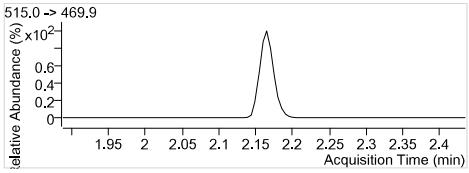
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	92.82 µg/L
Area ratio:	0.07341
Sample type:	Calibration



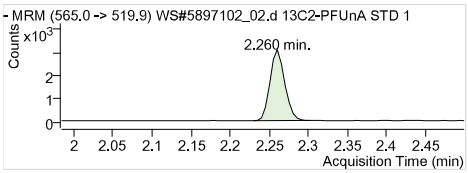


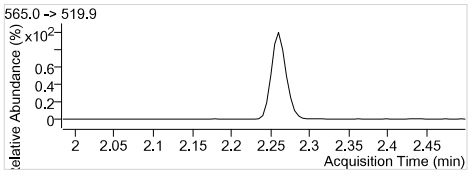
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.048 (2.053)
Calc. conc.	97.48 µg/L
Area ratio:	0.32719
Sample type:	Calibration



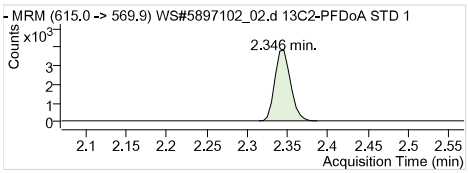


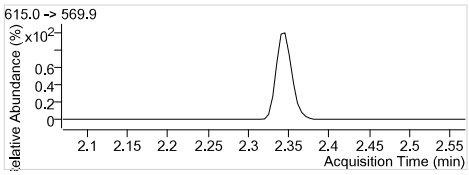
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	96.70 µg/L
Area ratio:	0.19711
Sample type:	Calibration



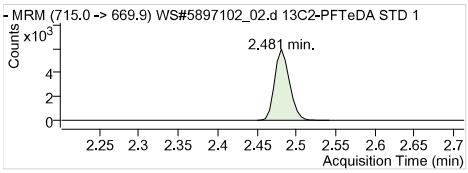


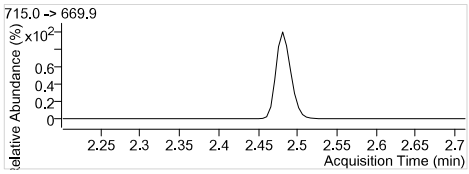
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	94.48 µg/L
Area ratio:	0.22460
Sample type:	Calibration



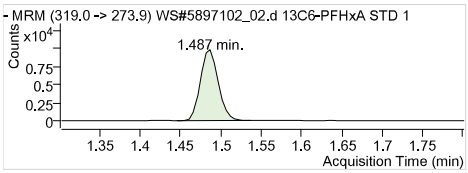


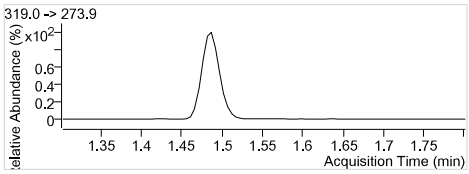
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	94.29 µg/L
Area ratio:	0.28959
Sample type:	Calibration



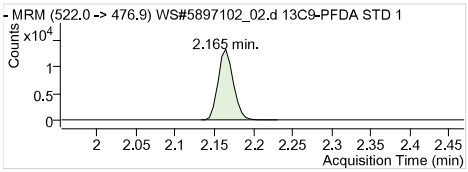


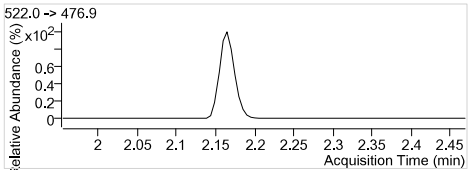
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	97.81 µg/L
Area ratio:	0.43149
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	102.34 µg/L
Area ratio:	0
Sample type:	Calibration





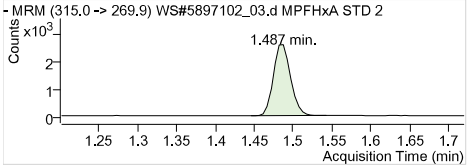
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	102.91 µg/L
Area ratio:	0
Sample type:	Calibration

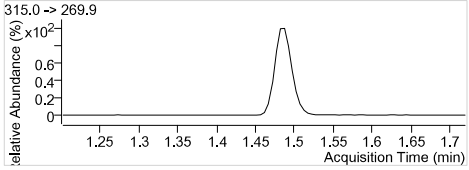
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 2**	**Instrument**	LCMS04
Data File	WS#5897102_03.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A3
Acq. Date	2018/12/21 7:31:48 PM	**Injection Volume**	Per Method
Sample Annotation	-		

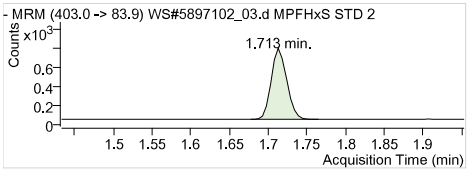
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3945	1.49	1 µg/L		
MPFHxS	1026	1.71	1 µg/L		
MPFHpA	5766	1.73	1 µg/L		
MPFOA	5413	1.91	1 µg/L		
MPFOS	1121	2.00	1 µg/L		
MPFNA	4779	2.05	1 µg/L		
MPFDA	3548	2.16	1 µg/L		
MPFUnA	4075	2.26	1 µg/L		
MPFDoA	5267	2.35	1 µg/L		
MPFTeDA	7514	2.48	1 µg/L		
13C6-PFHxA IS	14324	1.49	1 µg/L		
13C9-PFDA IS	17249	2.16	1 µg/L		

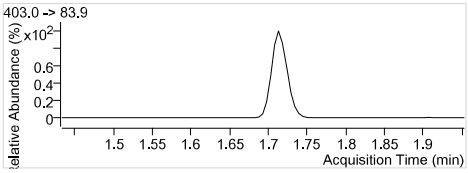
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	1011	1.16	1.70	1.69 µg/L	99.42
PFHxA 1	2820	1.49	1.70	1.59 µg/L	93.80
PFHxS 1	836	1.71	1.70	1.85 µg/L	108.77
PFHpA 1	3798	1.74	1.70	1.64 µg/L	96.22
PFOA 1	3854	1.91	1.70	1.61 µg/L	94.64
PFOS 1	752	2.00	1.70	1.63 µg/L	95.77
PFNA 1	2980	2.05	1.70	1.70 µg/L	99.85
PFDA 1	3129	2.16	1.70	1.58 µg/L	92.72
PFUnA 1	3001	2.26	1.70	1.60 µg/L	94.15
PFDoA 1	3498	2.35	1.70	1.64 µg/L	96.23
PFTrDA 1	4172	2.42	1.70	1.62 µg/L	95.14
PFTeDA 1	4525	2.48	1.70	1.65 µg/L	97.04
13C2-PFHxA	3945	1.49	100.00	102.60 µg/L	102.60
18O2-PFHxS	1026	1.71	100.00	100.20 µg/L	100.20
13C4-PFHpA	5766	1.73	100.00	101.66 µg/L	101.66
13C4-PFOA	5413	1.91	100.00	103.95 µg/L	103.95
13C4-PFOS	1121	2.00	100.00	98.95 µg/L	98.95
13C5-PFNA	4779	2.05	100.00	99.40 µg/L	99.40
13C2-PFDA	3548	2.16	100.00	100.92 µg/L	100.92
13C2-PFUnA	4075	2.26	100.00	99.38 µg/L	99.38
13C2-PFDoA	5267	2.35	100.00	99.42 µg/L	99.42
13C2-PFTeDA	7514	2.48	100.00	98.75 µg/L	98.75
13C6-PFHxA	14324	1.49	100.00	97.57 µg/L	97.57
13C9-PFDA	17249	2.16	100.00	99.80 µg/L	99.80



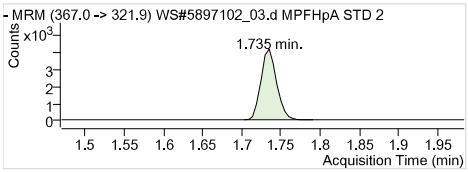


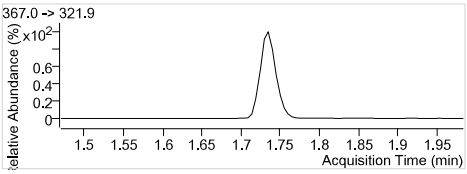
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



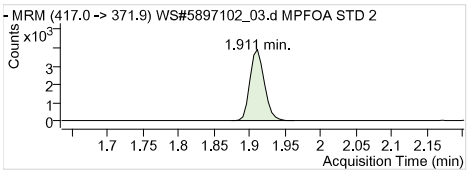


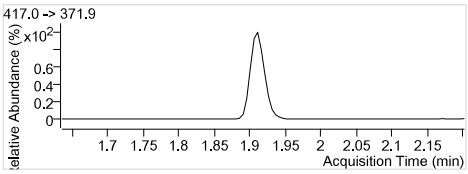
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



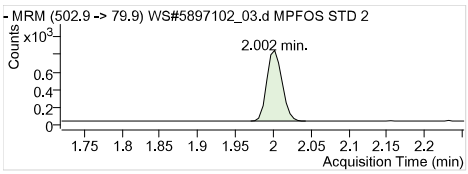


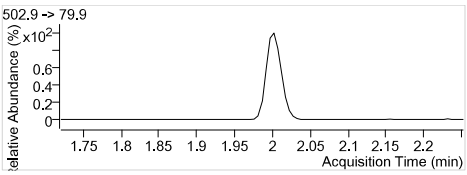
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



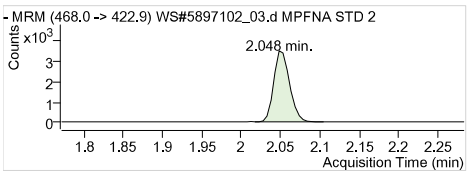


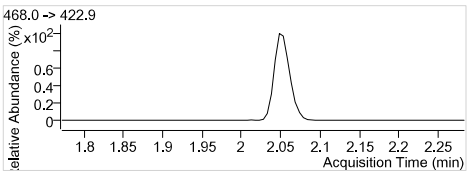
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



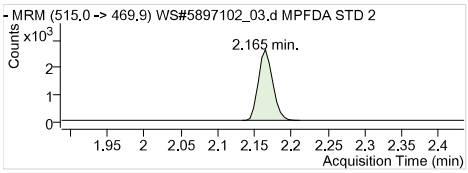


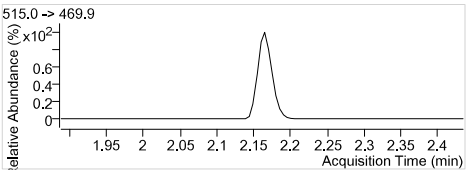
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



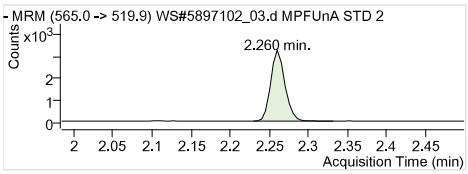


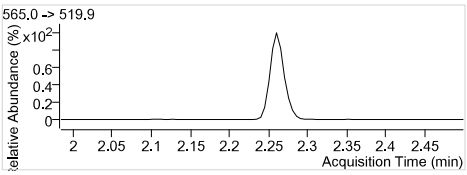
MPFNA Internal Standard
RT (Exp. RT): 2.048 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



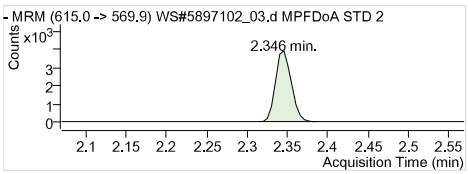


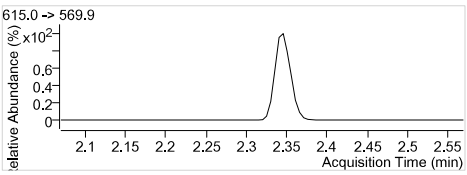
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



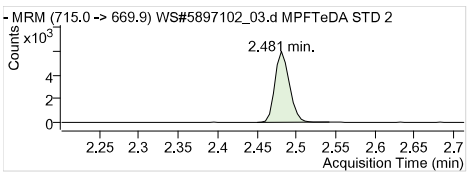


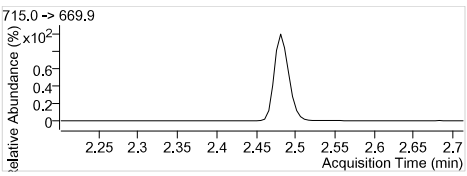
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



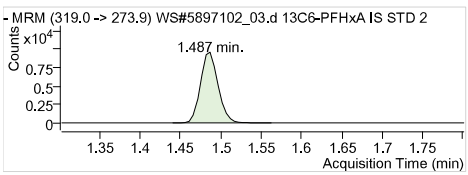


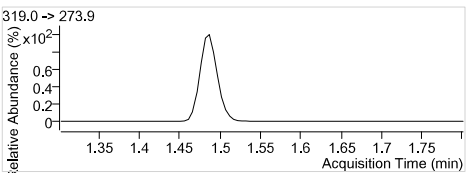
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



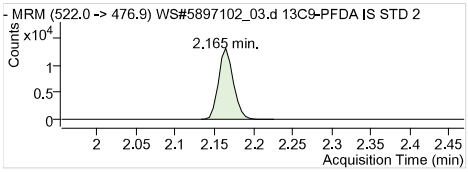


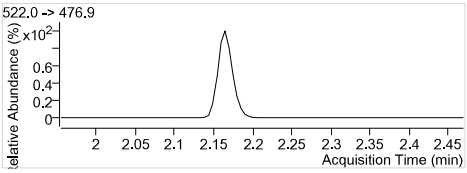
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



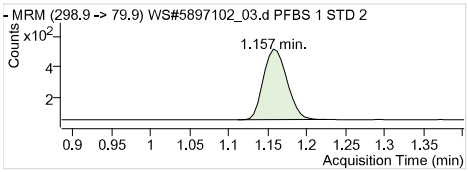


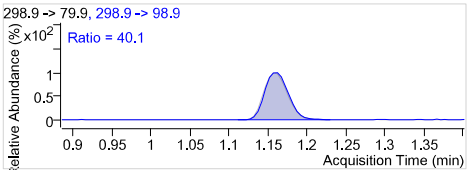
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



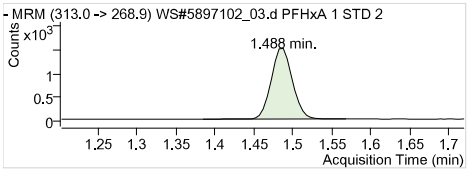


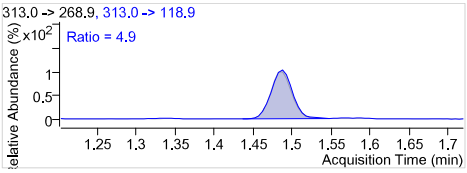
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



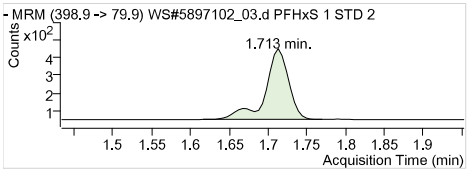


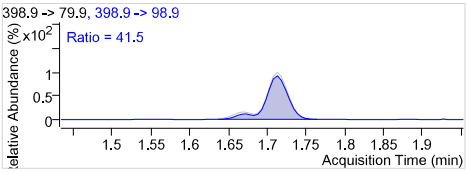
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 1.69 µg/L
Area ratio: 0.98538
Sample type: Calibration



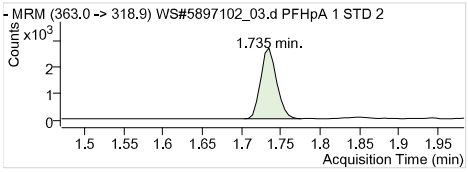


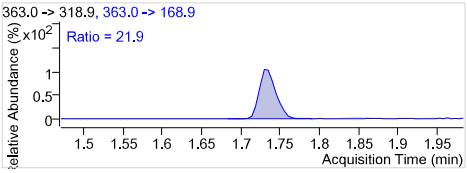
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 1.59 µg/L
Area ratio: 0.71483
Sample type: Calibration



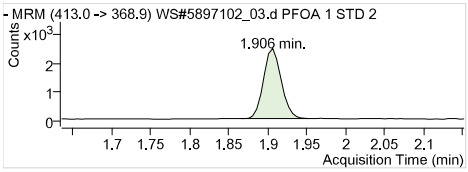


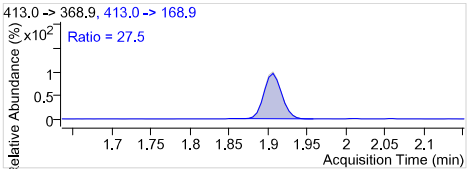
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 1.85 µg/L
Area ratio: 0.81481
Sample type: Calibration



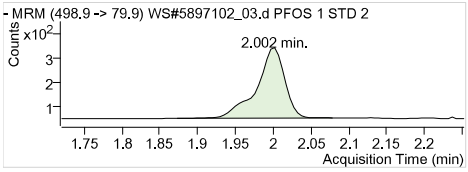


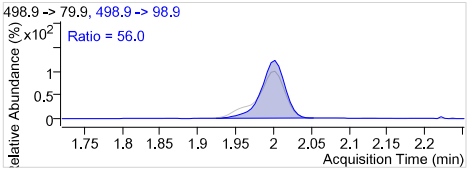
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 1.64 µg/L
Area ratio: 0.65869
Sample type: Calibration



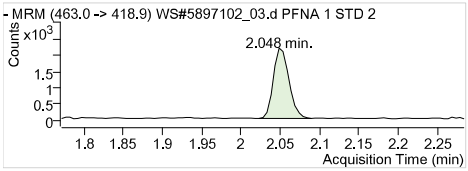


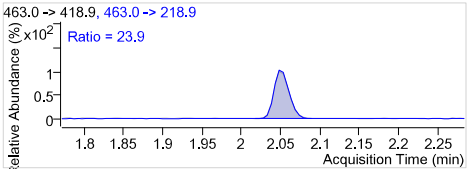
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 1.61 µg/L
Area ratio: 0.71199
Sample type: Calibration



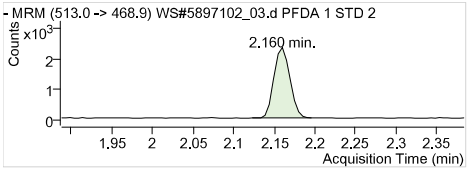


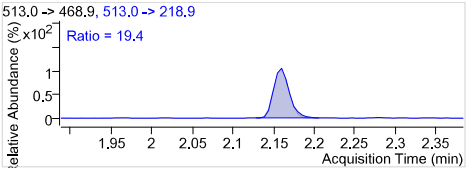
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 1.63 µg/L
Area ratio: 0.67083
Sample type: Calibration



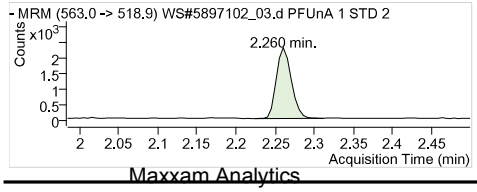


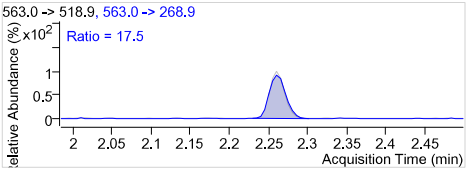
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.048 (2.053)
Calc. conc. 1.70 µg/L
Area ratio: 0.62356
Sample type: Calibration



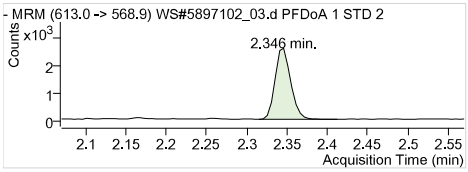


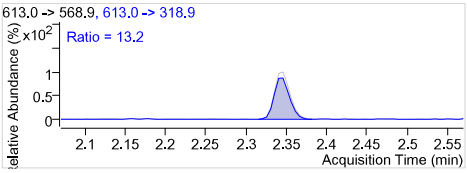
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 1.58 µg/L
Area ratio: 0.88191
Sample type: Calibration



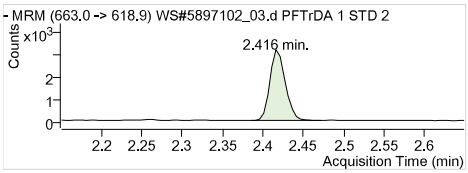


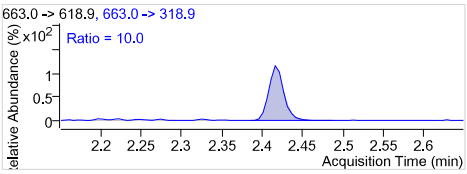
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 1.60 µg/L
Area ratio: 0.73644
Sample type: Calibration



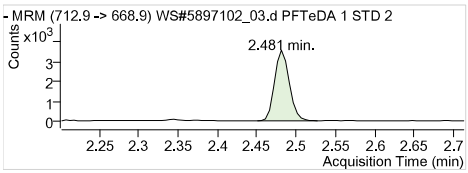


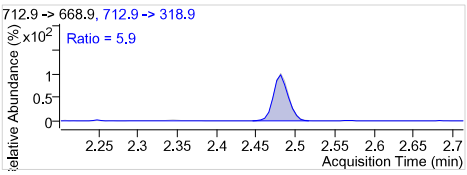
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	1.64 µg/L
Area ratio:	0.66414
Sample type:	Calibration



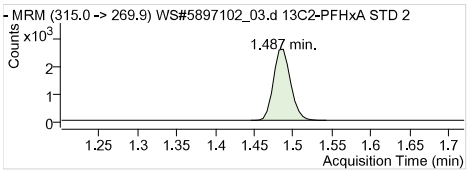


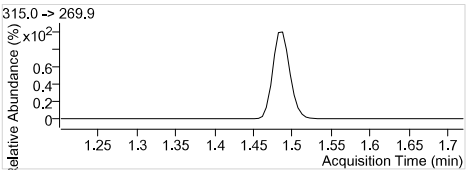
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	1.62 µg/L
Area ratio:	0.55523
Sample type:	Calibration



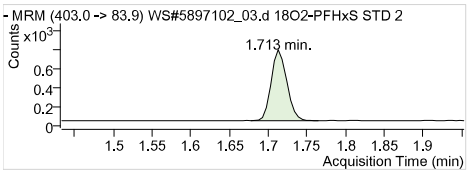


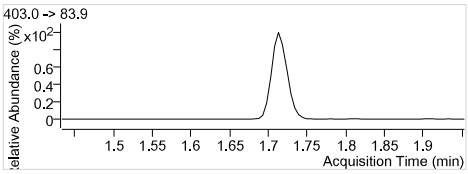
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	1.65 µg/L
Area ratio:	0.60221
Sample type:	Calibration



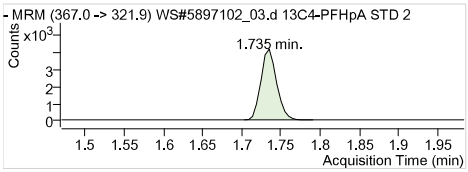


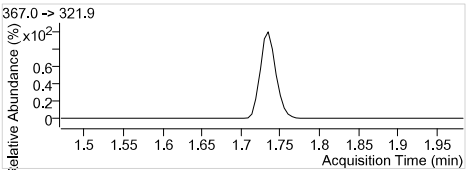
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	102.60 µg/L
Area ratio:	0.27541
Sample type:	Calibration



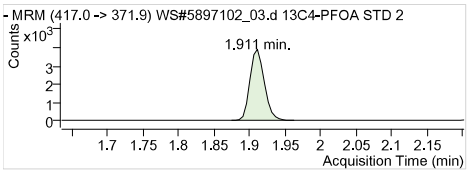


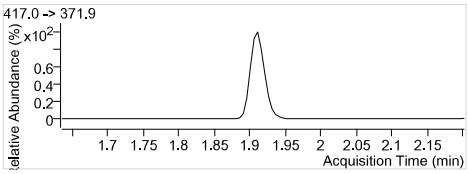
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	100.20 µg/L
Area ratio:	0.07163
Sample type:	Calibration



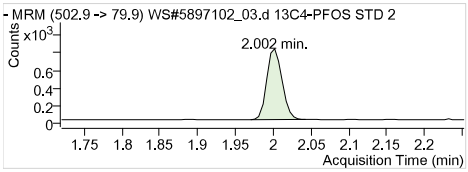


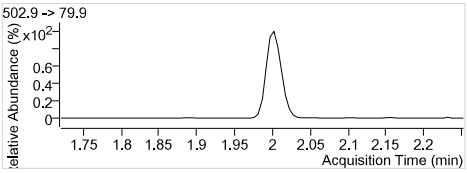
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	101.66 µg/L
Area ratio:	0.40254
Sample type:	Calibration



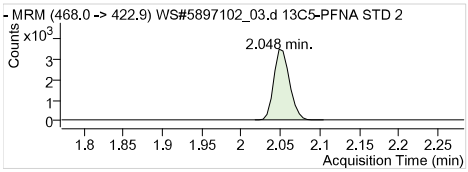


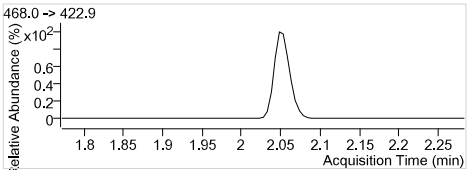
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	103.95 µg/L
Area ratio:	0.37790
Sample type:	Calibration



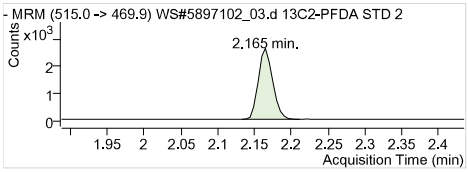


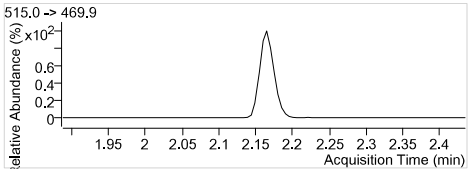
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	98.95 µg/L
Area ratio:	0.07826
Sample type:	Calibration



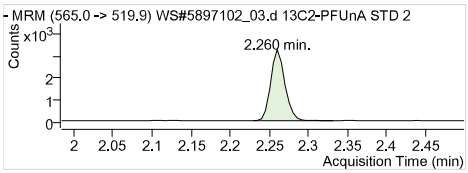


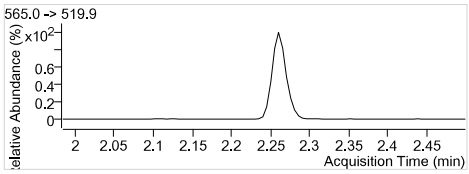
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.048 (2.053)
Calc. conc.	99.40 µg/L
Area ratio:	0.33364
Sample type:	Calibration



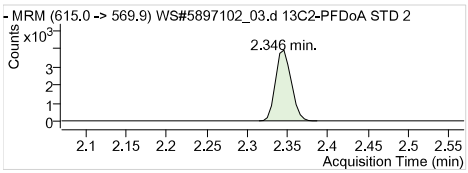


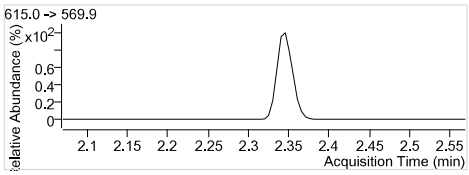
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	100.92 µg/L
Area ratio:	0.20569
Sample type:	Calibration



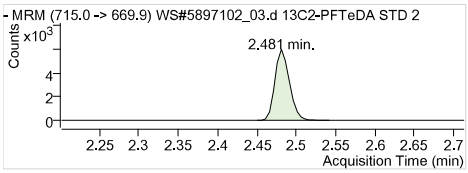


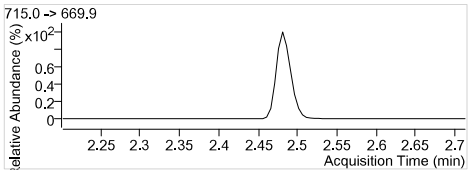
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	99.38 µg/L
Area ratio:	0.23625
Sample type:	Calibration



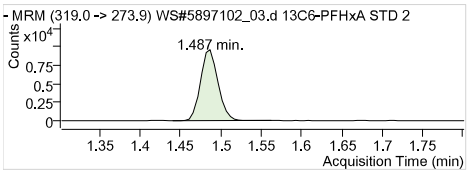


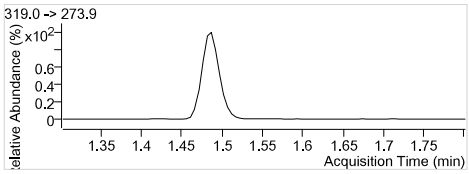
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	99.42 µg/L
Area ratio:	0.30535
Sample type:	Calibration



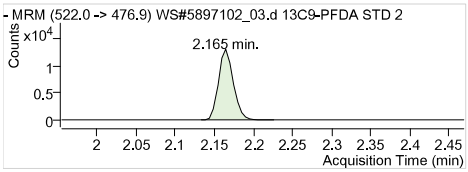


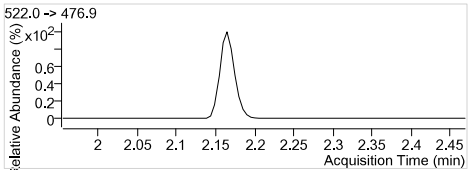
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	98.75 µg/L
Area ratio:	0.43562
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	97.57 µg/L
Area ratio:	0
Sample type:	Calibration





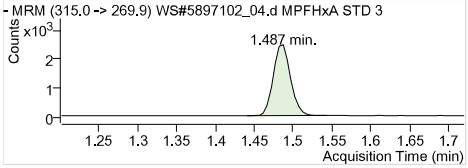
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	99.80 µg/L
Area ratio:	0
Sample type:	Calibration

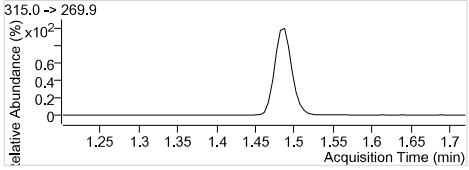
Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 3**	**Instrument**	LCMS04
Data File	WS#5897102_04.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A4
Acq. Date	2018/12/21 7:36:43 PM	**Injection Volume**	Per Method
Sample Annotation	-		

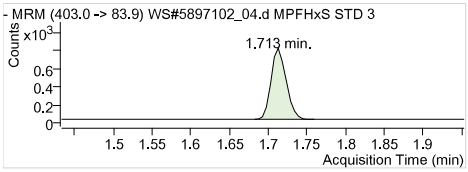
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3771	1.49	1 µg/L		
MPFHxS	1038	1.71	1 µg/L		
MPFHpA	5667	1.73	1 µg/L		
MPFOA	5108	1.91	1 µg/L		
MPFOS	1171	2.00	1 µg/L		
MPFNA	4927	2.05	1 µg/L		
MPFDA	3379	2.16	1 µg/L		
MPFUnA	3867	2.26	1 µg/L		
MPFDoA	5106	2.35	1 µg/L		
MPFTeDA	7189	2.48	1 µg/L		
13C6-PFHxA IS	14071	1.49	1 µg/L		
13C9-PFDA IS	16701	2.16	1 µg/L		

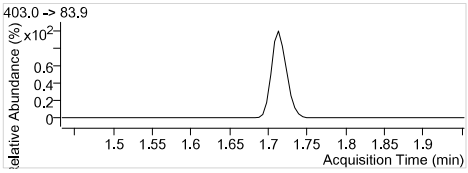
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	3140	1.15	5.00	5.08 µg/L	101.68
PFHxA 1	8951	1.49	5.00	5.25 µg/L	105.02
PFHxS 1	2411	1.71	5.00	5.17 µg/L	103.36
PFHpA 1	12201	1.74	5.00	5.10 µg/L	102.09
PFOA 1	11787	1.91	5.00	5.21 µg/L	104.13
PFOS 1	2400	2.00	5.00	4.96 µg/L	99.30
PFNA 1	9052	2.05	5.00	4.93 µg/L	98.55
PFDA 1	10075	2.16	5.00	5.21 µg/L	104.15
PFUnA 1	9611	2.26	5.00	5.46 µg/L	109.14
PFDoA 1	10860	2.35	5.00	5.34 µg/L	106.86
PFTrDA 1	13463	2.42	5.00	5.40 µg/L	107.92
PFTeDA 1	13791	2.48	5.00	5.27 µg/L	105.34
13C2-PFHxA	3771	1.49	100.00	99.84 µg/L	99.84
18O2-PFHxS	1038	1.71	100.00	103.19 µg/L	103.19
13C4-PFHpA	5667	1.73	100.00	101.71 µg/L	101.71
13C4-PFOA	5108	1.91	100.00	99.86 µg/L	99.86
13C4-PFOS	1171	2.00	100.00	105.23 µg/L	105.23
13C5-PFNA	4927	2.05	100.00	104.32 µg/L	104.32
13C2-PFDA	3379	2.16	100.00	99.26 µg/L	99.26
13C2-PFUnA	3867	2.26	100.00	97.40 µg/L	97.40
13C2-PFDoA	5106	2.35	100.00	99.54 µg/L	99.54
13C2-PFTeDA	7189	2.48	100.00	97.58 µg/L	97.58
13C6-PFHxA	14071	1.49	100.00	95.84 µg/L	95.84
13C9-PFDA	16701	2.16	100.00	96.63 µg/L	96.63



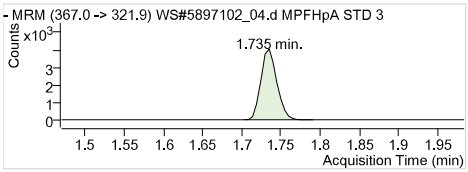


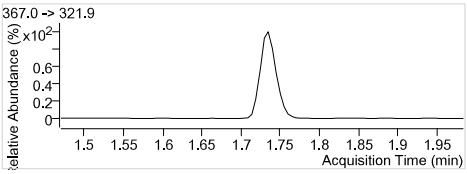
MPFHxA Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



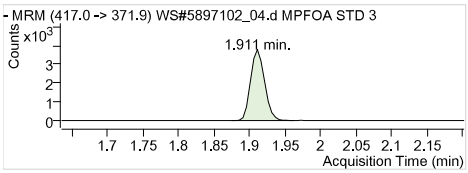


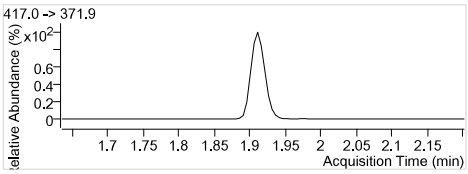
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



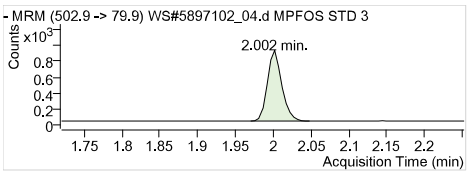


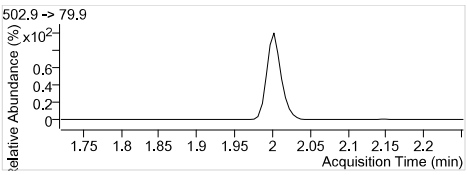
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



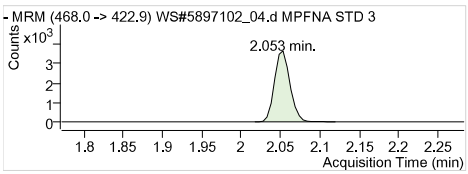


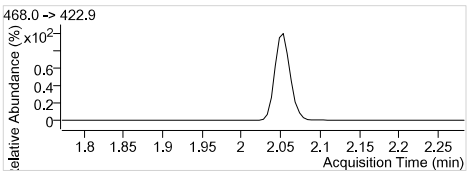
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



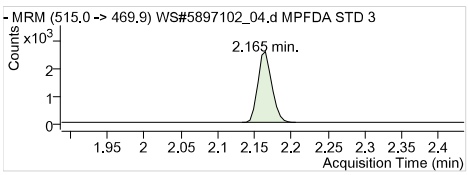


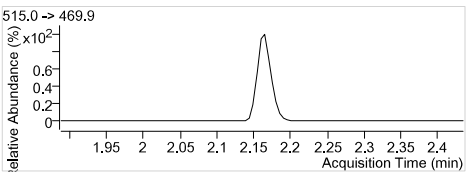
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



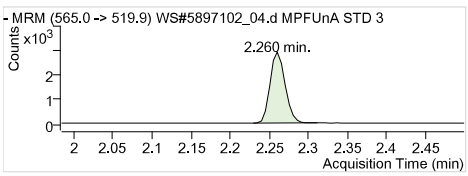


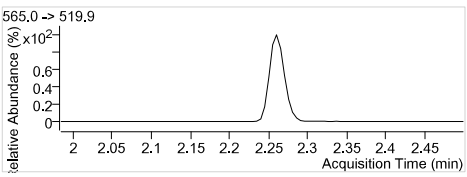
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



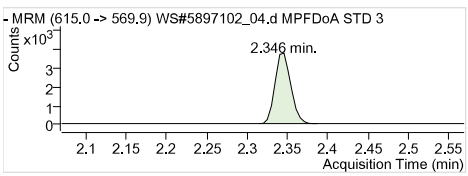


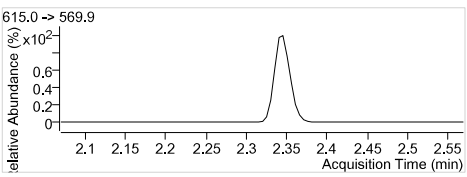
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



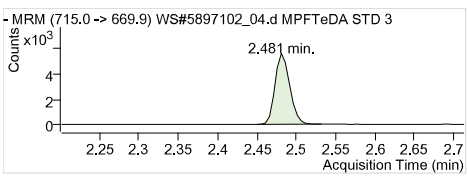


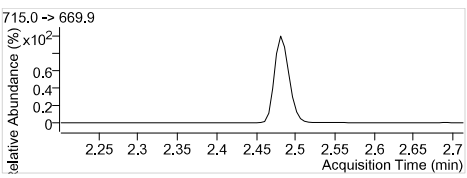
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



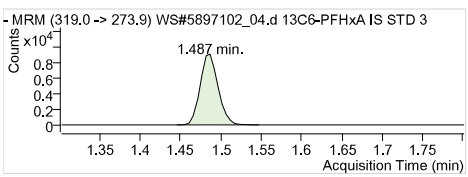


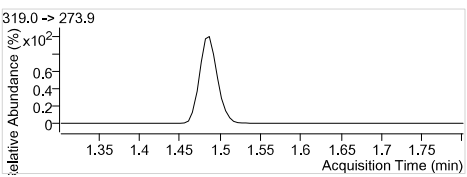
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



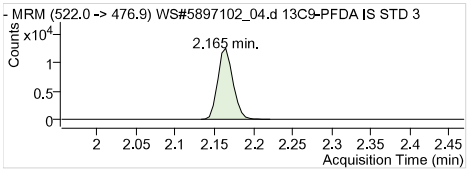


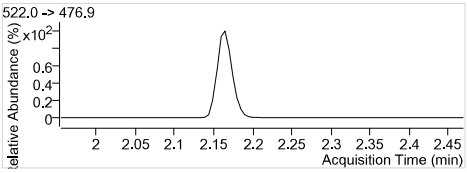
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



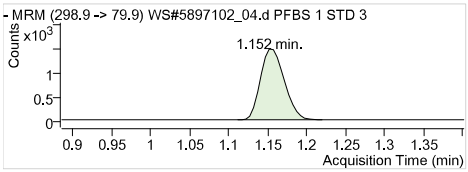


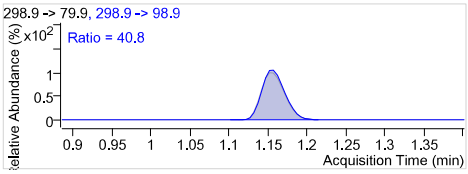
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



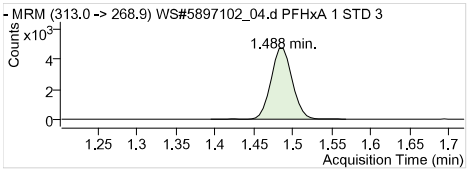


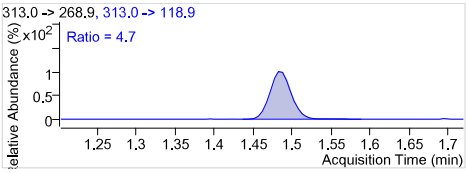
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



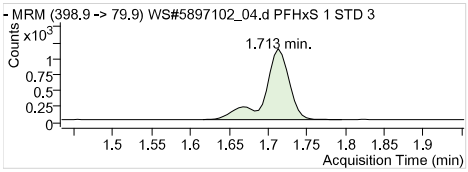


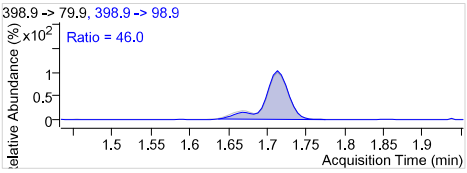
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.152 (1.162)
Calc. conc. 5.08 µg/L
Area ratio: 3.02505
Sample type: Calibration



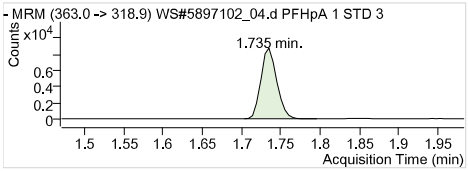


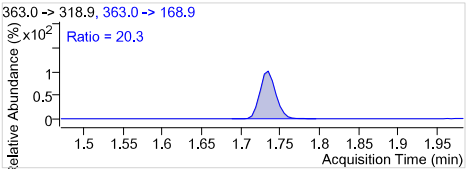
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 5.25 µg/L
Area ratio: 2.37364
Sample type: Calibration



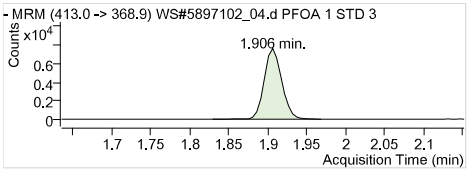


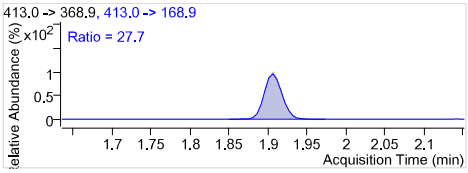
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 5.17 µg/L
Area ratio: 2.32274
Sample type: Calibration



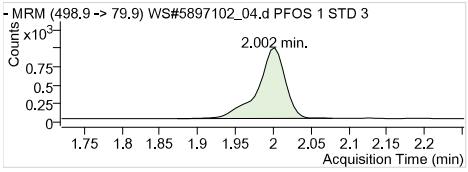


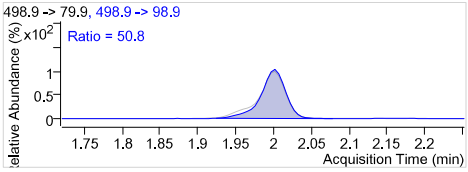
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 5.10 µg/L
Area ratio: 2.15299
Sample type: Calibration



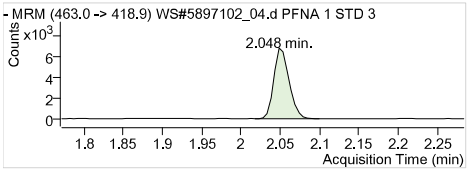


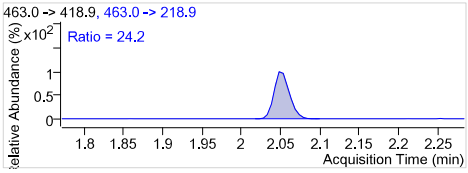
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 5.21 µg/L
Area ratio: 2.30756
Sample type: Calibration



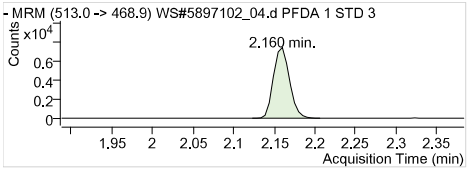


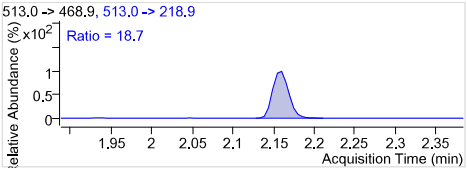
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 4.96 µg/L
Area ratio: 2.04953
Sample type: Calibration



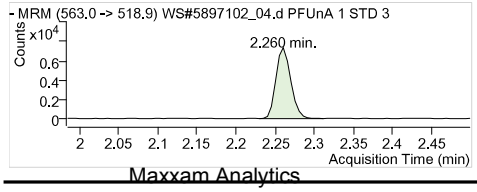


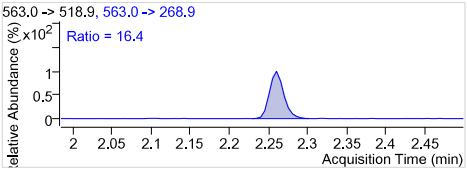
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.048 (2.053)
Calc. conc. 4.93 µg/L
Area ratio: 1.83722
Sample type: Calibration



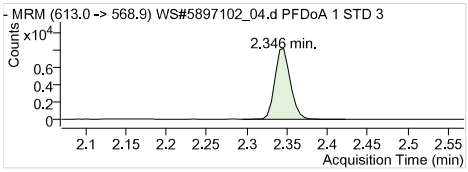


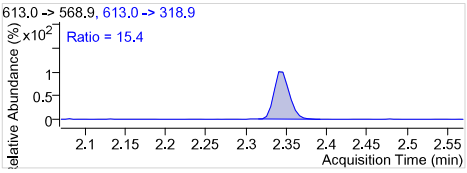
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 5.21 µg/L
Area ratio: 2.98165
Sample type: Calibration



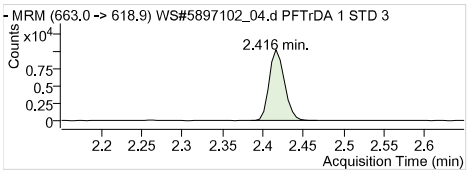


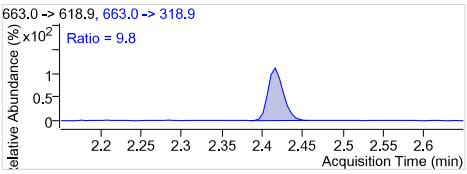
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 5.46 µg/L
Area ratio: 2.48539
Sample type: Calibration



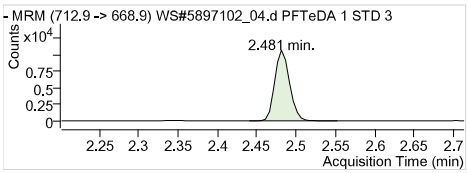


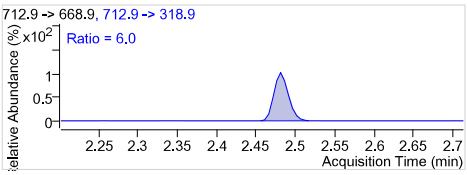
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	5.34 µg/L
Area ratio:	2.12691
Sample type:	Calibration



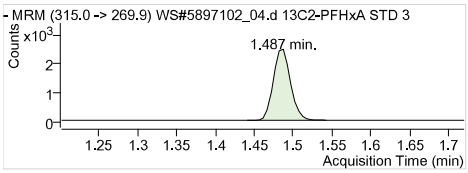


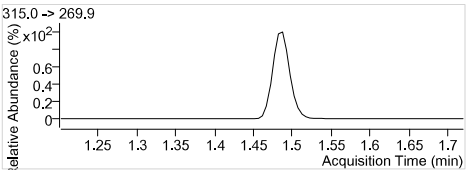
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	5.40 µg/L
Area ratio:	1.87272
Sample type:	Calibration



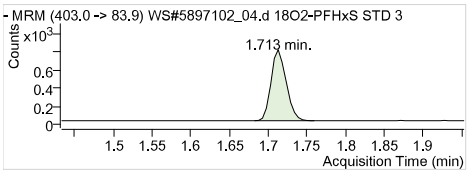


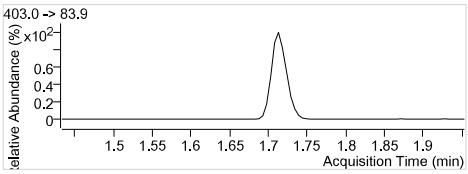
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	5.27 µg/L
Area ratio:	1.91835
Sample type:	Calibration



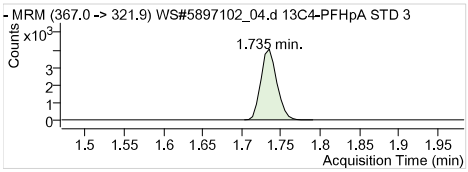


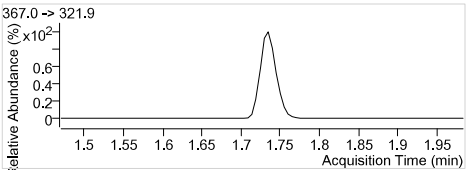
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	99.84 µg/L
Area ratio:	0.26800
Sample type:	Calibration



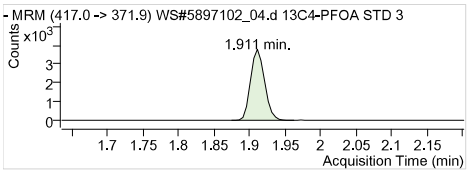


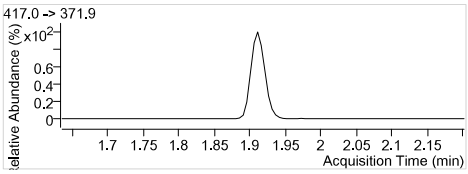
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	103.19 µg/L
Area ratio:	0.07377
Sample type:	Calibration



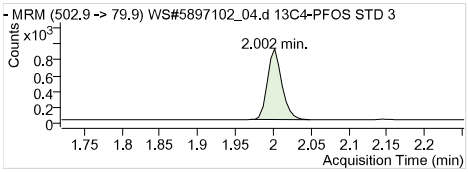


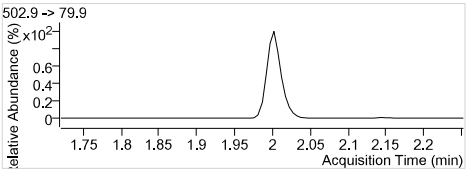
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	101.71 µg/L
Area ratio:	0.40274
Sample type:	Calibration



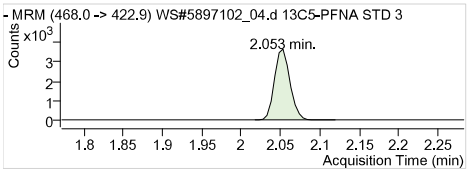


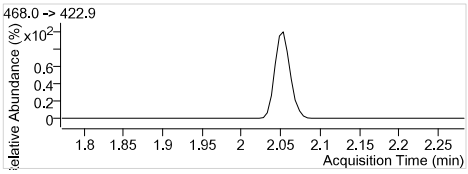
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	99.86 µg/L
Area ratio:	0.36302
Sample type:	Calibration



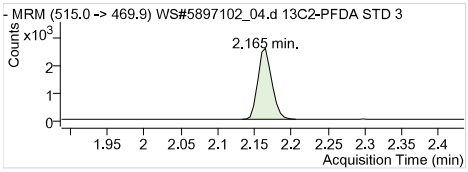


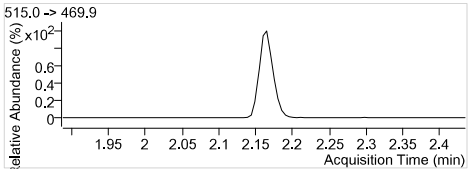
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	105.23 µg/L
Area ratio:	0.08322
Sample type:	Calibration



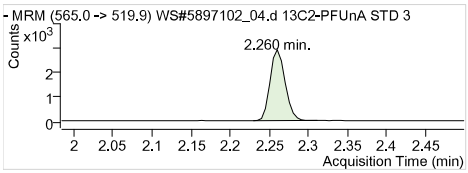


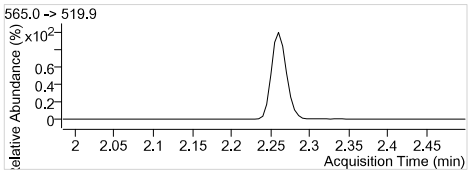
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	104.32 µg/L
Area ratio:	0.35015
Sample type:	Calibration



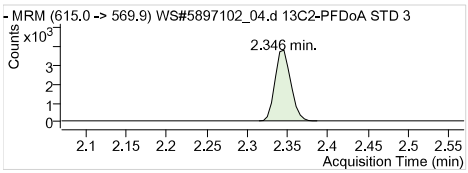


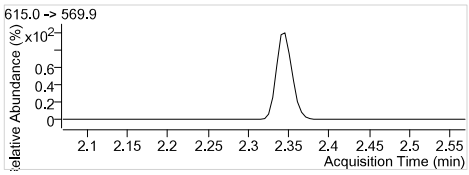
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	99.26 µg/L
Area ratio:	0.20232
Sample type:	Calibration



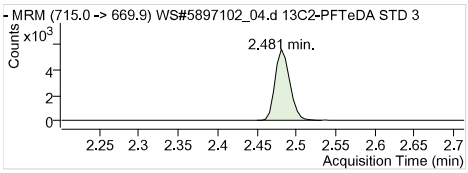


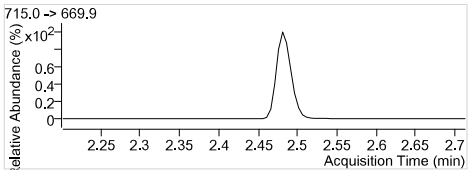
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	97.40 µg/L
Area ratio:	0.23154
Sample type:	Calibration



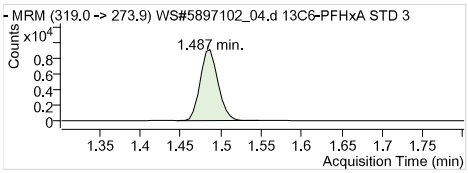


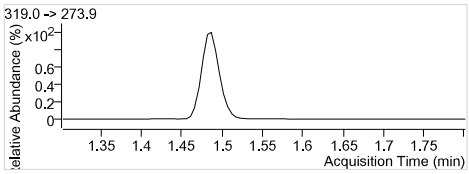
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	99.54 µg/L
Area ratio:	0.30573
Sample type:	Calibration



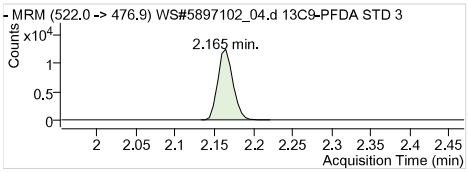


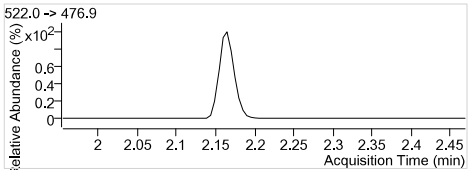
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	97.58 µg/L
Area ratio:	0.43045
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	95.84 µg/L
Area ratio:	0
Sample type:	Calibration





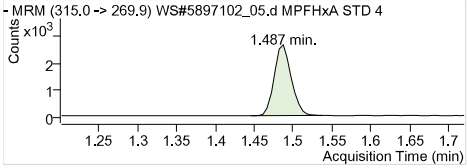
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	96.63 µg/L
Area ratio:	0
Sample type:	Calibration

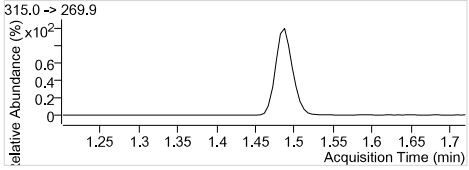
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 4**	**Instrument**	LCMS04
Data File	WS#5897102_05.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A5
Acq. Date	2018/12/21 7:41:38 PM	**Injection Volume**	Per Method
Sample Annotation	-		

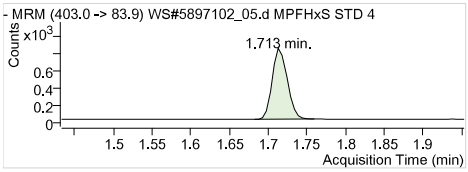
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3992	1.49	1 µg/L		
MPFHxS	1079	1.71	1 µg/L		
MPFHpA	5820	1.73	1 µg/L		
MPFOA	5410	1.91	1 µg/L		
MPFOS	1252	2.00	1 µg/L		
MPFNA	4909	2.05	1 µg/L		
MPFDA	3411	2.16	1 µg/L		
MPFUnA	4271	2.26	1 µg/L		
MPFDoA	5300	2.35	1 µg/L		
MPFTeDA	7729	2.48	1 µg/L		
13C6-PFHxA IS	15175	1.49	1 µg/L		
13C9-PFDA IS	17229	2.16	1 µg/L		

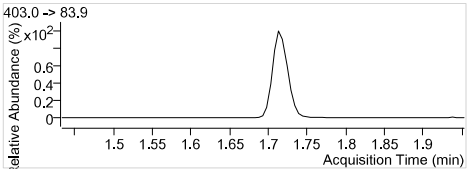
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	7617	1.16	12.50	11.80 µg/L	94.37
PFHxA 1	22298	1.49	12.50	12.33 µg/L	98.65
PFHxS 1	5758	1.71	12.50	11.80 µg/L	94.41
PFHpA 1	30347	1.74	12.50	12.21 µg/L	97.69
PFOA 1	28862	1.91	12.50	12.03 µg/L	96.26
PFOS 1	5867	2.00	12.50	11.35 µg/L	90.77
PFNA 1	22755	2.05	12.50	12.37 µg/L	98.99
PFDA 1	25362	2.16	12.50	12.91 µg/L	103.27
PFUnA 1	23419	2.26	12.50	12.07 µg/L	96.54
PFDoA 1	26154	2.35	12.50	12.46 µg/L	99.67
PFTrDA 1	32836	2.42	12.50	12.21 µg/L	97.68
PFTeDA 1	34926	2.48	12.50	12.41 µg/L	99.31
13C2-PFHxA	3992	1.49	100.00	98.00 µg/L	98.00
18O2-PFHxS	1079	1.71	100.00	99.47 µg/L	99.47
13C4-PFHpA	5820	1.73	100.00	96.86 µg/L	96.86
13C4-PFOA	5410	1.91	100.00	98.06 µg/L	98.06
13C4-PFOS	1252	2.00	100.00	104.32 µg/L	104.32
13C5-PFNA	4909	2.05	100.00	96.37 µg/L	96.37
13C2-PFDA	3411	2.16	100.00	97.13 µg/L	97.13
13C2-PFUnA	4271	2.26	100.00	104.28 µg/L	104.28
13C2-PFDoA	5300	2.35	100.00	100.16 µg/L	100.16
13C2-PFTeDA	7729	2.48	100.00	101.69 µg/L	101.69
13C6-PFHxA	15175	1.49	100.00	103.36 µg/L	103.36
13C9-PFDA	17229	2.16	100.00	99.68 µg/L	99.68



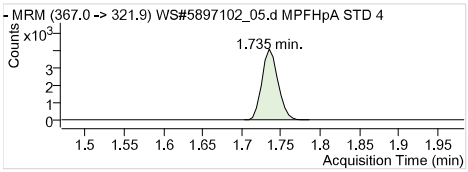


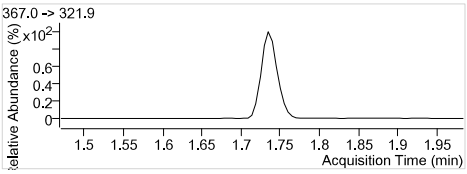
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



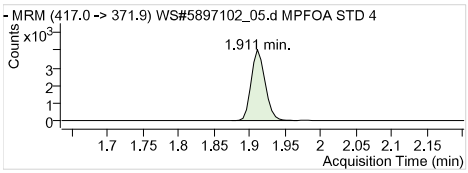


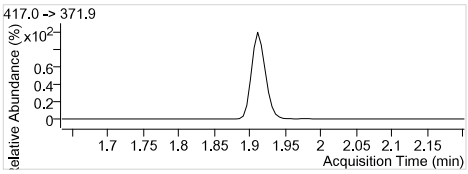
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



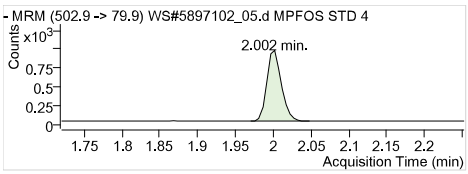


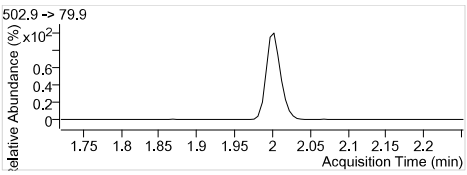
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



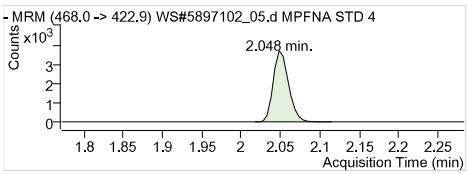


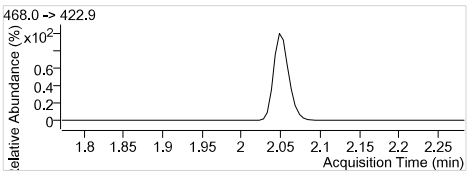
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



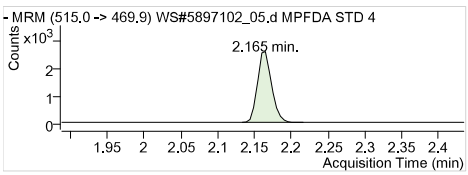


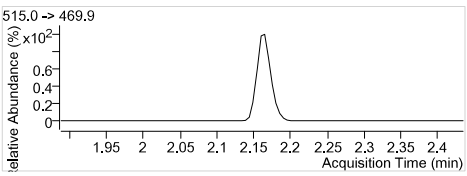
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



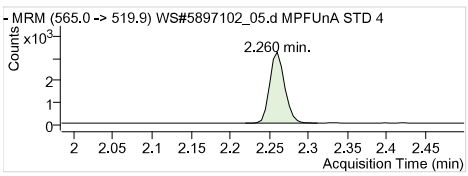


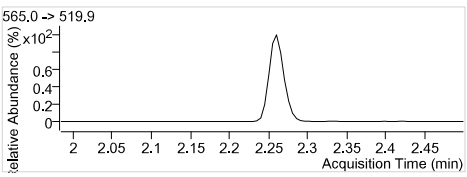
MPFNA Internal Standard
RT (Exp. RT): 2.048 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



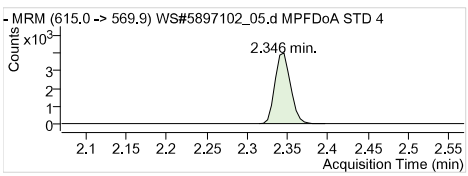


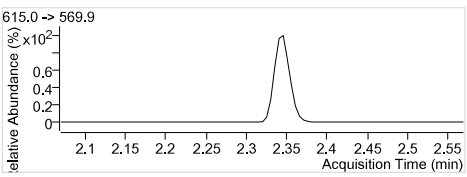
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



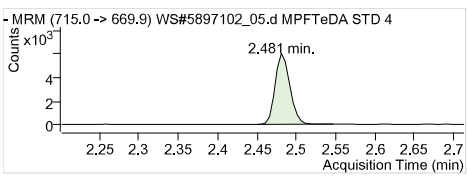


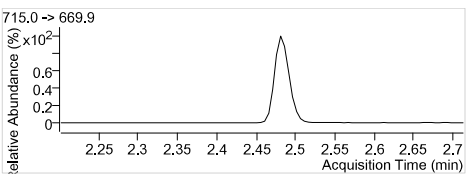
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



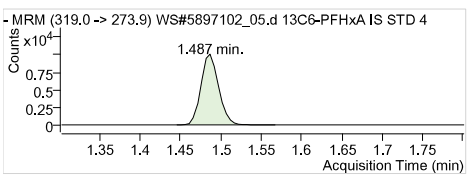


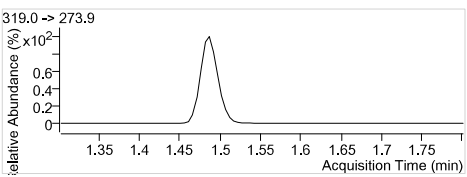
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



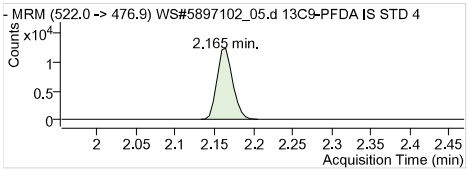


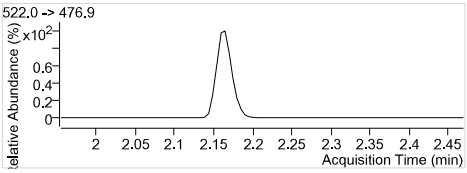
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



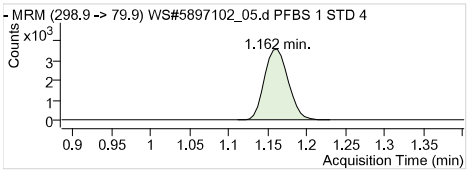


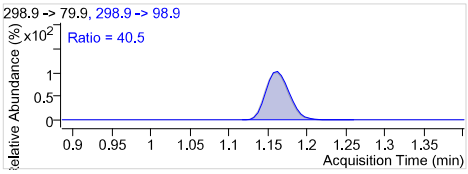
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



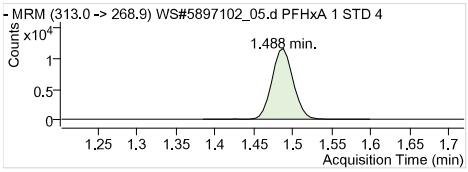


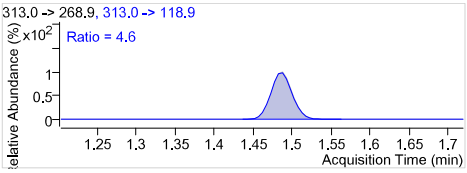
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



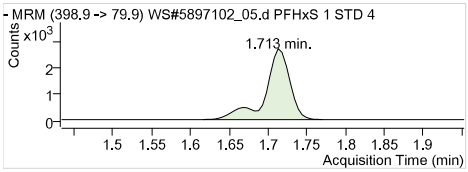


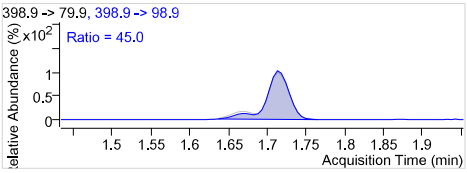
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.162 (1.162)
Calc. conc. 11.80 µg/L
Area ratio: 7.05931
Sample type: Calibration



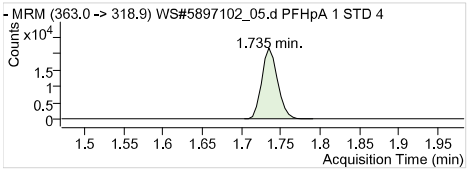


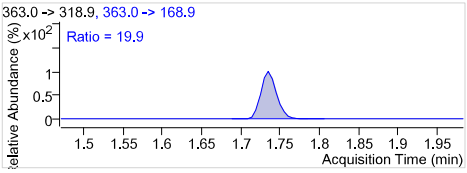
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 12.33 µg/L
Area ratio: 5.58567
Sample type: Calibration



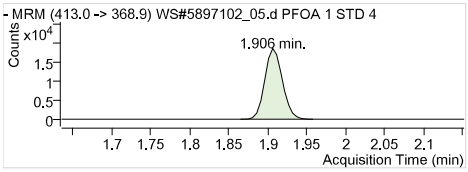


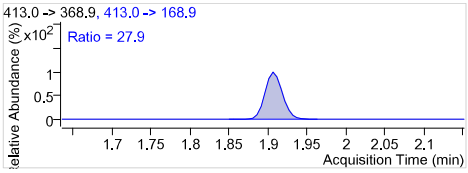
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 11.80 µg/L
Area ratio: 5.33642
Sample type: Calibration



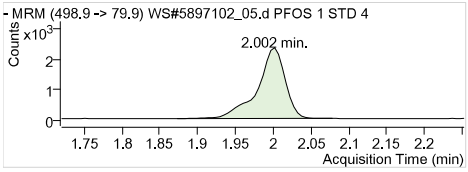


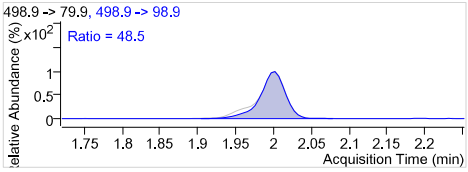
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 12.21 µg/L
Area ratio: 5.21426
Sample type: Calibration



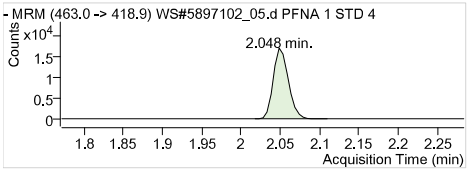


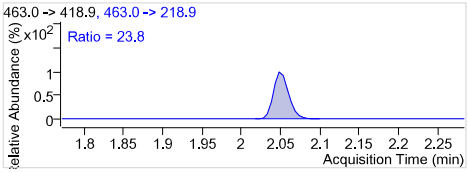
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 12.03 µg/L
Area ratio: 5.33494
Sample type: Calibration



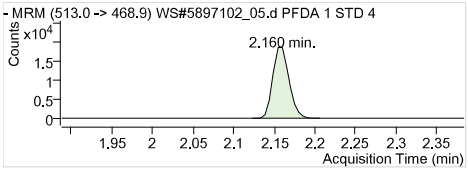


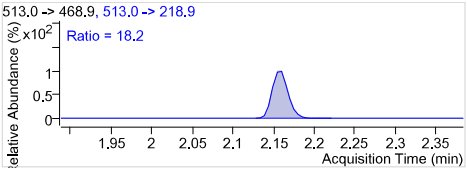
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 11.35 µg/L
Area ratio: 4.68610
Sample type: Calibration



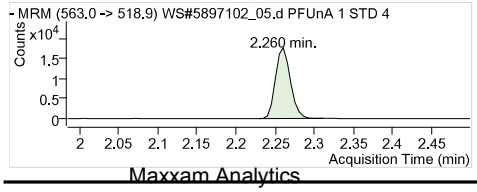


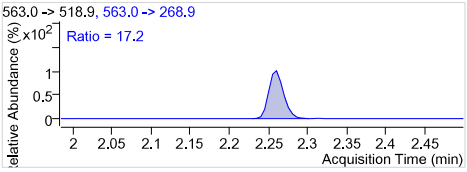
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.048 (2.053)
Calc. conc. 12.37 µg/L
Area ratio: 4.63536
Sample type: Calibration



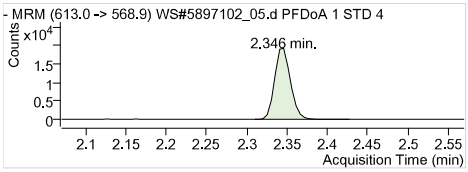


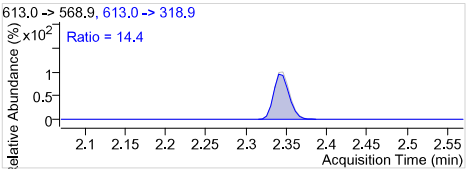
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 12.91 µg/L
Area ratio: 7.43536
Sample type: Calibration



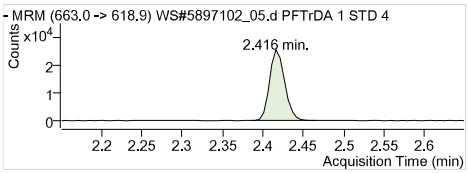


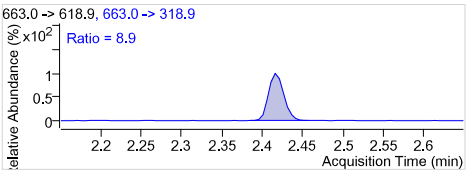
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 12.07 µg/L
Area ratio: 5.48326
Sample type: Calibration



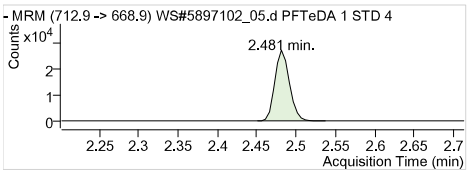


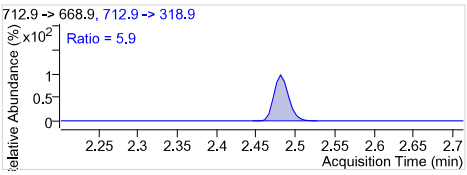
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	12.46 µg/L
Area ratio:	4.93472
Sample type:	Calibration



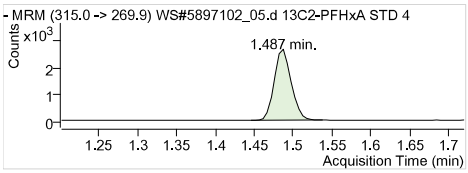


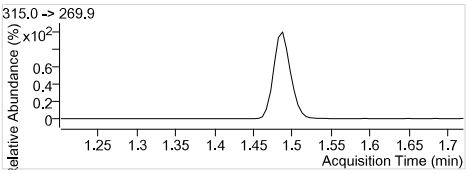
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	12.21 µg/L
Area ratio:	4.24842
Sample type:	Calibration



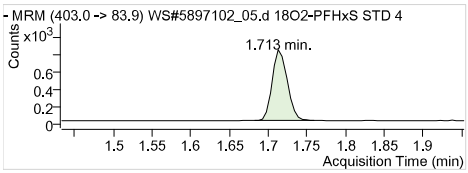


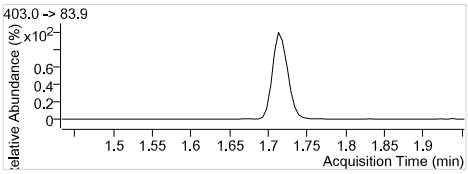
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	12.41 µg/L
Area ratio:	4.51883
Sample type:	Calibration



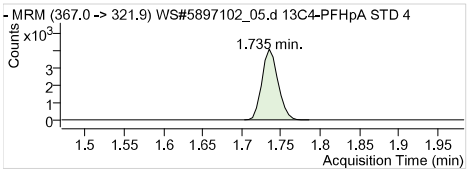


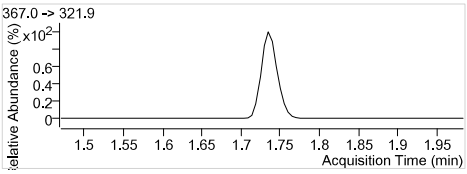
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	98.00 µg/L
Area ratio:	0.26306
Sample type:	Calibration



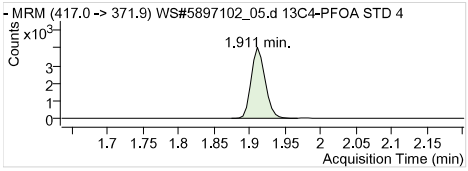


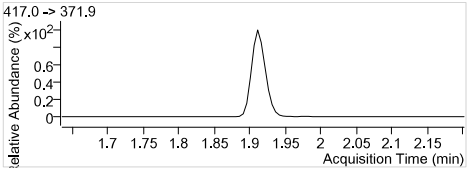
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	99.47 µg/L
Area ratio:	0.07110
Sample type:	Calibration



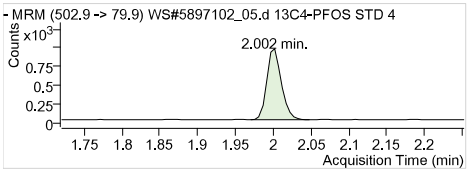


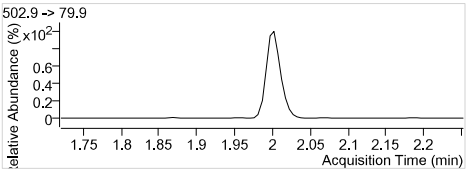
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	96.86 µg/L
Area ratio:	0.38353
Sample type:	Calibration



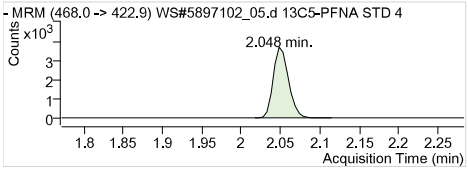


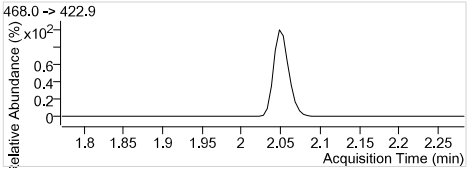
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	98.06 µg/L
Area ratio:	0.35651
Sample type:	Calibration



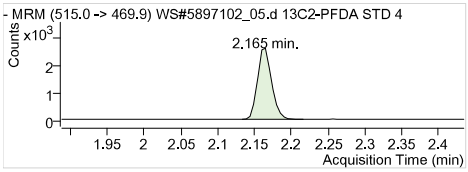


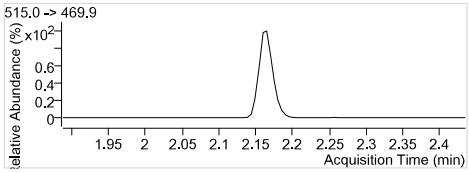
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	104.32 µg/L
Area ratio:	0.08250
Sample type:	Calibration



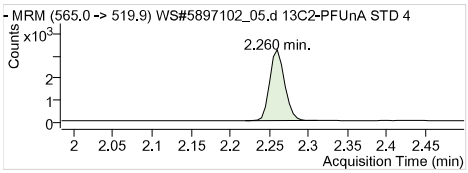


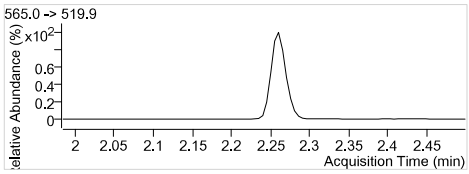
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.048 (2.053)
Calc. conc.	96.37 µg/L
Area ratio:	0.32349
Sample type:	Calibration



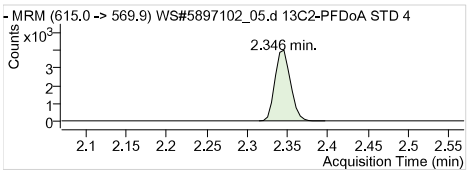


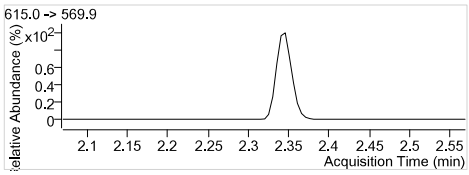
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	97.13 µg/L
Area ratio:	0.19798
Sample type:	Calibration



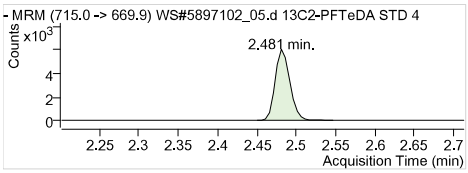


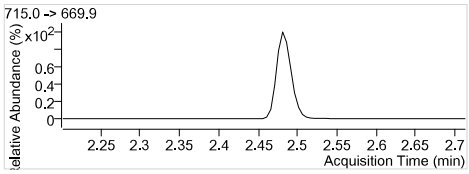
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	104.28 µg/L
Area ratio:	0.24790
Sample type:	Calibration



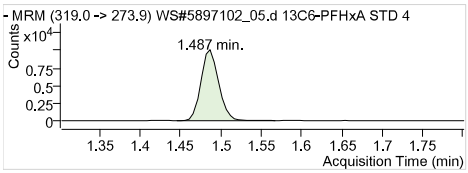


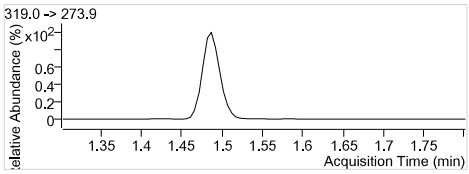
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	100.16 µg/L
Area ratio:	0.30762
Sample type:	Calibration



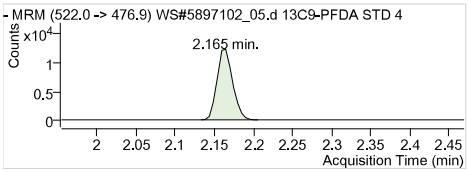


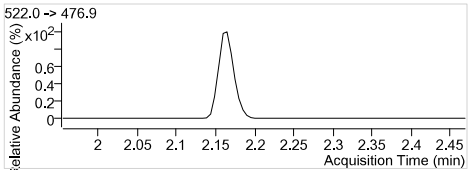
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	101.69 µg/L
Area ratio:	0.44860
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	103.36 µg/L
Area ratio:	0
Sample type:	Calibration





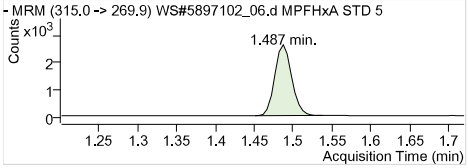
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	99.68 µg/L
Area ratio:	0
Sample type:	Calibration

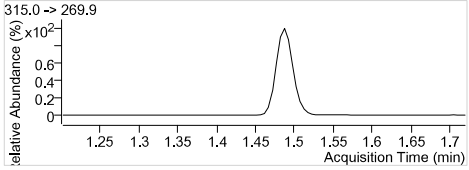
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 5**	**Instrument**	LCMS04
Data File	WS#5897102_06.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A6
Acq. Date	2018/12/21 7:46:33 PM	**Injection Volume**	Per Method
Sample Annotation	-		

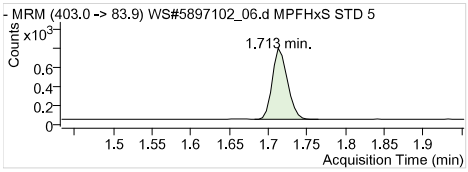
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3946	1.49	1 µg/L		
MPFHxS	998	1.71	1 µg/L		
MPFHpA	5817	1.73	1 µg/L		
MPFOA	5433	1.91	1 µg/L		
MPFOS	1122	2.00	1 µg/L		
MPFNA	4959	2.05	1 µg/L		
MPFDA	3591	2.16	1 µg/L		
MPFUnA	4186	2.26	1 µg/L		
MPFDoA	5386	2.35	1 µg/L		
MPFTeDA	7603	2.48	1 µg/L		
13C6-PFHxA IS	14756	1.49	1 µg/L		
13C9-PFDA IS	17144	2.16	1 µg/L		

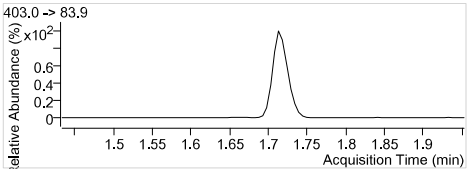
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	15456	1.16	25.00	25.82 µg/L	103.28
PFHxA 1	44595	1.49	25.00	24.93 µg/L	99.72
PFHxS 1	11614	1.71	25.00	25.67 µg/L	102.68
PFHpA 1	62150	1.74	25.00	24.91 µg/L	99.64
PFOA 1	58489	1.91	25.00	24.28 µg/L	97.10
PFOS 1	11751	2.00	25.00	25.35 µg/L	101.41
PFNA 1	45125	2.05	25.00	24.26 µg/L	97.02
PFDA 1	51561	2.16	25.00	24.88 µg/L	99.52
PFUnA 1	46865	2.26	25.00	24.66 µg/L	98.66
PFDoA 1	52801	2.35	25.00	24.80 µg/L	99.19
PFTrDA 1	66574	2.42	25.00	25.14 µg/L	100.56
PFTeDA 1	69652	2.48	25.00	25.17 µg/L	100.69
13C2-PFHxA	3946	1.49	100.00	99.62 µg/L	99.62
18O2-PFHxS	998	1.71	100.00	94.61 µg/L	94.61
13C4-PFHpA	5817	1.73	100.00	99.55 µg/L	99.55
13C4-PFOA	5433	1.91	100.00	101.28 µg/L	101.28
13C4-PFOS	1122	2.00	100.00	96.14 µg/L	96.14
13C5-PFNA	4959	2.05	100.00	100.12 µg/L	100.12
13C2-PFDA	3591	2.16	100.00	102.76 µg/L	102.76
13C2-PFUnA	4186	2.26	100.00	102.71 µg/L	102.71
13C2-PFDoA	5386	2.35	100.00	102.29 µg/L	102.29
13C2-PFTeDA	7603	2.48	100.00	100.53 µg/L	100.53
13C6-PFHxA	14756	1.49	100.00	100.51 µg/L	100.51
13C9-PFDA	17144	2.16	100.00	99.19 µg/L	99.19



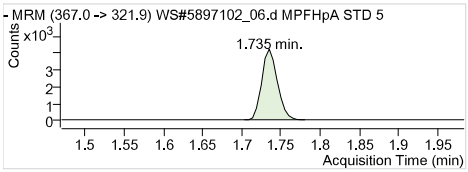


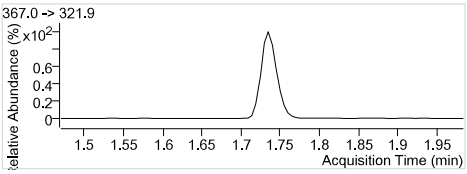
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



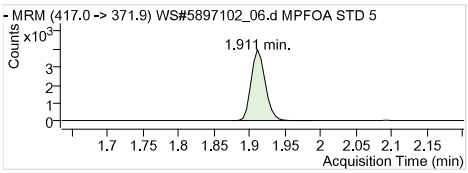


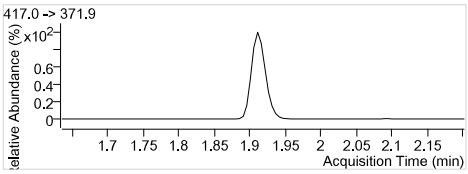
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



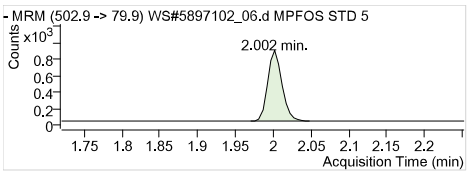


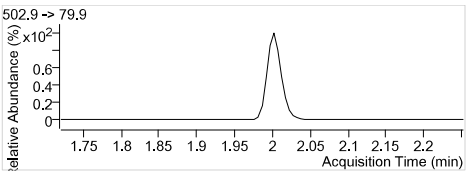
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



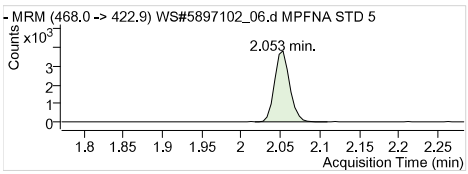


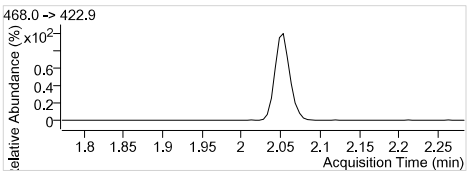
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



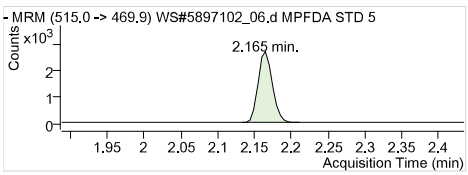


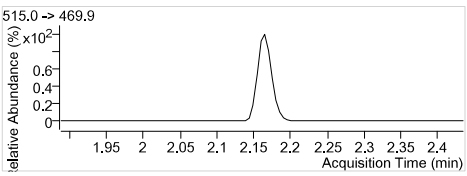
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



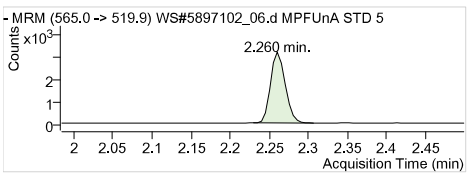


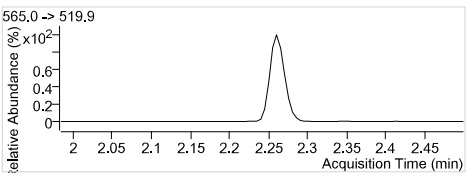
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



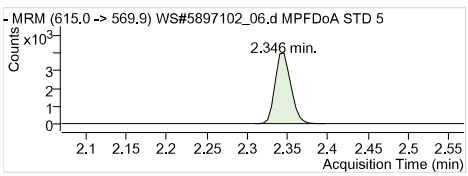


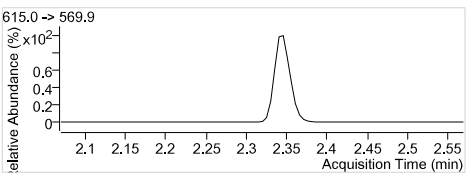
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



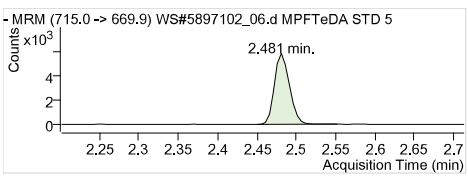


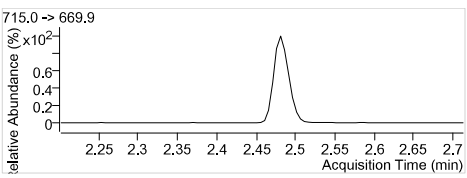
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



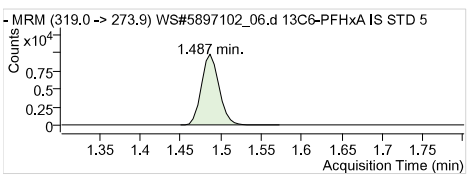


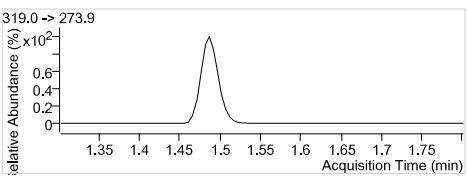
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



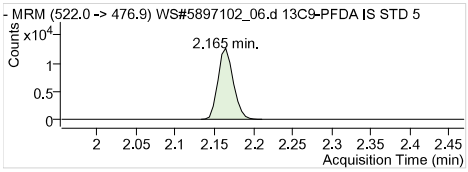


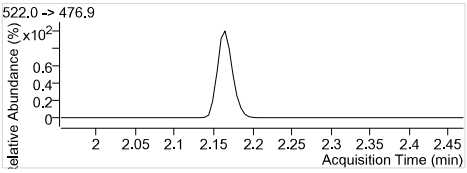
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



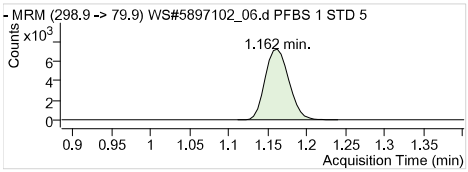


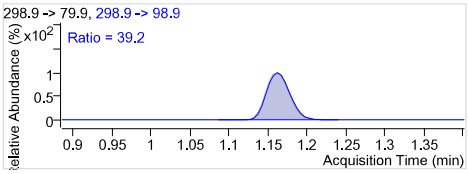
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



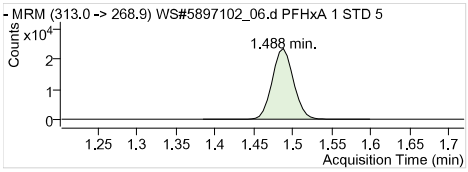


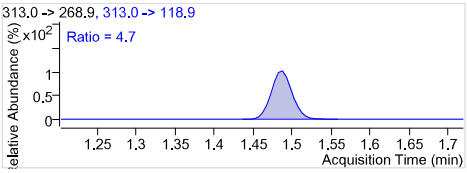
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



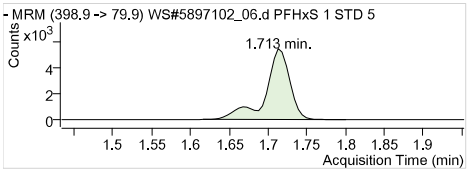


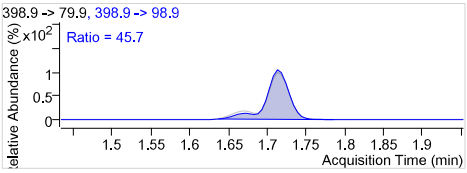
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.162 (1.162)
Calc. conc. 25.82 µg/L
Area ratio: 15.48697
Sample type: Calibration



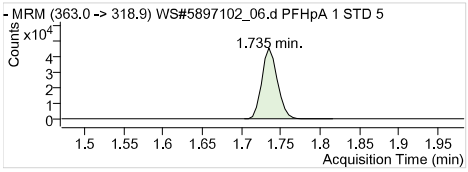


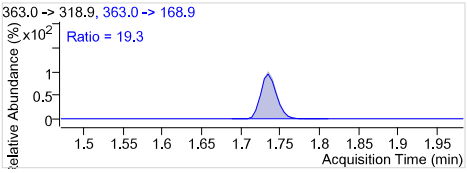
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 24.93 µg/L
Area ratio: 11.30132
Sample type: Calibration



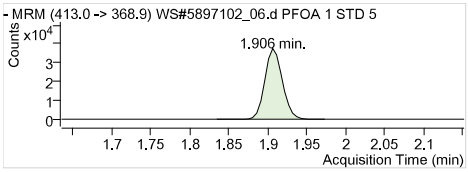


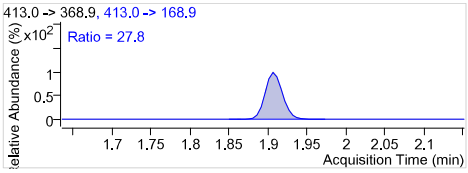
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 25.67 µg/L
Area ratio: 11.63727
Sample type: Calibration



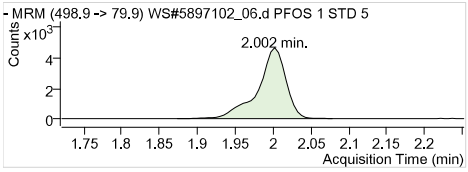


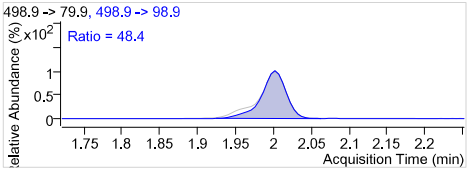
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 24.91 µg/L
Area ratio: 10.68420
Sample type: Calibration



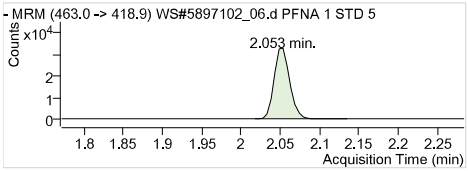


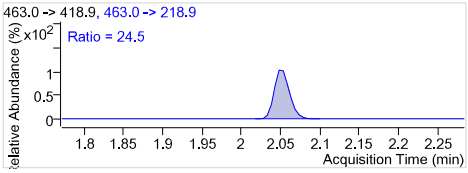
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 24.28 µg/L
Area ratio: 10.76551
Sample type: Calibration



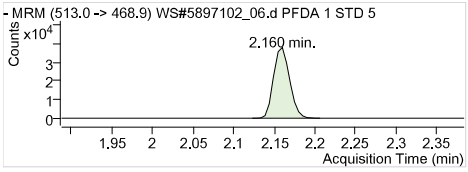


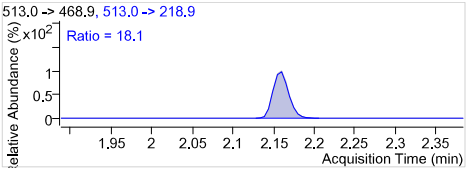
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 25.35 µg/L
Area ratio: 10.47326
Sample type: Calibration



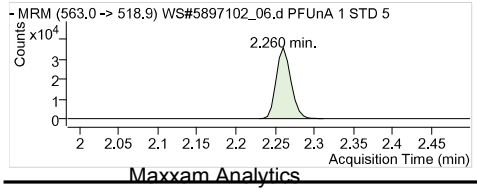


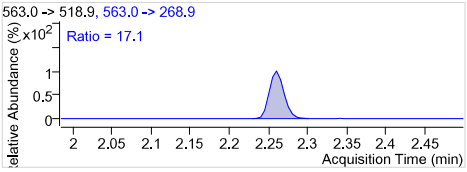
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 24.26 µg/L
Area ratio: 9.09962
Sample type: Calibration



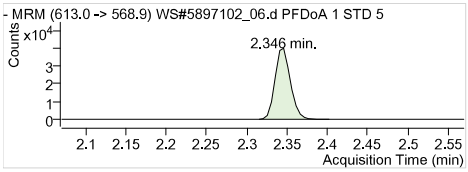


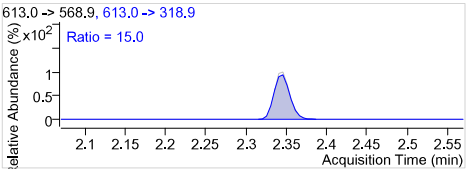
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 24.88 µg/L
Area ratio: 14.35840
Sample type: Calibration



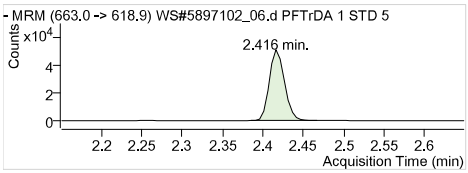


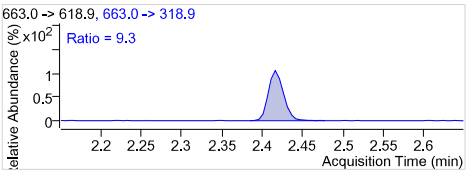
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 24.66 µg/L
Area ratio: 11.19565
Sample type: Calibration



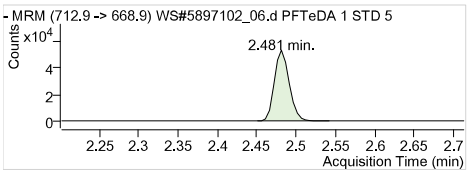


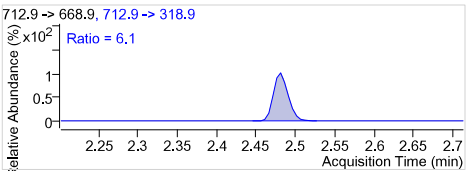
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	24.80 µg/L
Area ratio:	9.80338
Sample type:	Calibration



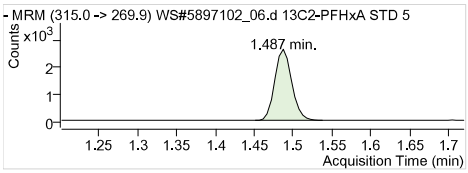


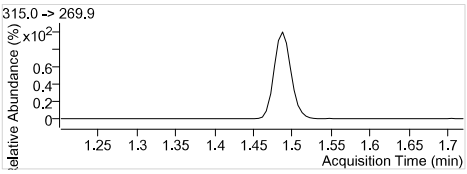
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	25.14 µg/L
Area ratio:	8.75628
Sample type:	Calibration



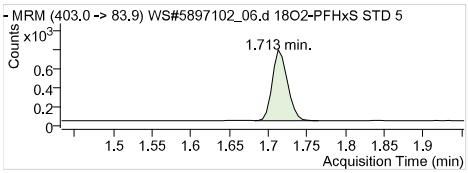


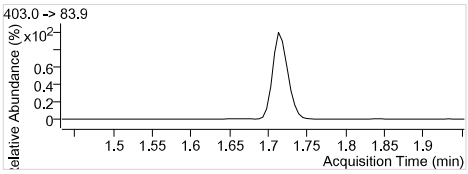
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	25.17 µg/L
Area ratio:	9.16112
Sample type:	Calibration



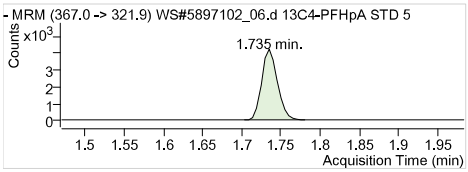


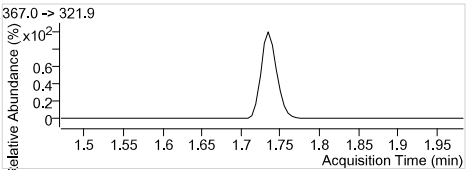
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	99.62 µg/L
Area ratio:	0.26742
Sample type:	Calibration



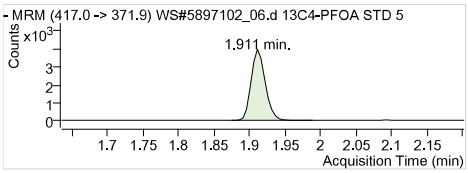


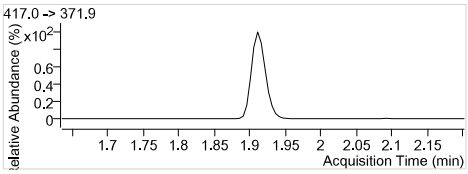
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	94.61 µg/L
Area ratio:	0.06763
Sample type:	Calibration



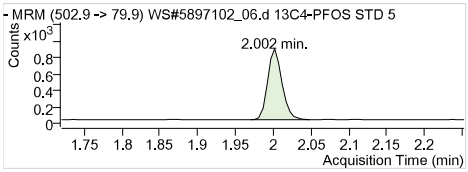


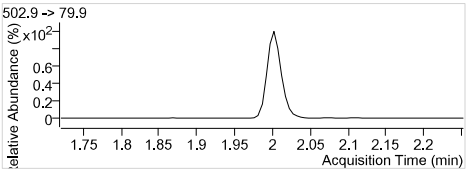
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	99.55 µg/L
Area ratio:	0.39421
Sample type:	Calibration



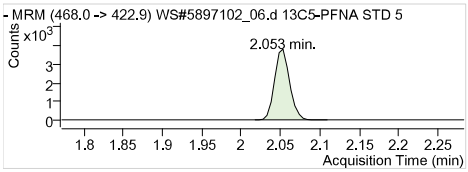


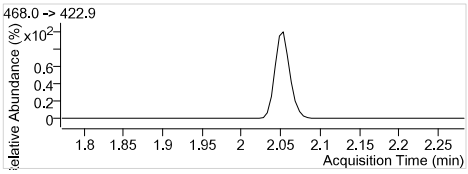
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	101.28 µg/L
Area ratio:	0.36819
Sample type:	Calibration



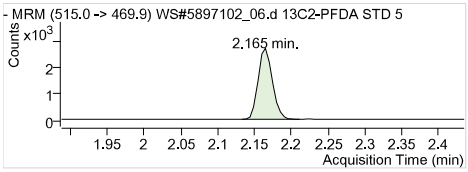


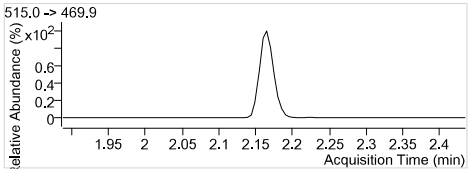
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	96.14 µg/L
Area ratio:	0.07604
Sample type:	Calibration



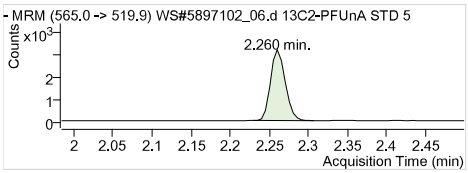


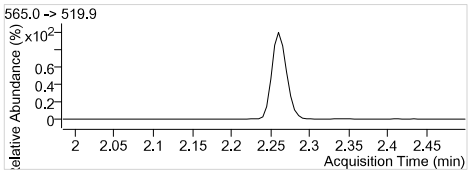
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	100.12 µg/L
Area ratio:	0.33607
Sample type:	Calibration



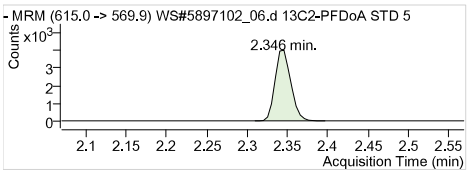


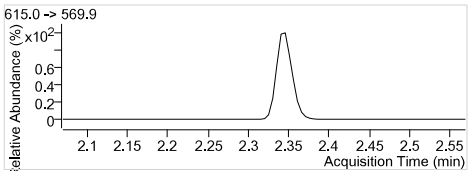
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	102.76 µg/L
Area ratio:	0.20946
Sample type:	Calibration



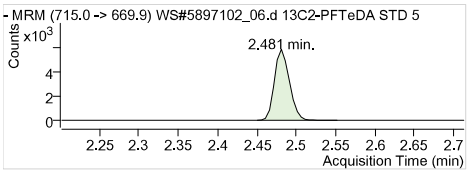


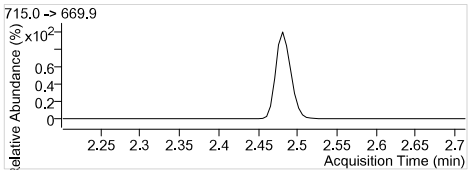
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	102.71 µg/L
Area ratio:	0.24417
Sample type:	Calibration



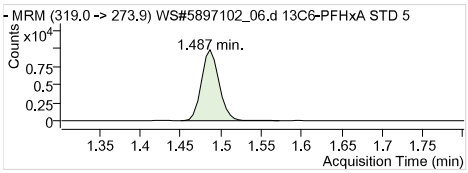


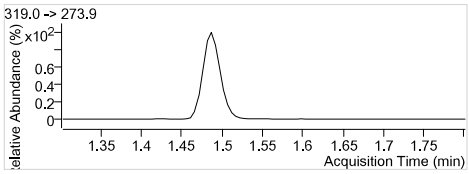
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	102.29 µg/L
Area ratio:	0.31416
Sample type:	Calibration



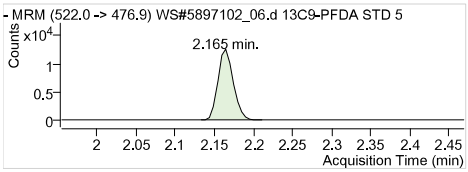


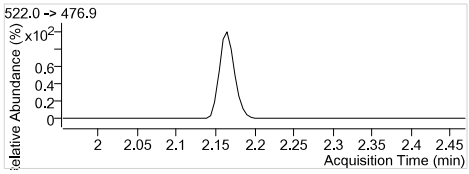
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	100.53 µg/L
Area ratio:	0.44348
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	100.51 µg/L
Area ratio:	0
Sample type:	Calibration





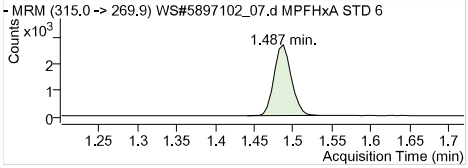
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	99.19 µg/L
Area ratio:	0
Sample type:	Calibration

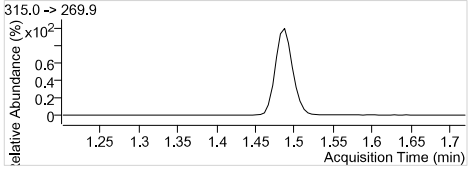
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**STD 6**	**Instrument**	LCMS04
Data File	WS#5897102_07.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A7
Acq. Date	2018/12/21 7:51:27 PM	**Injection Volume**	Per Method
Sample Annotation	-		

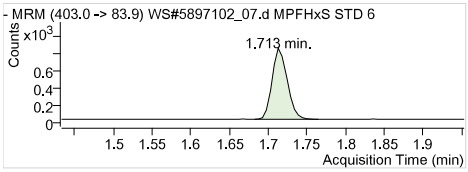
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	4096	1.49	1 µg/L		
MPFHxS	1085	1.71	1 µg/L		
MPFHpA	5790	1.73	1 µg/L		
MPFOA	5386	1.91	1 µg/L		
MPFOS	1195	2.00	1 µg/L		
MPFNA	5061	2.05	1 µg/L		
MPFDA	3701	2.16	1 µg/L		
MPFUnA	4255	2.26	1 µg/L		
MPFDoA	5635	2.35	1 µg/L		
MPFTeDA	8042	2.48	1 µg/L		
13C6-PFHxA IS	14736	1.49	1 µg/L		
13C9-PFDA IS	17591	2.16	1 µg/L		

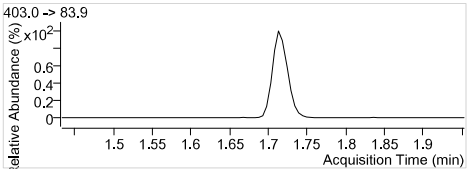
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	27025	1.16	41.70	41.50 µg/L	99.51
PFHxA 1	77582	1.49	41.70	41.77 µg/L	100.17
PFHxS 1	20422	1.71	41.70	41.48 µg/L	99.48
PFHpA 1	104514	1.74	41.70	42.01 µg/L	100.74
PFOA 1	102072	1.91	41.70	42.73 µg/L	102.48
PFOS 1	20993	2.00	41.70	42.52 µg/L	101.97
PFNA 1	80971	2.05	41.70	42.62 µg/L	102.20
PFDA 1	88319	2.16	41.70	41.32 µg/L	99.08
PFUnA 1	81293	2.26	41.70	42.11 µg/L	100.97
PFDoA 1	92781	2.35	41.70	41.68 µg/L	99.95
PFTrDA 1	116414	2.42	41.70	41.54 µg/L	99.63
PFTeDA 1	121186	2.48	41.70	41.41 µg/L	99.31
13C2-PFHxA	4096	1.49	100.00	103.55 µg/L	103.55
18O2-PFHxS	1085	1.71	100.00	103.00 µg/L	103.00
13C4-PFHpA	5790	1.73	100.00	99.23 µg/L	99.23
13C4-PFOA	5386	1.91	100.00	100.54 µg/L	100.54
13C4-PFOS	1195	2.00	100.00	102.54 µg/L	102.54
13C5-PFNA	5061	2.05	100.00	102.32 µg/L	102.32
13C2-PFDA	3701	2.16	100.00	103.22 µg/L	103.22
13C2-PFUnA	4255	2.26	100.00	101.75 µg/L	101.75
13C2-PFDoA	5635	2.35	100.00	104.30 µg/L	104.30
13C2-PFTeDA	8042	2.48	100.00	103.63 µg/L	103.63
13C6-PFHxA	14736	1.49	100.00	100.37 µg/L	100.37
13C9-PFDA	17591	2.16	100.00	101.78 µg/L	101.78



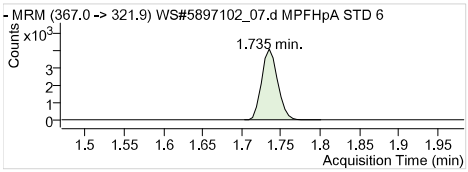


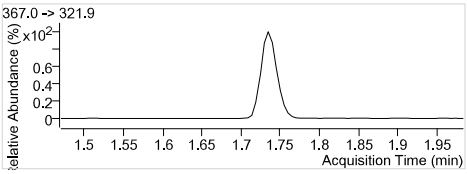
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



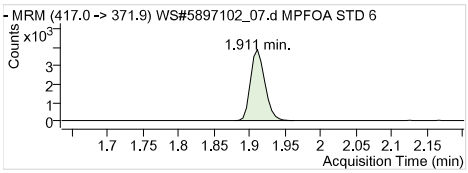


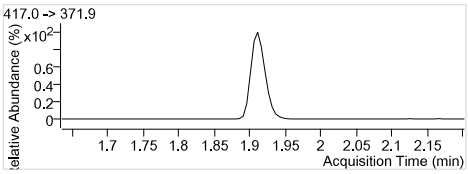
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



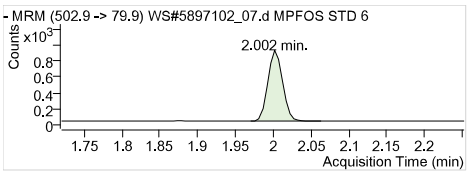


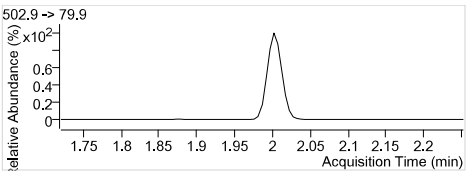
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



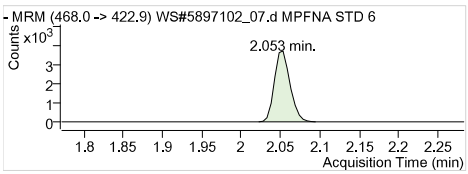


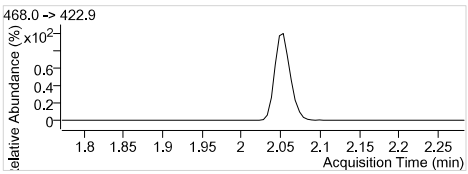
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



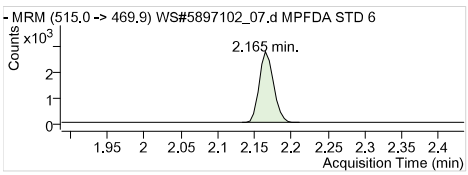


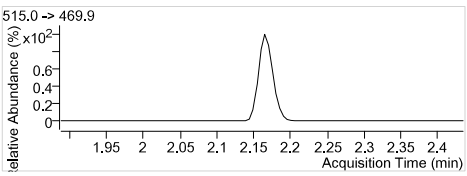
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



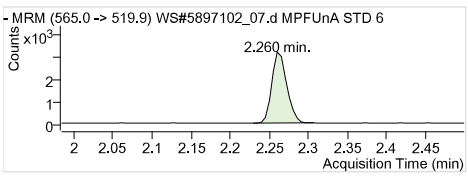


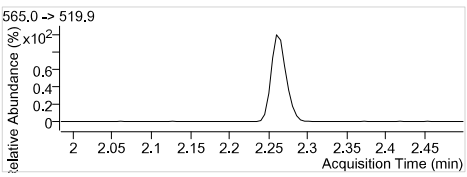
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



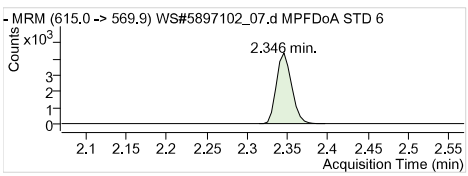


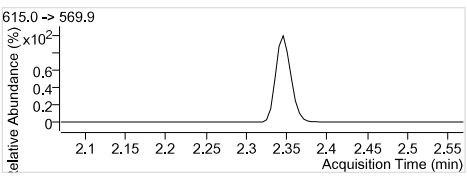
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



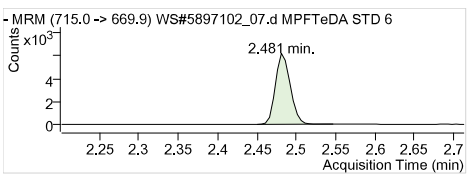


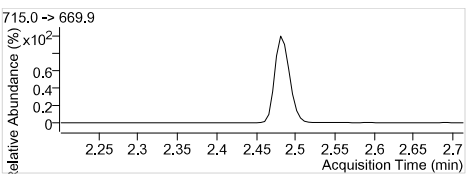
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



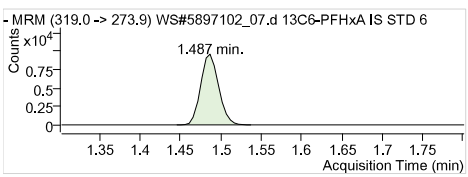


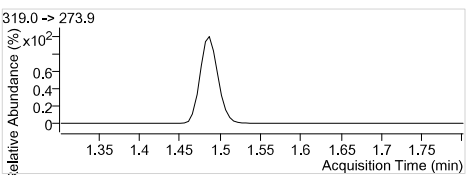
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



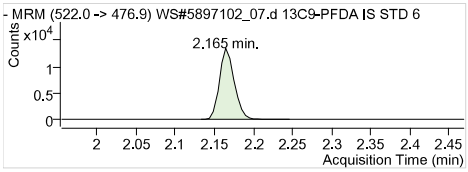


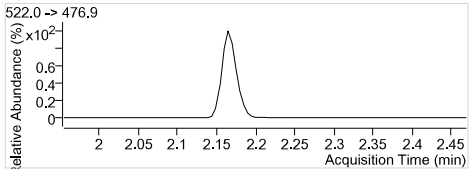
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



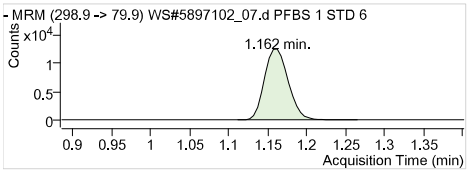


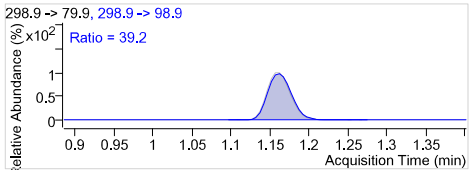
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



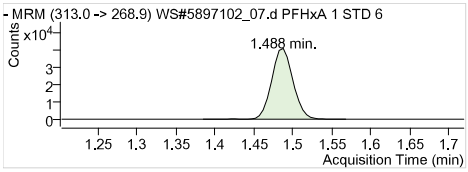


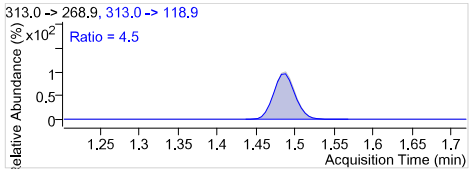
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



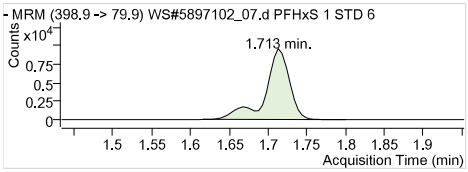


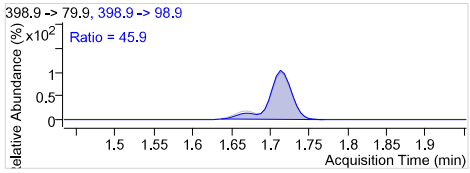
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.162 (1.162)
Calc. conc. 41.50 µg/L
Area ratio: 24.90783
Sample type: Calibration



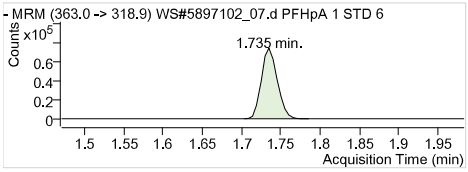


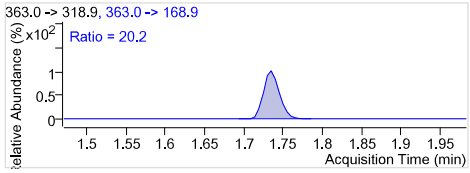
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 41.77 µg/L
Area ratio: 18.94092
Sample type: Calibration



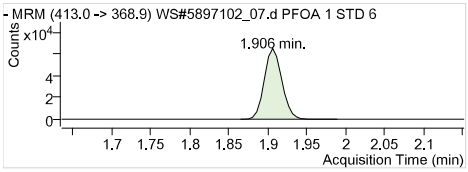


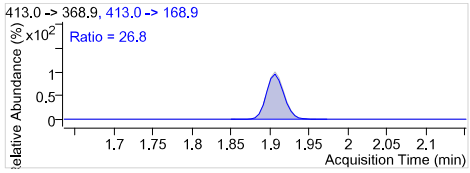
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 41.48 µg/L
Area ratio: 18.82212
Sample type: Calibration



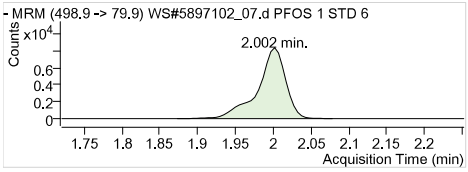


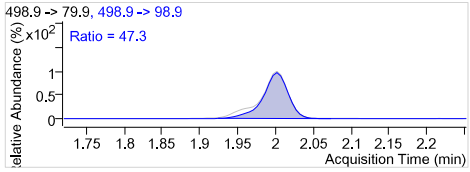
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 42.01 µg/L
Area ratio: 18.05078
Sample type: Calibration



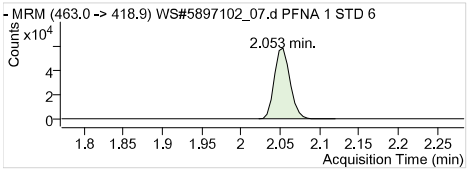


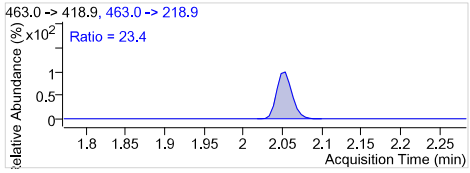
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 42.73 µg/L
Area ratio: 18.95136
Sample type: Calibration



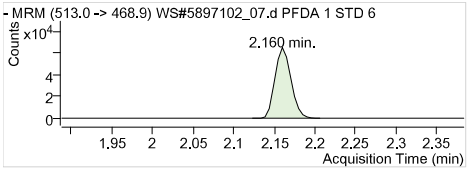


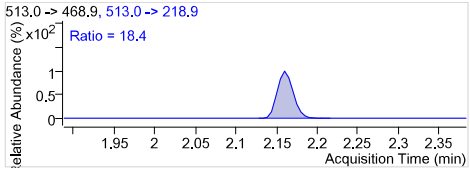
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 42.52 µg/L
Area ratio: 17.56736
Sample type: Calibration



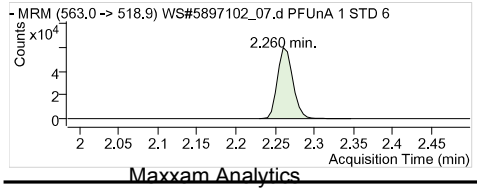


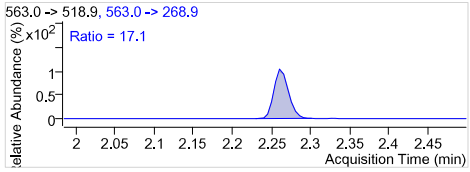
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 42.62 µg/L
Area ratio: 15.99901
Sample type: Calibration



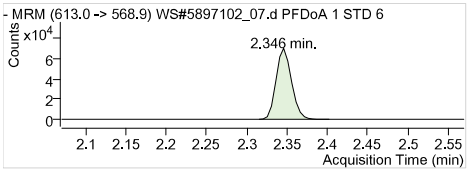


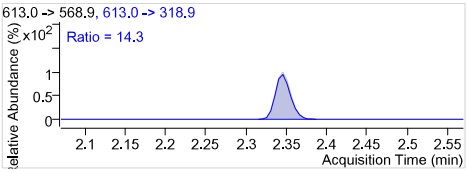
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 41.32 µg/L
Area ratio: 23.86355
Sample type: Calibration



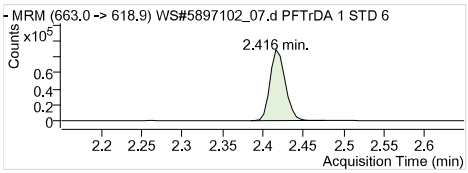


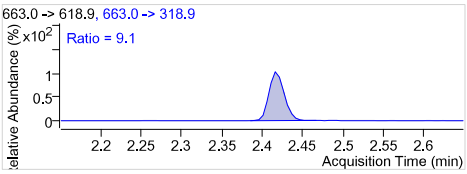
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 42.11 µg/L
Area ratio: 19.10529
Sample type: Calibration



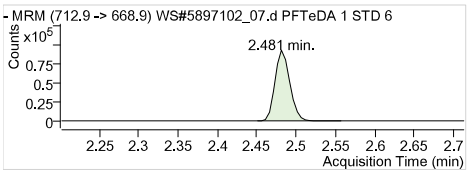


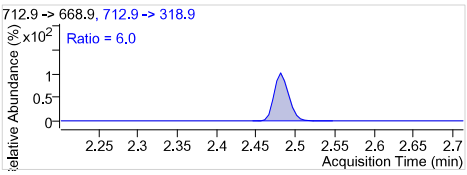
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.346 (2.346)
Calc. conc. 41.68 µg/L
Area ratio: 16.46513
Sample type: Calibration



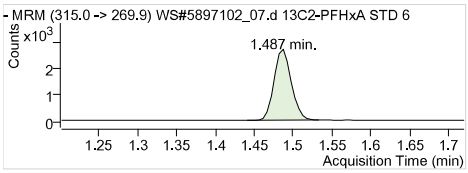


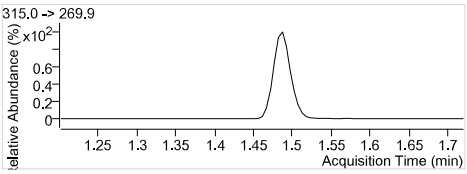
PFTrDA 1 663.0 -> 618.9
RT (Exp. RT): 2.416 (2.416)
Calc. conc. 41.54 µg/L
Area ratio: 14.47575
Sample type: Calibration



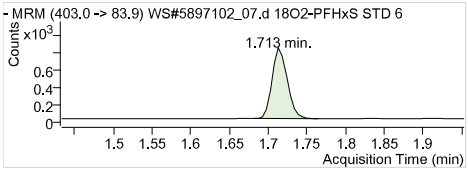


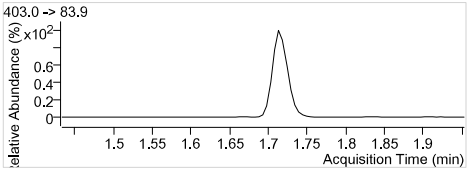
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.481 (2.481)
Calc. conc. 41.41 µg/L
Area ratio: 15.06914
Sample type: Calibration



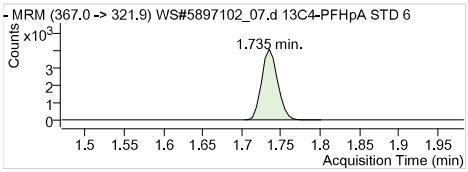


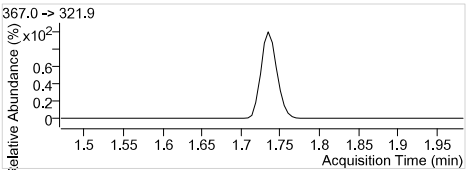
13C2-PFHxA 315.0 -> 269.9
RT (Exp. RT): 1.487 (1.487)
Calc. conc. 103.55 µg/L
Area ratio: 0.27796
Sample type: Calibration



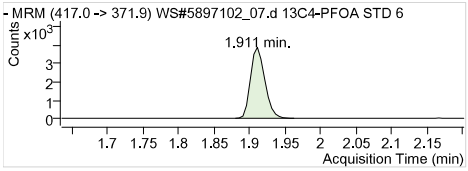


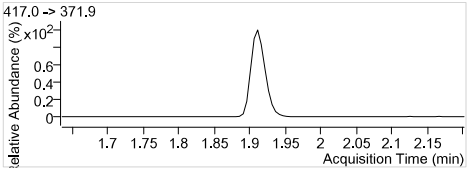
18O2-PFHxS 403.0 -> 83.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 103.00 µg/L
Area ratio: 0.07363
Sample type: Calibration



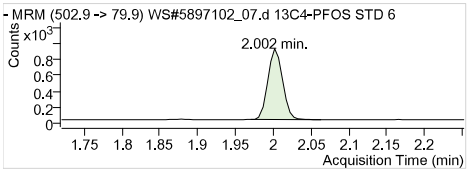


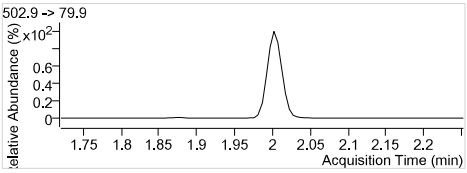
13C4-PFHpA 367.0 -> 321.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 99.23 µg/L
Area ratio: 0.39292
Sample type: Calibration



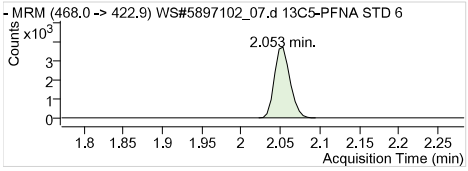


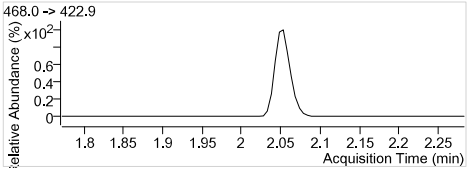
13C4-PFOA 417.0 -> 371.9
RT (Exp. RT): 1.911 (1.911)
Calc. conc. 100.54 µg/L
Area ratio: 0.36550
Sample type: Calibration



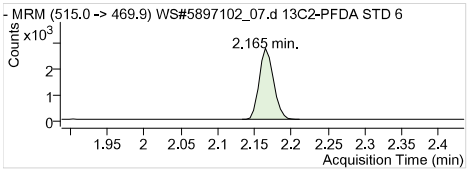


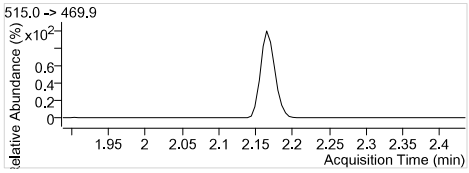
13C4-PFOS 502.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 102.54 µg/L
Area ratio: 0.08109
Sample type: Calibration



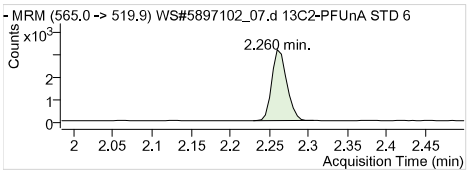


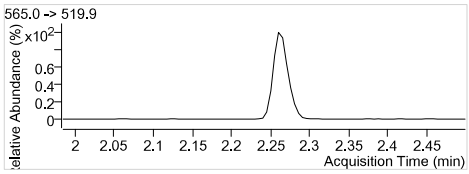
13C5-PFNA 468.0 -> 422.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 102.32 µg/L
Area ratio: 0.34344
Sample type: Calibration



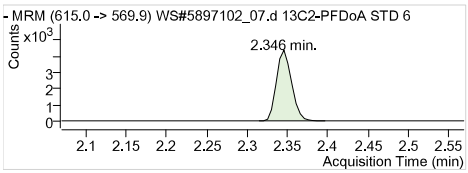


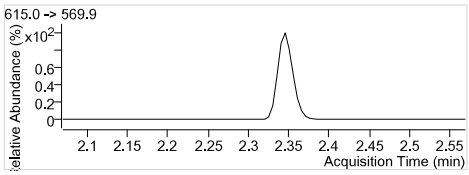
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	103.22 µg/L
Area ratio:	0.21039
Sample type:	Calibration



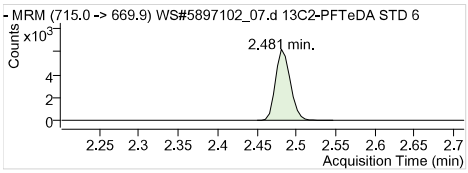


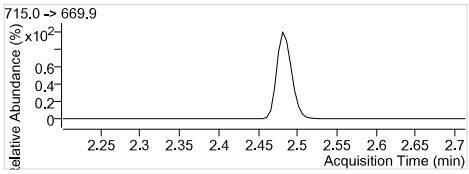
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	101.75 µg/L
Area ratio:	0.24189
Sample type:	Calibration



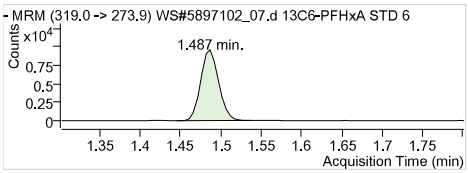


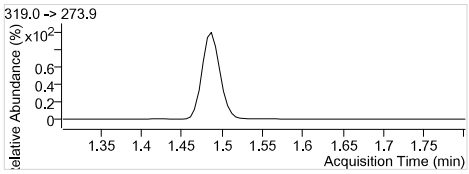
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	104.30 µg/L
Area ratio:	0.32033
Sample type:	Calibration



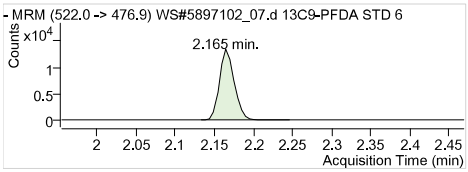


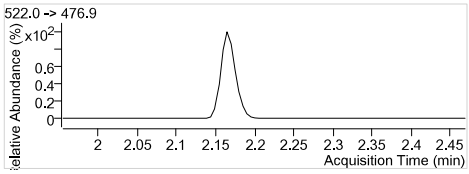
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	103.63 µg/L
Area ratio:	0.45717
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	100.37 µg/L
Area ratio:	0
Sample type:	Calibration





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	101.78 µg/L
Area ratio:	0
Sample type:	Calibration

Quantitation Results

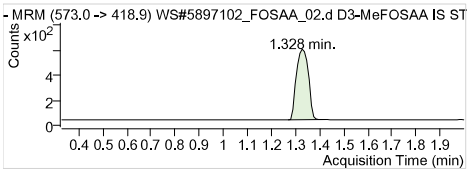
Agilent Technologies

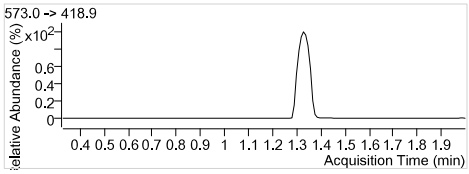
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_ETOxics

Sample Name	**STD 1**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_02.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A2
Acq. Date	2018/12/22 12:31:40 AM	**Injection Volume**	Per Method
Sample Annotation	-		

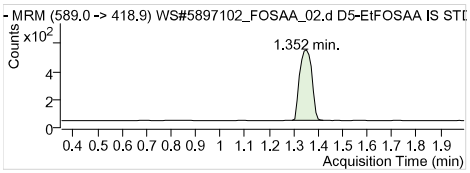
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1954	1.33	1 µg/L		
D5-EtFOSAA IS	1751	1.35	1 µg/L		
13C9-PFDA IS	19849	0.98	1 µg/L		

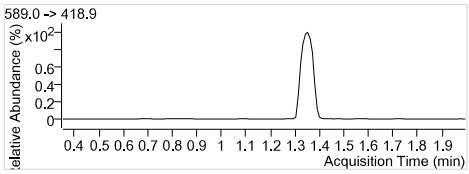
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	581	1.33	0.83	0.82 µg/L	99.29
EtFOSAA 1	577	1.35	0.83	0.81 µg/L	97.49
D3-MeFOSAA	1963	1.33	100.00	102.46 µg/L	102.46
D5-EtFOSAA	1757	1.35	100.00	101.02 µg/L	101.02
13C9-PFDA	19924	0.98	100.00	106.44 µg/L	106.44



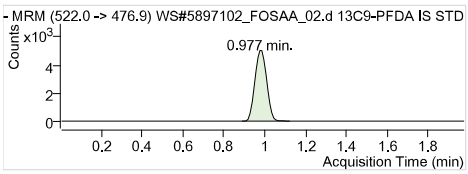


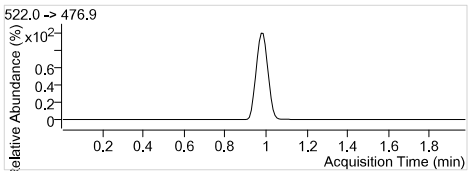
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



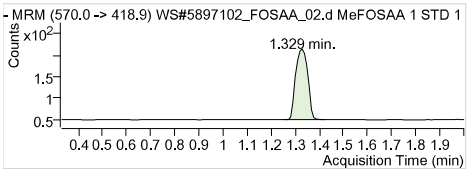


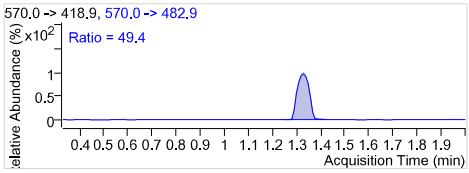
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



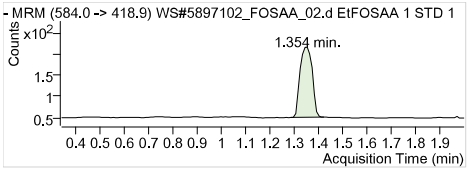


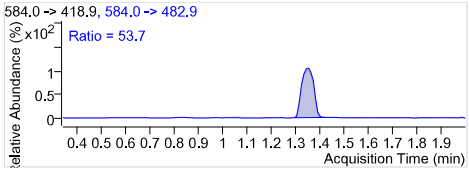
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



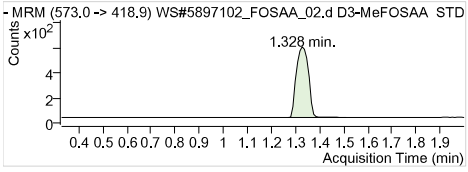


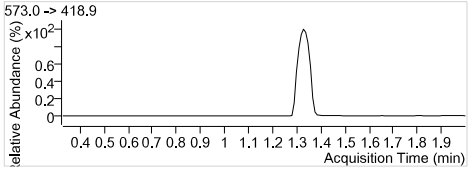
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 0.82 µg/L
Area ratio: 0.29734
Sample type: Calibration



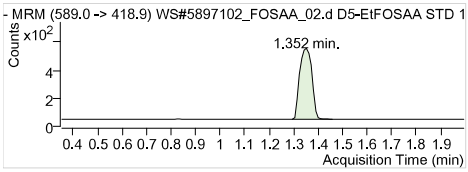


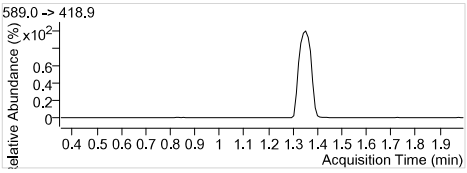
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.344)
Calc. conc. 0.81 µg/L
Area ratio: 0.32953
Sample type: Calibration



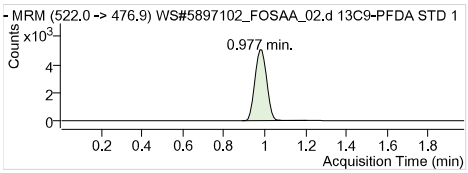


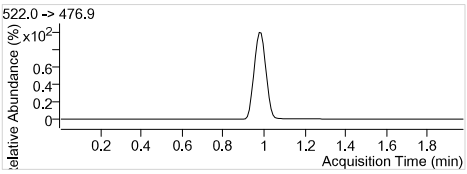
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 102.46 µg/L
Area ratio: 0.09890
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	101.02 µg/L
Area ratio:	0.08852
Sample type:	Calibration





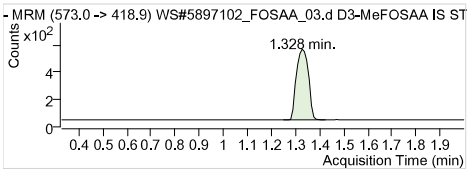
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	106.44 µg/L
Area ratio:	0
Sample type:	Calibration

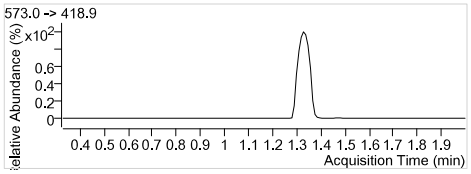
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_EToxics

Sample Name	**STD 2**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_03.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A3
Acq. Date	2018/12/22 12:34:03 AM	**Injection Volume**	Per Method
Sample Annotation	-		

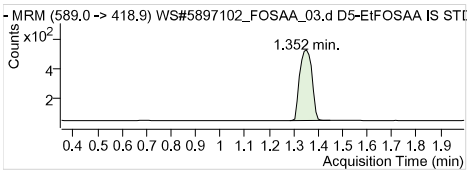
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1805	1.33	1 µg/L		
D5-EtFOSAA IS	1662	1.35	1 µg/L		
13C9-PFDA IS	18477	0.98	1 µg/L		

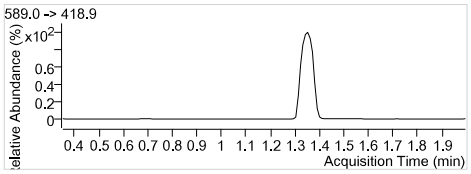
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	1077	1.33	1.70	1.69 µg/L	99.18
EtFOSAA 1	1165	1.35	1.70	1.67 µg/L	98.44
D3-MeFOSAA	1803	1.33	100.00	101.10 µg/L	101.10
D5-EtFOSAA	1661	1.35	100.00	102.59 µg/L	102.59
13C9-PFDA	18581	0.98	100.00	99.26 µg/L	99.26



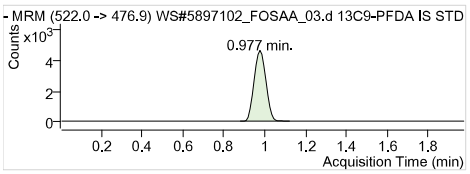


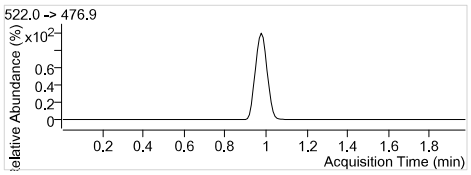
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



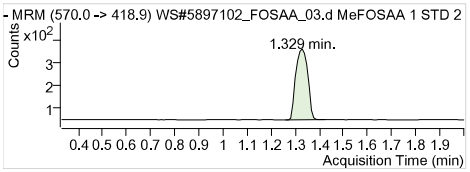


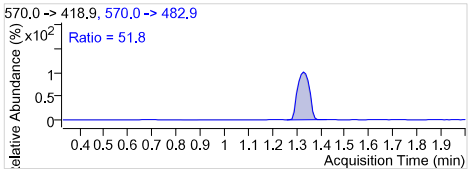
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



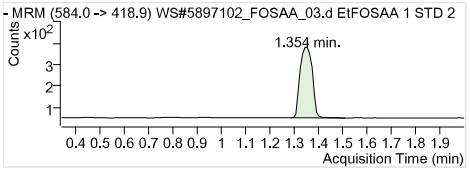


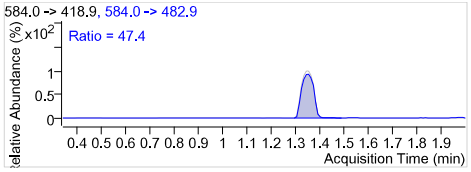
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



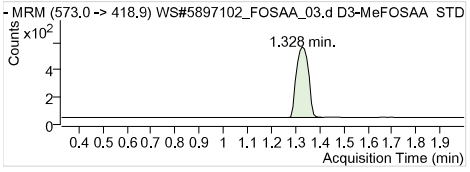


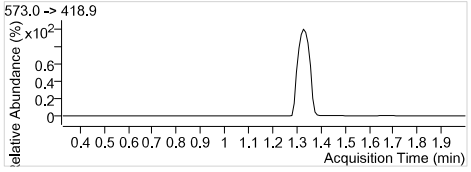
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 1.69 µg/L
Area ratio: 0.59668
Sample type: Calibration



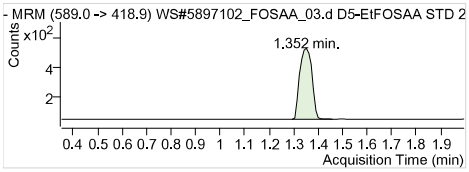


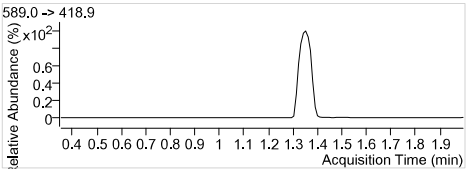
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.344)
Calc. conc. 1.67 µg/L
Area ratio: 0.70096
Sample type: Calibration



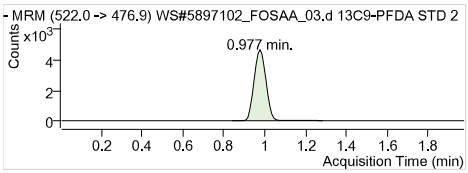


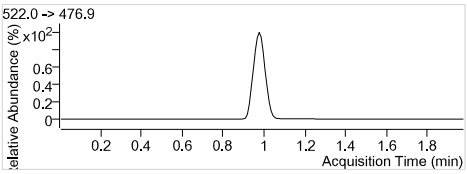
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 101.10 µg/L
Area ratio: 0.09758
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	102.59 µg/L
Area ratio:	0.08990
Sample type:	Calibration





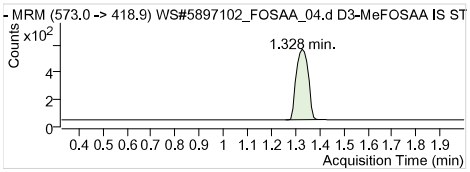
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	99.26 µg/L
Area ratio:	0
Sample type:	Calibration

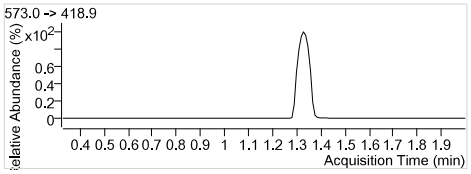
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_EToxics

Sample Name	**STD 3**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_04.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A4
Acq. Date	2018/12/22 12:36:26 AM	**Injection Volume**	Per Method
Sample Annotation	-		

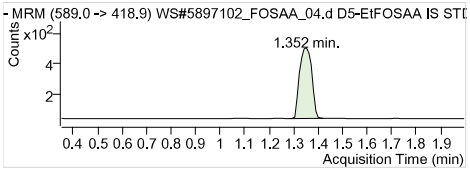
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1799	1.33	1 µg/L		
D5-EtFOSAA IS	1578	1.35	1 µg/L		
13C9-PFDA IS	17688	0.97	1 µg/L		

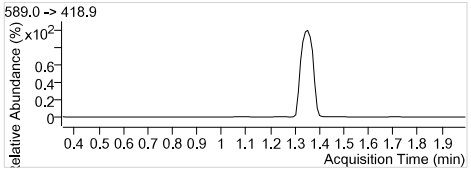
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	3276	1.33	5.00	5.21 µg/L	104.23
EtFOSAA 1	3547	1.34	5.00	5.27 µg/L	105.46
D3-MeFOSAA	1811	1.33	100.00	106.07 µg/L	106.07
D5-EtFOSAA	1580	1.35	100.00	101.94 µg/L	101.94
13C9-PFDA	17724	0.97	100.00	94.68 µg/L	94.68



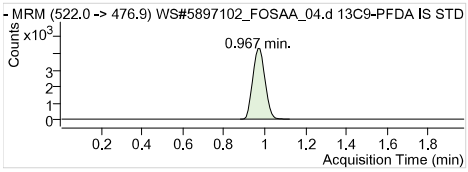


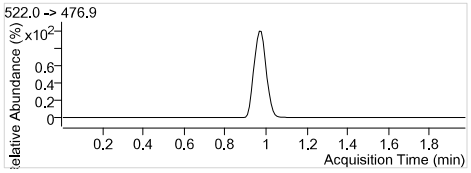
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



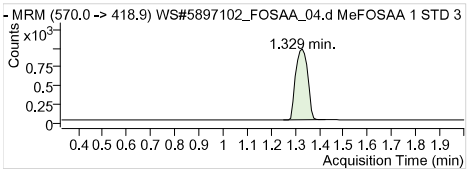


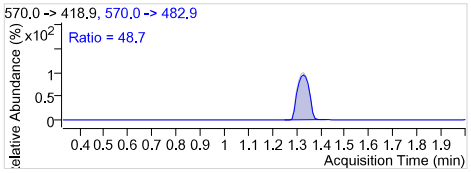
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



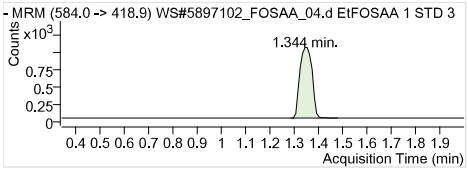


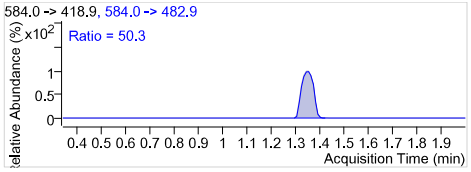
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.967 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



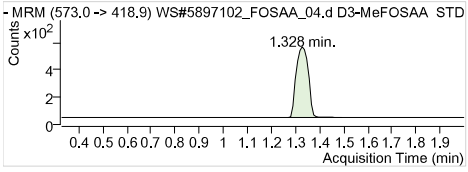


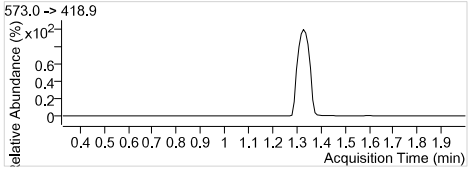
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 5.21 µg/L
Area ratio: 1.82101
Sample type: Calibration



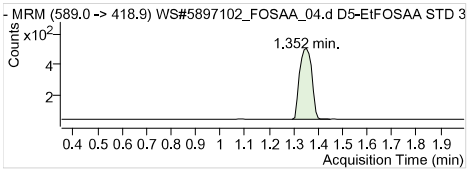


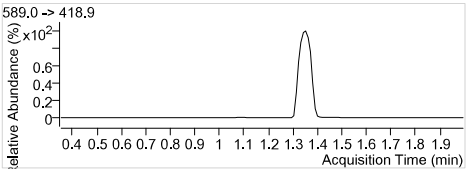
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.344 (1.344)
Calc. conc. 5.27 µg/L
Area ratio: 2.24778
Sample type: Calibration



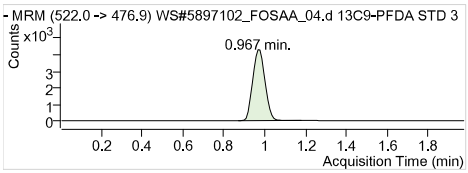


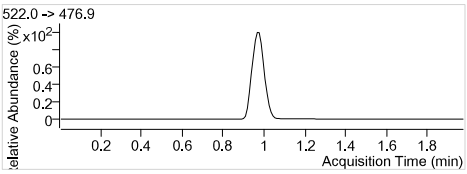
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 106.07 µg/L
Area ratio: 0.10239
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	101.94 µg/L
Area ratio:	0.08933
Sample type:	Calibration





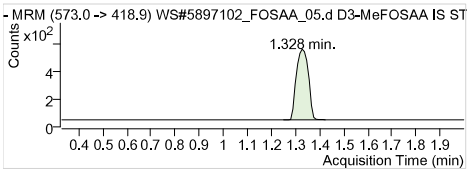
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.967 (0.977)
Calc. conc.	94.68 µg/L
Area ratio:	0
Sample type:	Calibration

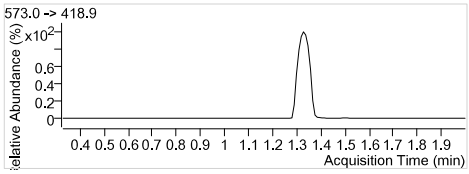
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_ETOxics

Sample Name	**STD 4**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_05.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A5
Acq. Date	2018/12/22 12:38:48 AM	**Injection Volume**	Per Method
Sample Annotation	-		

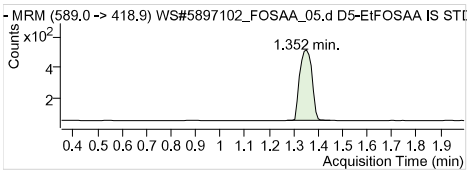
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1796	1.33	1 µg/L		
D5-EtFOSAA IS	1629	1.35	1 µg/L		
13C9-PFDA IS	18783	0.98	1 µg/L		

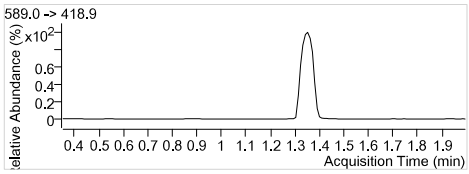
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	7562	1.33	12.50	12.09 µg/L	96.74
EtFOSAA 1	8582	1.34	12.50	12.30 µg/L	98.42
D3-MeFOSAA	1800	1.33	100.00	99.28 µg/L	99.28
D5-EtFOSAA	1633	1.35	100.00	99.21 µg/L	99.21
13C9-PFDA	18857	0.98	100.00	100.74 µg/L	100.74



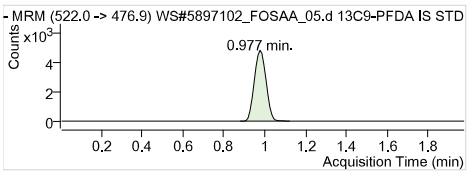


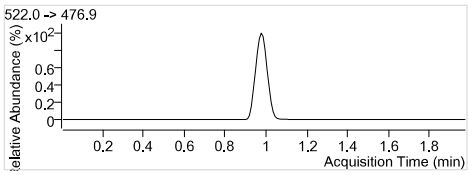
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



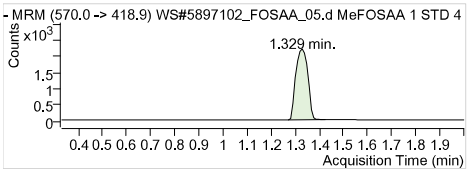


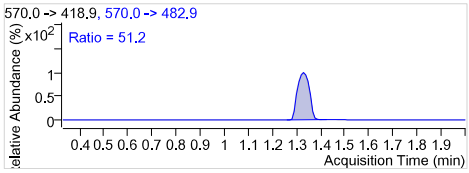
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



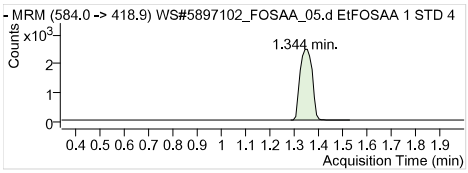


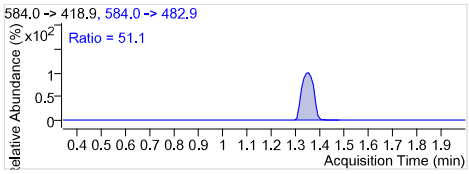
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



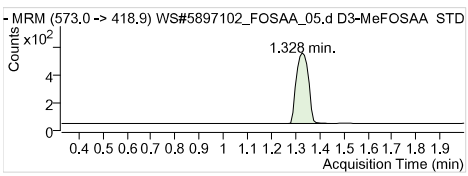


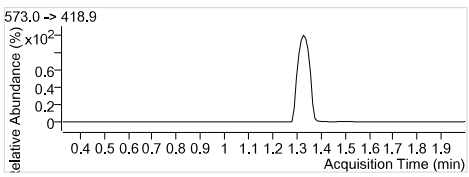
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 12.09 µg/L
Area ratio: 4.21047
Sample type: Calibration



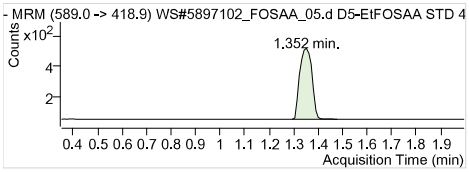


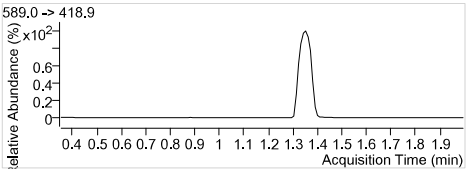
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.344 (1.344)
Calc. conc. 12.30 µg/L
Area ratio: 5.26826
Sample type: Calibration



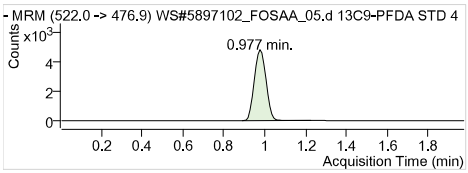


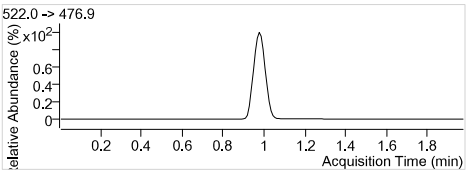
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 99.28 µg/L
Area ratio: 0.09583
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	99.21 µg/L
Area ratio:	0.08694
Sample type:	Calibration





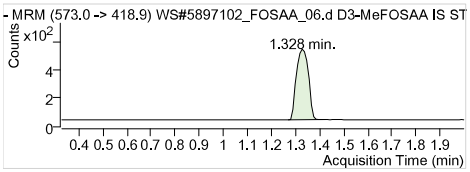
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	100.74 µg/L
Area ratio:	0
Sample type:	Calibration

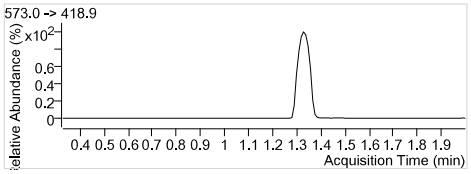
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_EToxics

Sample Name	**STD 5**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_06.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A6
Acq. Date	2018/12/22 12:41:10 AM	**Injection Volume**	Per Method
Sample Annotation	-		

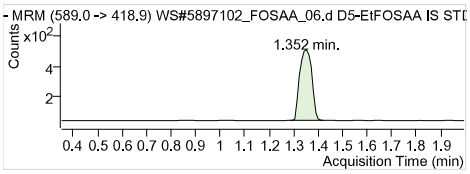
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1722	1.33	1 µg/L		
D5-EtFOSAA IS	1581	1.35	1 µg/L		
13C9-PFDA IS	18720	0.98	1 µg/L		

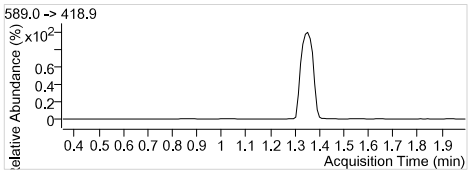
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	14982	1.33	25.00	25.02 µg/L	100.09
EtFOSAA 1	17067	1.34	25.00	25.16 µg/L	100.65
D3-MeFOSAA	1725	1.33	100.00	95.47 µg/L	95.47
D5-EtFOSAA	1593	1.35	100.00	97.11 µg/L	97.11
13C9-PFDA	18780	0.98	100.00	100.32 µg/L	100.32



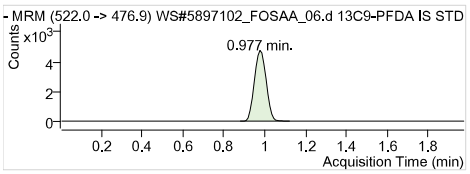


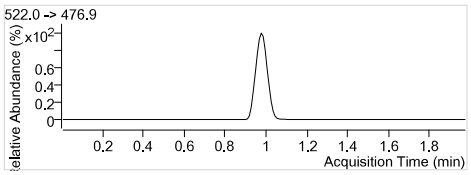
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



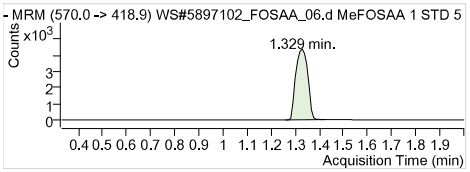


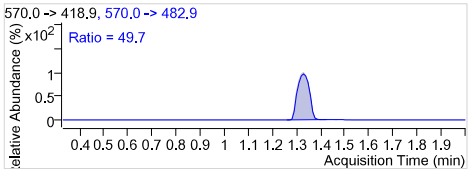
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



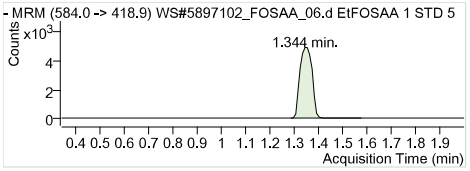


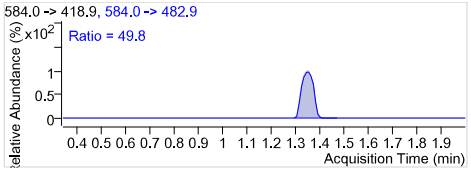
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



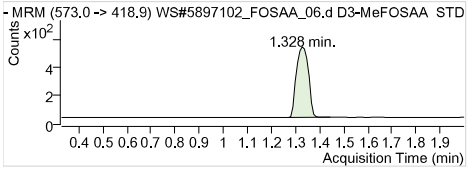


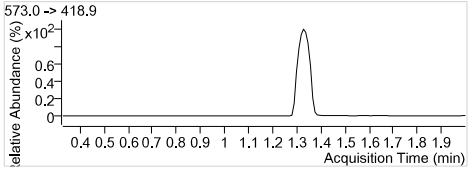
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 25.02 µg/L
Area ratio: 8.70035
Sample type: Calibration



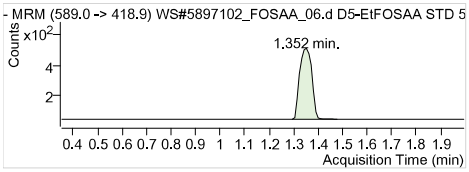


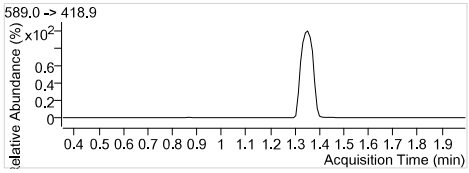
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.344 (1.344)
Calc. conc. 25.16 µg/L
Area ratio: 10.79507
Sample type: Calibration



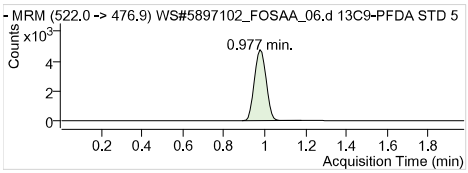


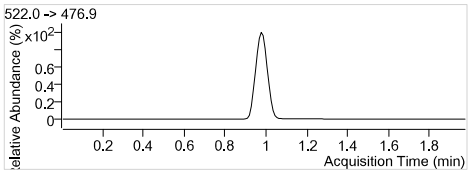
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 95.47 µg/L
Area ratio: 0.09215
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	97.11 µg/L
Area ratio:	0.08510
Sample type:	Calibration





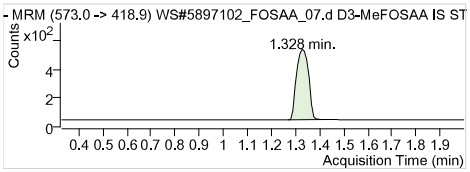
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	100.32 µg/L
Area ratio:	0
Sample type:	Calibration

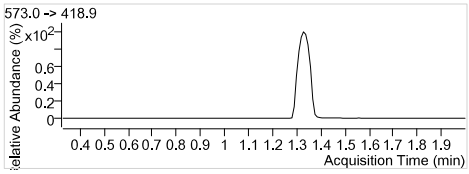
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_ETOxics

Sample Name	**STD 6**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_07.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A7
Acq. Date	2018/12/22 12:43:33 AM	**Injection Volume**	Per Method
Sample Annotation	-		

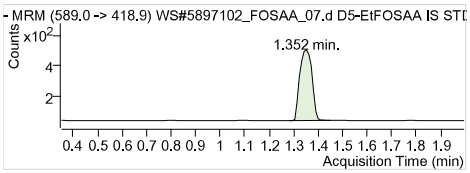
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1698	1.33	1 µg/L		
D5-EtFOSAA IS	1583	1.35	1 µg/L		
13C9-PFDA IS	18408	0.98	1 µg/L		

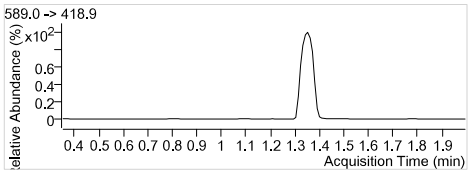
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	24722	1.33	41.70	41.89 µg/L	100.46
EtFOSAA 1	28208	1.35	41.70	41.51 µg/L	99.54
D3-MeFOSAA	1699	1.33	100.00	95.62 µg/L	95.62
D5-EtFOSAA	1583	1.35	100.00	98.14 µg/L	98.14
13C9-PFDA	18449	0.98	100.00	98.56 µg/L	98.56



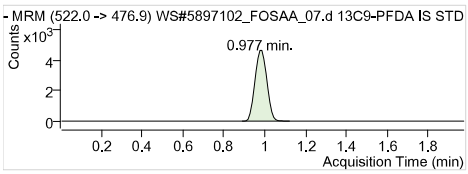


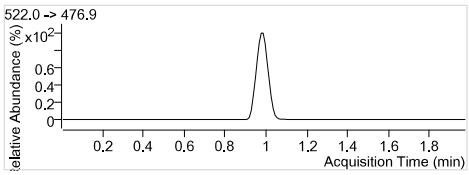
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



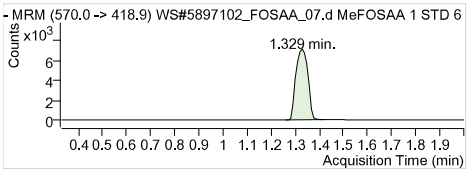


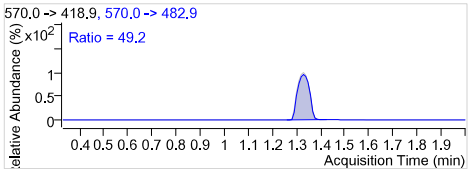
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



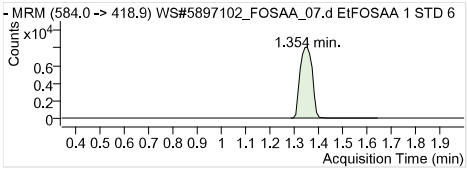


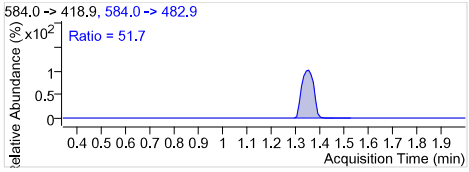
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: Calibration



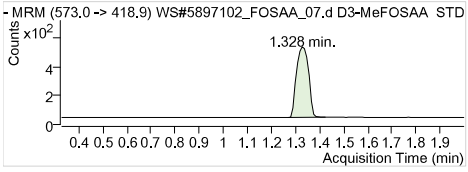


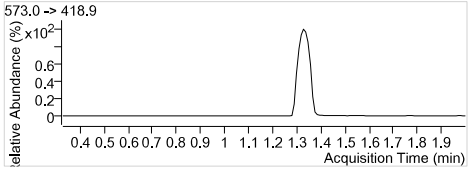
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 41.89 µg/L
Area ratio: 14.55948
Sample type: Calibration



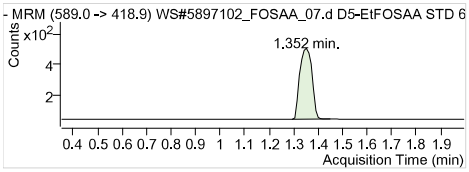


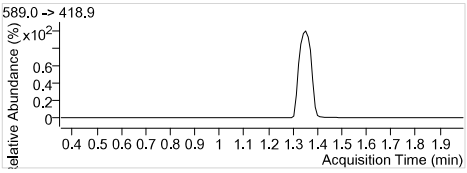
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.344)
Calc. conc. 41.51 µg/L
Area ratio: 17.81933
Sample type: Calibration



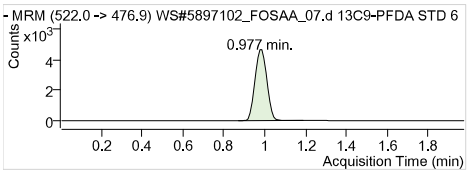


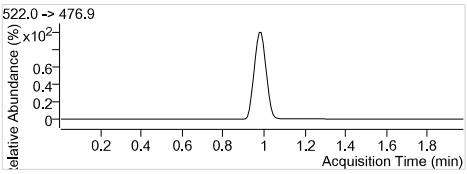
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 95.62 µg/L
Area ratio: 0.09230
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	98.14 µg/L
Area ratio:	0.08600
Sample type:	Calibration





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	98.56 µg/L
Area ratio:	0
Sample type:	Calibration

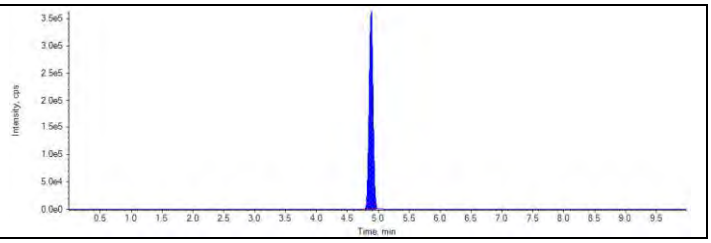
Sample ID	STD 1	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	2
Acquisition Date	2018/12/21 11:56:49 AM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1620000.	4.88	1.00	-
MPFOS	168000.	5.62	1.00	-
D3-MeFOSAA IS	1380000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	36700	2.07	500.	444.	88.9
PFHxA 1	107000	2.98	500.	466.	93.2
PFHxS 1	23400	4.15	500.	492.	98.4
PFHpA 1	136000	4.03	500.	517.	103.0
PFOA 1	123000	4.89	500.	567.	113.0
PFOS 1	13600	5.63	500.	502.	100.0
PFNA 1	49400	5.61	500.	426.	85.2
PFDA 1	68200	6.20	500.	404.	80.8
PFUnA 1	77500	6.71	500.	516.	103.0
PFDoA 1	82300	7.14	500.	476.	95.1
PFTrDA 1	80900	7.52	500.	461.	92.2
PFTeDA 1	101000	7.84	500.	492.	98.4
MeFOSAA 1	71600	6.44	2000.	1720.	85.8
EtFOSAA 1	70400	6.70	2000.	1840.	92.0
13C2-PFHxA	2120000	2.96	10000.	10000.	100.0
13C2-PFDA	1550000	6.19	10000.	9990.	99.9
D5-EtFOSAA	1190000	6.69	40000.	39800.	99.5

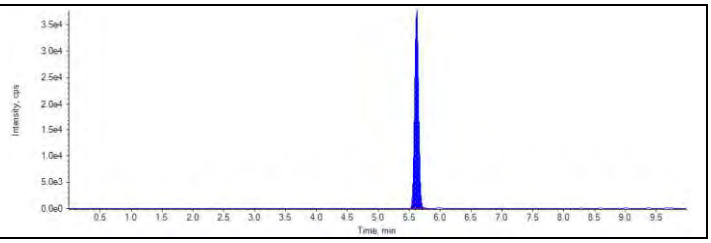
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



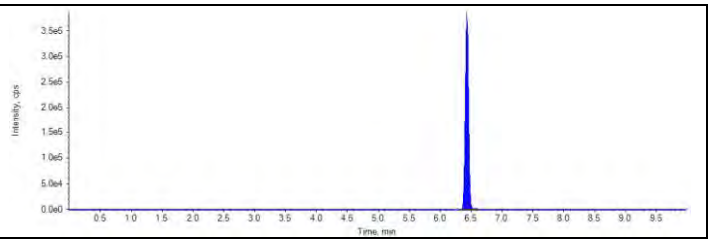
MPFOS (Internal Standard)

RT (Exp. RT): 5.62(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



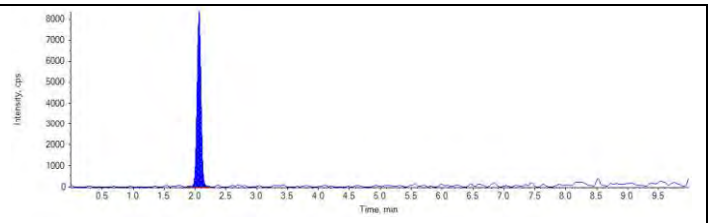
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 2.07 (1.85) min

Calculated Conc: 444. ng/L

Area Ratio: 0.218

Sample Type: (Standard)



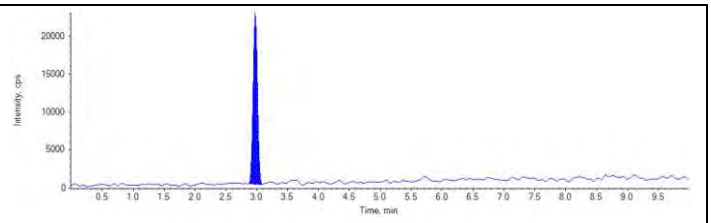
PFHxA 1 (313.000/269.000 Da)

RT (Exp. RT): 2.98 (2.97) min

Calculated Conc: 466. ng/L

Area Ratio: 0.0664

Sample Type: (Standard)



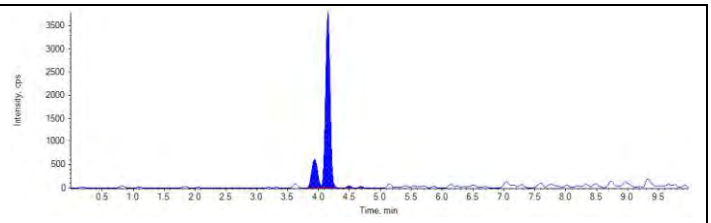
PFHxS 1 (398.900/79.900 Da)

RT (Exp. RT): 4.15 (4.05) min

Calculated Conc: 492. ng/L

Area Ratio: 0.139

Sample Type: (Standard)



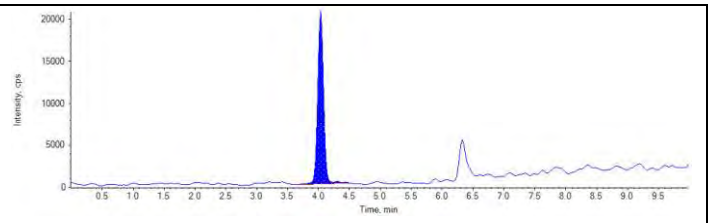
PFHpA 1 (363.000/319.000 Da)

RT (Exp. RT): 4.03 (3.91) min

Calculated Conc: 517. ng/L

Area Ratio: 0.0839

Sample Type: (Standard)



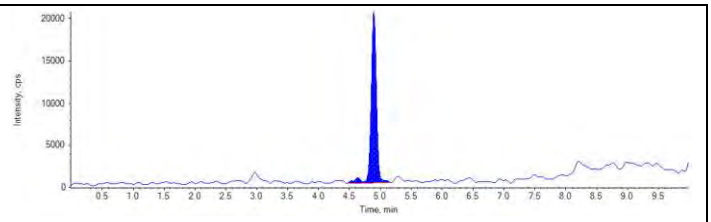
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 4.89 (4.89) min

Calculated Conc: 567. ng/L

Area Ratio: 0.0759

Sample Type: (Standard)



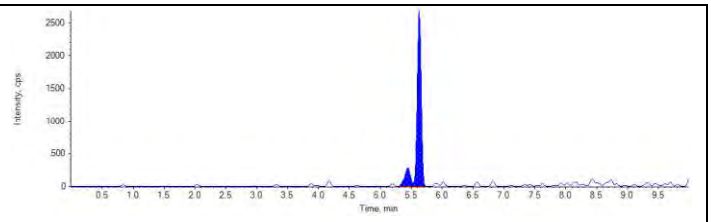
PFOS 1 (498.800/79.900 Da)

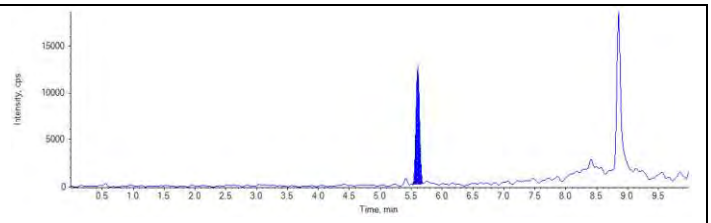
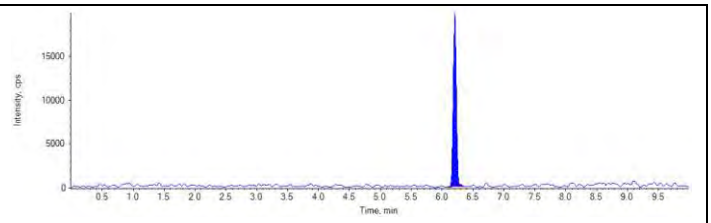
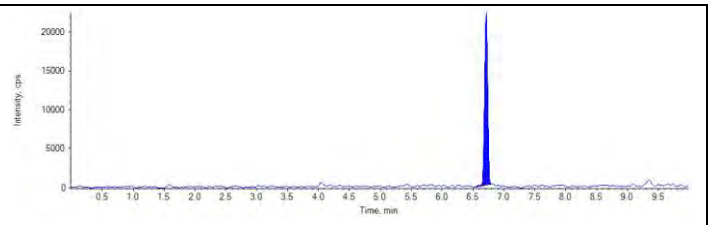
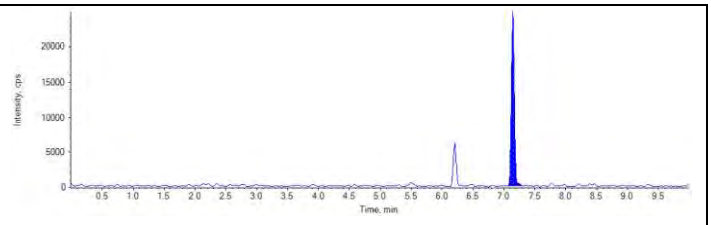
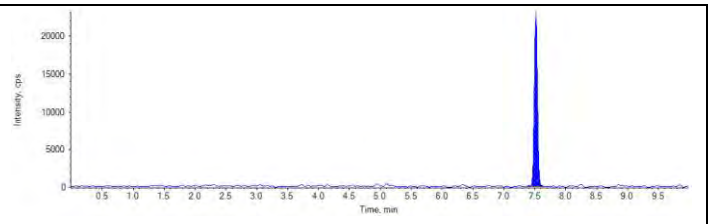
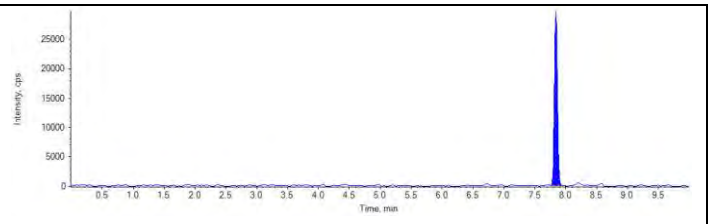
RT (Exp. RT): 5.63 (5.38) min

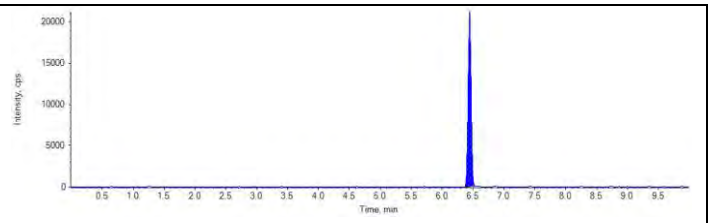
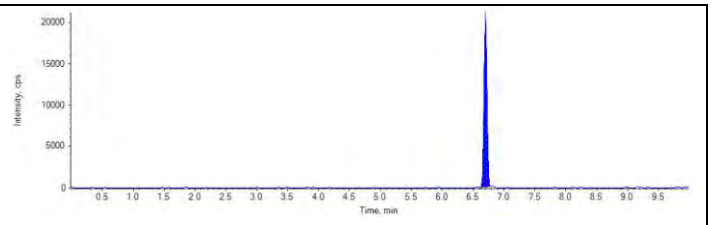
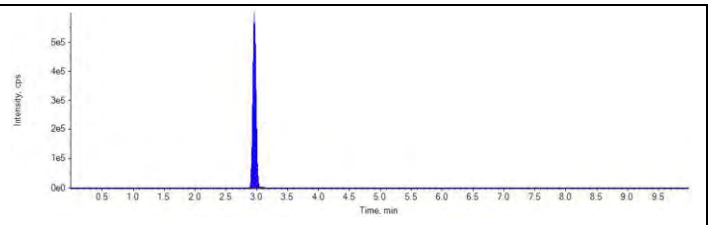
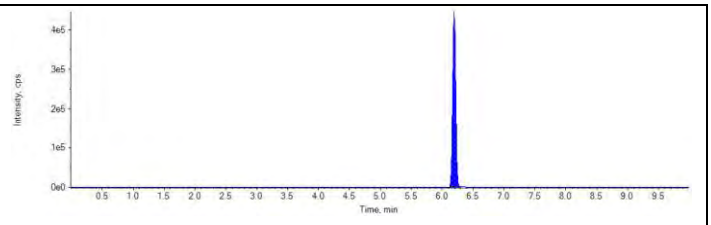
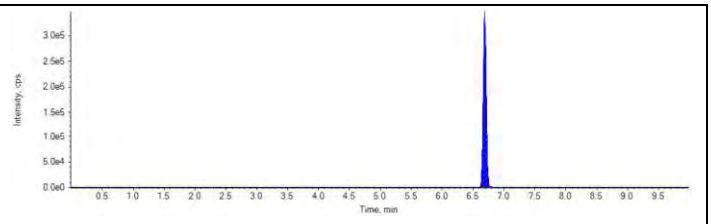
Calculated Conc: 502. ng/L

Area Ratio: 0.0807

Sample Type: (Standard)



PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.61 (5.49) min Calculated Conc: 426. ng/L Area Ratio: 0.0305 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.20 (6.07) min Calculated Conc: 404. ng/L Area Ratio: 0.0422 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.71 (6.62) min Calculated Conc: 516. ng/L Area Ratio: 0.0480 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.14 (7.04) min Calculated Conc: 476. ng/L Area Ratio: 0.0510 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.52 (7.38) min Calculated Conc: 461. ng/L Area Ratio: 0.0501 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.84 (7.64) min Calculated Conc: 492. ng/L Area Ratio: 0.0625 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 1720. ng/L Area Ratio: 0.0518 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 1840. ng/L Area Ratio: 0.0509 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 10000. ng/L Area Ratio: 1.31 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 9990. ng/L Area Ratio: 0.956 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 39800. ng/L Area Ratio: 0.863 Sample Type: (Standard)	

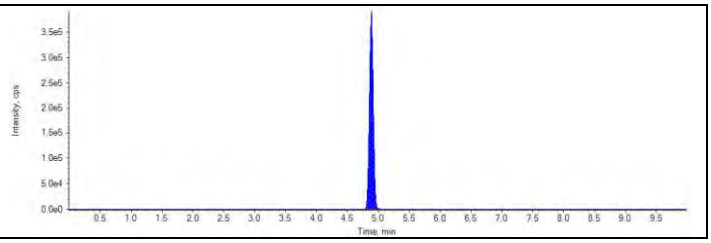
Sample ID	STD 2	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	3
Acquisition Date	2018/12/21 12:12:24 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1690000.	4.89	1.00	-
MPFOS	172000.	5.62	1.00	-
D3-MeFOSAA IS	1510000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	83100	2.07	1000.	986.	98.6
PFHxA 1	199000	2.98	1000.	829.	82.9
PFHxS 1	42800	4.15	1000.	883.	88.3
PFHpA 1	243000	4.03	1000.	886.	88.6
PFOA 1	211000	4.90	1000.	935.	93.5
PFOS 1	29100	5.63	1000.	1060.	106.0
PFNA 1	87400	5.61	1000.	723.	72.3
PFDA 1	146000	6.21	1000.	830.	83.0
PFUnA 1	125000	6.72	1000.	795.	79.5
PFDoA 1	177000	7.15	1000.	980.	98.0
PFTrDA 1	161000	7.52	1000.	880.	88.0
PFTeDA 1	197000	7.84	1000.	920.	92.0
MeFOSAA 1	143000	6.45	4000.	3130.	78.2
EtFOSAA 1	141000	6.71	4000.	3370.	84.2
13C2-PFHxA	2250000	2.96	10000.	10200.	102.0
13C2-PFDA	1540000	6.20	10000.	9540.	95.4
D5-EtFOSAA	1390000	6.69	40000.	42300.	106.0

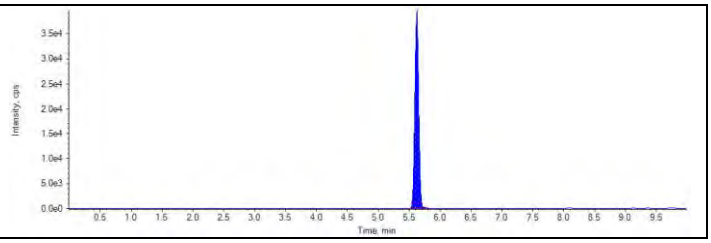
MPFOA (Internal Standard)

RT (Exp. RT): 4.89(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



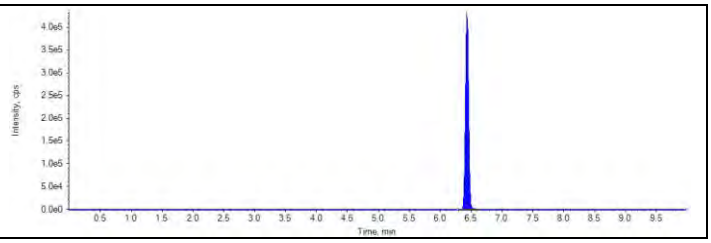
MPFOS (Internal Standard)

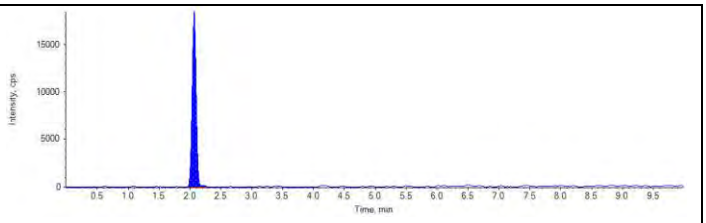
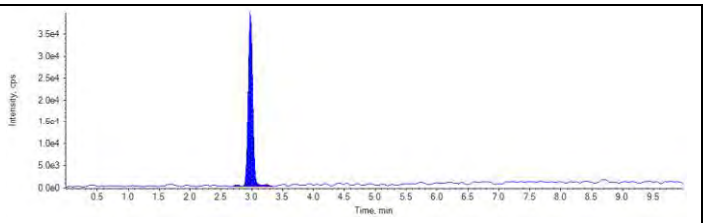
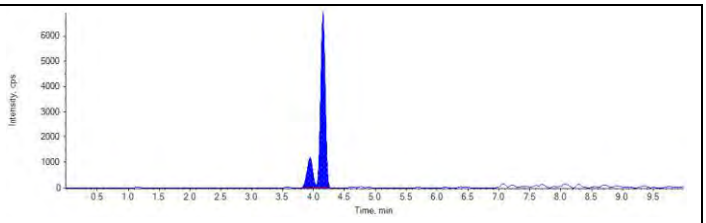
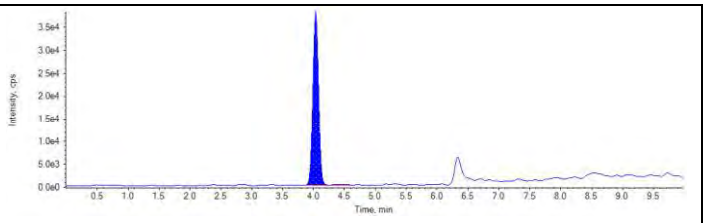
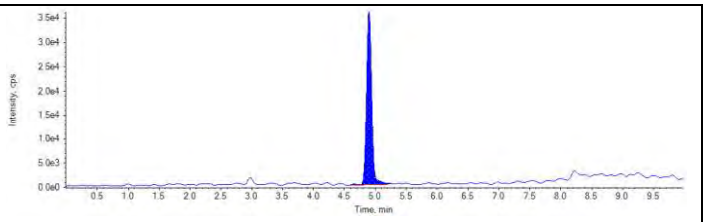
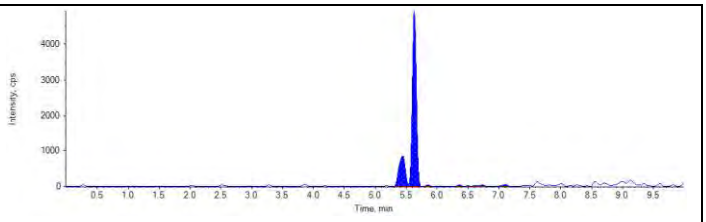
RT (Exp. RT): 5.62(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)

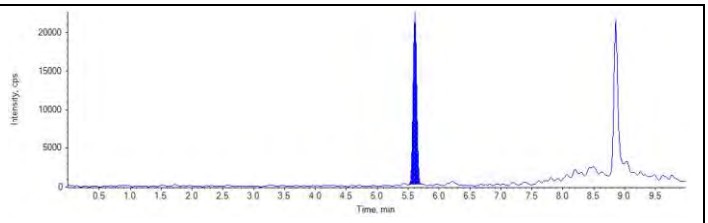
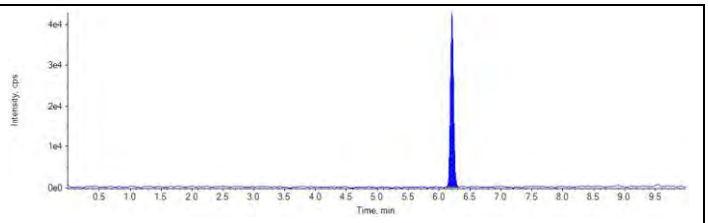
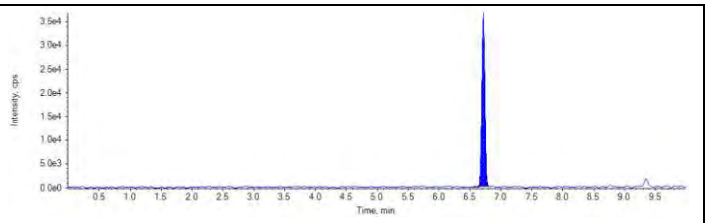
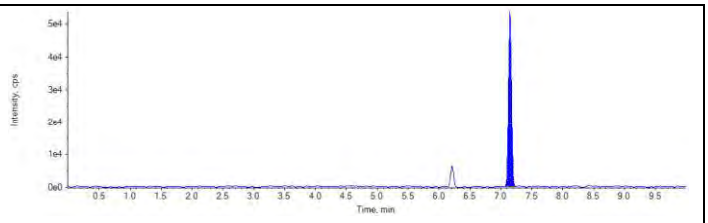
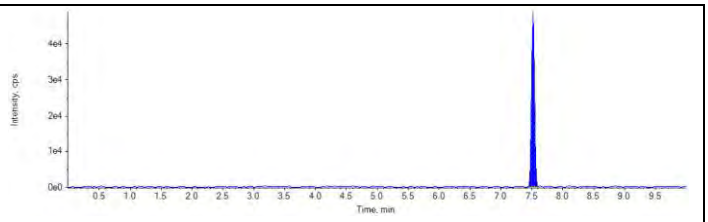
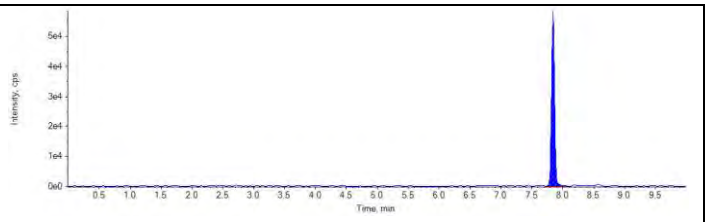


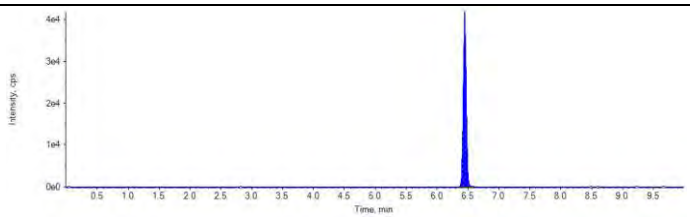
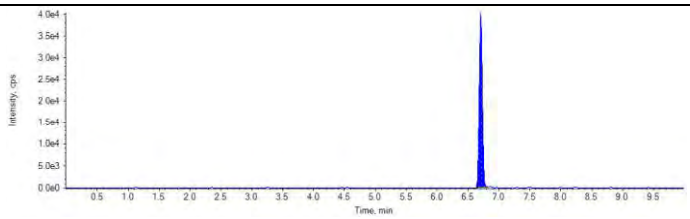
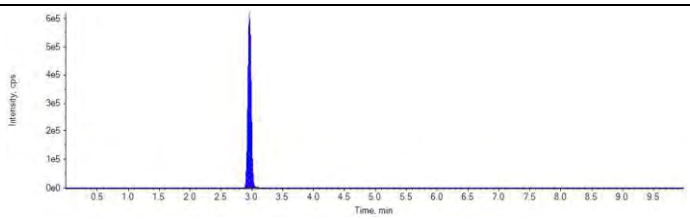
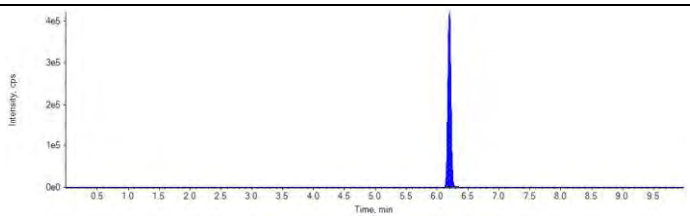
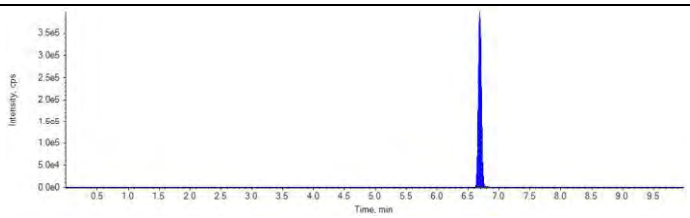
D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 986. ng/L Area Ratio: 0.484 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 829. ng/L Area Ratio: 0.118 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 883. ng/L Area Ratio: 0.250 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 886. ng/L Area Ratio: 0.144 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.90 (4.89) min Calculated Conc: 935. ng/L Area Ratio: 0.125 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 1060. ng/L Area Ratio: 0.170 Sample Type: (Standard)	

PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.61 (5.49) min Calculated Conc: 723. ng/L Area Ratio: 0.0518 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.21 (6.07) min Calculated Conc: 830. ng/L Area Ratio: 0.0867 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.72 (6.62) min Calculated Conc: 795. ng/L Area Ratio: 0.0739 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.15 (7.04) min Calculated Conc: 980. ng/L Area Ratio: 0.105 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.52 (7.38) min Calculated Conc: 880. ng/L Area Ratio: 0.0956 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.84 (7.64) min Calculated Conc: 920. ng/L Area Ratio: 0.117 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.45 (6.29) min Calculated Conc: 3130. ng/L Area Ratio: 0.0944 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.71 (6.66) min Calculated Conc: 3370. ng/L Area Ratio: 0.0931 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 10200. ng/L Area Ratio: 1.33 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.20 (6.19) min Calculated Conc: 9540. ng/L Area Ratio: 0.913 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 42300. ng/L Area Ratio: 0.918 Sample Type: (Standard)	

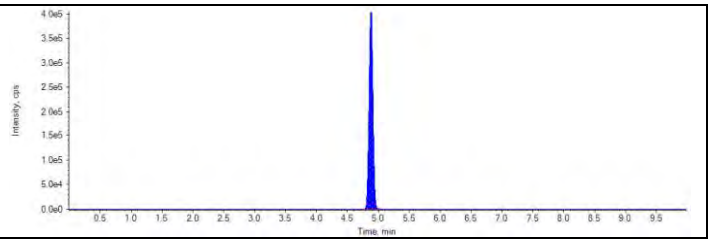
Sample ID	STD 3	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	4
Acquisition Date	2018/12/21 12:27:58 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1790000.	4.88	1.00	-
MPFOS	202000.	5.62	1.00	-
D3-MeFOSAA IS	1600000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	240000	2.07	3000.	2410.	80.3
PFHxA 1	663000	2.98	3000.	2600.	86.7
PFHxS 1	140000	4.15	3000.	2450.	81.8
PFHpA 1	772000	4.03	3000.	2660.	88.5
PFOA 1	642000	4.90	3000.	2680.	89.4
PFOS 1	90900	5.63	3000.	2790.	93.0
PFNA 1	325000	5.60	3000.	2530.	84.5
PFDA 1	466000	6.20	3000.	2490.	83.1
PFUnA 1	486000	6.71	3000.	2920.	97.4
PFDoA 1	538000	7.14	3000.	2810.	93.5
PFTrDA 1	543000	7.51	3000.	2800.	93.2
PFTeDA 1	647000	7.84	3000.	2850.	94.9
MeFOSAA 1	488000	6.44	12000.	10100.	84.0
EtFOSAA 1	454000	6.70	12000.	10200.	85.3
13C2-PFHxA	2200000	2.97	10000.	9390.	93.9
13C2-PFDA	1630000	6.19	10000.	9530.	95.3
D5-EtFOSAA	1120000	6.69	40000.	32300.	80.7

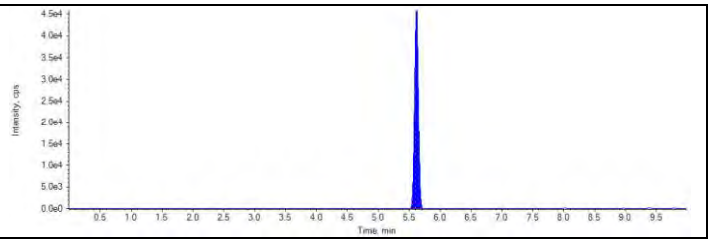
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



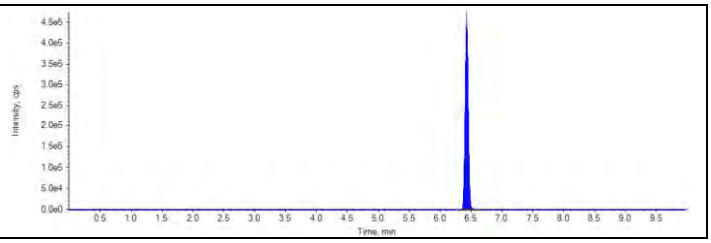
MPFOS (Internal Standard)

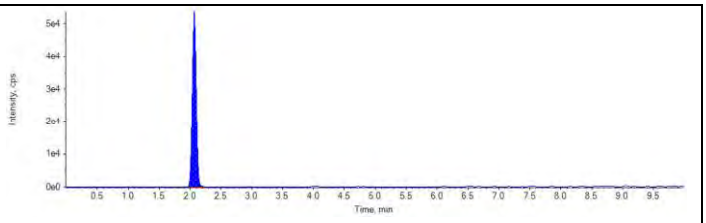
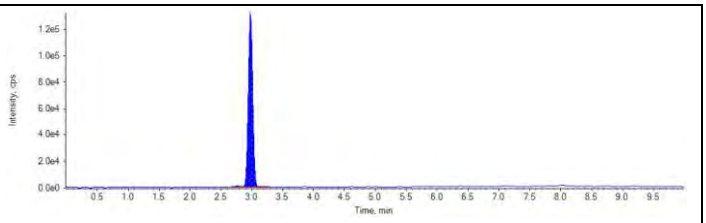
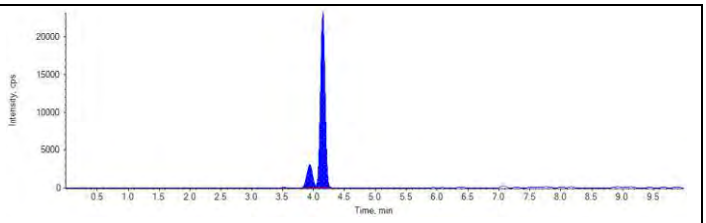
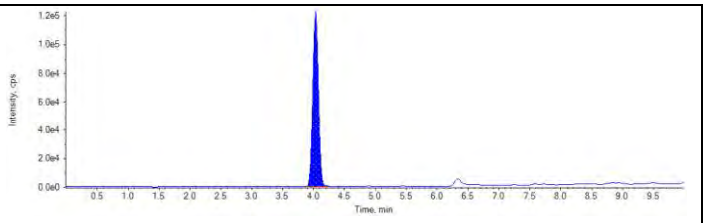
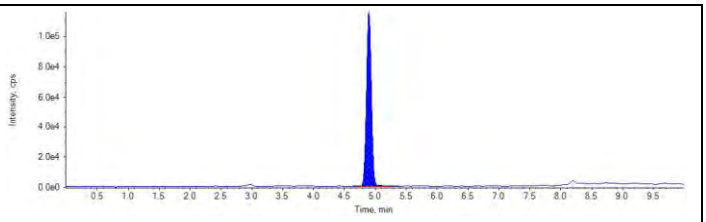
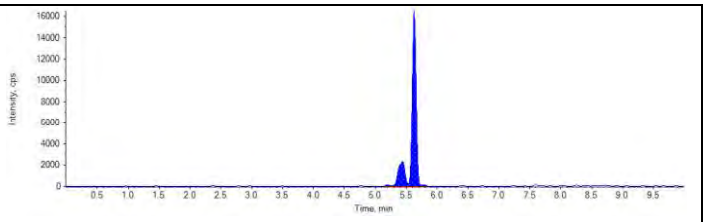
RT (Exp. RT): 5.62(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 2410. ng/L Area Ratio: 1.18 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 2600. ng/L Area Ratio: 0.371 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 2450. ng/L Area Ratio: 0.693 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 2660. ng/L Area Ratio: 0.431 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.90 (4.89) min Calculated Conc: 2680. ng/L Area Ratio: 0.359 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 2790. ng/L Area Ratio: 0.449 Sample Type: (Standard)	

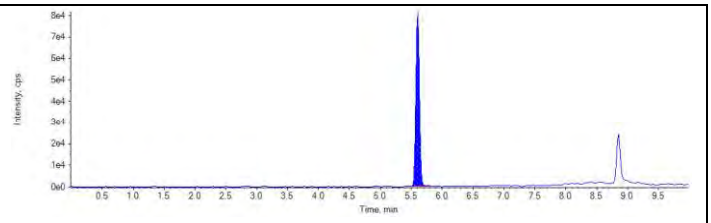
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.60 (5.49) min

Calculated Conc: 2530. ng/L

Area Ratio: 0.182

Sample Type: (Standard)



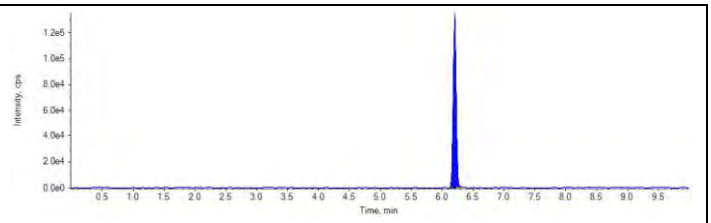
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.20 (6.07) min

Calculated Conc: 2490. ng/L

Area Ratio: 0.260

Sample Type: (Standard)



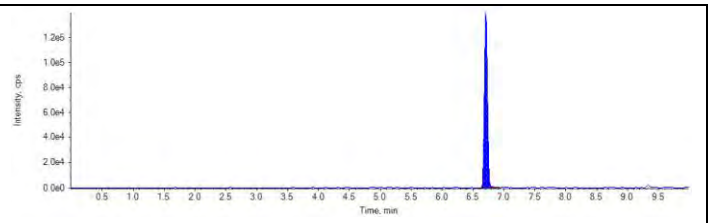
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.71 (6.62) min

Calculated Conc: 2920. ng/L

Area Ratio: 0.272

Sample Type: (Standard)



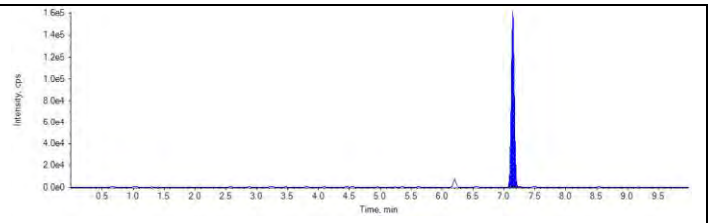
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.14 (7.04) min

Calculated Conc: 2810. ng/L

Area Ratio: 0.301

Sample Type: (Standard)



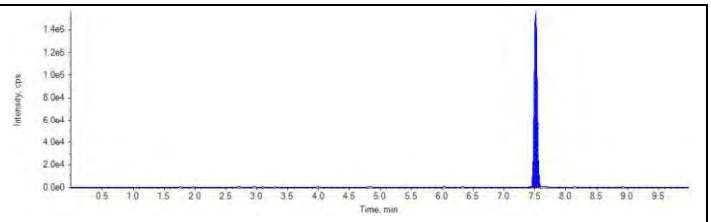
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.51 (7.38) min

Calculated Conc: 2800. ng/L

Area Ratio: 0.304

Sample Type: (Standard)



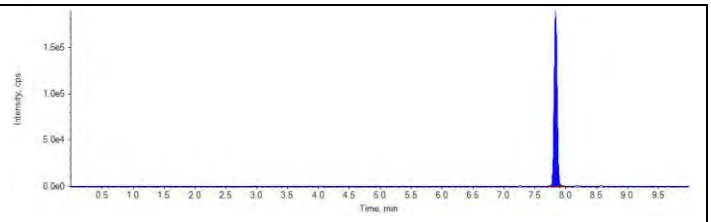
PFTeDA 1 (713.000/669.000 Da)

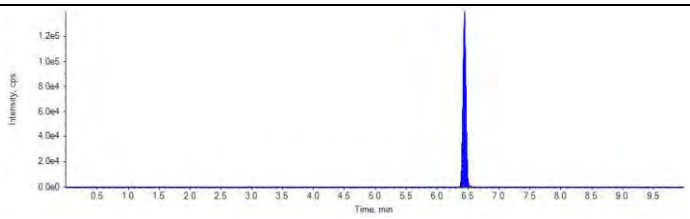
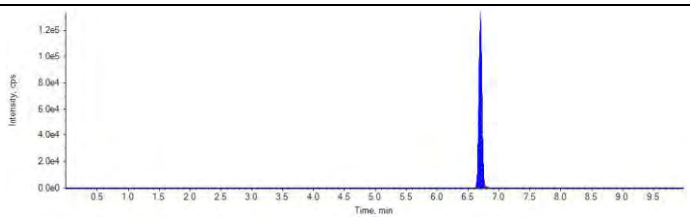
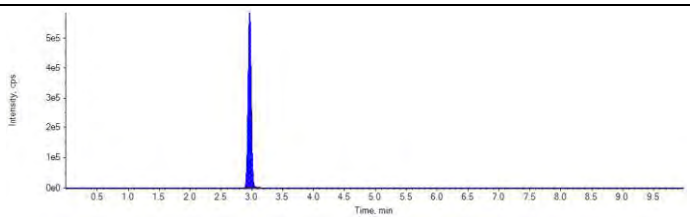
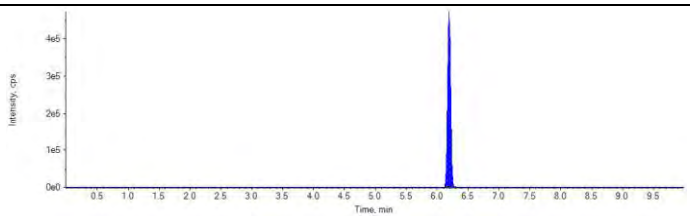
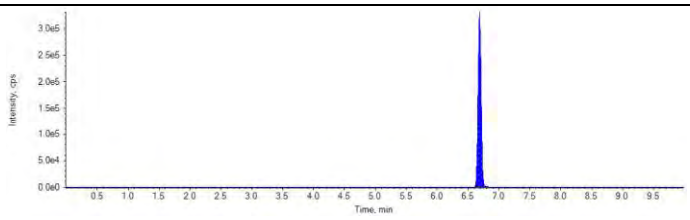
RT (Exp. RT): 7.84 (7.64) min

Calculated Conc: 2850. ng/L

Area Ratio: 0.362

Sample Type: (Standard)



MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 10100. ng/L Area Ratio: 0.304 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 10200. ng/L Area Ratio: 0.283 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.97 (2.96) min Calculated Conc: 9390. ng/L Area Ratio: 1.23 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 9530. ng/L Area Ratio: 0.912 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 32300. ng/L Area Ratio: 0.700 Sample Type: (Standard)	

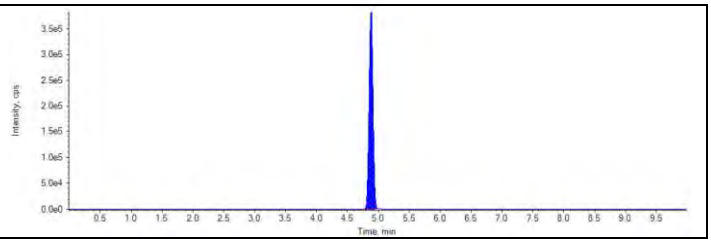
Sample ID	STD 4	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	5
Acquisition Date	2018/12/21 12:43:33 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1710000.	4.88	1.00	-
MPFOS	177000.	5.62	1.00	-
D3-MeFOSAA IS	1440000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	627000	2.07	7000.	7220.	103.0
PFHxA 1	1620000	2.98	7000.	6650.	95.0
PFHxS 1	371000	4.15	7000.	7430.	106.0
PFHpA 1	1900000	4.03	7000.	6860.	98.0
PFOA 1	1460000	4.90	7000.	6370.	91.0
PFOS 1	211000	5.63	7000.	7410.	106.0
PFNA 1	817000	5.60	7000.	6680.	95.4
PFDA 1	1120000	6.21	7000.	6270.	89.6
PFUnA 1	997000	6.71	7000.	6280.	89.7
PFDoA 1	1140000	7.15	7000.	6250.	89.2
PFTrDA 1	1260000	7.52	7000.	6770.	96.8
PFTeDA 1	1450000	7.84	7000.	6680.	95.5
MeFOSAA 1	1200000	6.44	28000.	27600.	98.7
EtFOSAA 1	1080000	6.70	28000.	27100.	96.6
13C2-PFHxA	2190000	2.96	10000.	9810.	98.1
13C2-PFDA	1600000	6.19	10000.	9780.	97.8
D5-EtFOSAA	1320000	6.69	40000.	42300.	106.0

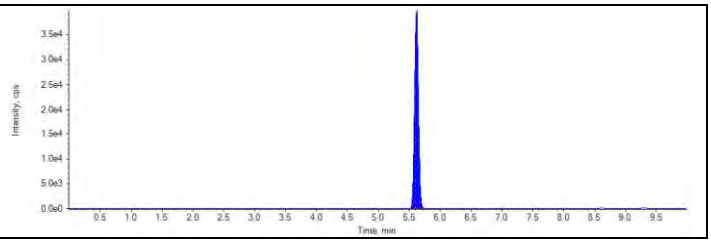
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



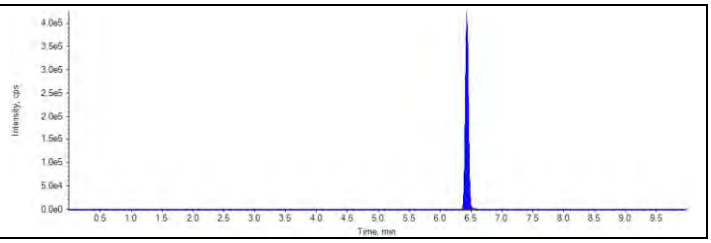
MPFOS (Internal Standard)

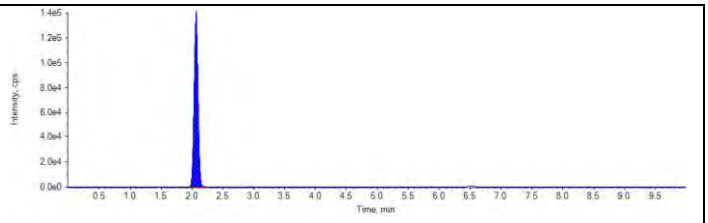
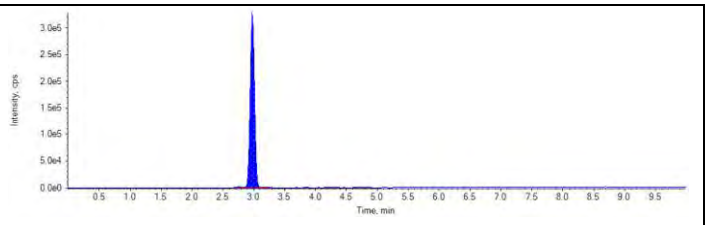
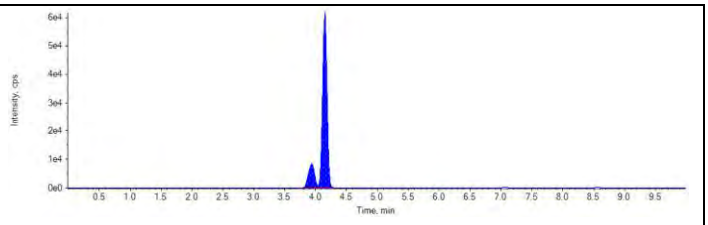
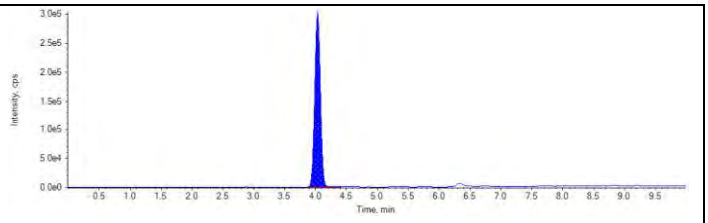
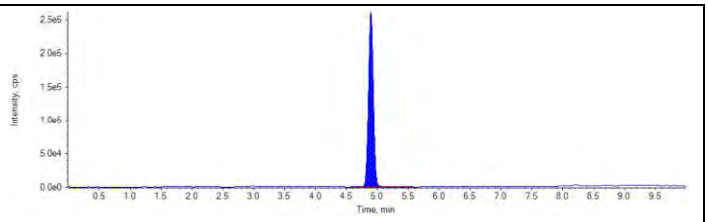
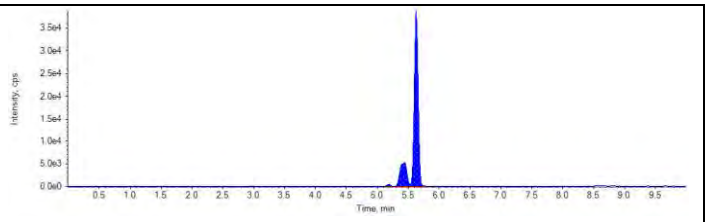
RT (Exp. RT): 5.62(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 7220. ng/L Area Ratio: 3.55 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 6650. ng/L Area Ratio: 0.948 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 7430. ng/L Area Ratio: 2.10 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 6860. ng/L Area Ratio: 1.11 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.90 (4.89) min Calculated Conc: 6370. ng/L Area Ratio: 0.852 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 7410. ng/L Area Ratio: 1.19 Sample Type: (Standard)	

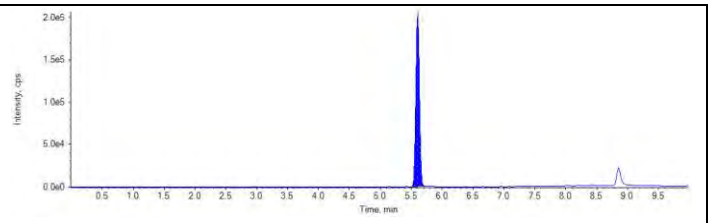
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.60 (5.49) min

Calculated Conc: 6680. ng/L

Area Ratio: 0.479

Sample Type: (Standard)



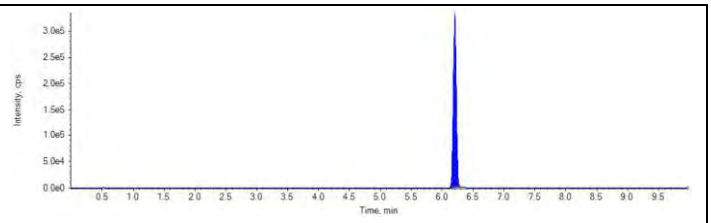
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.21 (6.07) min

Calculated Conc: 6270. ng/L

Area Ratio: 0.655

Sample Type: (Standard)



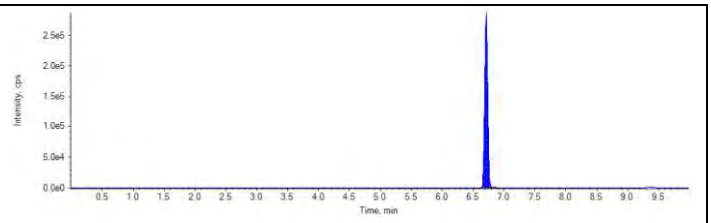
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.71 (6.62) min

Calculated Conc: 6280. ng/L

Area Ratio: 0.584

Sample Type: (Standard)



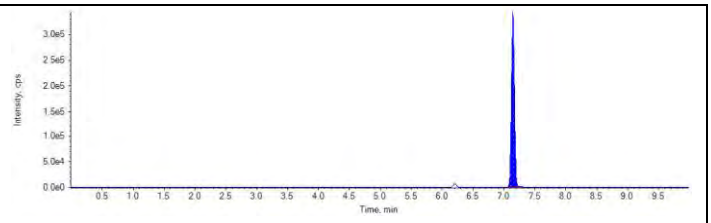
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.15 (7.04) min

Calculated Conc: 6250. ng/L

Area Ratio: 0.669

Sample Type: (Standard)



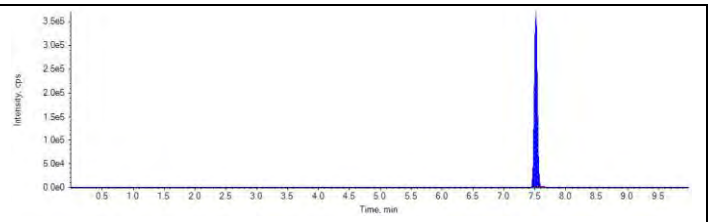
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.52 (7.38) min

Calculated Conc: 6770. ng/L

Area Ratio: 0.736

Sample Type: (Standard)



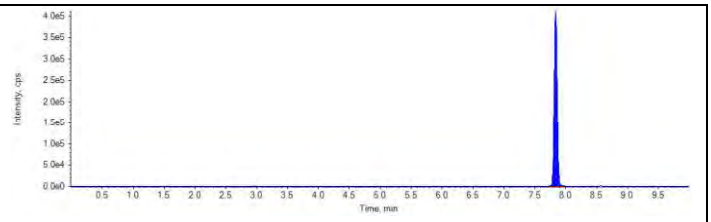
PFTeDA 1 (713.000/669.000 Da)

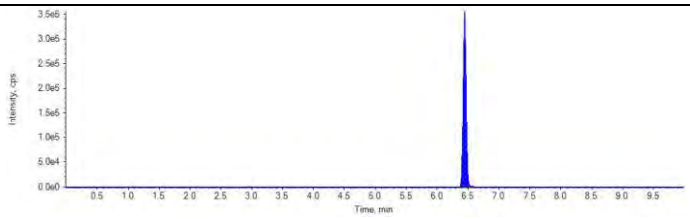
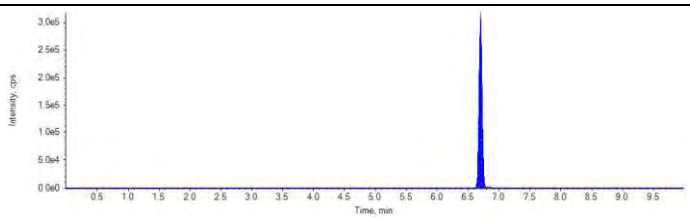
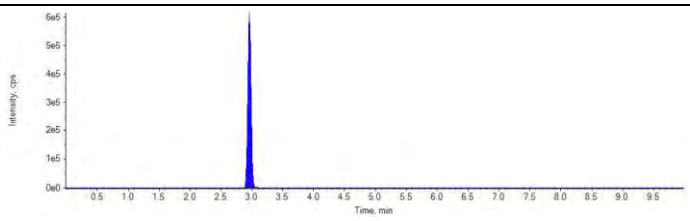
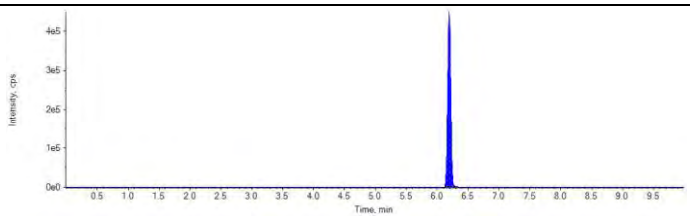
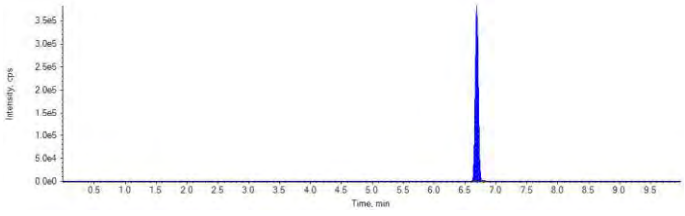
RT (Exp. RT): 7.84 (7.64) min

Calculated Conc: 6680. ng/L

Area Ratio: 0.849

Sample Type: (Standard)

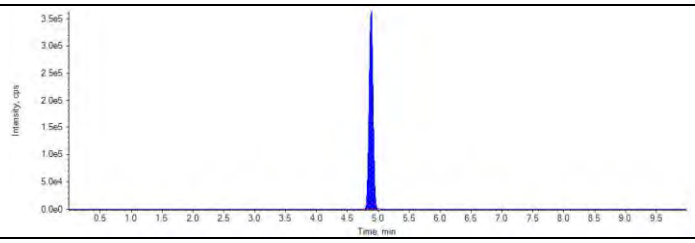
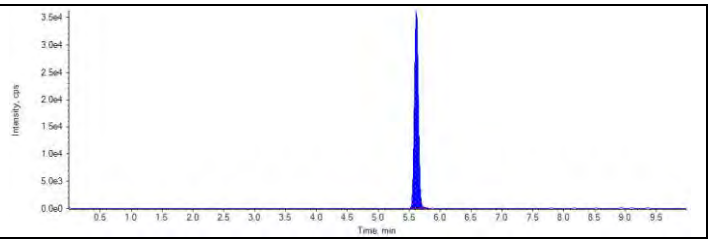
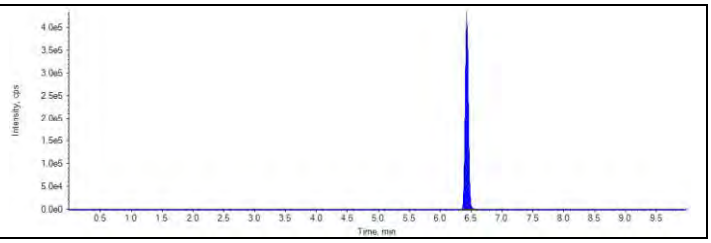


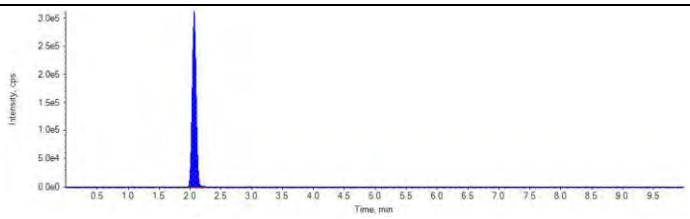
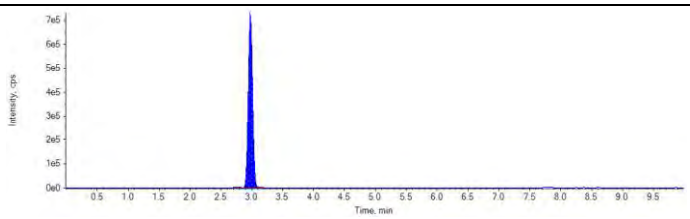
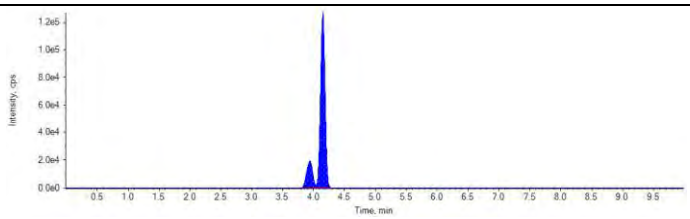
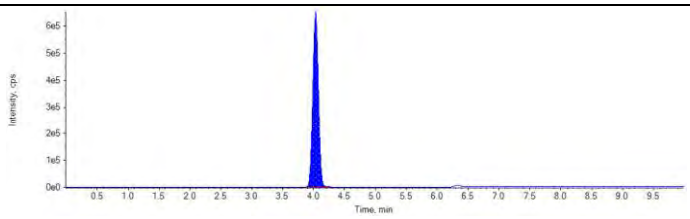
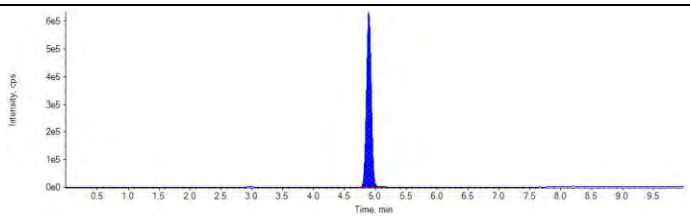
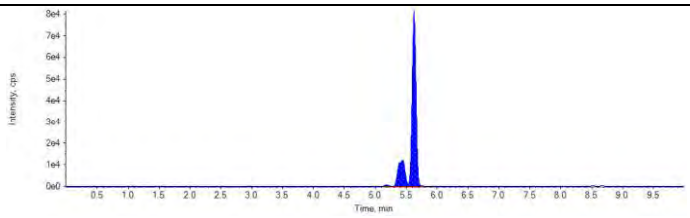
MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 27600. ng/L Area Ratio: 0.834 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 27100. ng/L Area Ratio: 0.748 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 9810. ng/L Area Ratio: 1.28 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 9780. ng/L Area Ratio: 0.936 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 42300. ng/L Area Ratio: 0.918 Sample Type: (Standard)	

Sample ID	STD 5	**Injection Volume (µL)**	1.5
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2018/12/21 12:59:07 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	Re-injected		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1620000.	4.88	1.00	-
MPFOS	161000.	5.61	1.00	-
D3-MeFOSAA IS	1480000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	1370000	2.07	15000.	17400.	116.0
PFHxA 1	3550000	2.98	15000.	15400.	103.0
PFHxS 1	781000	4.15	15000.	17200.	115.0
PFHpA 1	4100000	4.03	15000.	15600.	104.0
PFOA 1	3460000	4.89	15000.	15900.	106.0
PFOS 1	454000	5.63	15000.	17600.	117.0
PFNA 1	1790000	5.60	15000.	15400.	103.0
PFDA 1	2480000	6.20	15000.	14700.	97.8
PFUnA 1	2560000	6.71	15000.	17000.	113.0
PFDoA 1	2630000	7.14	15000.	15100.	101.0
PFTrDA 1	2970000	7.51	15000.	16900.	112.0
PFTeDA 1	3140000	7.84	15000.	15300.	102.0
MeFOSAA 1	2530000	6.44	60000.	56600.	94.3
EtFOSAA 1	2500000	6.70	60000.	61100.	102.0
13C2-PFHxA	2330000	2.96	10000.	11000.	110.0
13C2-PFDA	1590000	6.19	10000.	10200.	102.0
D5-EtFOSAA	1400000	6.69	40000.	43700.	109.0

MPFOA (Internal Standard) RT (Exp. RT): 4.88(4.84) min Concentration: 1.00 ng/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 5.61(5.38) min Concentration: 1.00 ng/L Sample Type: (Quality Control)	
D3-MeFOSAA IS (Internal Standard) RT (Exp. RT): 6.43(6.43) min Concentration: 1.00 ng/L Sample Type: (Quality Control)	

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 17400. ng/L Area Ratio: 8.56 Sample Type: (Quality Control)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 15400. ng/L Area Ratio: 2.19 Sample Type: (Quality Control)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 17200. ng/L Area Ratio: 4.87 Sample Type: (Quality Control)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 15600. ng/L Area Ratio: 2.53 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.89 (4.89) min Calculated Conc: 15900. ng/L Area Ratio: 2.13 Sample Type: (Quality Control)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 17600. ng/L Area Ratio: 2.83 Sample Type: (Quality Control)	

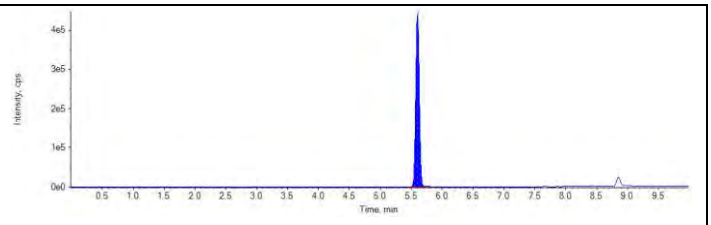
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.60 (5.49) min

Calculated Conc: 15400. ng/L

Area Ratio: 1.10

Sample Type: (Quality Control)



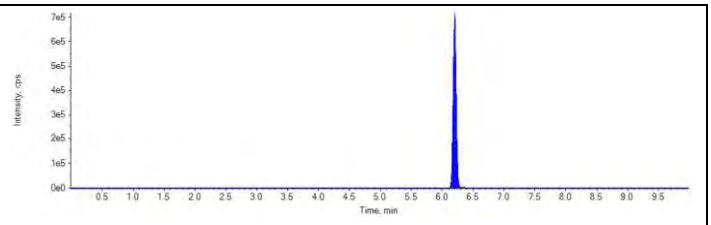
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.20 (6.07) min

Calculated Conc: 14700. ng/L

Area Ratio: 1.53

Sample Type: (Quality Control)



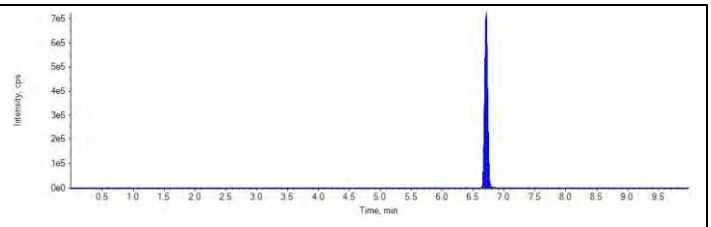
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.71 (6.62) min

Calculated Conc: 17000. ng/L

Area Ratio: 1.58

Sample Type: (Quality Control)



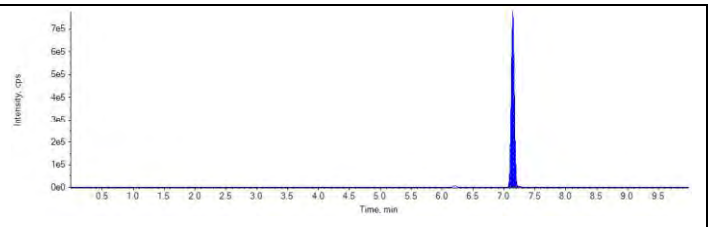
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.14 (7.04) min

Calculated Conc: 15100. ng/L

Area Ratio: 1.62

Sample Type: (Quality Control)



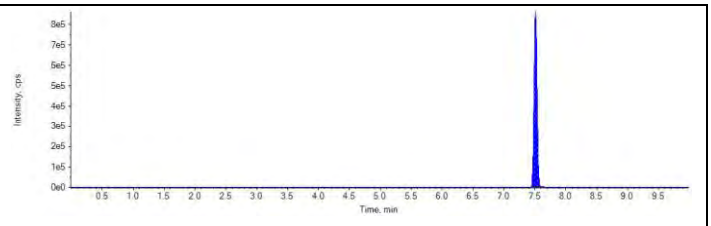
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.51 (7.38) min

Calculated Conc: 16900. ng/L

Area Ratio: 1.83

Sample Type: (Quality Control)



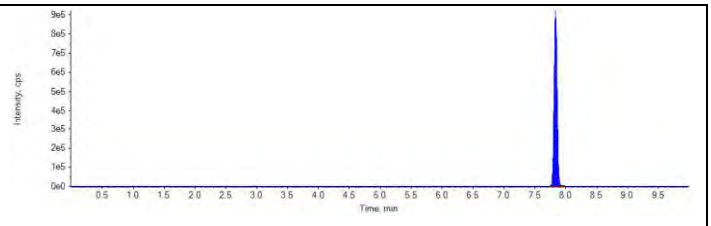
PFTeDA 1 (713.000/669.000 Da)

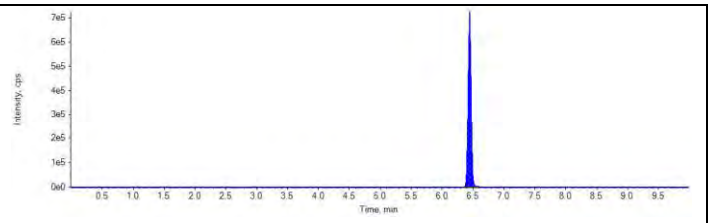
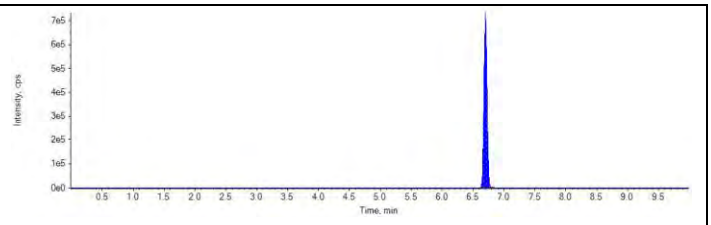
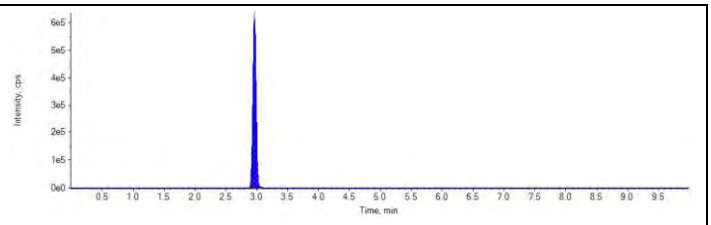
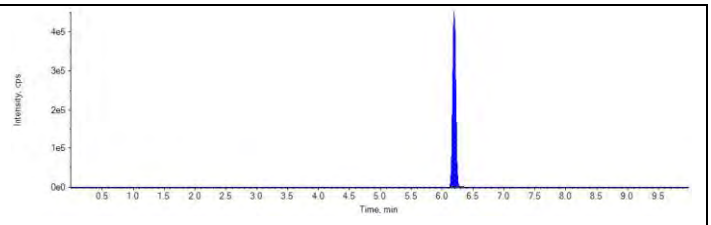
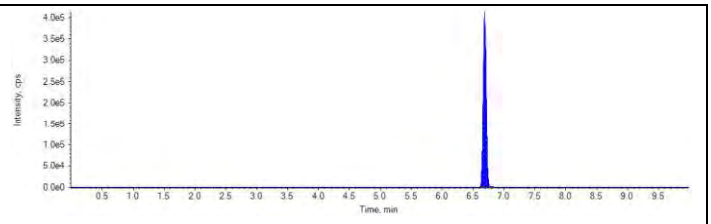
RT (Exp. RT): 7.84 (7.64) min

Calculated Conc: 15300. ng/L

Area Ratio: 1.94

Sample Type: (Quality Control)



MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 56600. ng/L Area Ratio: 1.71 Sample Type: (Quality Control)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 61100. ng/L Area Ratio: 1.69 Sample Type: (Quality Control)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 11000. ng/L Area Ratio: 1.44 Sample Type: (Quality Control)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 10200. ng/L Area Ratio: 0.980 Sample Type: (Quality Control)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 43700. ng/L Area Ratio: 0.948 Sample Type: (Quality Control)	

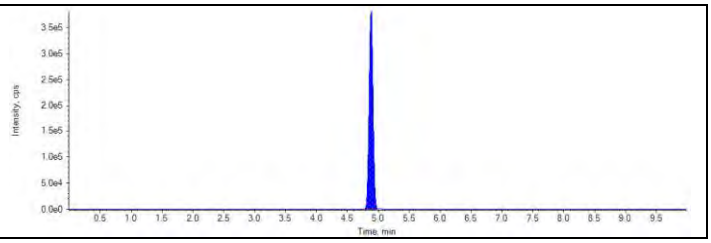
Sample ID	STD 5	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	6
Acquisition Date	2018/12/21 1:45:51 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1680000.	4.88	1.00	-
MPFOS	183000.	5.61	1.00	-
D3-MeFOSAA IS	1490000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	1410000	2.07	15000.	15700.	105.0
PFHxA 1	3680000	2.98	15000.	15400.	102.0
PFHxS 1	835000	4.15	15000.	16200.	108.0
PFHpA 1	4150000	4.03	15000.	15200.	101.0
PFOA 1	3360000	4.89	15000.	14900.	99.5
PFOS 1	472000	5.63	15000.	16000.	107.0
PFNA 1	1970000	5.60	15000.	16300.	109.0
PFDA 1	2840000	6.20	15000.	16100.	108.0
PFUnA 1	2500000	6.71	15000.	16000.	106.0
PFDoA 1	2880000	7.14	15000.	16000.	106.0
PFTrDA 1	2890000	7.51	15000.	15800.	105.0
PFTeDA 1	3070000	7.83	15000.	14400.	95.8
MeFOSAA 1	2740000	6.44	60000.	60700.	101.0
EtFOSAA 1	2440000	6.70	60000.	59200.	98.6
13C2-PFHxA	2220000	2.96	10000.	10100.	101.0
13C2-PFDA	1680000	6.19	10000.	10400.	104.0
D5-EtFOSAA	1320000	6.69	40000.	40900.	102.0

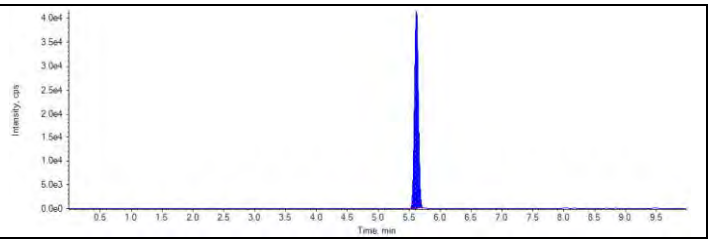
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



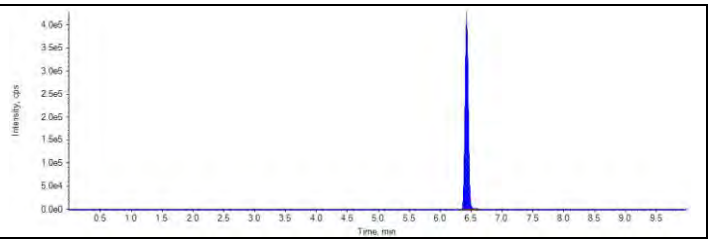
MPFOS (Internal Standard)

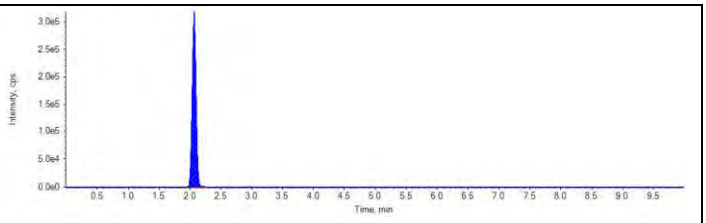
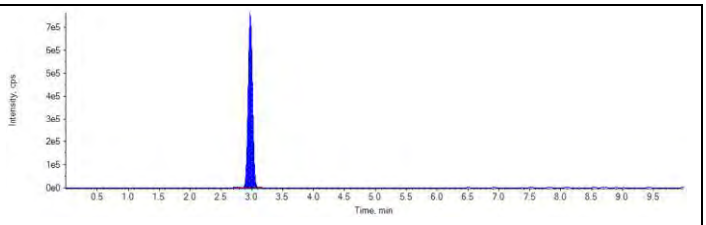
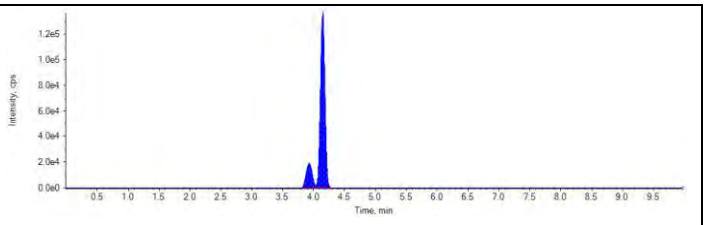
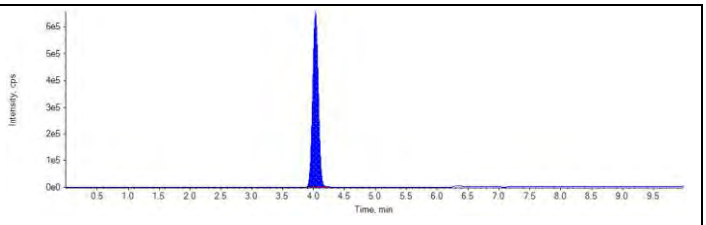
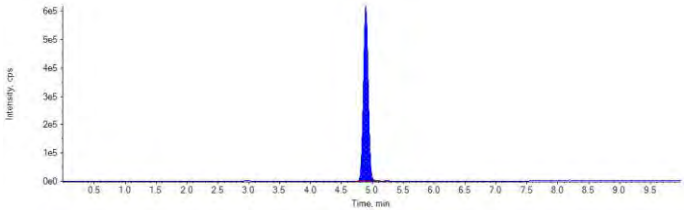
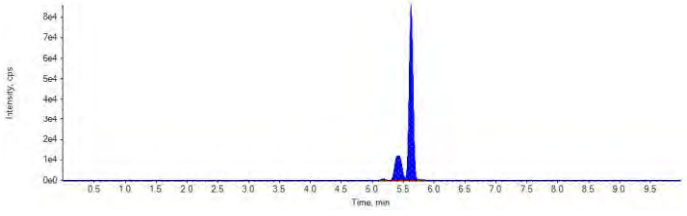
RT (Exp. RT): 5.61(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 15700. ng/L Area Ratio: 7.70 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 15400. ng/L Area Ratio: 2.19 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 16200. ng/L Area Ratio: 4.57 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 15200. ng/L Area Ratio: 2.47 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.89 (4.89) min Calculated Conc: 14900. ng/L Area Ratio: 2.00 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 16000. ng/L Area Ratio: 2.58 Sample Type: (Standard)	

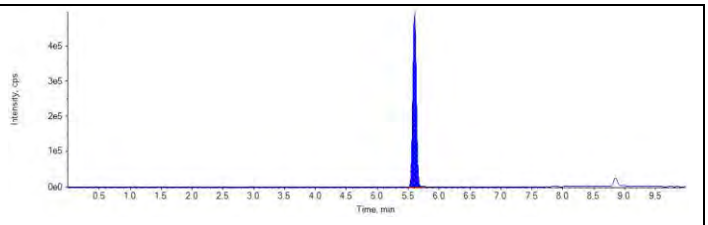
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.60 (5.49) min

Calculated Conc: 16300. ng/L

Area Ratio: 1.17

Sample Type: (Standard)



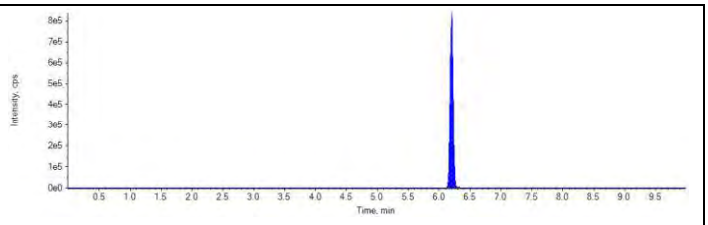
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.20 (6.07) min

Calculated Conc: 16100. ng/L

Area Ratio: 1.69

Sample Type: (Standard)



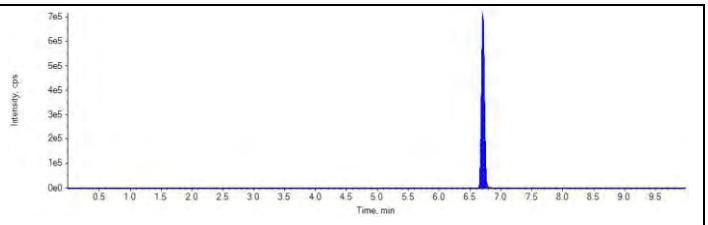
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.71 (6.62) min

Calculated Conc: 16000. ng/L

Area Ratio: 1.49

Sample Type: (Standard)



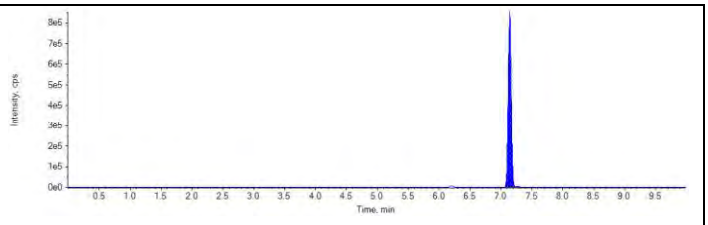
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.14 (7.04) min

Calculated Conc: 16000. ng/L

Area Ratio: 1.71

Sample Type: (Standard)



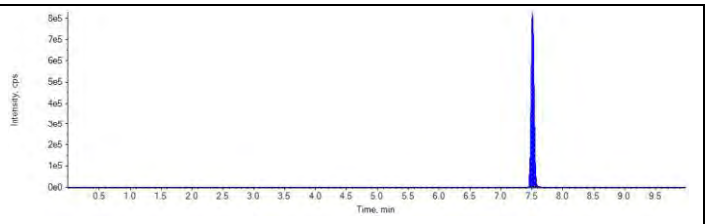
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.51 (7.38) min

Calculated Conc: 15800. ng/L

Area Ratio: 1.72

Sample Type: (Standard)



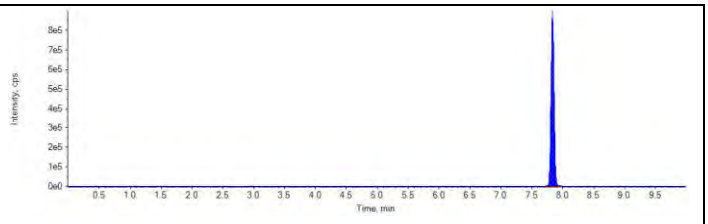
PFTeDA 1 (713.000/669.000 Da)

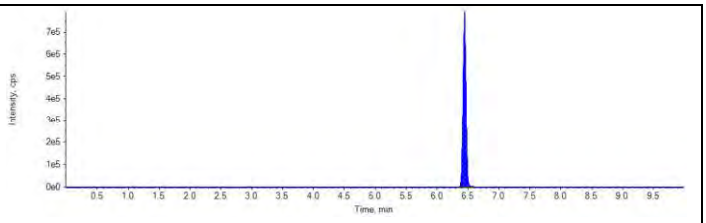
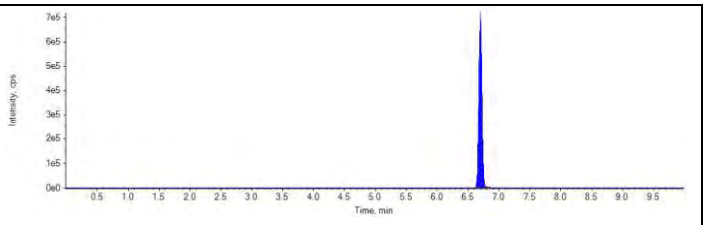
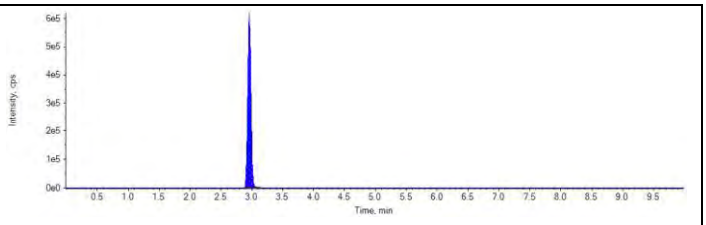
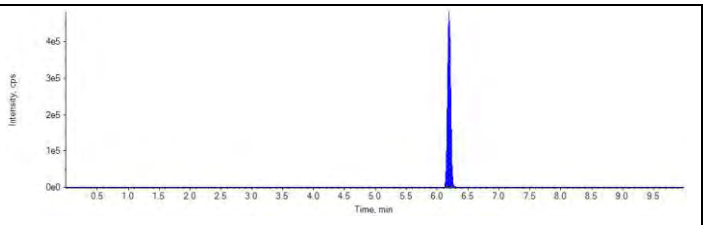
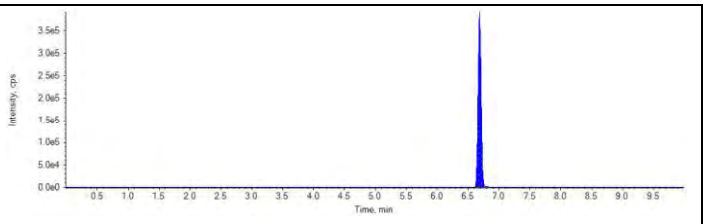
RT (Exp. RT): 7.83 (7.64) min

Calculated Conc: 14400. ng/L

Area Ratio: 1.83

Sample Type: (Standard)



MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 60700. ng/L Area Ratio: 1.83 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 59200. ng/L Area Ratio: 1.64 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 10100. ng/L Area Ratio: 1.32 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 10400. ng/L Area Ratio: 0.998 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 40900. ng/L Area Ratio: 0.886 Sample Type: (Standard)	

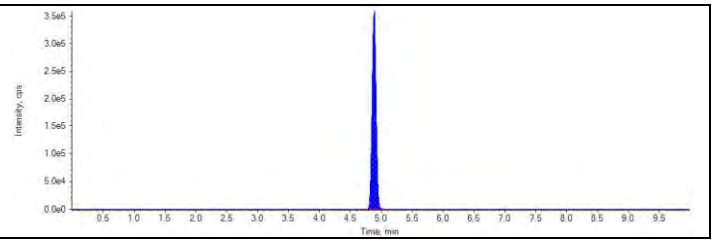
Sample ID	STD 6	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	7
Acquisition Date	2018/12/21 1:14:42 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1610000.	4.88	1.00	-
MPFOS	187000.	5.62	1.00	-
D3-MeFOSAA IS	1420000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	2270000	2.06	25000.	24800.	99.0
PFHxA 1	5880000	2.98	25000.	25600.	102.0
PFHxS 1	1270000	4.15	25000.	24100.	96.3
PFHpA 1	6640000	4.03	25000.	25400.	102.0
PFOA 1	5610000	4.90	25000.	26000.	104.0
PFOS 1	711000	5.63	25000.	23700.	94.8
PFNA 1	2860000	5.60	25000.	24800.	99.2
PFDA 1	4270000	6.20	25000.	25400.	101.0
PFUnA 1	3750000	6.71	25000.	25000.	100.0
PFDoA 1	4320000	7.14	25000.	25000.	100.0
PFTrDA 1	4340000	7.51	25000.	24800.	99.1
PFTeDA 1	5360000	7.83	25000.	26200.	105.0
MeFOSAA 1	4410000	6.44	100000.	103000.	103.0
EtFOSAA 1	4100000	6.70	100000.	104000.	104.0
13C2-PFHxA	2230000	2.96	10000.	10600.	106.0
13C2-PFDA	1650000	6.19	10000.	10700.	107.0
D5-EtFOSAA	1310000	6.69	40000.	42400.	106.0

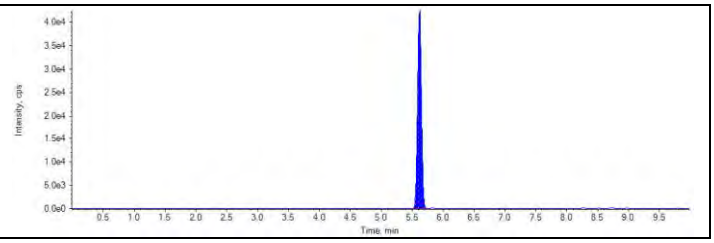
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



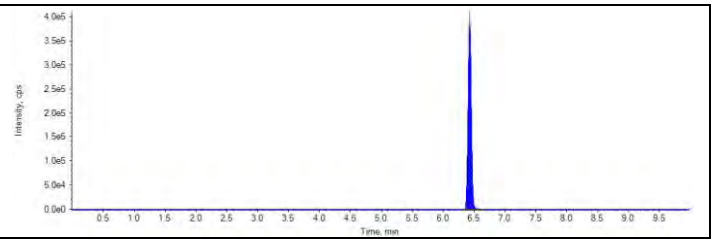
MPFOS (Internal Standard)

RT (Exp. RT): 5.62(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



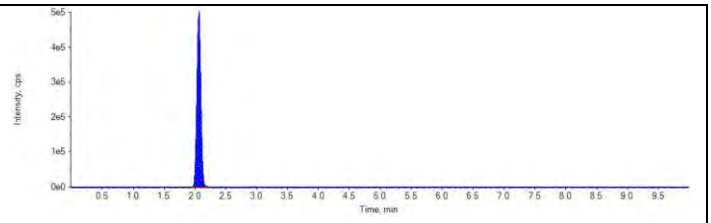
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 2.06 (1.85) min

Calculated Conc: 24800. ng/L

Area Ratio: 12.2

Sample Type: (Standard)



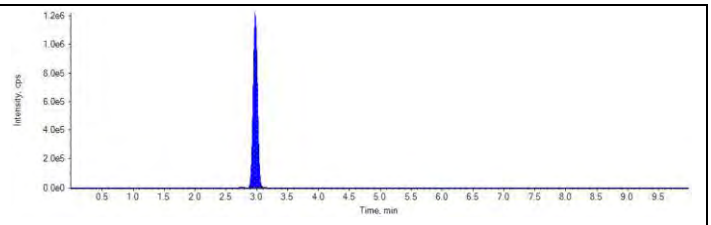
PFHxA 1 (313.000/269.000 Da)

RT (Exp. RT): 2.98 (2.97) min

Calculated Conc: 25600. ng/L

Area Ratio: 3.65

Sample Type: (Standard)



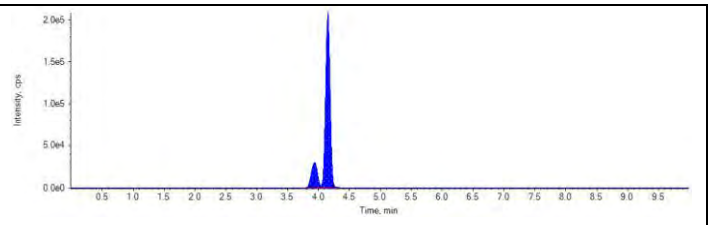
PFHxS 1 (398.900/79.900 Da)

RT (Exp. RT): 4.15 (4.05) min

Calculated Conc: 24100. ng/L

Area Ratio: 6.80

Sample Type: (Standard)



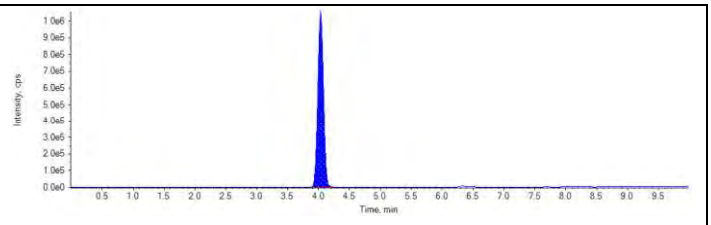
PFHpA 1 (363.000/319.000 Da)

RT (Exp. RT): 4.03 (3.91) min

Calculated Conc: 25400. ng/L

Area Ratio: 4.12

Sample Type: (Standard)



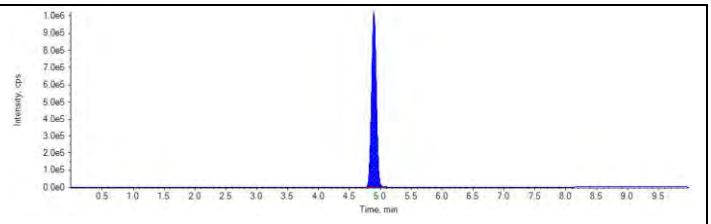
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 4.90 (4.89) min

Calculated Conc: 26000. ng/L

Area Ratio: 3.48

Sample Type: (Standard)



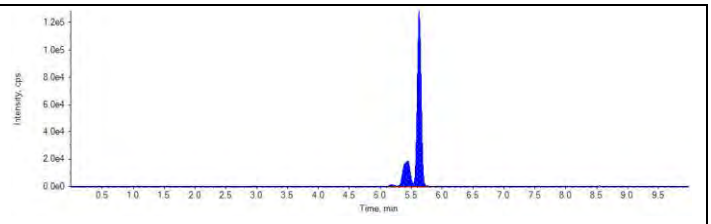
PFOS 1 (498.800/79.900 Da)

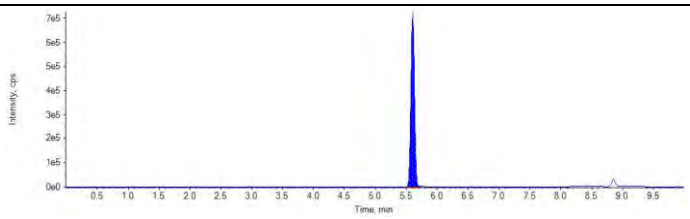
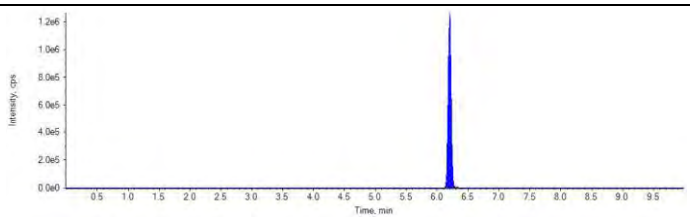
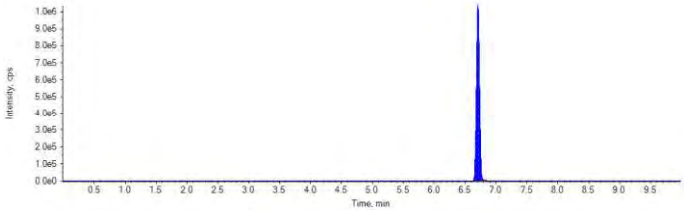
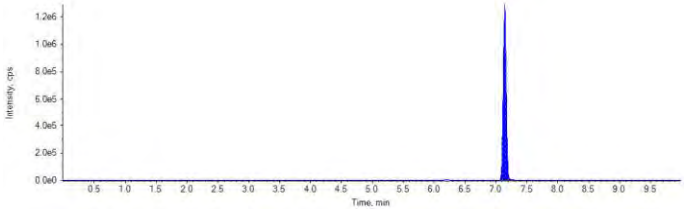
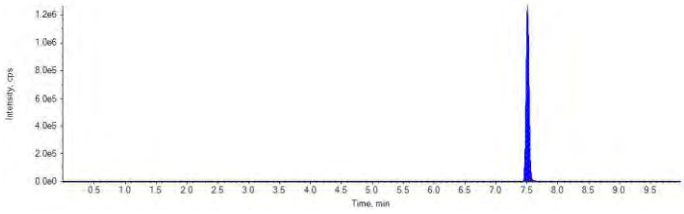
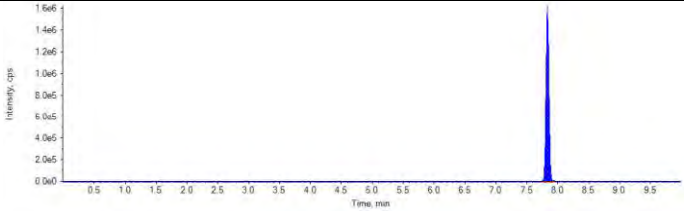
RT (Exp. RT): 5.63 (5.38) min

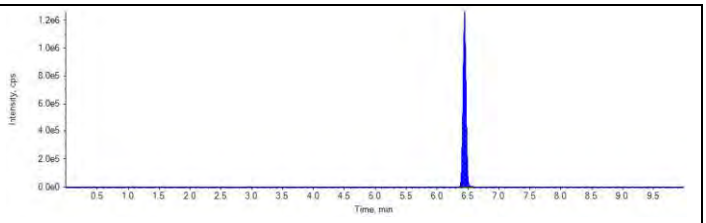
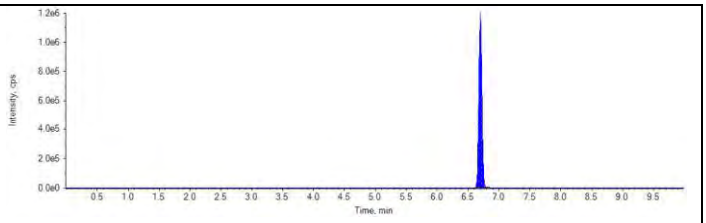
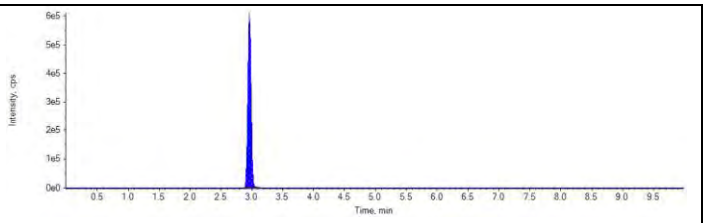
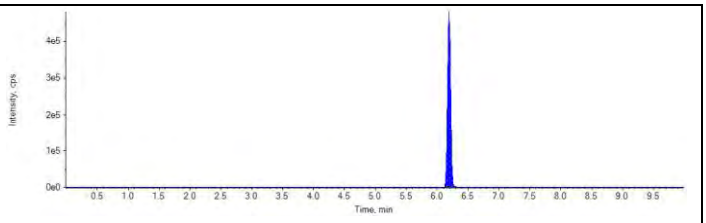
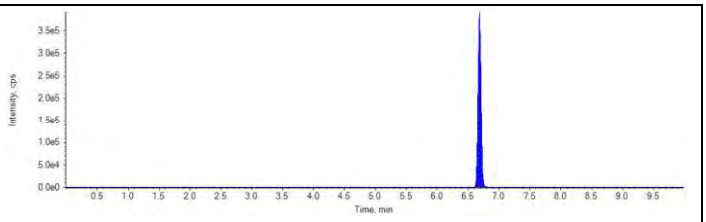
Calculated Conc: 23700. ng/L

Area Ratio: 3.81

Sample Type: (Standard)



PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.60 (5.49) min Calculated Conc: 24800. ng/L Area Ratio: 1.78 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.20 (6.07) min Calculated Conc: 25400. ng/L Area Ratio: 2.65 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.71 (6.62) min Calculated Conc: 25000. ng/L Area Ratio: 2.33 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.14 (7.04) min Calculated Conc: 25000. ng/L Area Ratio: 2.68 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.51 (7.38) min Calculated Conc: 24800. ng/L Area Ratio: 2.69 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.83 (7.64) min Calculated Conc: 26200. ng/L Area Ratio: 3.33 Sample Type: (Standard)	

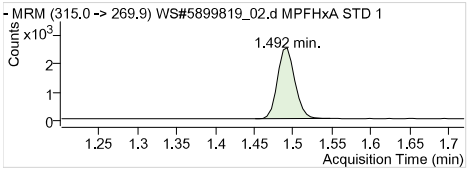
MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 103000. ng/L Area Ratio: 3.10 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 104000. ng/L Area Ratio: 2.89 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 10600. ng/L Area Ratio: 1.38 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 10700. ng/L Area Ratio: 1.03 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 42400. ng/L Area Ratio: 0.918 Sample Type: (Standard)	

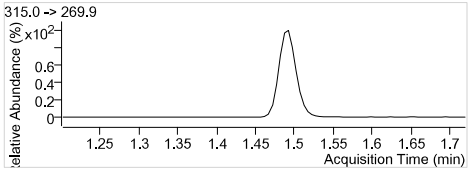
Batch Path T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 1**	**Instrument**	LCMS04
Data File	WS#5899819_02.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A2
Acq. Date	2018/12/21 4:39:32 PM	**Injection Volume**	Per Method
Sample Annotation	-		

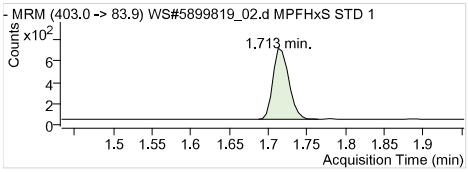
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3923	1.49	1 µg/L		
MPFHxS	941	1.71	1 µg/L		
MPFHpA	5673	1.73	1 µg/L		
MPFOA	5405	1.91	1 µg/L		
MPFOS	1035	2.00	1 µg/L		
MPFNA	4891	2.05	1 µg/L		
MPFDA	3478	2.16	1 µg/L		
MPFUnA	3919	2.26	1 µg/L		
MPFDoA	5082	2.35	1 µg/L		
MPFTeDA	7404	2.48	1 µg/L		
13C6-PFHxA IS	17993	1.49	1 µg/L		
13C9-PFDA IS	20632	2.16	1 µg/L		

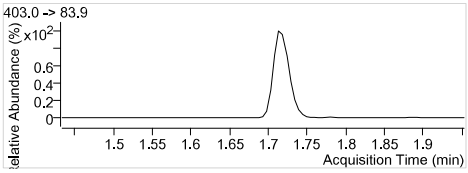
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	482	1.16	0.83	0.86 µg/L	103.84
PFHxA 1	1524	1.49	0.83	0.87 µg/L	105.35
PFHxS 1	367	1.71	0.83	0.88 µg/L	105.91
PFHpA 1	1995	1.74	0.83	0.85 µg/L	103.01
PFOA 1	2284	1.91	0.83	0.85 µg/L	101.98
PFOS 1	337	2.00	0.83	0.82 µg/L	98.27
PFNA 1	1578	2.05	0.83	0.84 µg/L	101.30
PFDA 1	1627	2.17	0.83	0.82 µg/L	99.09
PFUnA 1	1621	2.26	0.83	0.91 µg/L	109.79
PFDoA 1	1783	2.35	0.83	0.87 µg/L	104.46
PFTrDA 1	2238	2.42	0.83	0.81 µg/L	97.80
PFTeDA 1	2405	2.48	0.83	0.81 µg/L	97.83
13C2-PFHxA	3923	1.49	100.00	96.49 µg/L	96.49
18O2-PFHxS	941	1.71	100.00	90.35 µg/L	90.35
13C4-PFHpA	5673	1.73	100.00	96.50 µg/L	96.50
13C4-PFOA	5405	1.91	100.00	98.28 µg/L	98.28
13C4-PFOS	1035	2.00	100.00	90.11 µg/L	90.11
13C5-PFNA	4891	2.05	100.00	93.41 µg/L	93.41
13C2-PFDA	3478	2.16	100.00	98.55 µg/L	98.55
13C2-PFUnA	3919	2.26	100.00	95.14 µg/L	95.14
13C2-PFDoA	5082	2.35	100.00	96.05 µg/L	96.05
13C2-PFTeDA	7404	2.48	100.00	95.98 µg/L	95.98
13C6-PFHxA	17993	1.49	100.00	107.13 µg/L	107.13
13C9-PFDA	20632	2.16	100.00	103.66 µg/L	103.66



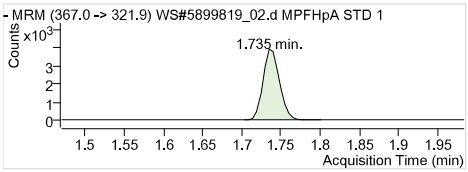


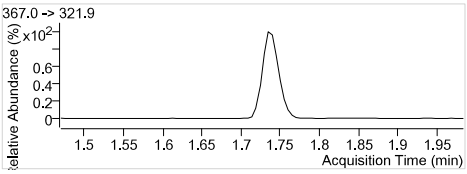
MPFHxA Internal Standard
RT (Exp. RT): 1.492 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



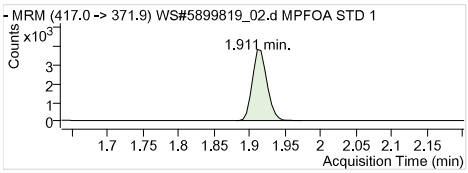


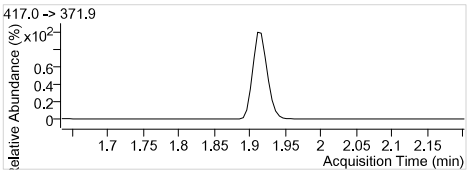
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



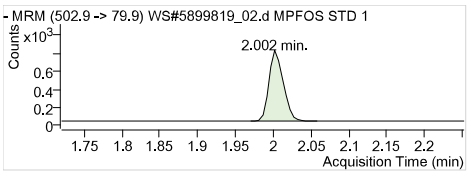


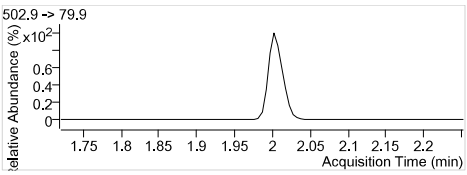
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



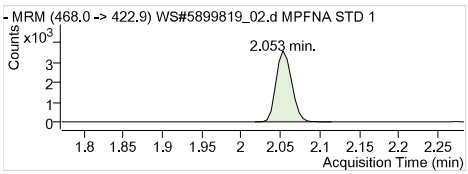


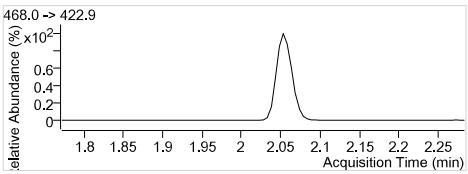
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



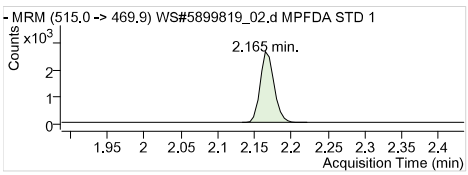


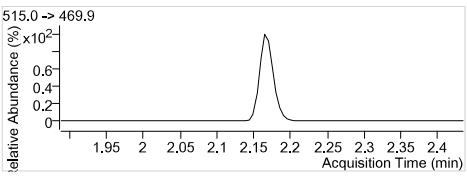
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



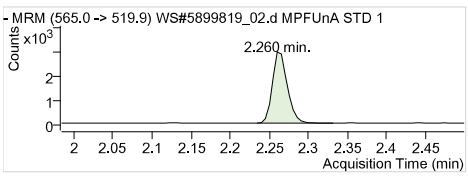


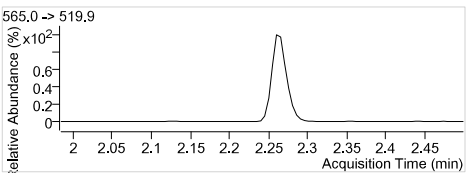
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



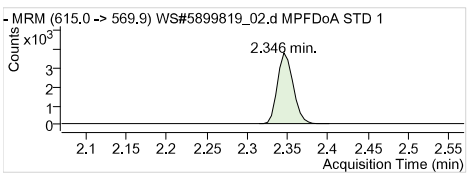


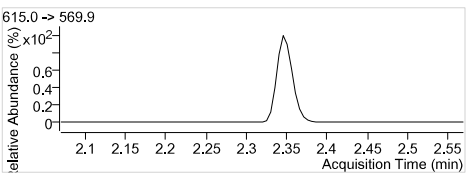
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



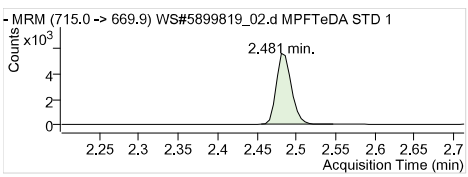


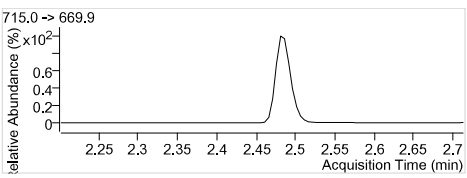
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



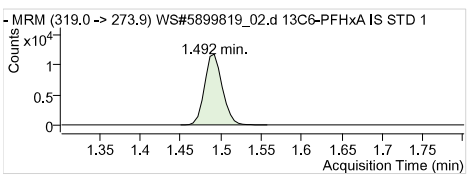


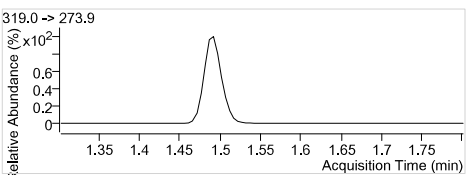
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



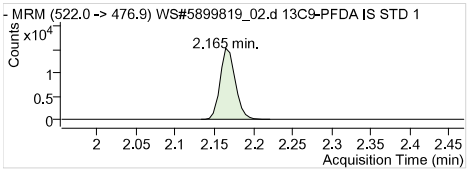


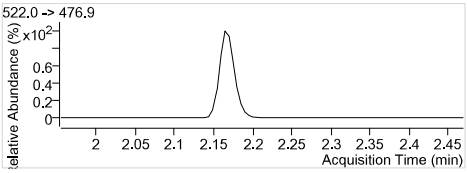
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



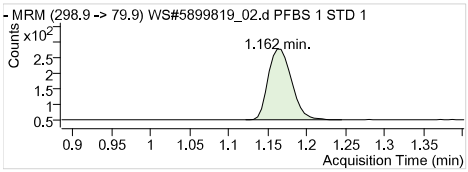


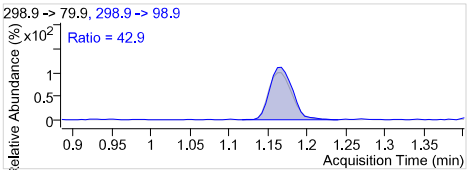
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.492 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



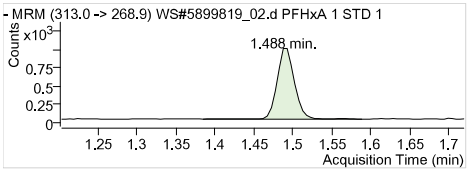


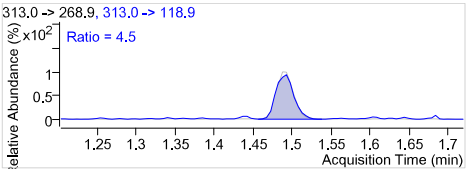
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



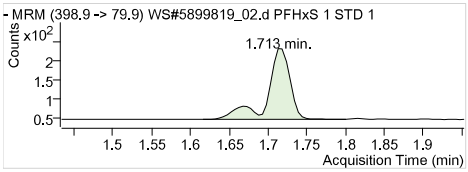


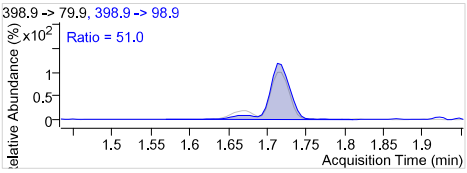
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.162 (1.162)
Calc. conc. 0.86 µg/L
Area ratio: 0.51222
Sample type: Calibration



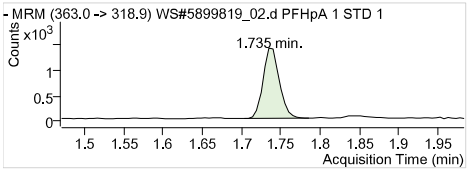


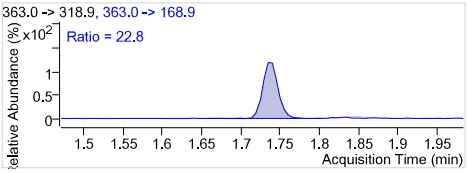
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 0.87 µg/L
Area ratio: 0.38848
Sample type: Calibration



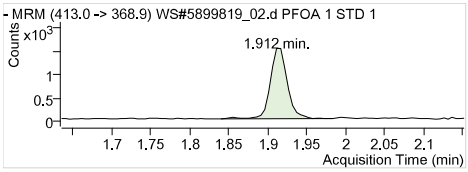


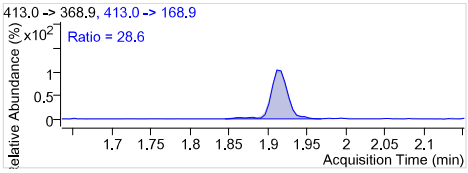
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 0.88 µg/L
Area ratio: 0.39001
Sample type: Calibration



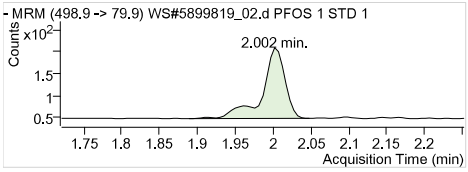


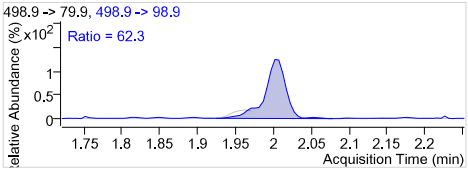
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 0.85 µg/L
Area ratio: 0.35167
Sample type: Calibration



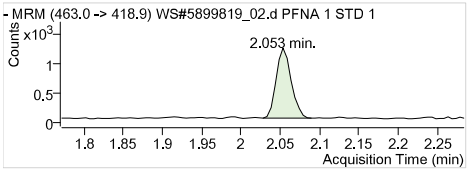


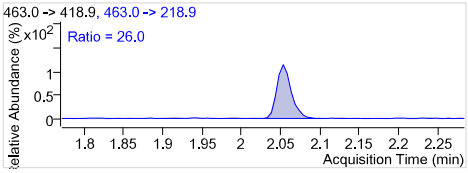
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 0.85 µg/L
Area ratio: 0.42257
Sample type: Calibration



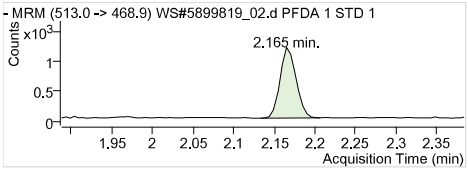


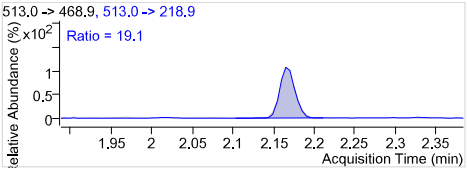
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 0.82 µg/L
Area ratio: 0.32560
Sample type: Calibration



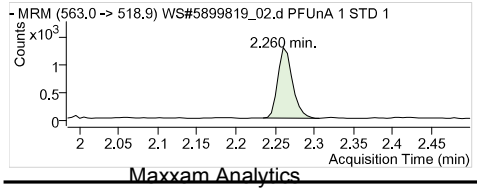


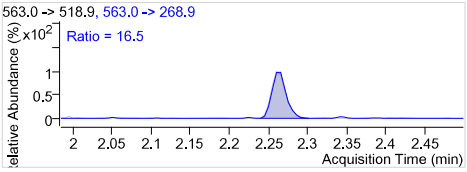
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 0.84 µg/L
Area ratio: 0.32263
Sample type: Calibration



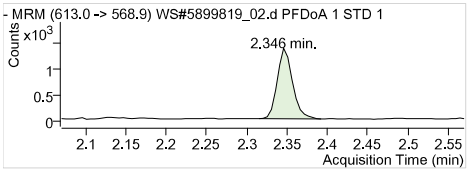


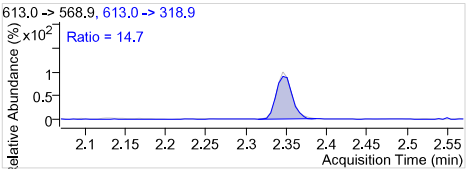
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 0.82 µg/L
Area ratio: 0.46780
Sample type: Calibration



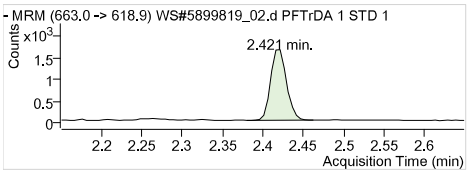


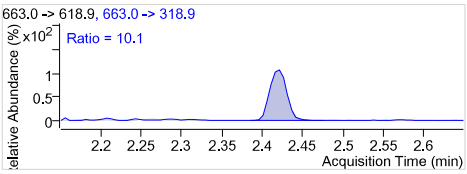
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 0.91 µg/L
Area ratio: 0.41363
Sample type: Calibration



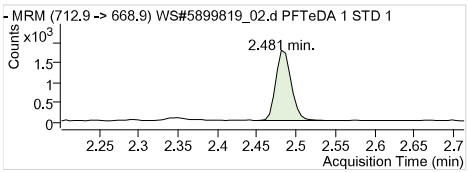


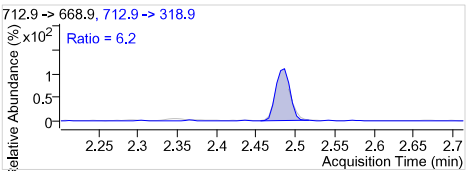
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	0.87 µg/L
Area ratio:	0.35085
Sample type:	Calibration



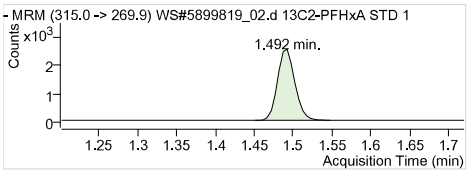


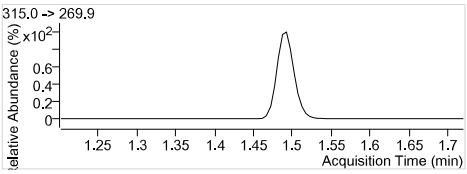
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.421 (2.416)
Calc. conc.	0.81 µg/L
Area ratio:	0.30227
Sample type:	Calibration



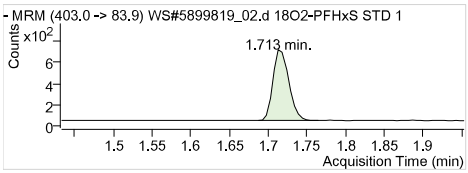


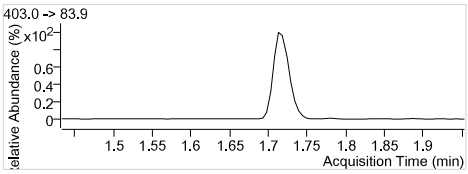
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	0.81 µg/L
Area ratio:	0.32482
Sample type:	Calibration



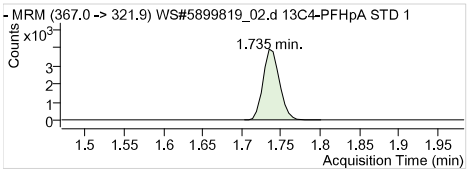


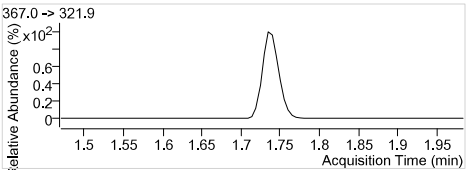
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.492 (1.487)
Calc. conc.	96.49 µg/L
Area ratio:	0.21803
Sample type:	Calibration



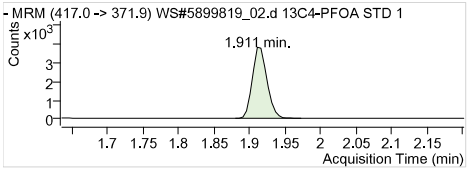


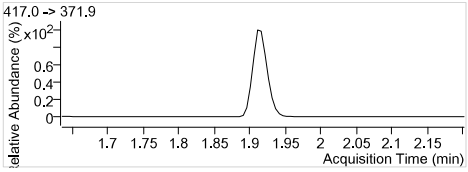
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	90.35 µg/L
Area ratio:	0.05230
Sample type:	Calibration



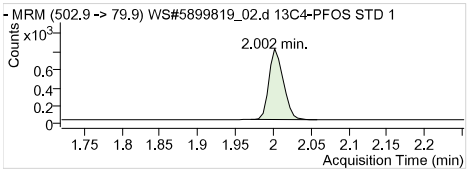


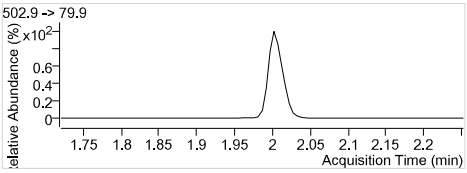
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	96.50 µg/L
Area ratio:	0.31529
Sample type:	Calibration



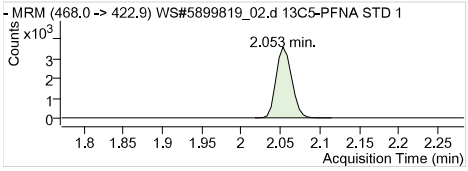


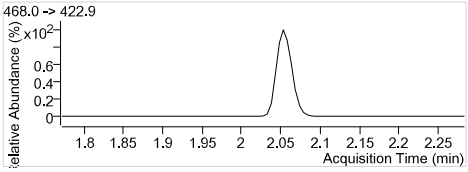
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	98.28 µg/L
Area ratio:	0.30039
Sample type:	Calibration



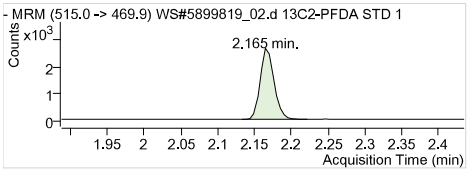


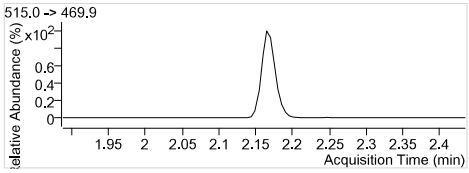
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	90.11 µg/L
Area ratio:	0.05752
Sample type:	Calibration



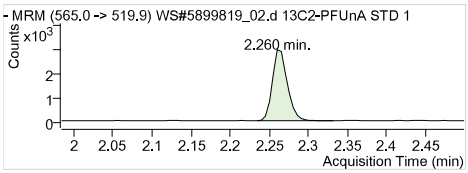


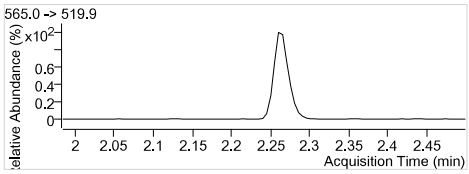
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	93.41 µg/L
Area ratio:	0.27183
Sample type:	Calibration



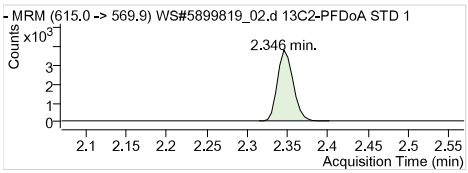


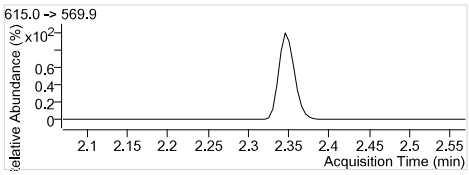
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	98.55 µg/L
Area ratio:	0.16857
Sample type:	Calibration



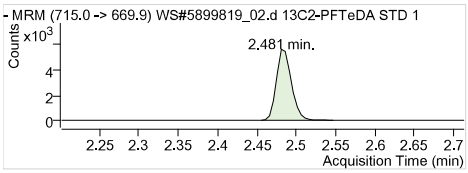


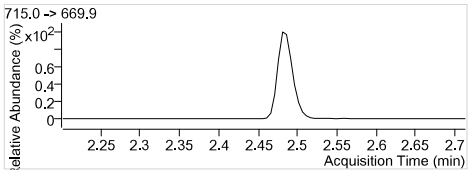
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	95.14 µg/L
Area ratio:	0.18995
Sample type:	Calibration



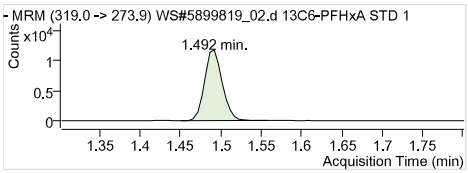


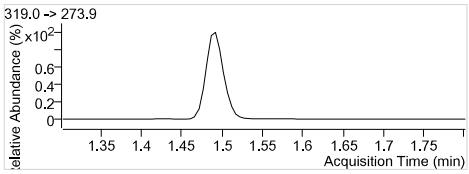
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	96.05 µg/L
Area ratio:	0.24632
Sample type:	Calibration



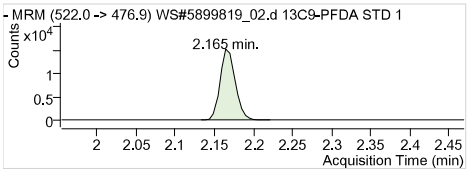


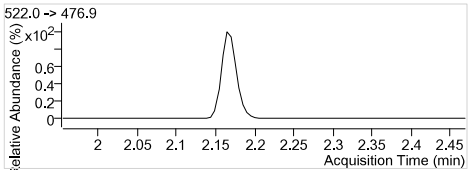
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	95.98 µg/L
Area ratio:	0.35886
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.492 (1.487)
Calc. conc.	107.13 µg/L
Area ratio:	0
Sample type:	Calibration





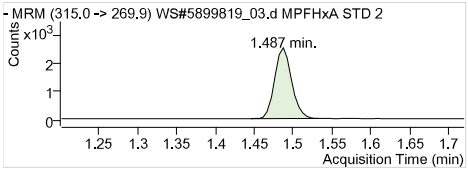
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	103.66 µg/L
Area ratio:	0
Sample type:	Calibration

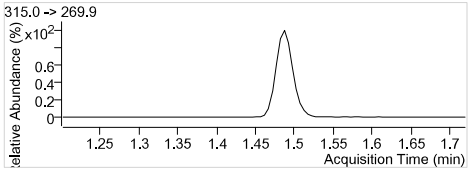
Batch Path T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 2**	**Instrument**	LCMS04
Data File	WS#5899819_03.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A3
Acq. Date	2018/12/21 4:44:27 PM	**Injection Volume**	Per Method
Sample Annotation	-		

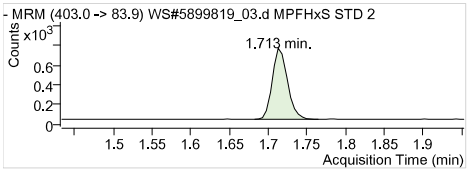
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3815	1.49	1 µg/L		
MPFHxS	964	1.71	1 µg/L		
MPFHpA	5638	1.73	1 µg/L		
MPFOA	5221	1.91	1 µg/L		
MPFOS	1091	2.00	1 µg/L		
MPFNA	4907	2.05	1 µg/L		
MPFDA	3430	2.16	1 µg/L		
MPFUnA	4167	2.26	1 µg/L		
MPFDoA	5121	2.35	1 µg/L		
MPFTeDA	7569	2.48	1 µg/L		
13C6-PFHxA IS	17097	1.49	1 µg/L		
13C9-PFDA IS	20341	2.16	1 µg/L		

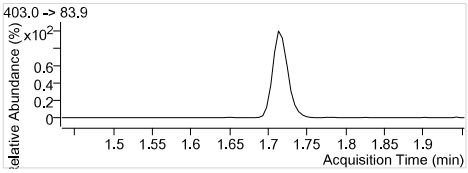
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	990	1.16	1.70	1.71 µg/L	100.85
PFHxA 1	2786	1.49	1.70	1.63 µg/L	96.10
PFHxS 1	711	1.71	1.70	1.62 µg/L	95.59
PFHpA 1	3996	1.74	1.70	1.67 µg/L	98.26
PFOA 1	3994	1.91	1.70	1.63 µg/L	95.96
PFOS 1	760	2.00	1.70	1.71 µg/L	100.59
PFNA 1	3009	2.05	1.70	1.64 µg/L	96.58
PFDA 1	3503	2.17	1.70	1.76 µg/L	103.36
PFUnA 1	2987	2.26	1.70	1.56 µg/L	91.50
PFDoA 1	3513	2.35	1.70	1.67 µg/L	98.44
PFTrDA 1	4375	2.42	1.70	1.61 µg/L	94.45
PFTeDA 1	4683	2.48	1.70	1.62 µg/L	95.35
13C2-PFHxA	3815	1.49	100.00	98.75 µg/L	98.75
18O2-PFHxS	964	1.71	100.00	97.41 µg/L	97.41
13C4-PFHpA	5638	1.73	100.00	100.93 µg/L	100.93
13C4-PFOA	5221	1.91	100.00	99.91 µg/L	99.91
13C4-PFOS	1091	2.00	100.00	99.97 µg/L	99.97
13C5-PFNA	4907	2.05	100.00	98.62 µg/L	98.62
13C2-PFDA	3430	2.16	100.00	98.58 µg/L	98.58
13C2-PFUnA	4167	2.26	100.00	102.61 µg/L	102.61
13C2-PFDoA	5121	2.35	100.00	98.17 µg/L	98.17
13C2-PFTeDA	7569	2.48	100.00	99.52 µg/L	99.52
13C6-PFHxA	17097	1.49	100.00	101.79 µg/L	101.79
13C9-PFDA	20341	2.16	100.00	102.20 µg/L	102.20



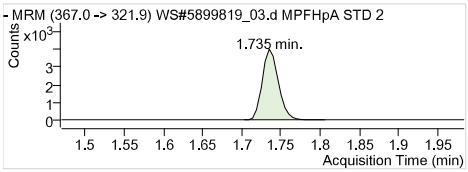


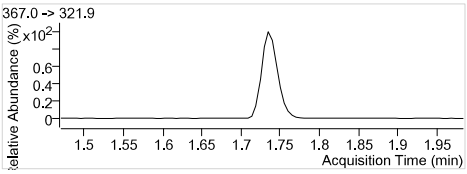
MPFHxA Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



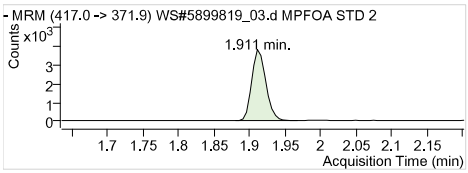


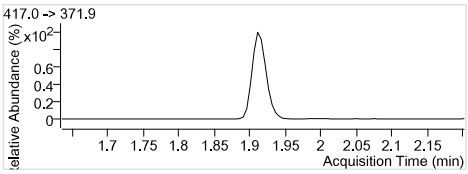
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



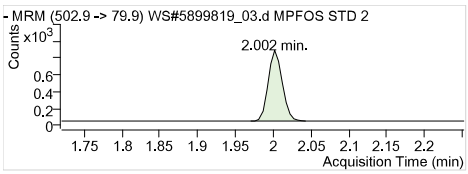


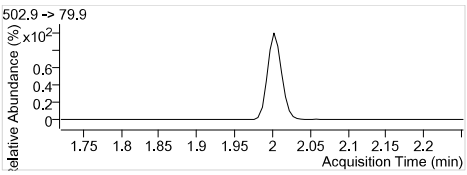
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



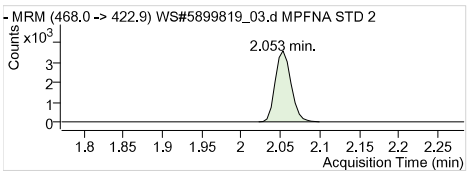


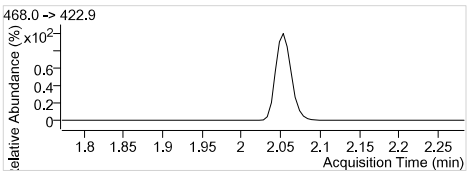
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



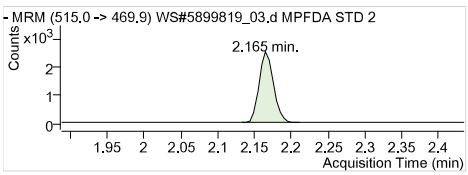


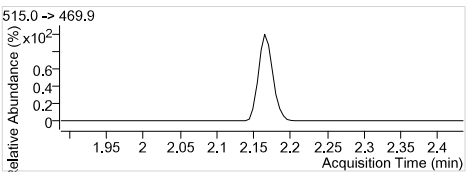
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



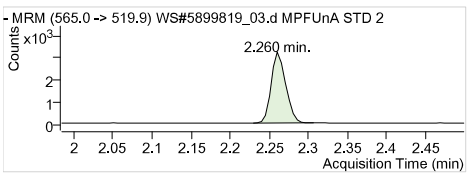


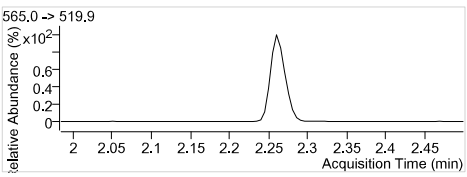
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



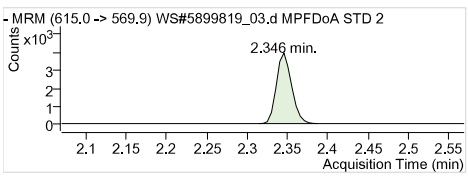


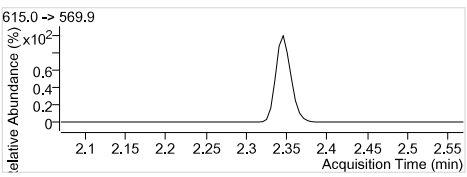
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



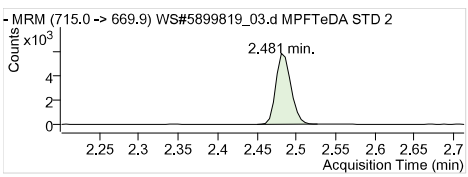


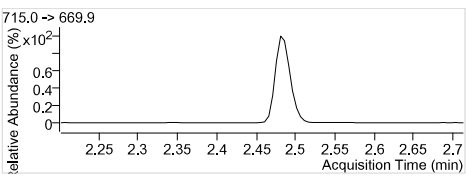
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



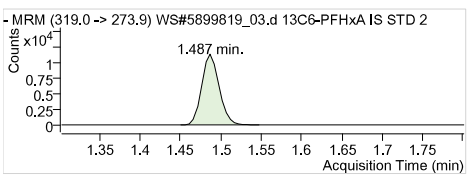


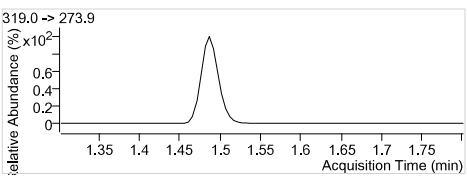
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



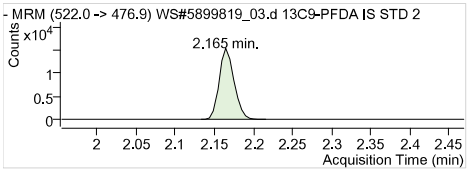


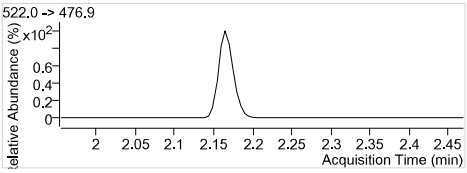
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



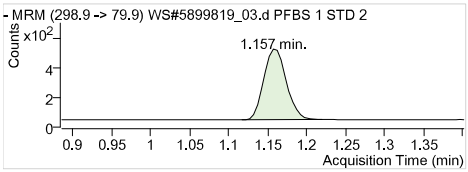


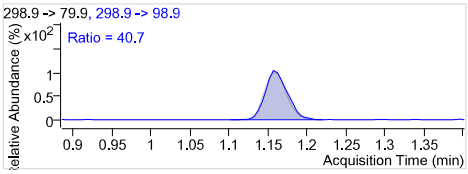
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



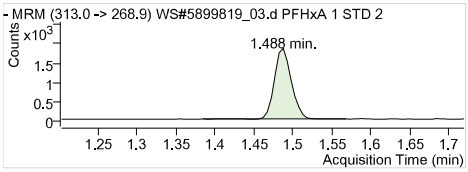


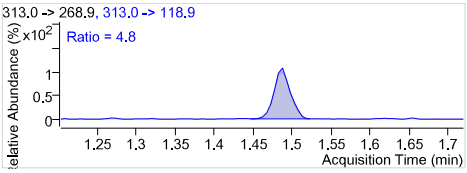
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



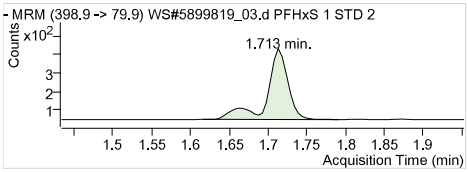


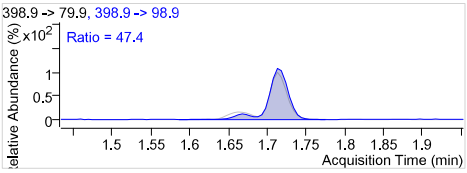
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 1.71 µg/L
Area ratio: 1.02697
Sample type: Calibration



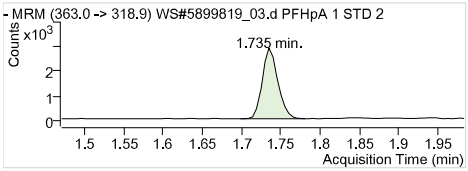


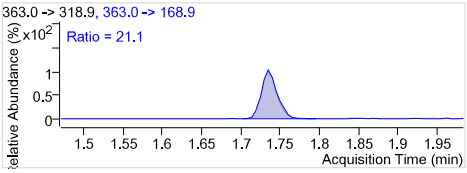
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 1.63 µg/L
Area ratio: 0.73028
Sample type: Calibration



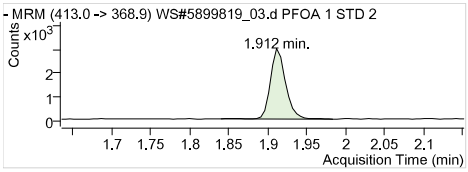


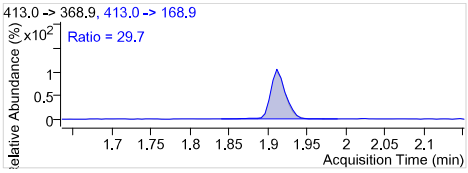
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 1.62 µg/L
Area ratio: 0.73755
Sample type: Calibration



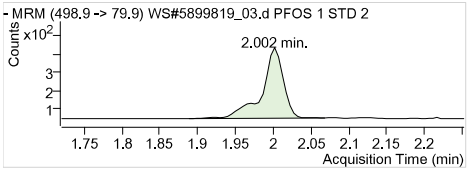


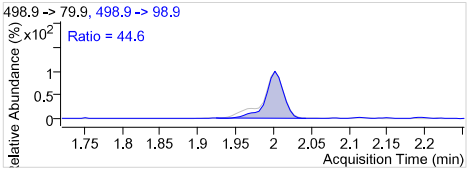
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 1.67 µg/L
Area ratio: 0.70876
Sample type: Calibration



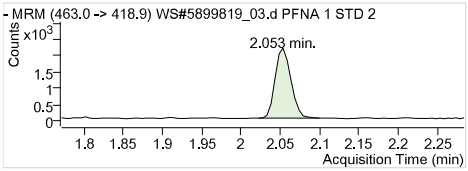


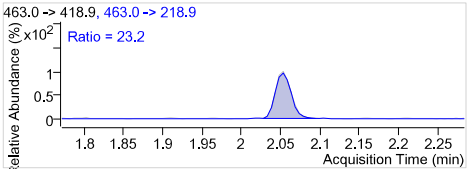
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 1.63 µg/L
Area ratio: 0.76499
Sample type: Calibration



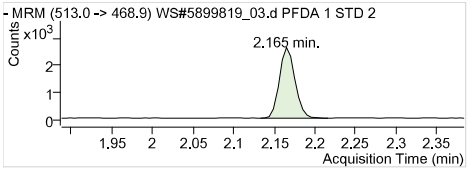


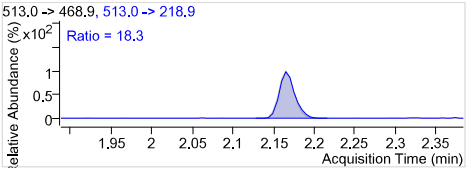
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 1.71 µg/L
Area ratio: 0.69661
Sample type: Calibration



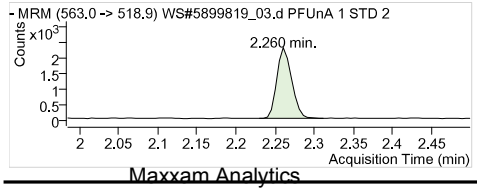


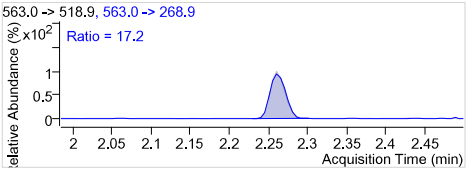
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 1.64 µg/L
Area ratio: 0.61321
Sample type: Calibration



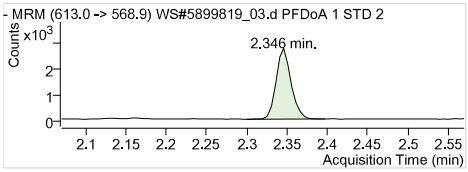


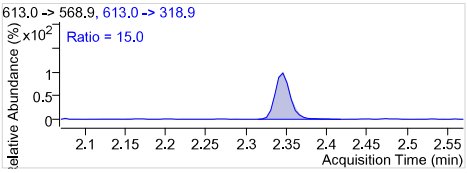
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 1.76 µg/L
Area ratio: 1.02128
Sample type: Calibration



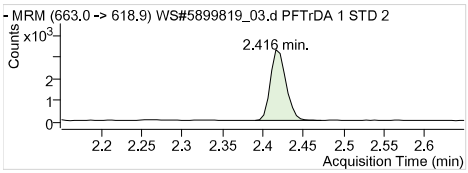


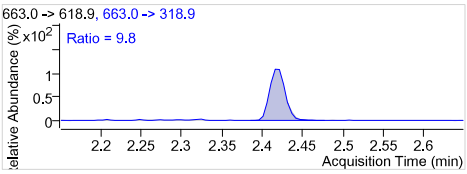
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 1.56 µg/L
Area ratio: 0.71682
Sample type: Calibration



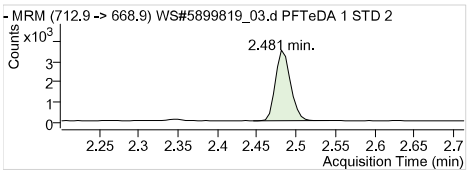


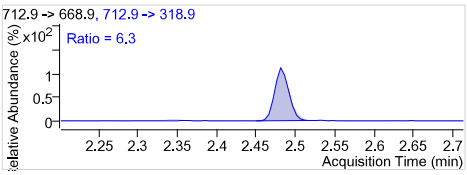
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	1.67 µg/L
Area ratio:	0.68600
Sample type:	Calibration



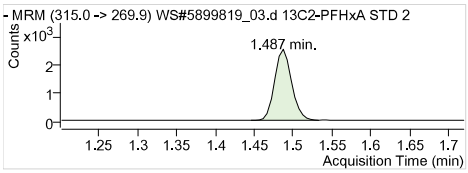


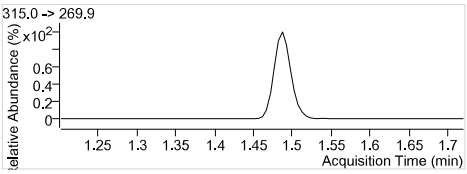
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	1.61 µg/L
Area ratio:	0.57802
Sample type:	Calibration



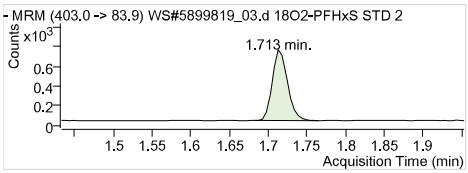


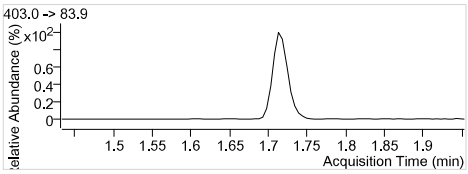
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	1.62 µg/L
Area ratio:	0.61871
Sample type:	Calibration



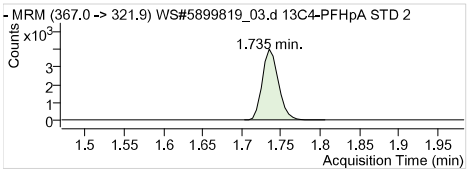


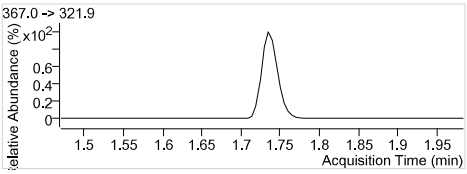
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	98.75 µg/L
Area ratio:	0.22314
Sample type:	Calibration



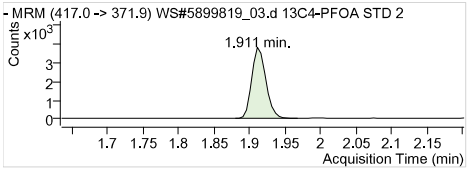


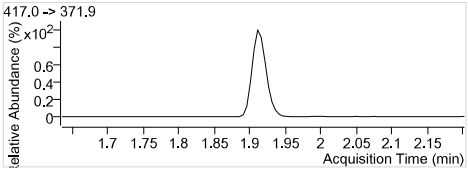
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	97.41 µg/L
Area ratio:	0.05638
Sample type:	Calibration



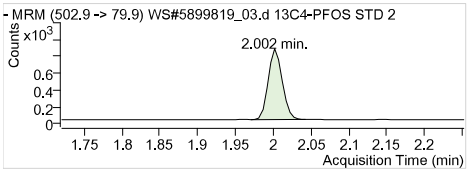


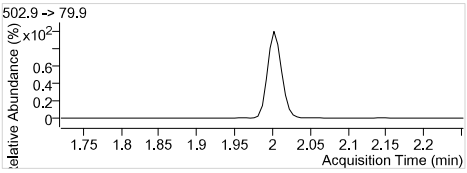
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	100.93 µg/L
Area ratio:	0.32977
Sample type:	Calibration



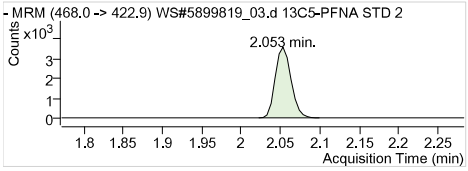


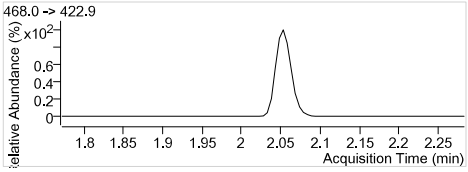
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	99.91 µg/L
Area ratio:	0.30538
Sample type:	Calibration



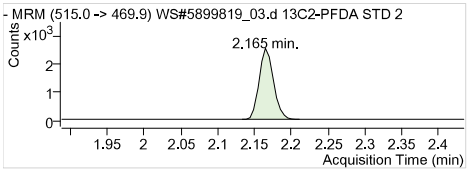


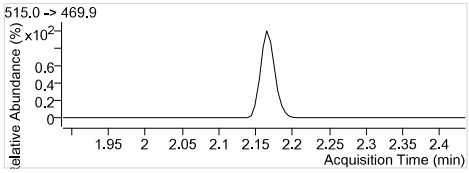
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	99.97 µg/L
Area ratio:	0.06381
Sample type:	Calibration



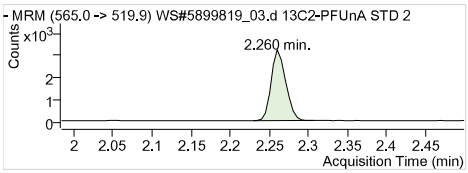


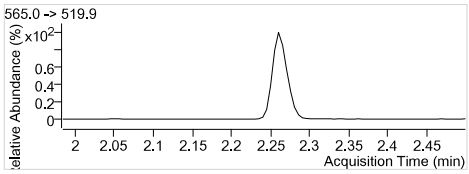
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	98.62 µg/L
Area ratio:	0.28701
Sample type:	Calibration



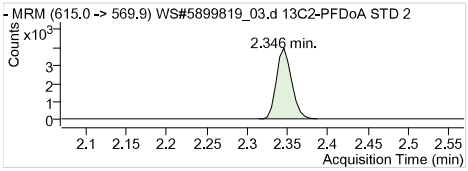


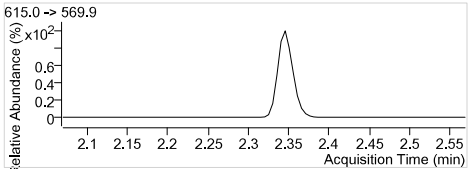
13C2-PFDA 515.0 -> 469.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 98.58 µg/L
Area ratio: 0.16862
Sample type: Calibration



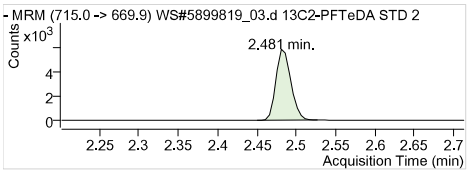


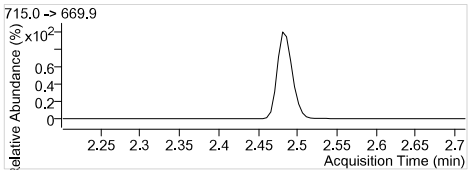
13C2-PFUnA 565.0 -> 519.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 102.61 µg/L
Area ratio: 0.20486
Sample type: Calibration



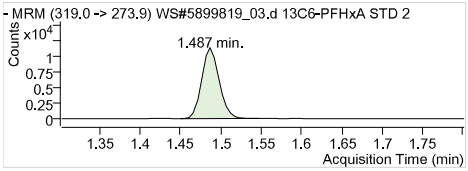


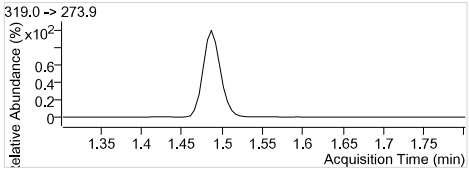
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.346 (2.346)
Calc. conc. 98.17 µg/L
Area ratio: 0.25176
Sample type: Calibration



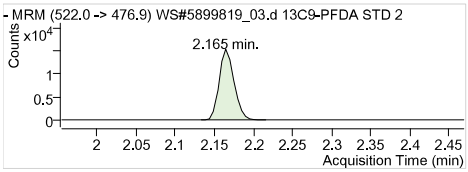


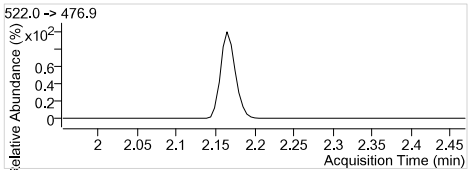
13C2-PFTeDA 715.0 -> 669.9
RT (Exp. RT): 2.481 (2.481)
Calc. conc. 99.52 µg/L
Area ratio: 0.37211
Sample type: Calibration





13C6-PFHxA 319.0 -> 273.9
RT (Exp. RT): 1.487 (1.487)
Calc. conc. 101.79 µg/L
Area ratio: 0
Sample type: Calibration





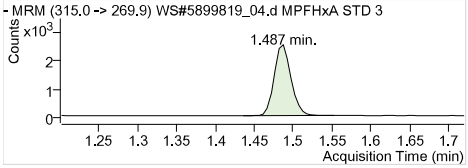
13C9-PFDA 522.0 -> 476.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 102.20 µg/L
Area ratio: 0
Sample type: Calibration

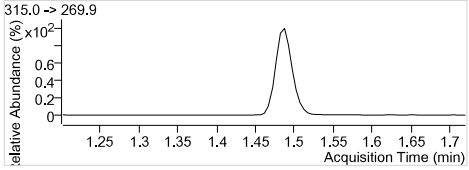
Batch Path T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 3**	**Instrument**	LCMS04
Data File	WS#5899819_04.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A4
Acq. Date	2018/12/21 4:49:22 PM	**Injection Volume**	Per Method
Sample Annotation	-		

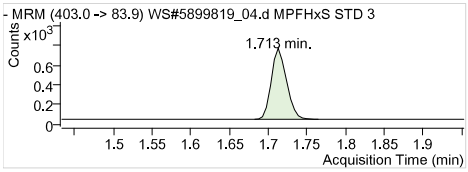
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3773	1.49	1 µg/L		
MPFHxS	969	1.71	1 µg/L		
MPFHpA	5556	1.73	1 µg/L		
MPFOA	5005	1.91	1 µg/L		
MPFOS	1062	2.00	1 µg/L		
MPFNA	4909	2.05	1 µg/L		
MPFDA	3433	2.16	1 µg/L		
MPFUnA	3764	2.26	1 µg/L		
MPFDoA	5197	2.35	1 µg/L		
MPFTeDA	7324	2.48	1 µg/L		
13C6-PFHxA IS	16535	1.49	1 µg/L		
13C9-PFDA IS	19633	2.16	1 µg/L		

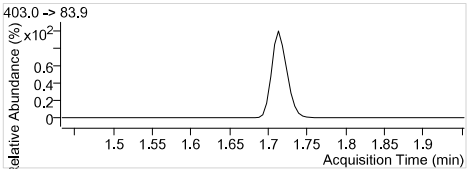
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	2882	1.15	5.00	4.94 µg/L	98.79
PFHxA 1	8390	1.49	5.00	4.95 µg/L	99.03
PFHxS 1	2278	1.71	5.00	5.09 µg/L	101.75
PFHpA 1	11819	1.74	5.00	4.91 µg/L	98.20
PFOA 1	11271	1.91	5.00	5.04 µg/L	100.79
PFOS 1	2246	2.00	5.00	5.13 µg/L	102.57
PFNA 1	8927	2.05	5.00	4.96 µg/L	99.30
PFDA 1	9872	2.17	5.00	4.89 µg/L	97.77
PFUnA 1	8878	2.26	5.00	5.04 µg/L	100.87
PFDoA 1	10387	2.35	5.00	4.83 µg/L	96.64
PFTrDA 1	13471	2.42	5.00	5.24 µg/L	104.75
PFTeDA 1	13987	2.48	5.00	5.17 µg/L	103.50
13C2-PFHxA	3773	1.49	100.00	100.98 µg/L	100.98
18O2-PFHxS	969	1.71	100.00	101.24 µg/L	101.24
13C4-PFHpA	5556	1.73	100.00	102.84 µg/L	102.84
13C4-PFOA	5005	1.91	100.00	99.03 µg/L	99.03
13C4-PFOS	1062	2.00	100.00	100.62 µg/L	100.62
13C5-PFNA	4909	2.05	100.00	102.02 µg/L	102.02
13C2-PFDA	3433	2.16	100.00	102.22 µg/L	102.22
13C2-PFUnA	3764	2.26	100.00	96.02 µg/L	96.02
13C2-PFDoA	5197	2.35	100.00	103.22 µg/L	103.22
13C2-PFTeDA	7324	2.48	100.00	99.77 µg/L	99.77
13C6-PFHxA	16535	1.49	100.00	98.45 µg/L	98.45
13C9-PFDA	19633	2.16	100.00	98.64 µg/L	98.64



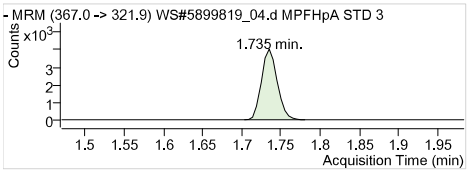


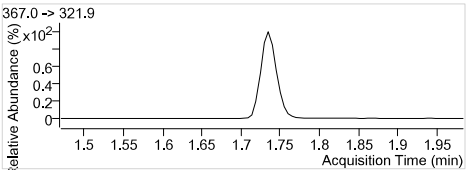
MPFHxA Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



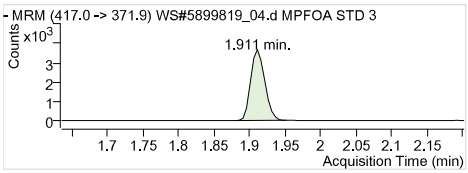


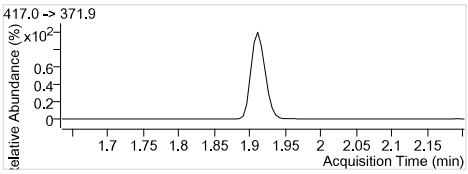
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



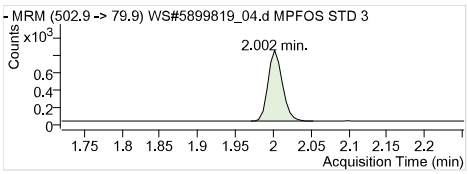


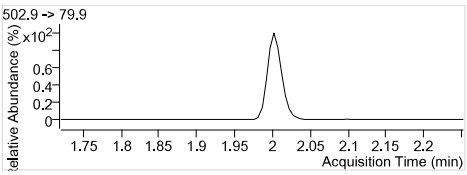
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



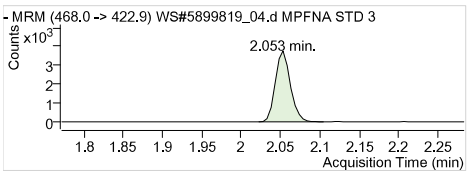


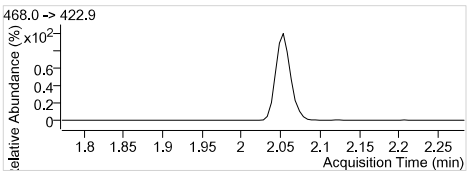
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



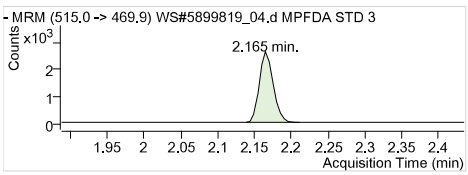


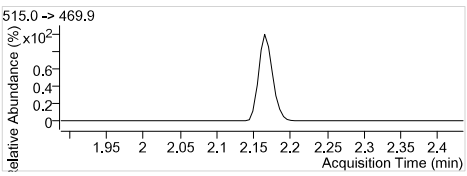
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



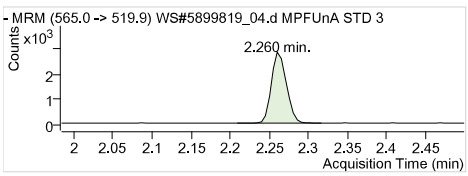


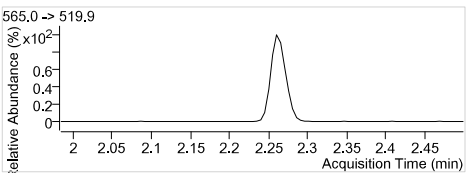
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



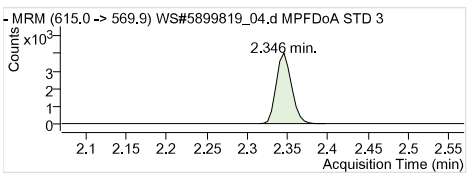


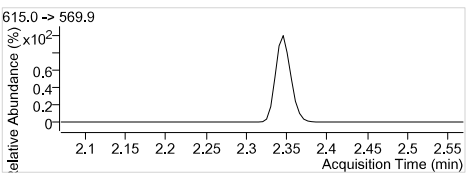
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



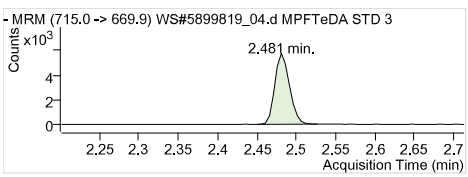


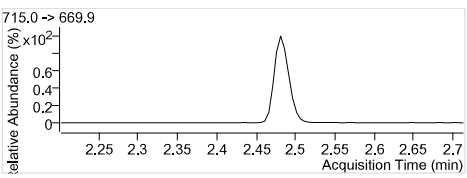
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



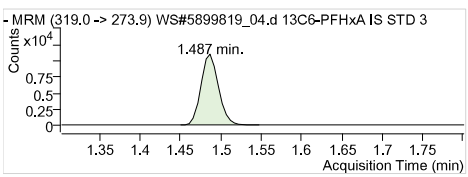


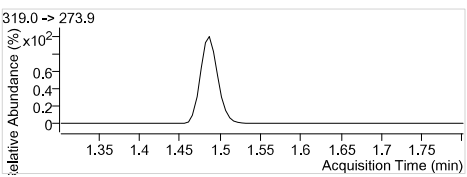
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



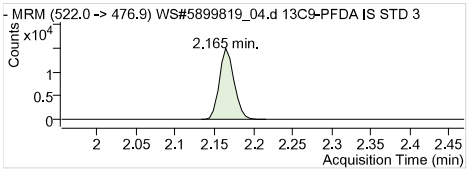


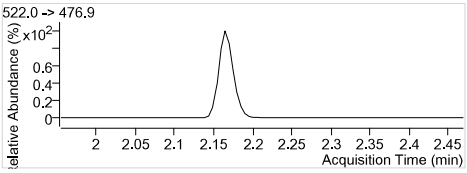
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



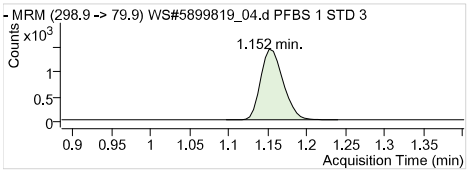


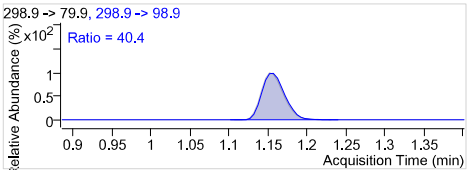
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



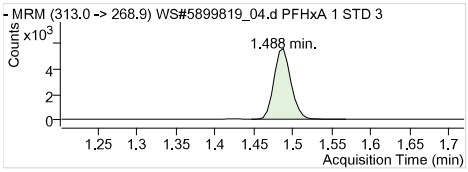


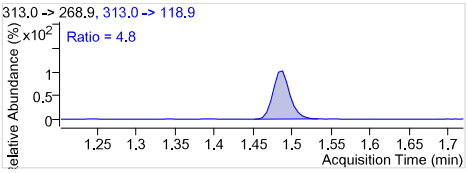
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



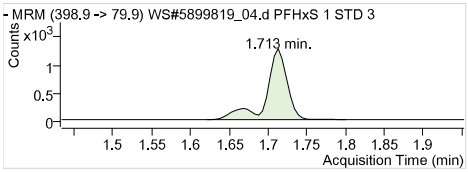


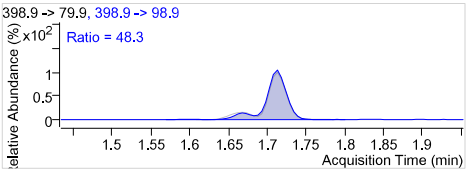
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.152 (1.162)
Calc. conc. 4.94 µg/L
Area ratio: 2.97420
Sample type: Calibration



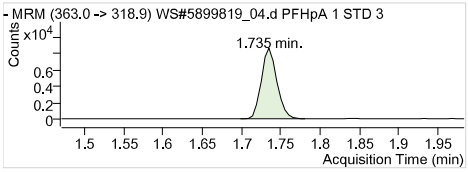


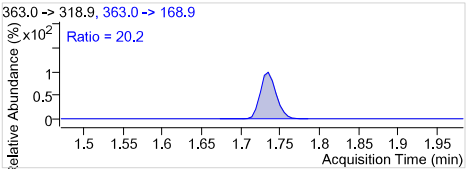
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 4.95 µg/L
Area ratio: 2.22369
Sample type: Calibration



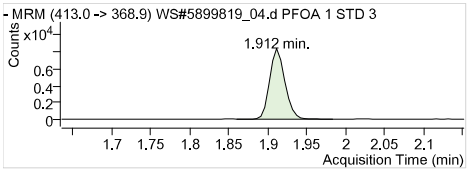


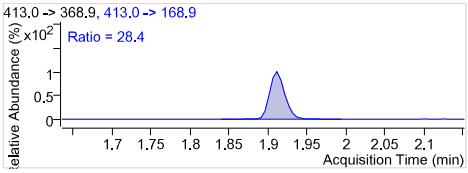
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 5.09 µg/L
Area ratio: 2.35088
Sample type: Calibration



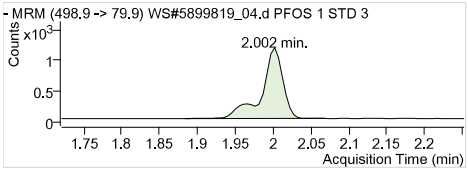


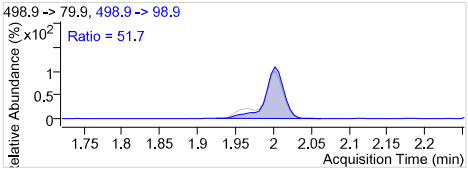
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 4.91 µg/L
Area ratio: 2.12725
Sample type: Calibration



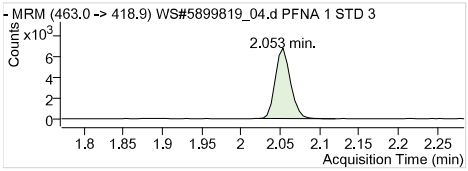


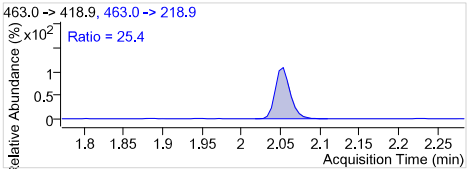
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 5.04 µg/L
Area ratio: 2.25195
Sample type: Calibration



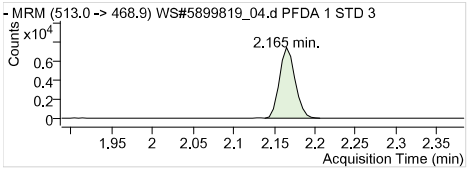


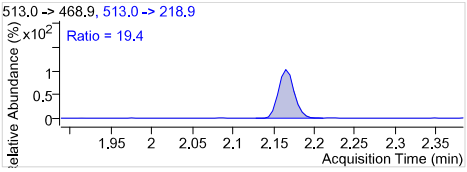
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 5.13 µg/L
Area ratio: 2.11488
Sample type: Calibration



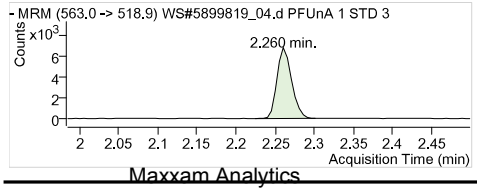


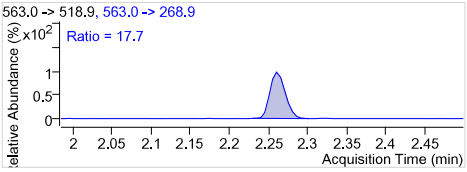
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 4.96 µg/L
Area ratio: 1.81850
Sample type: Calibration



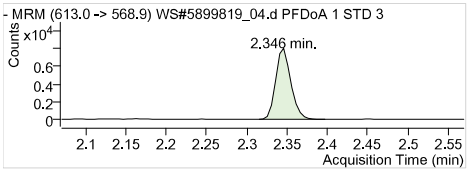


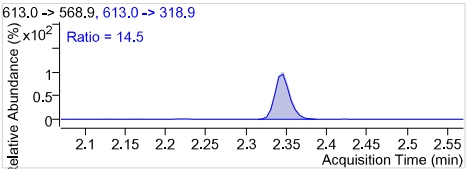
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 4.89 µg/L
Area ratio: 2.87562
Sample type: Calibration



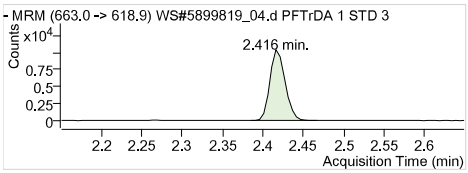


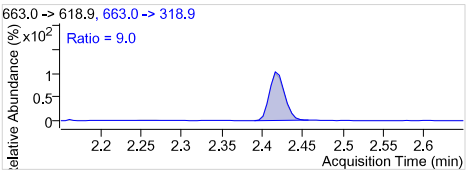
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 5.04 µg/L
Area ratio: 2.35866
Sample type: Calibration



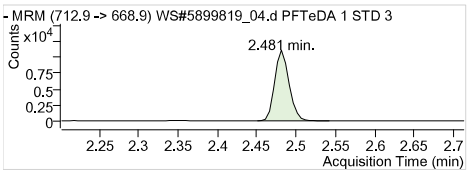


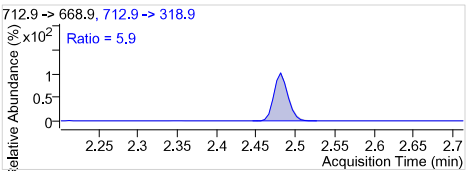
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	4.83 µg/L
Area ratio:	1.99865
Sample type:	Calibration



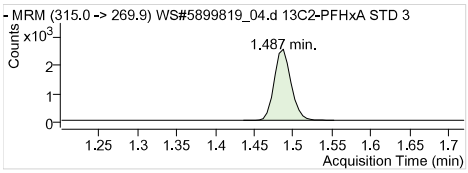


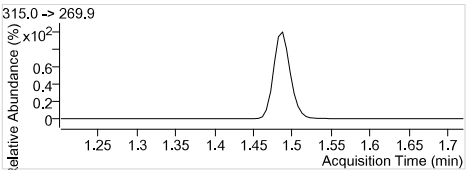
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	5.24 µg/L
Area ratio:	1.83930
Sample type:	Calibration



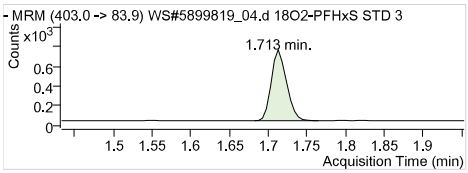


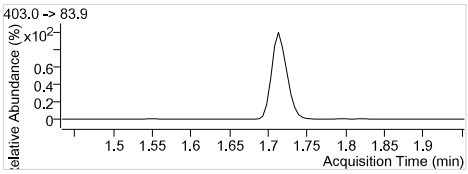
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	5.17 µg/L
Area ratio:	1.90975
Sample type:	Calibration



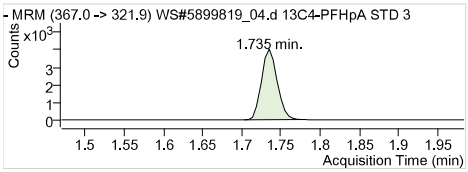


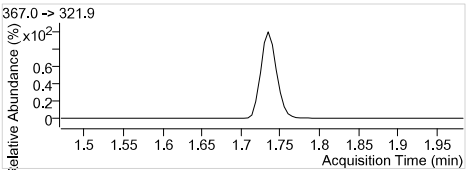
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	100.98 µg/L
Area ratio:	0.22818
Sample type:	Calibration



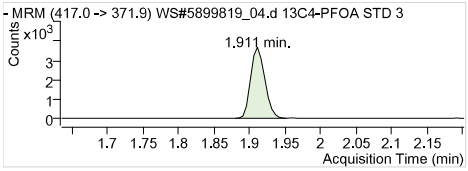


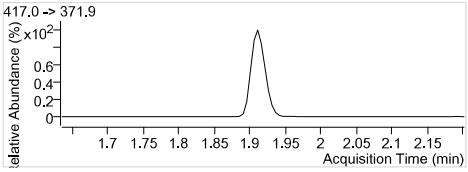
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	101.24 µg/L
Area ratio:	0.05860
Sample type:	Calibration



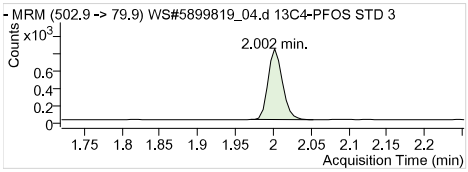


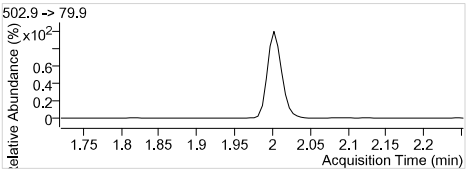
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	102.84 µg/L
Area ratio:	0.33601
Sample type:	Calibration



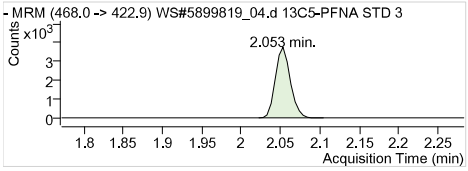


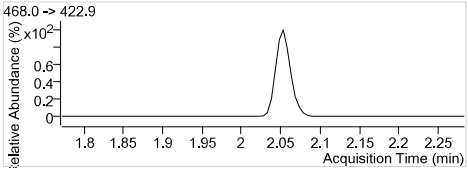
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	99.03 µg/L
Area ratio:	0.30269
Sample type:	Calibration



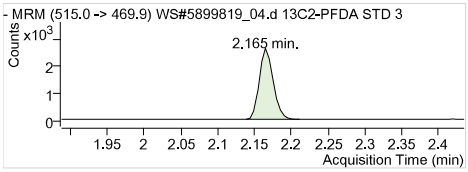


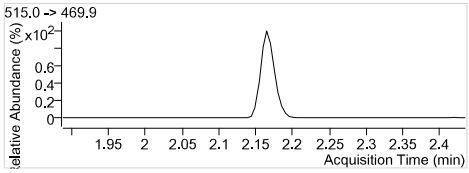
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	100.62 µg/L
Area ratio:	0.06423
Sample type:	Calibration



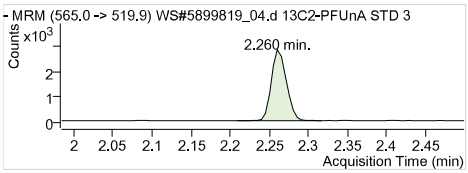


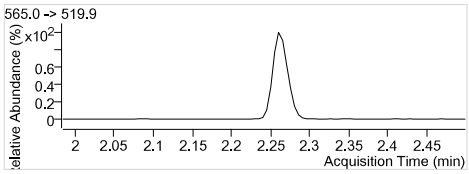
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	102.02 µg/L
Area ratio:	0.29689
Sample type:	Calibration



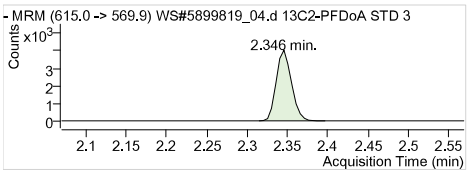


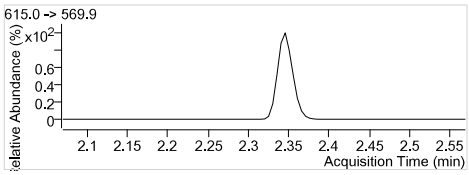
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	102.22 µg/L
Area ratio:	0.17486
Sample type:	Calibration



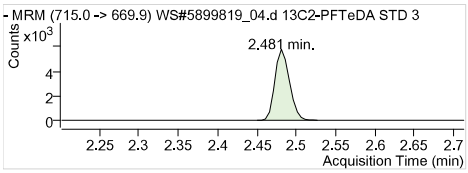


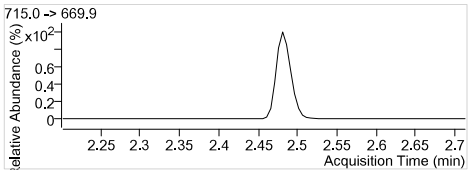
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	96.02 µg/L
Area ratio:	0.19172
Sample type:	Calibration



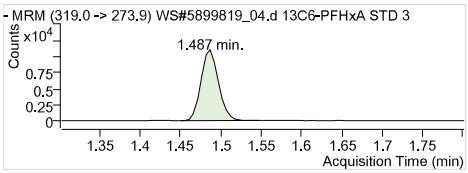


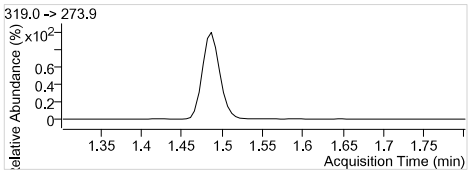
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	103.22 µg/L
Area ratio:	0.26471
Sample type:	Calibration



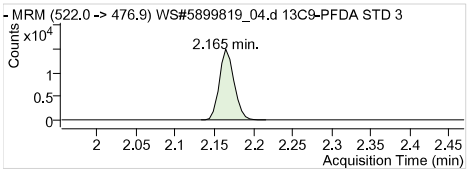


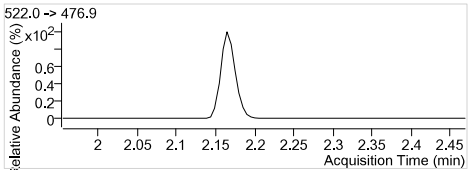
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	99.77 µg/L
Area ratio:	0.37305
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	98.45 µg/L
Area ratio:	0
Sample type:	Calibration





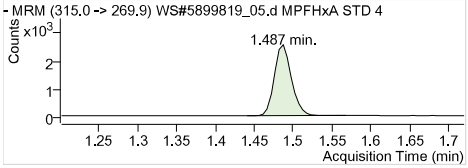
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	98.64 µg/L
Area ratio:	0
Sample type:	Calibration

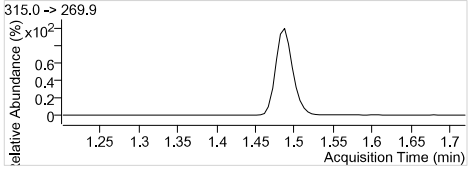
Batch Path T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 4**	**Instrument**	LCMS04
Data File	WS#5899819_05.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A5
Acq. Date	2018/12/21 4:54:17 PM	**Injection Volume**	Per Method
Sample Annotation	-		

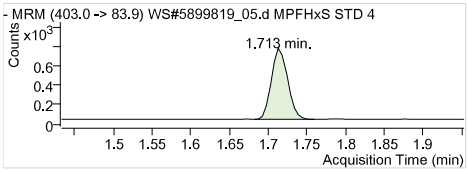
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3858	1.49	1 µg/L		
MPFHxS	1050	1.71	1 µg/L		
MPFHpA	5504	1.73	1 µg/L		
MPFOA	5091	1.91	1 µg/L		
MPFOS	1104	2.00	1 µg/L		
MPFNA	4893	2.05	1 µg/L		
MPFDA	3460	2.16	1 µg/L		
MPFUnA	4260	2.26	1 µg/L		
MPFDoA	5099	2.35	1 µg/L		
MPFTeDA	7537	2.48	1 µg/L		
13C6-PFHxA IS	17264	1.49	1 µg/L		
13C9-PFDA IS	20316	2.16	1 µg/L		

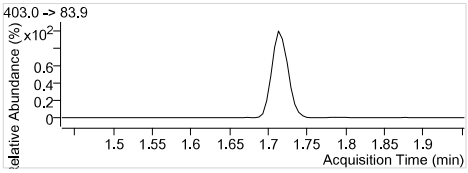
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	7334	1.16	12.50	11.58 µg/L	92.65
PFHxA 1	21168	1.49	12.50	12.20 µg/L	97.61
PFHxS 1	5677	1.71	12.50	11.65 µg/L	93.17
PFHpA 1	29653	1.74	12.50	12.36 µg/L	98.84
PFOA 1	28129	1.91	12.50	12.54 µg/L	100.34
PFOS 1	5448	2.00	12.50	11.93 µg/L	95.41
PFNA 1	22175	2.05	12.50	12.45 µg/L	99.57
PFDA 1	24698	2.17	12.50	12.09 µg/L	96.70
PFUnA 1	23396	2.26	12.50	11.70 µg/L	93.61
PFDoA 1	26195	2.35	12.50	12.38 µg/L	99.07
PFTrDA 1	33127	2.42	12.50	12.60 µg/L	100.78
PFTeDA 1	34976	2.48	12.50	12.69 µg/L	101.53
13C2-PFHxA	3858	1.49	100.00	98.89 µg/L	98.89
18O2-PFHxS	1050	1.71	100.00	105.08 µg/L	105.08
13C4-PFHpA	5504	1.73	100.00	97.58 µg/L	97.58
13C4-PFOA	5091	1.91	100.00	96.48 µg/L	96.48
13C4-PFOS	1104	2.00	100.00	100.18 µg/L	100.18
13C5-PFNA	4893	2.05	100.00	97.39 µg/L	97.39
13C2-PFDA	3460	2.16	100.00	99.56 µg/L	99.56
13C2-PFUnA	4260	2.26	100.00	105.02 µg/L	105.02
13C2-PFDoA	5099	2.35	100.00	97.87 µg/L	97.87
13C2-PFTeDA	7537	2.48	100.00	99.22 µg/L	99.22
13C6-PFHxA	17264	1.49	100.00	102.79 µg/L	102.79
13C9-PFDA	20316	2.16	100.00	102.07 µg/L	102.07



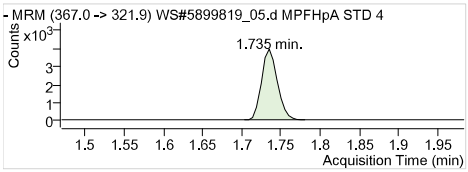


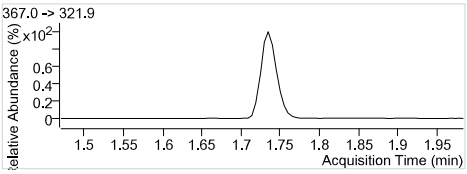
MPFHxA Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



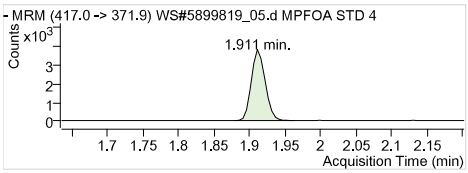


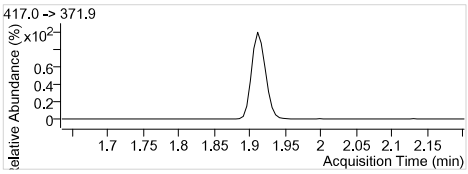
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



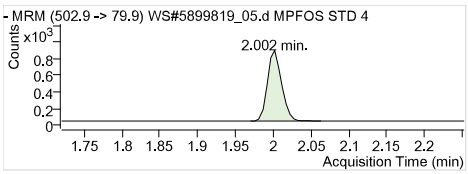


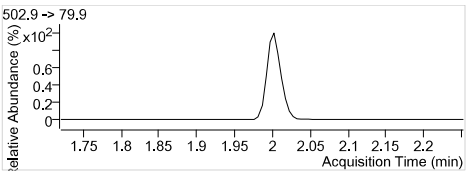
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



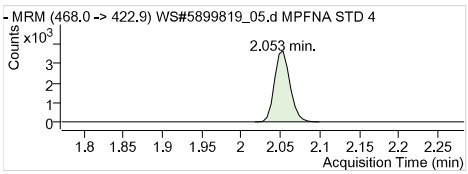


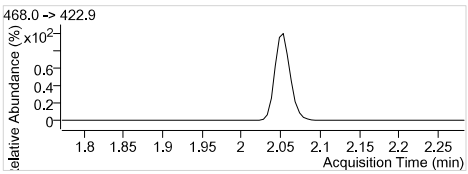
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



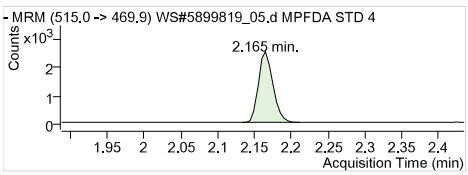


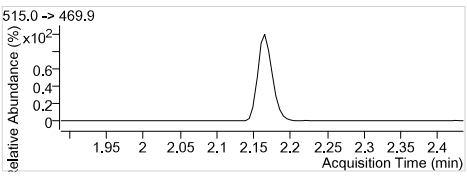
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



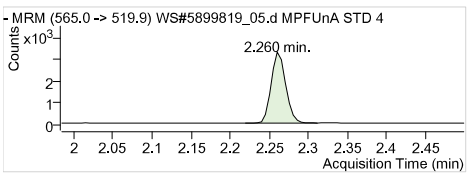


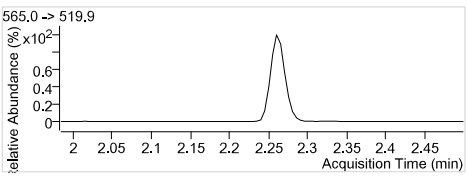
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



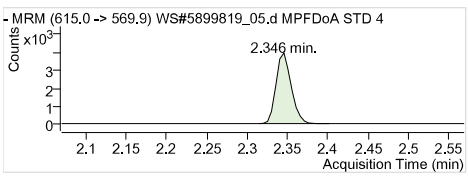


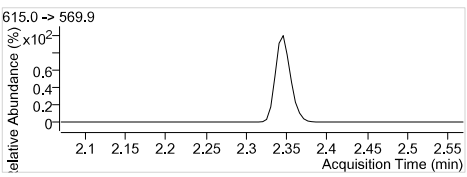
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



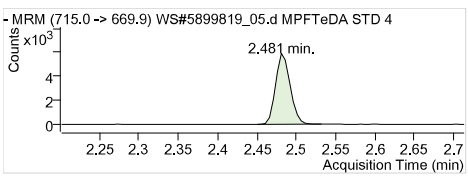


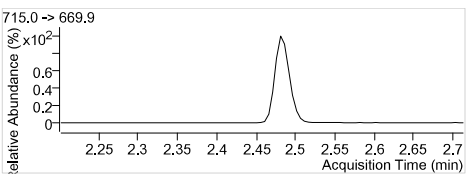
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



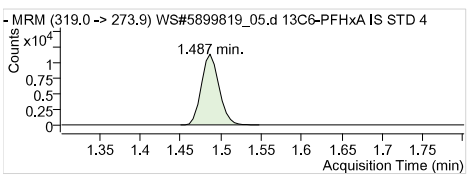


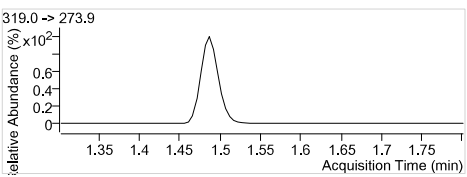
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



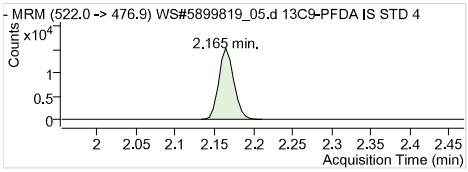


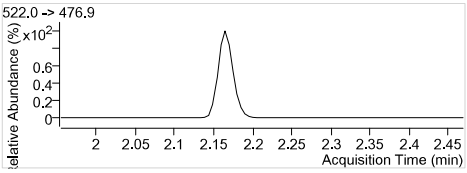
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



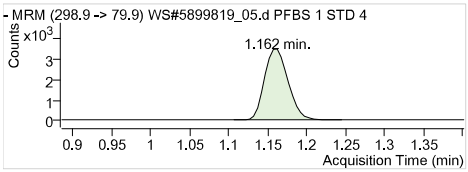


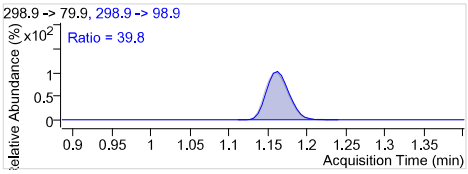
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



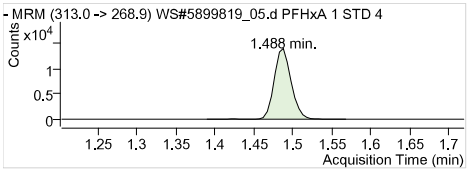


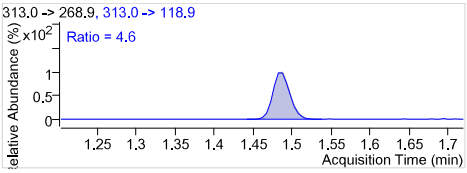
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



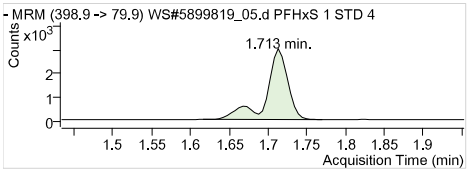


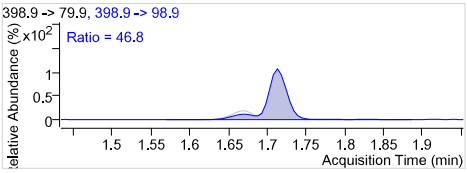
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.162 (1.162)
Calc. conc. 11.58 µg/L
Area ratio: 6.98476
Sample type: Calibration



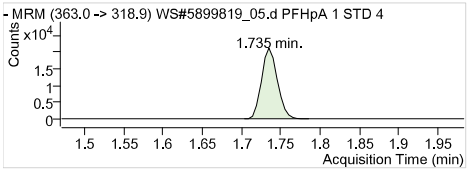


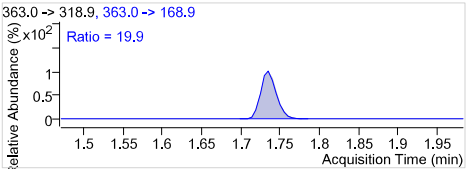
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 12.20 µg/L
Area ratio: 5.48678
Sample type: Calibration



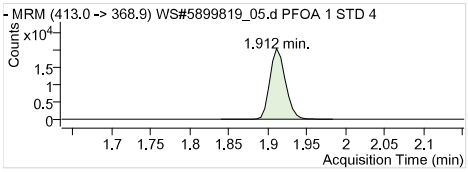


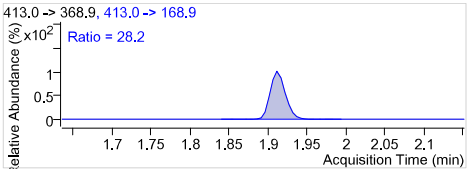
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 11.65 µg/L
Area ratio: 5.40667
Sample type: Calibration



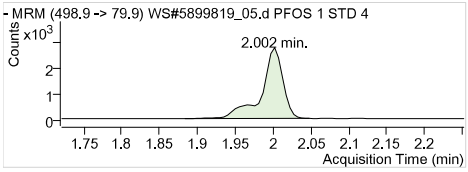


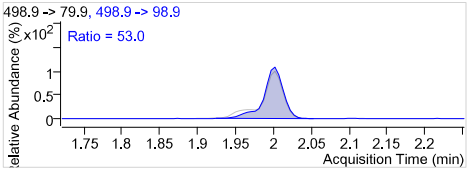
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 12.36 µg/L
Area ratio: 5.38754
Sample type: Calibration



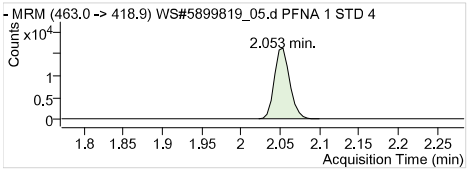


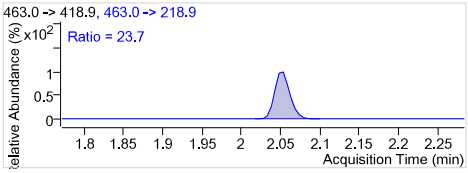
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 12.54 µg/L
Area ratio: 5.52524
Sample type: Calibration



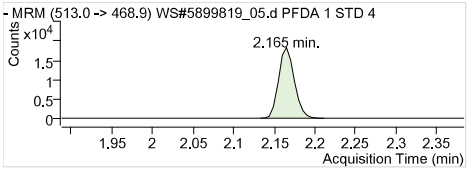


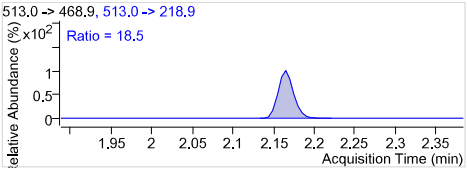
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 11.93 µg/L
Area ratio: 4.93478
Sample type: Calibration



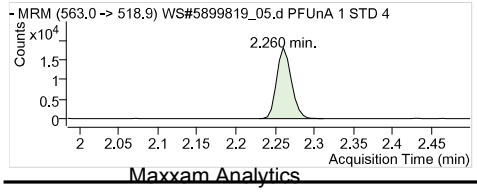


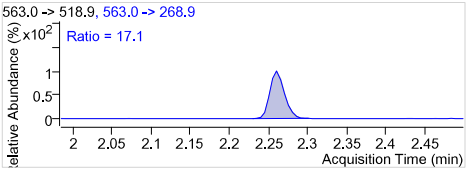
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 12.45 µg/L
Area ratio: 4.53198
Sample type: Calibration



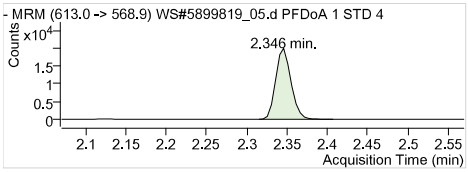


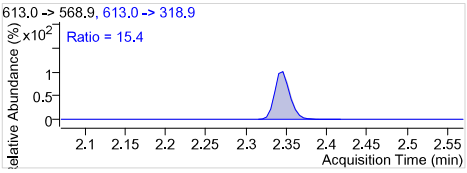
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 12.09 µg/L
Area ratio: 7.13815
Sample type: Calibration



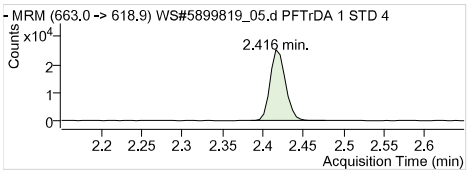


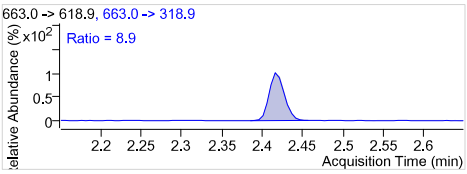
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 11.70 µg/L
Area ratio: 5.49202
Sample type: Calibration



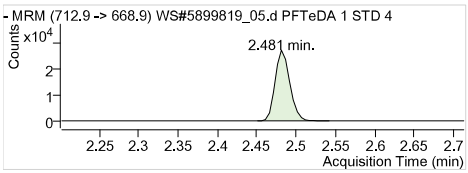


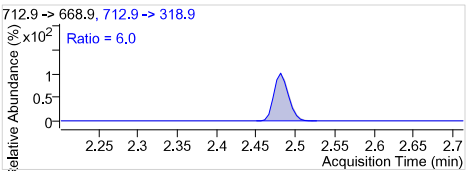
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	12.38 µg/L
Area ratio:	5.13728
Sample type:	Calibration



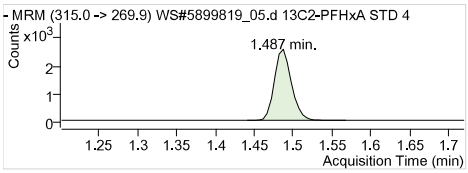


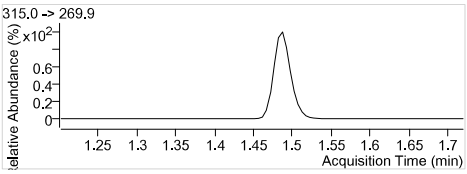
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	12.60 µg/L
Area ratio:	4.39525
Sample type:	Calibration



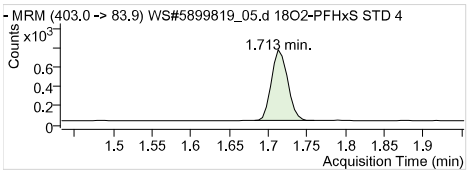


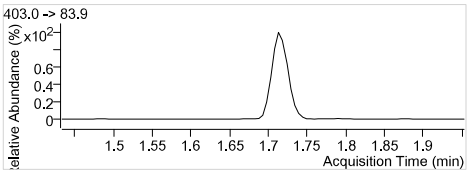
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	12.69 µg/L
Area ratio:	4.64057
Sample type:	Calibration



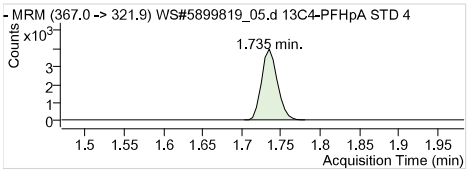


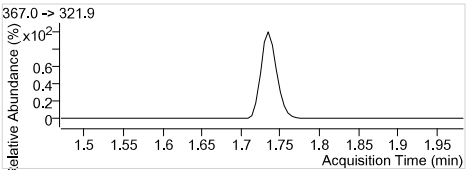
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	98.89 µg/L
Area ratio:	0.22347
Sample type:	Calibration



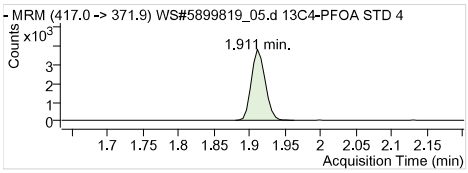


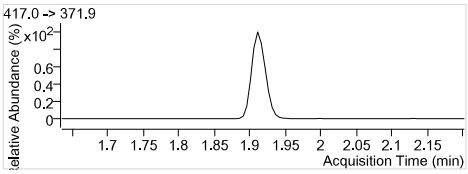
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	105.08 µg/L
Area ratio:	0.06082
Sample type:	Calibration



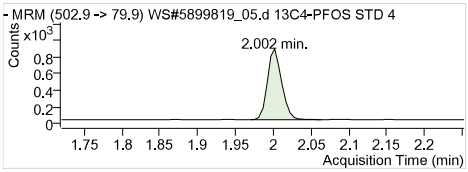


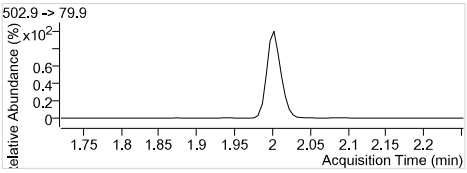
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	97.58 µg/L
Area ratio:	0.31881
Sample type:	Calibration



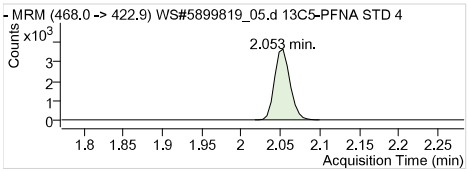


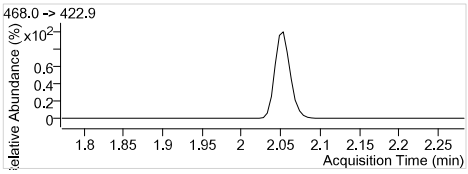
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	96.48 µg/L
Area ratio:	0.29489
Sample type:	Calibration



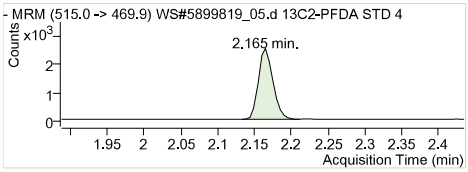


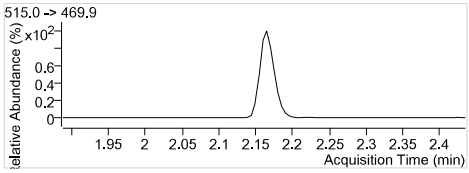
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	100.18 µg/L
Area ratio:	0.06395
Sample type:	Calibration



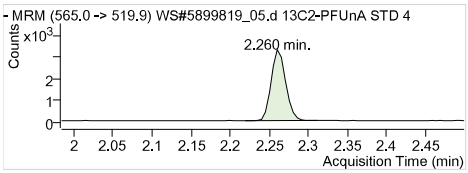


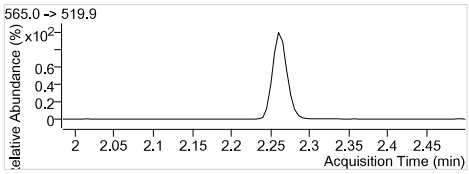
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	97.39 µg/L
Area ratio:	0.28342
Sample type:	Calibration



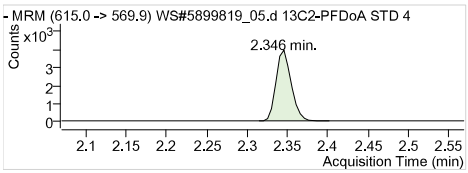


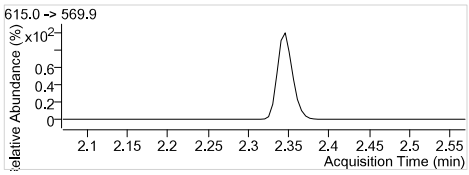
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	99.56 µg/L
Area ratio:	0.17031
Sample type:	Calibration



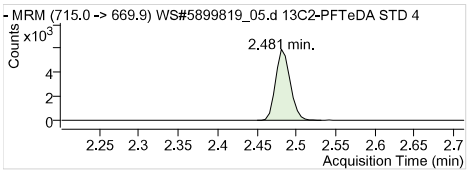


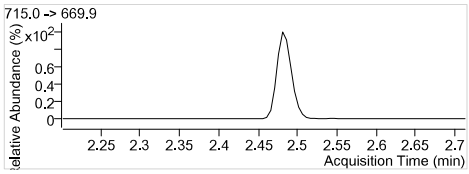
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	105.02 µg/L
Area ratio:	0.20969
Sample type:	Calibration



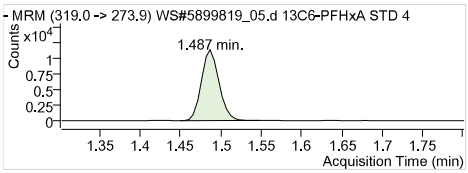


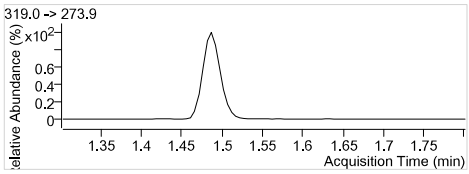
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	97.87 µg/L
Area ratio:	0.25098
Sample type:	Calibration



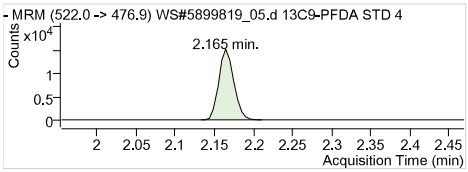


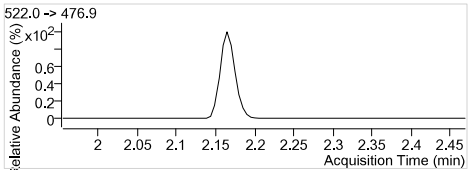
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	99.22 µg/L
Area ratio:	0.37099
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	102.79 µg/L
Area ratio:	0
Sample type:	Calibration





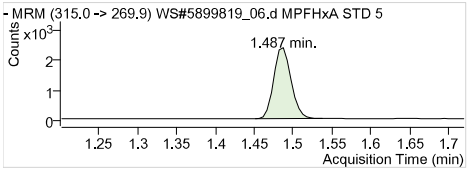
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	102.07 µg/L
Area ratio:	0
Sample type:	Calibration

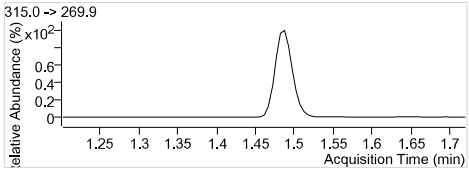
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 5**	**Instrument**	LCMS04
Data File	WS#5899819_06.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A6
Acq. Date	2018/12/21 4:59:11 PM	**Injection Volume**	Per Method
Sample Annotation	-		

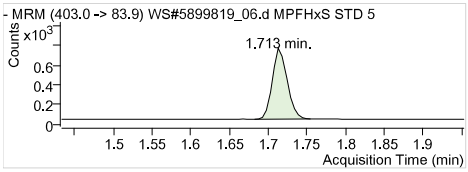
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3690	1.49	1 µg/L		
MPFHxS	943	1.71	1 µg/L		
MPFHpA	5282	1.73	1 µg/L		
MPFOA	5023	1.91	1 µg/L		
MPFOS	1056	2.00	1 µg/L		
MPFNA	4628	2.05	1 µg/L		
MPFDA	3238	2.16	1 µg/L		
MPFUnA	3807	2.26	1 µg/L		
MPFDoA	5152	2.35	1 µg/L		
MPFTeDA	7141	2.48	1 µg/L		
13C6-PFHxA IS	16051	1.49	1 µg/L		
13C9-PFDA IS	19483	2.16	1 µg/L		

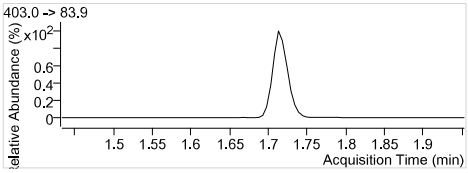
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	14806	1.16	25.00	26.02 µg/L	104.07
PFHxA 1	42575	1.49	25.00	25.64 µg/L	102.58
PFHxS 1	11427	1.71	25.00	26.05 µg/L	104.20
PFHpA 1	59317	1.74	25.00	25.70 µg/L	102.79
PFOA 1	56410	1.91	25.00	25.62 µg/L	102.48
PFOS 1	11508	2.00	25.00	26.30 µg/L	105.20
PFNA 1	45114	2.05	25.00	26.83 µg/L	107.30
PFDA 1	50189	2.17	25.00	26.21 µg/L	104.83
PFUnA 1	47273	2.26	25.00	26.41 µg/L	105.66
PFDoA 1	54455	2.35	25.00	25.46 µg/L	101.82
PFTrDA 1	66407	2.42	25.00	26.72 µg/L	106.87
PFTeDA 1	69004	2.48	25.00	26.52 µg/L	106.07
13C2-PFHxA	3690	1.49	100.00	101.74 µg/L	101.74
18O2-PFHxS	943	1.71	100.00	101.50 µg/L	101.50
13C4-PFHpA	5282	1.73	100.00	100.72 µg/L	100.72
13C4-PFOA	5023	1.91	100.00	102.39 µg/L	102.39
13C4-PFOS	1056	2.00	100.00	103.06 µg/L	103.06
13C5-PFNA	4628	2.05	100.00	99.08 µg/L	99.08
13C2-PFDA	3238	2.16	100.00	97.16 µg/L	97.16
13C2-PFUnA	3807	2.26	100.00	97.87 µg/L	97.87
13C2-PFDoA	5152	2.35	100.00	103.12 µg/L	103.12
13C2-PFTeDA	7141	2.48	100.00	98.03 µg/L	98.03
13C6-PFHxA	16051	1.49	100.00	95.57 µg/L	95.57
13C9-PFDA	19483	2.16	100.00	97.88 µg/L	97.88



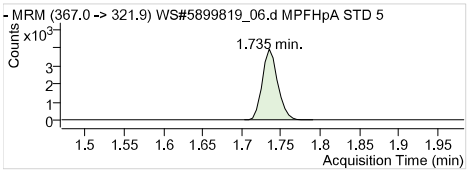


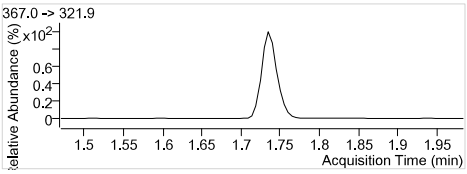
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	Calibration



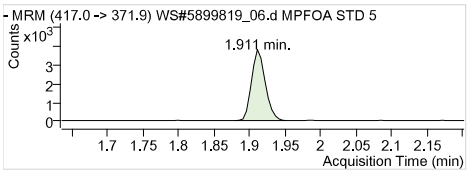


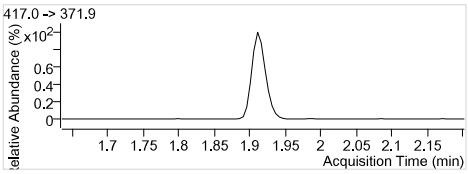
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



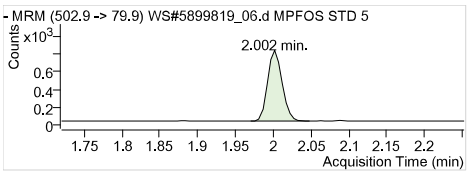


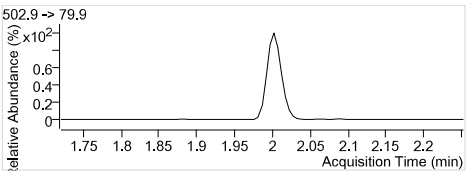
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



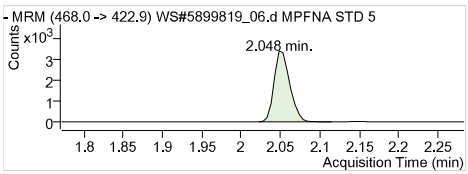


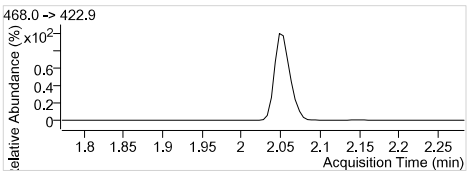
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



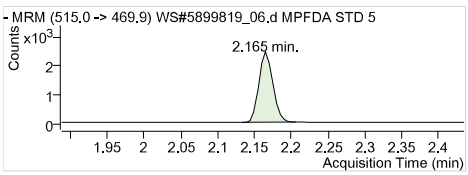


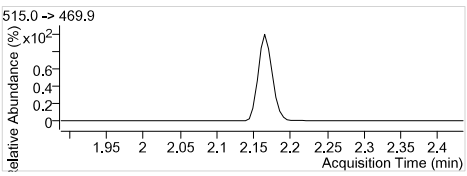
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



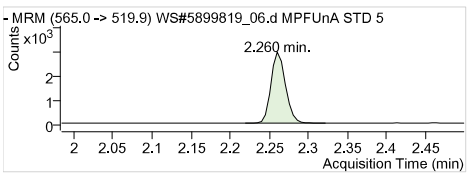


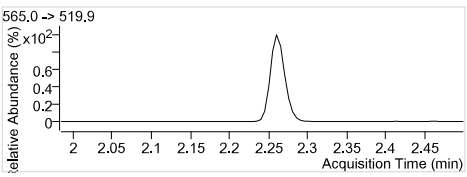
MPFNA Internal Standard
RT (Exp. RT): 2.048 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



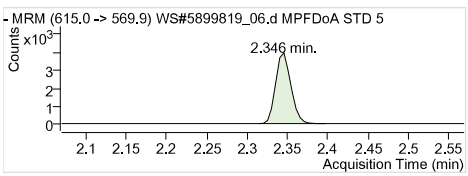


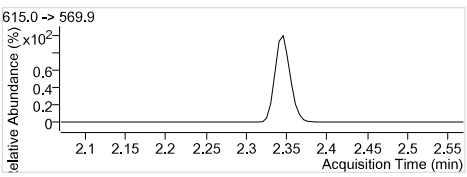
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



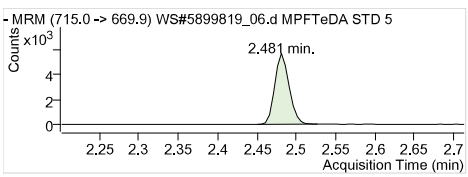


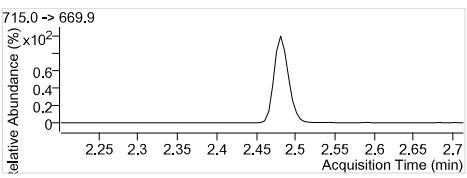
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



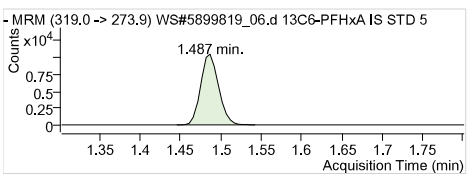


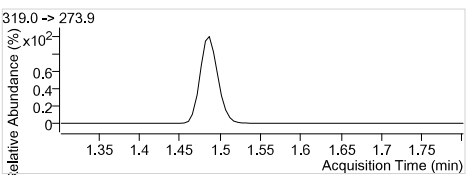
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



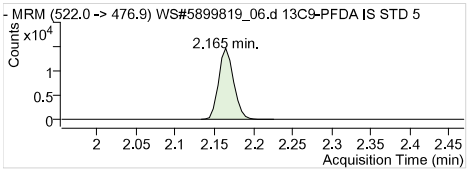


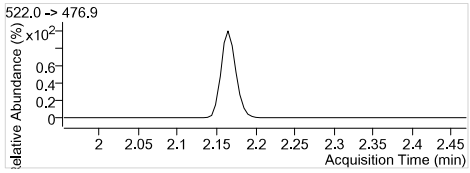
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration



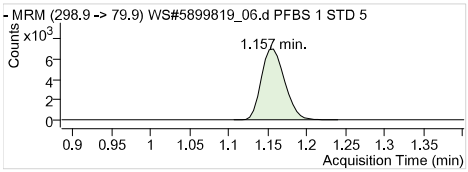


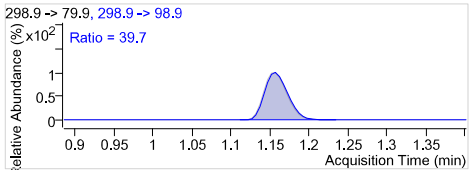
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



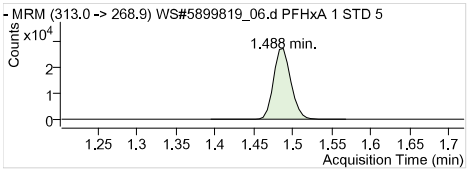


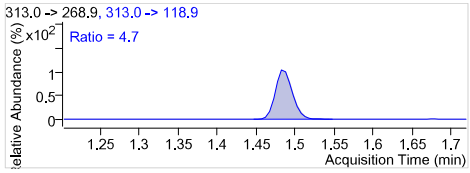
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



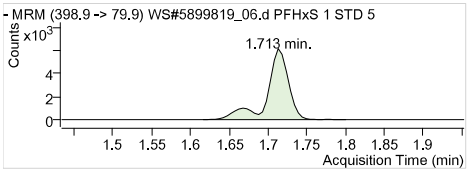


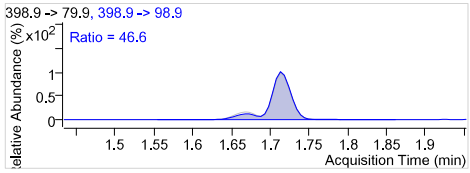
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 26.02 µg/L
Area ratio: 15.70095
Sample type: Calibration



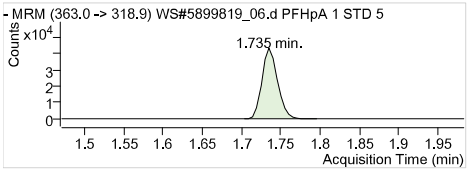


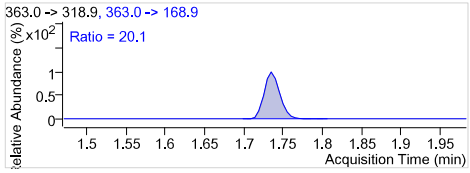
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 25.64 µg/L
Area ratio: 11.53794
Sample type: Calibration



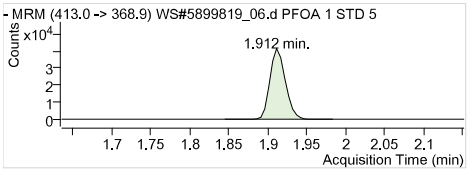


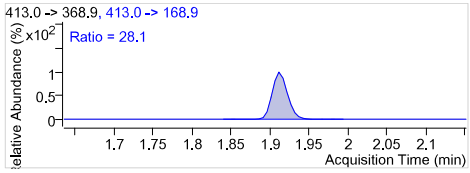
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 26.05 µg/L
Area ratio: 12.11771
Sample type: Calibration



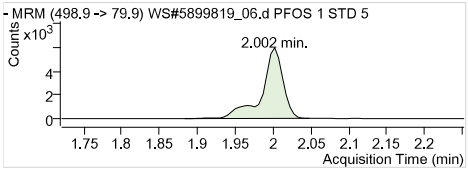


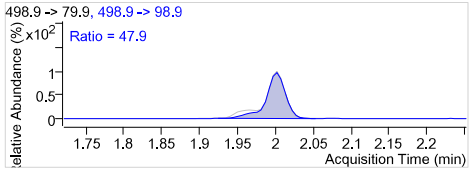
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 25.70 µg/L
Area ratio: 11.23003
Sample type: Calibration



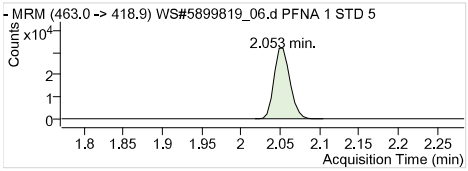


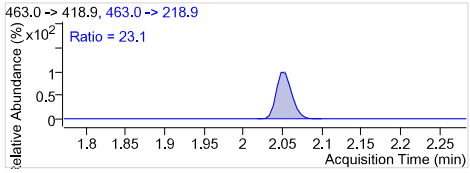
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 25.62 µg/L
Area ratio: 11.23034
Sample type: Calibration



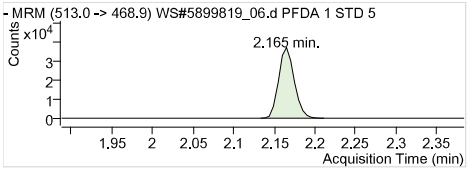


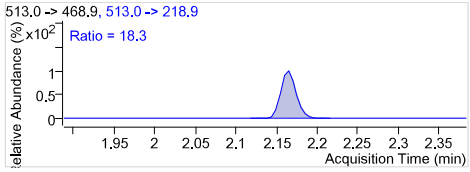
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 26.30 µg/L
Area ratio: 10.89773
Sample type: Calibration



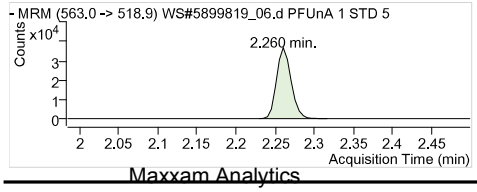


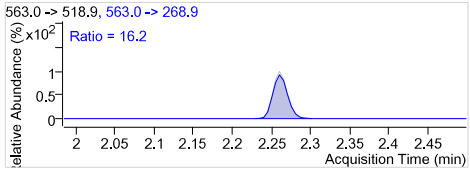
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 26.83 µg/L
Area ratio: 9.74806
Sample type: Calibration



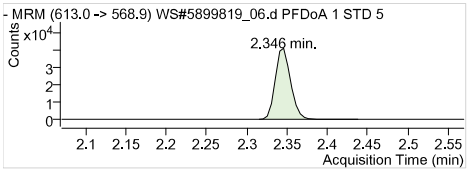


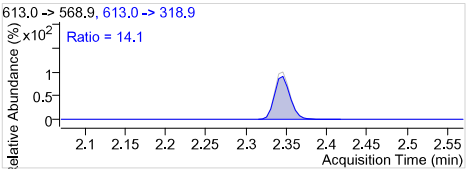
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 26.21 µg/L
Area ratio: 15.50000
Sample type: Calibration



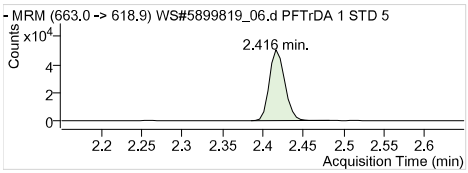


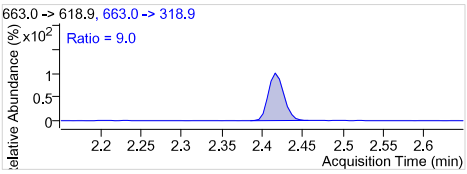
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 26.41 µg/L
Area ratio: 12.41739
Sample type: Calibration



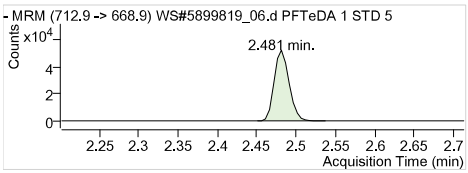


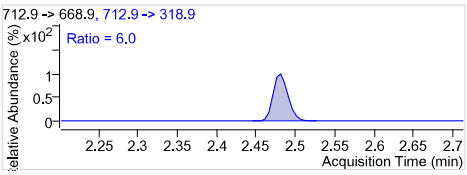
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	25.46 µg/L
Area ratio:	10.56968
Sample type:	Calibration



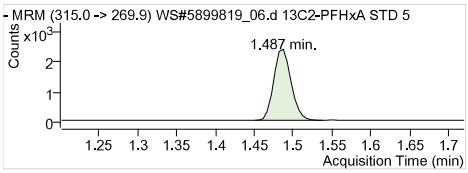


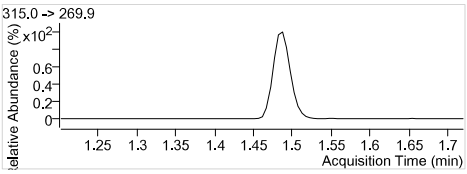
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	26.72 µg/L
Area ratio:	9.29940
Sample type:	Calibration



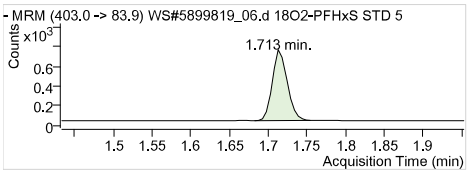


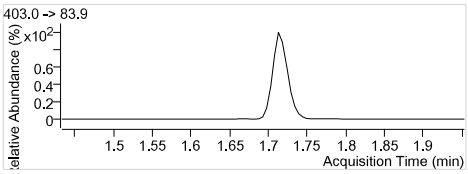
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	26.52 µg/L
Area ratio:	9.66307
Sample type:	Calibration



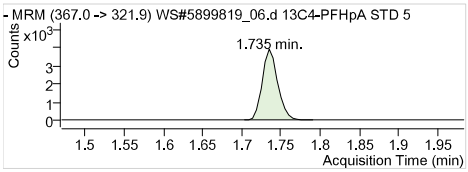


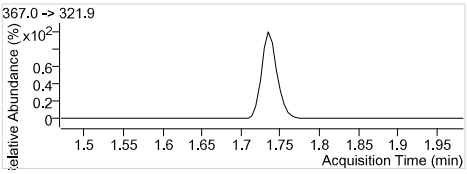
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	101.74 µg/L
Area ratio:	0.22989
Sample type:	Calibration



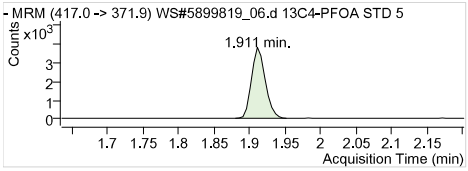


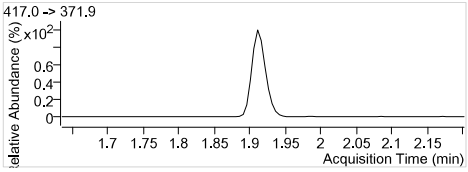
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	101.50 µg/L
Area ratio:	0.05875
Sample type:	Calibration



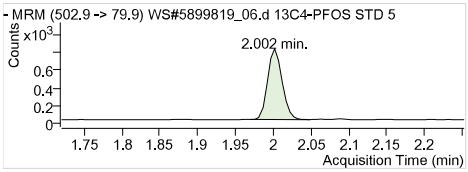


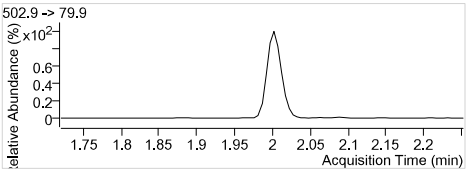
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	100.72 µg/L
Area ratio:	0.32908
Sample type:	Calibration



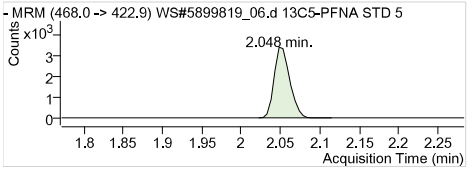


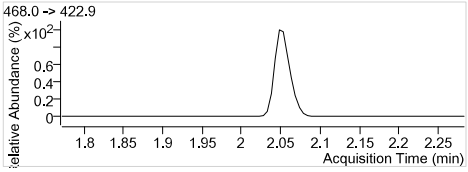
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	102.39 µg/L
Area ratio:	0.31294
Sample type:	Calibration



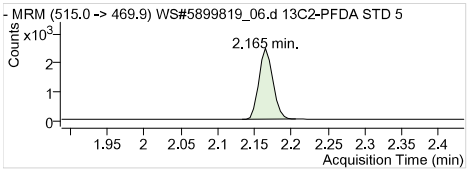


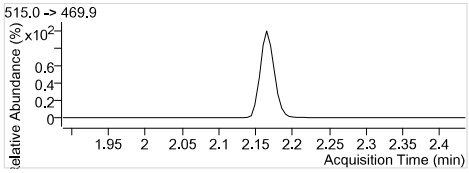
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	103.06 µg/L
Area ratio:	0.06579
Sample type:	Calibration



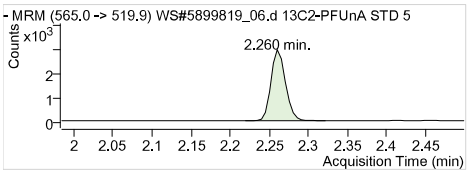


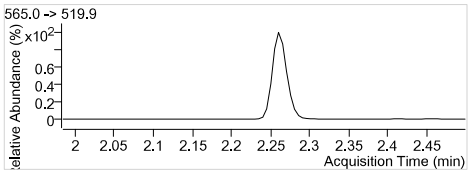
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.048 (2.053)
Calc. conc.	99.08 µg/L
Area ratio:	0.28833
Sample type:	Calibration



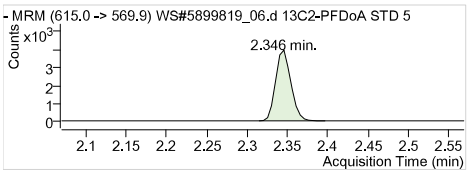


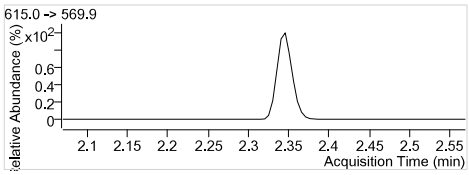
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	97.16 µg/L
Area ratio:	0.16620
Sample type:	Calibration



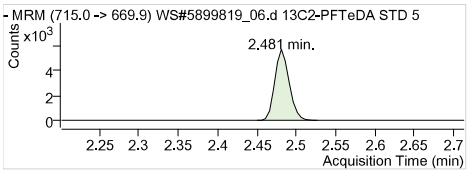


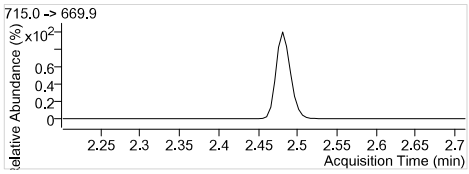
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	97.87 µg/L
Area ratio:	0.19540
Sample type:	Calibration



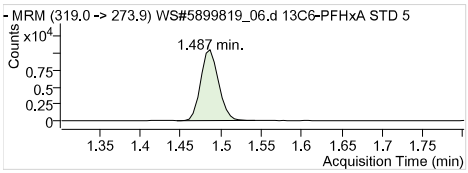


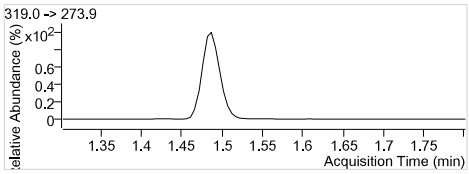
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	103.12 µg/L
Area ratio:	0.26444
Sample type:	Calibration



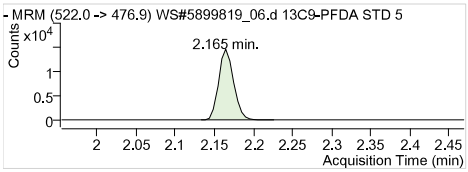


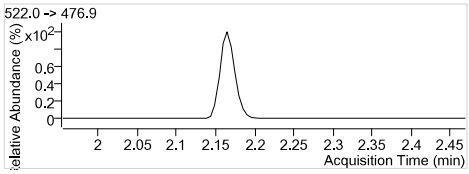
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	98.03 µg/L
Area ratio:	0.36652
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	95.57 µg/L
Area ratio:	0
Sample type:	Calibration





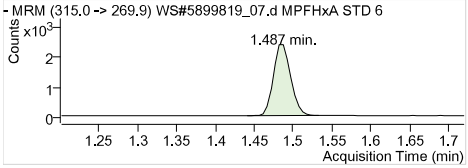
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	97.88 µg/L
Area ratio:	0
Sample type:	Calibration

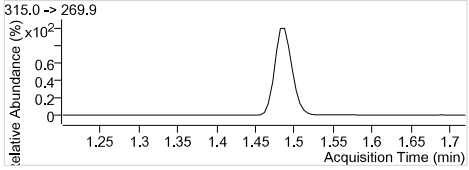
Batch Path T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**STD 6**	**Instrument**	LCMS04
Data File	WS#5899819_07.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A7
Acq. Date	2018/12/21 5:04:06 PM	**Injection Volume**	Per Method
Sample Annotation	-		

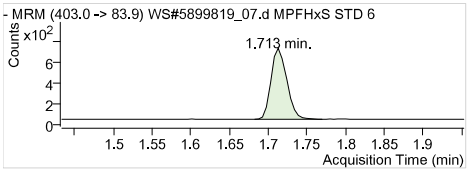
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3691	1.49	1 µg/L		
MPFHxS	957	1.71	1 µg/L		
MPFHpA	5248	1.73	1 µg/L		
MPFOA	5029	1.91	1 µg/L		
MPFOS	1072	2.00	1 µg/L		
MPFNA	5045	2.05	1 µg/L		
MPFDA	3381	2.16	1 µg/L		
MPFUnA	3924	2.26	1 µg/L		
MPFDoA	4953	2.35	1 µg/L		
MPFTeDA	7643	2.48	1 µg/L		
13C6-PFHxA IS	15834	1.49	1 µg/L		
13C9-PFDA IS	19019	2.16	1 µg/L		

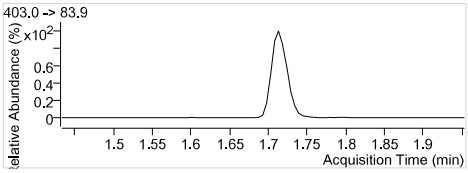
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	24038	1.16	41.70	41.61 µg/L	99.80
PFHxA 1	68807	1.48	41.70	41.43 µg/L	99.34
PFHxS 1	18460	1.71	41.70	41.44 µg/L	99.38
PFHpA 1	94658	1.74	41.70	41.24 µg/L	98.90
PFOA 1	90331	1.91	41.70	41.05 µg/L	98.44
PFOS 1	18153	2.00	41.70	40.85 µg/L	97.96
PFNA 1	73306	2.05	41.70	40.01 µg/L	95.95
PFDA 1	81954	2.17	41.70	40.97 µg/L	98.24
PFUnA 1	75859	2.26	41.70	41.10 µg/L	98.57
PFDoA 1	85414	2.35	41.70	41.52 µg/L	99.56
PFTrDA 1	105694	2.42	41.70	39.76 µg/L	95.35
PFTeDA 1	111050	2.48	41.70	39.91 µg/L	95.72
13C2-PFHxA	3691	1.49	100.00	103.16 µg/L	103.16
18O2-PFHxS	957	1.71	100.00	104.42 µg/L	104.42
13C4-PFHpA	5248	1.73	100.00	101.44 µg/L	101.44
13C4-PFOA	5029	1.91	100.00	103.91 µg/L	103.91
13C4-PFOS	1072	2.00	100.00	106.06 µg/L	106.06
13C5-PFNA	5045	2.05	100.00	109.48 µg/L	109.48
13C2-PFDA	3381	2.16	100.00	103.93 µg/L	103.93
13C2-PFUnA	3924	2.26	100.00	103.34 µg/L	103.34
13C2-PFDoA	4953	2.35	100.00	101.55 µg/L	101.55
13C2-PFTeDA	7643	2.48	100.00	107.48 µg/L	107.48
13C6-PFHxA	15834	1.49	100.00	94.27 µg/L	94.27
13C9-PFDA	19019	2.16	100.00	95.55 µg/L	95.55



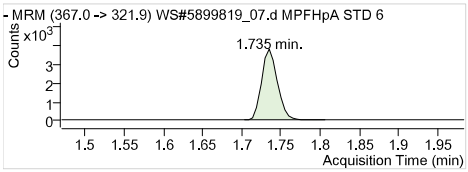


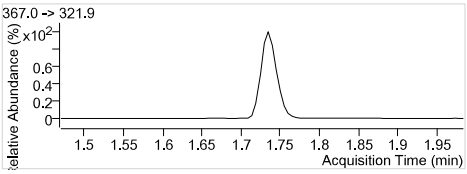
MPFHxA Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



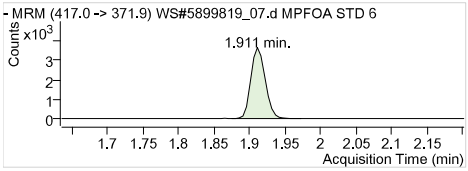


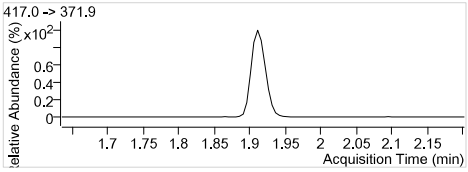
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: Calibration



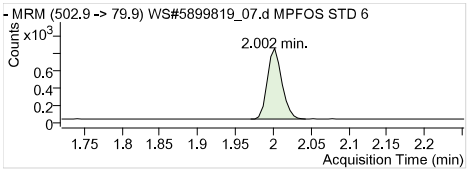


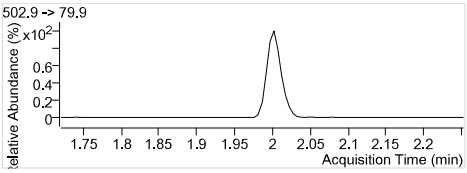
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: Calibration



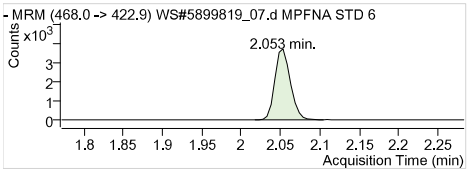


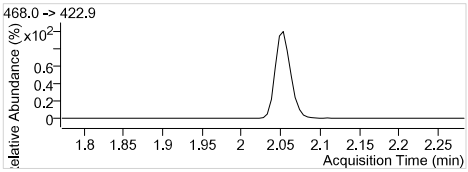
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: Calibration



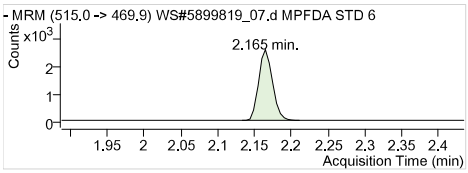


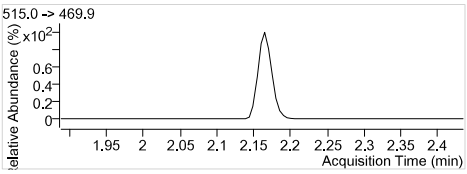
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: Calibration



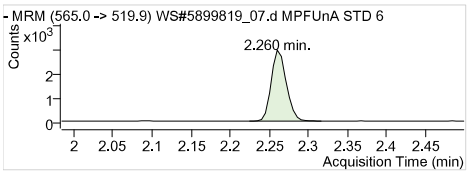


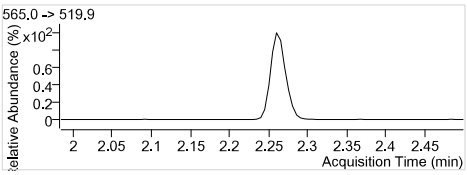
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: Calibration



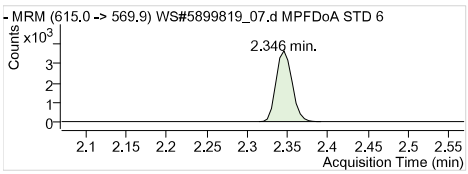


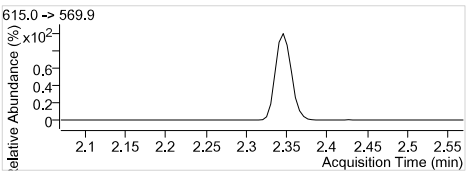
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



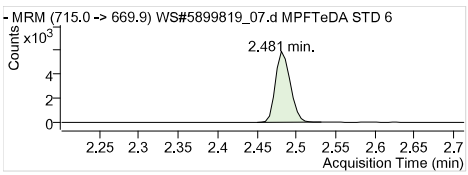


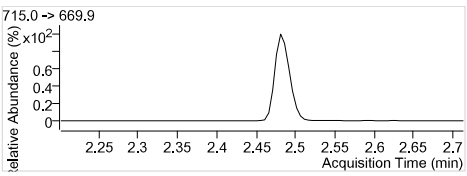
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: Calibration



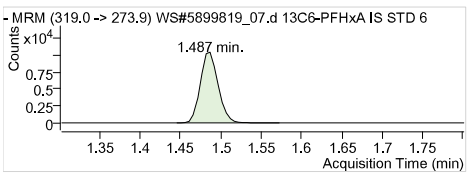


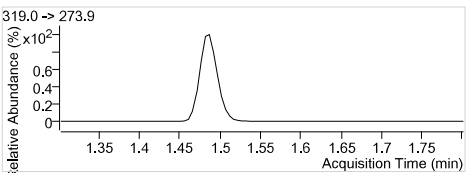
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: Calibration



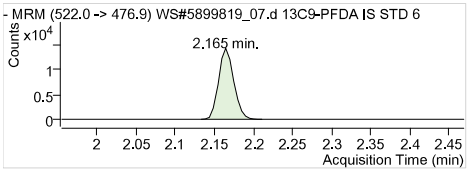


MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: Calibration

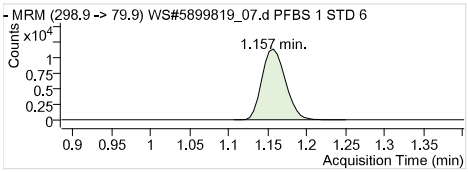




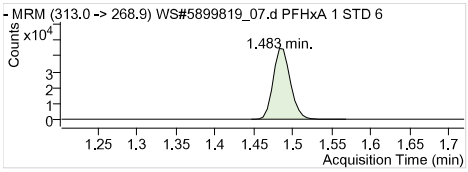
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: Calibration



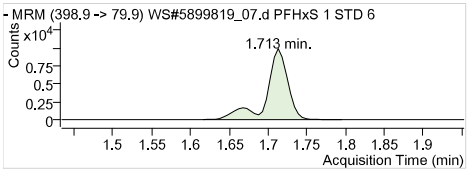
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: Calibration



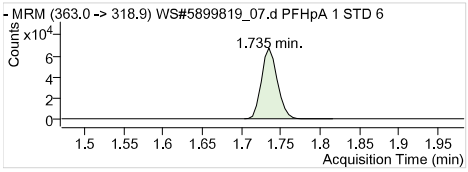
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 41.61 µg/L
Area ratio: 25.11808
Sample type: Calibration



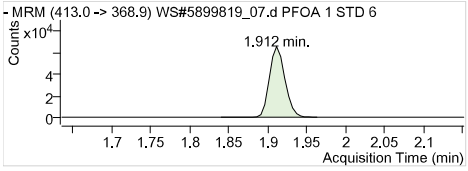
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.483 (1.488)
Calc. conc. 41.43 µg/L
Area ratio: 18.64183
Sample type: Calibration



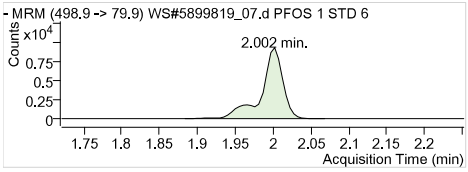
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 41.44 µg/L
Area ratio: 19.28945
Sample type: Calibration



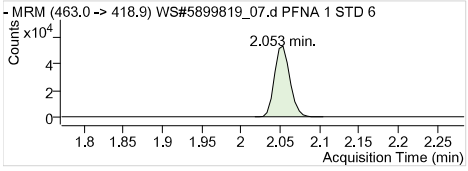
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 41.24 µg/L
Area ratio: 18.03697
Sample type: Calibration



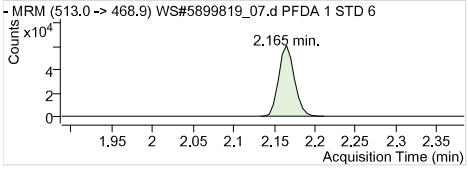
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 41.05 µg/L
Area ratio: 17.96202
Sample type: Calibration



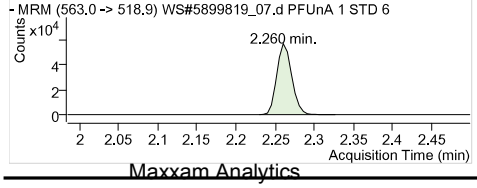
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 40.85 µg/L
Area ratio: 16.93377
Sample type: Calibration



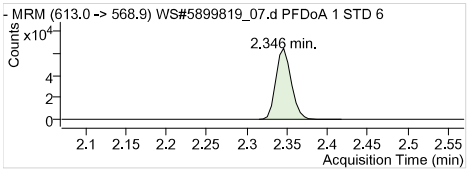
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 40.01 µg/L
Area ratio: 14.53043
Sample type: Calibration

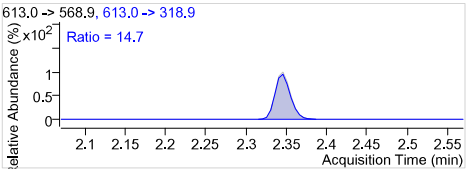


PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 40.97 µg/L
Area ratio: 24.23957
Sample type: Calibration

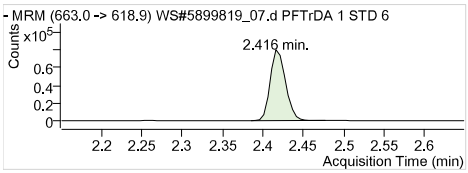


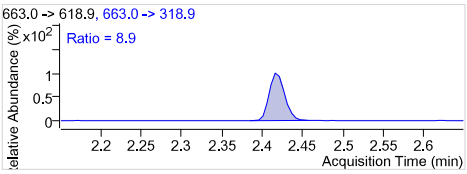
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 41.10 µg/L
Area ratio: 19.33206
Sample type: Calibration



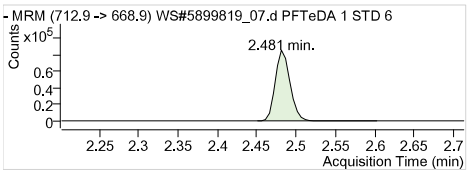


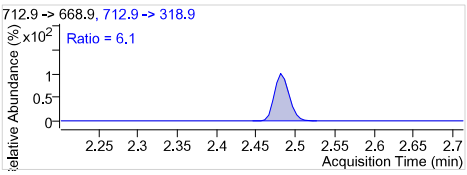
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.346 (2.346)
Calc. conc. 41.52 µg/L
Area ratio: 17.24490
Sample type: Calibration



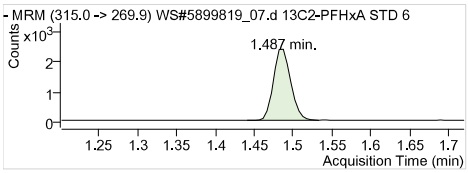


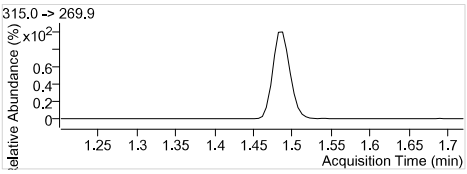
PFTrDA 1 663.0 -> 618.9
RT (Exp. RT): 2.416 (2.416)
Calc. conc. 39.76 µg/L
Area ratio: 13.82886
Sample type: Calibration



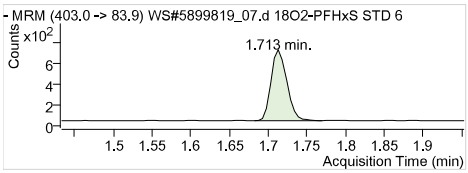


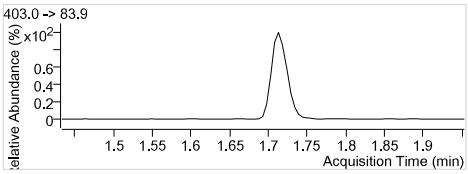
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.481 (2.481)
Calc. conc. 39.91 µg/L
Area ratio: 14.52963
Sample type: Calibration



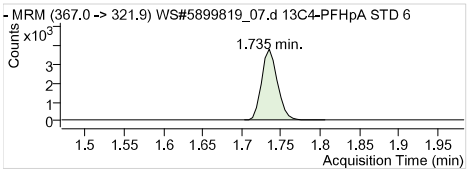


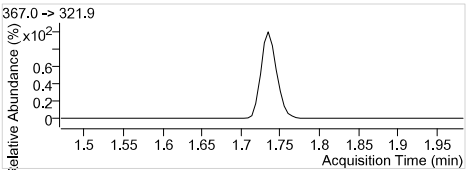
13C2-PFHxA 315.0 -> 269.9
RT (Exp. RT): 1.487 (1.487)
Calc. conc. 103.16 µg/L
Area ratio: 0.23311
Sample type: Calibration



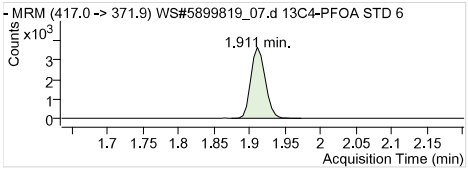


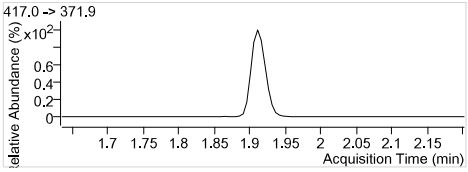
18O2-PFHxS 403.0 -> 83.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 104.42 µg/L
Area ratio: 0.06044
Sample type: Calibration



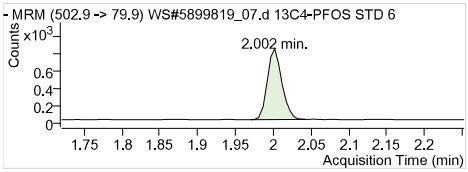


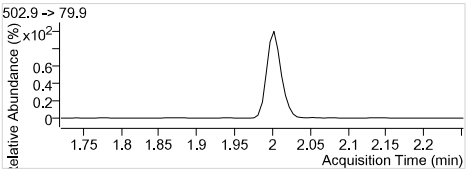
13C4-PFHpA 367.0 -> 321.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 101.44 µg/L
Area ratio: 0.33144
Sample type: Calibration



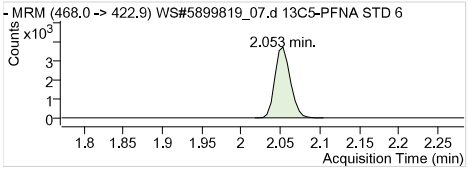


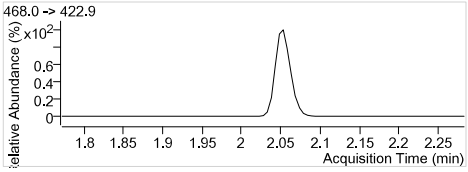
13C4-PFOA 417.0 -> 371.9
RT (Exp. RT): 1.911 (1.911)
Calc. conc. 103.91 µg/L
Area ratio: 0.31761
Sample type: Calibration



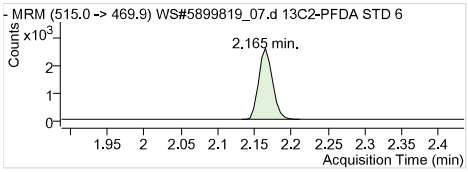


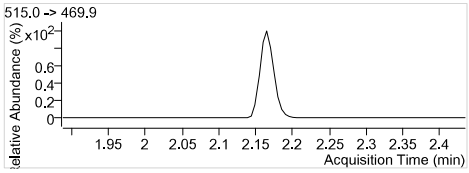
13C4-PFOS 502.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 106.06 µg/L
Area ratio: 0.06770
Sample type: Calibration



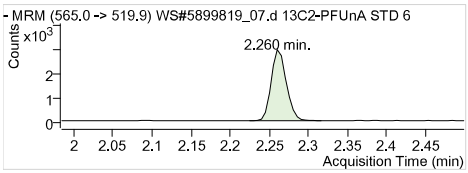


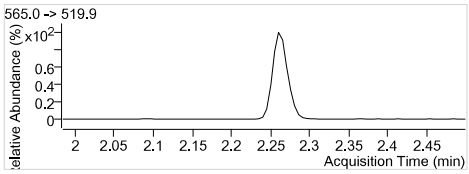
13C5-PFNA 468.0 -> 422.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 109.48 µg/L
Area ratio: 0.31862
Sample type: Calibration



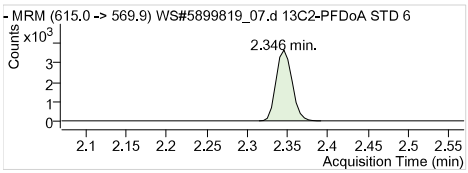


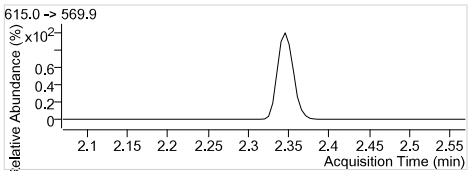
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	103.93 µg/L
Area ratio:	0.17777
Sample type:	Calibration



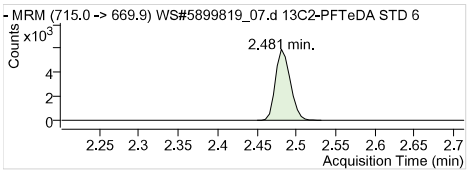


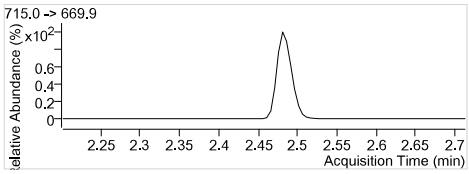
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	103.34 µg/L
Area ratio:	0.20632
Sample type:	Calibration



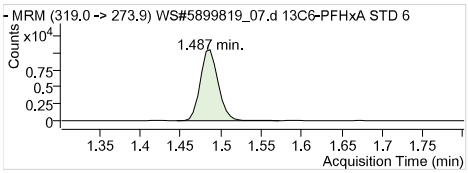


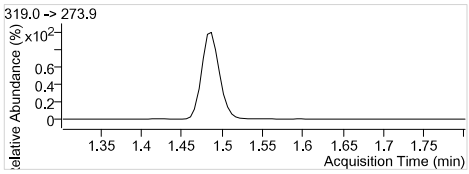
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	101.55 µg/L
Area ratio:	0.26042
Sample type:	Calibration



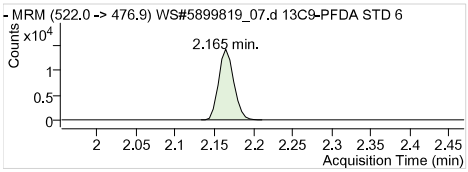


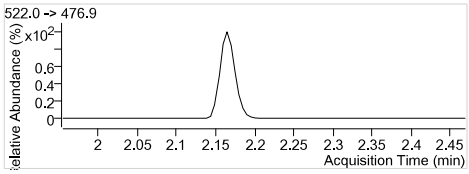
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	107.48 µg/L
Area ratio:	0.40186
Sample type:	Calibration





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	94.27 µg/L
Area ratio:	0
Sample type:	Calibration





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	95.55 µg/L
Area ratio:	0
Sample type:	Calibration

Quantitation Results

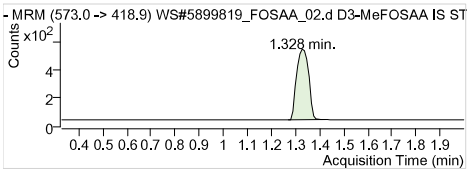
Agilent Technologies

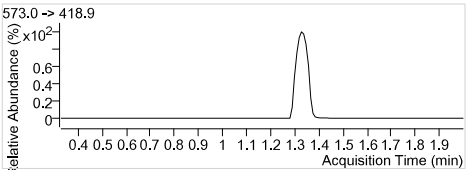
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_ETOxics

Sample Name	**STD 1**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_02.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A2
Acq. Date	2018/12/21 11:27:07 PM	**Injection Volume**	Per Method
Sample Annotation	-		

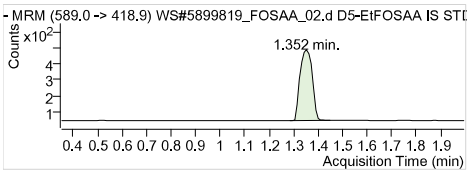
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1733	1.33	1 µg/L		
D5-EtFOSAA IS	1519	1.35	1 µg/L		
13C9-PFDA IS	20825	0.99	1 µg/L		

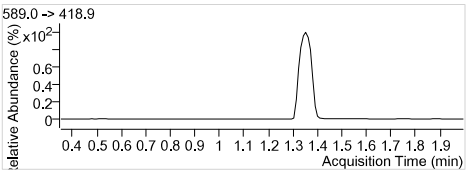
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	553	1.33	0.83	0.83 µg/L	99.85
EtFOSAA 1	564	1.35	0.83	0.87 µg/L	104.99
D3-MeFOSAA	1736	1.33	100.00	98.29 µg/L	98.29
D5-EtFOSAA	1522	1.35	100.00	96.15 µg/L	96.15
13C9-PFDA	20772	0.99	100.00	99.92 µg/L	99.92



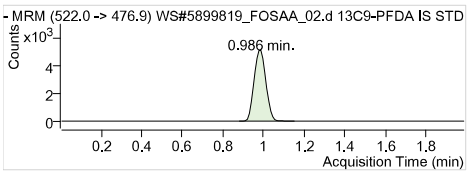


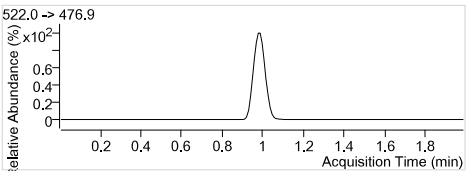
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



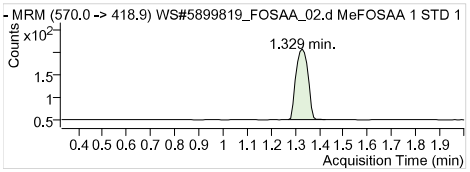


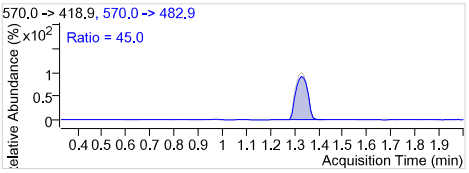
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



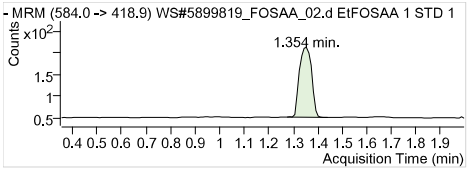


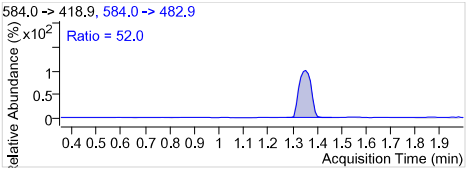
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.986 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



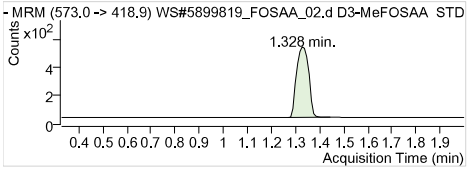


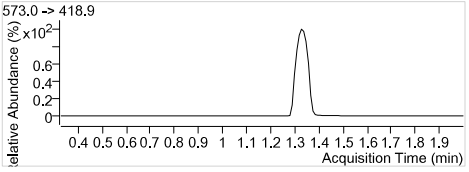
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 0.83 µg/L
Area ratio: 0.31910
Sample type: Calibration



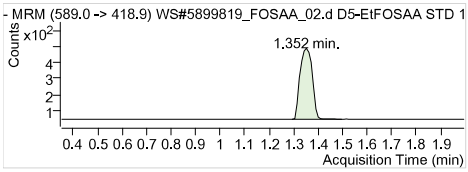


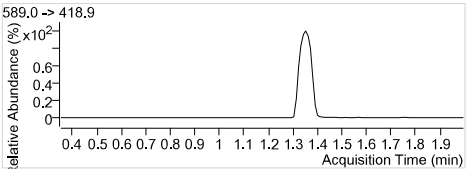
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 0.87 µg/L
Area ratio: 0.37130
Sample type: Calibration



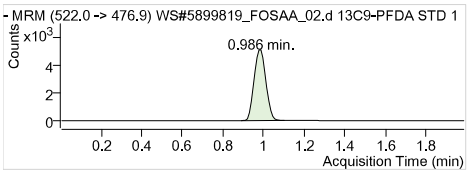


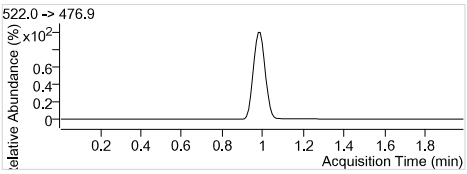
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 98.29 µg/L
Area ratio: 0.08336
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	96.15 µg/L
Area ratio:	0.07309
Sample type:	Calibration





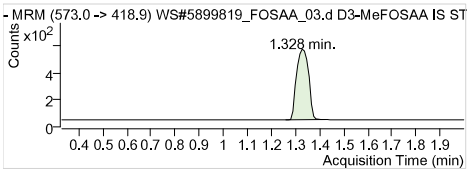
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.986 (0.986)
Calc. conc.	99.92 µg/L
Area ratio:	0
Sample type:	Calibration

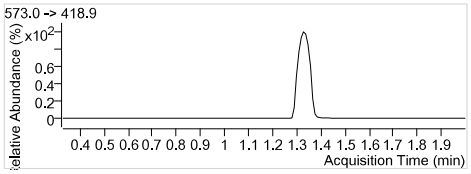
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_EToxics

Sample Name	**STD 2**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_03.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A3
Acq. Date	2018/12/21 11:29:30 PM	**Injection Volume**	Per Method
Sample Annotation	-		

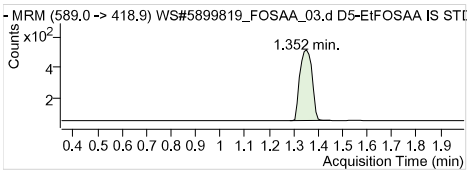
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1838	1.33	1 µg/L		
D5-EtFOSAA IS	1627	1.35	1 µg/L		
13C9-PFDA IS	21023	0.99	1 µg/L		

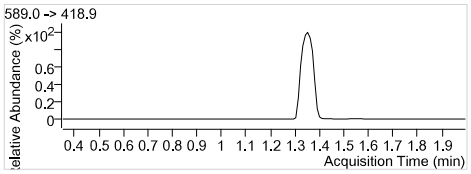
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	1112	1.33	1.70	1.67 µg/L	98.09
EtFOSAA 1	1210	1.35	1.70	1.71 µg/L	100.82
D3-MeFOSAA	1849	1.33	100.00	103.70 µg/L	103.70
D5-EtFOSAA	1629	1.35	100.00	101.94 µg/L	101.94
13C9-PFDA	20956	0.99	100.00	100.81 µg/L	100.81



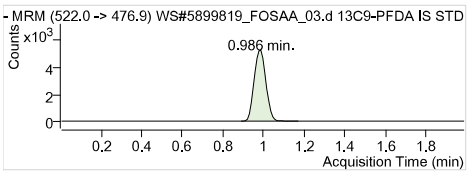


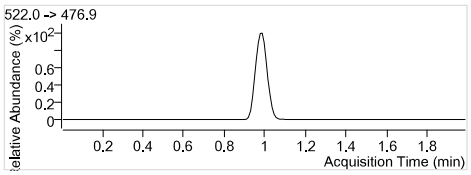
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



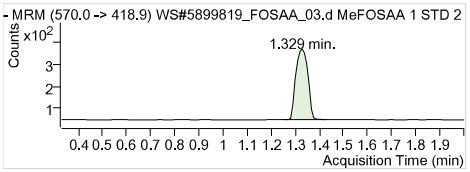


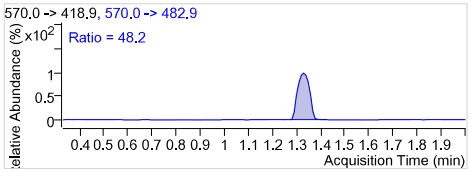
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



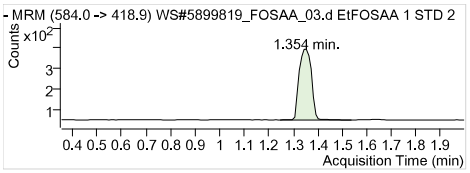


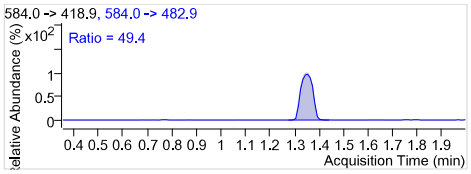
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.986 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



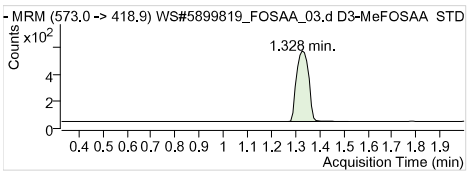


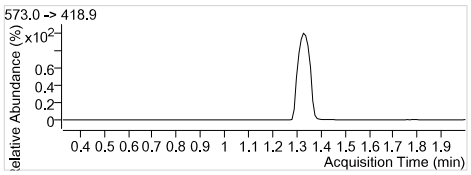
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 1.67 µg/L
Area ratio: 0.60501
Sample type: Calibration



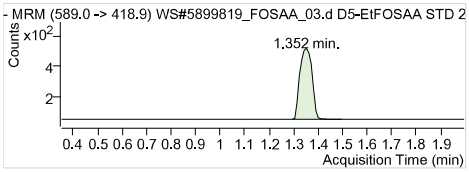


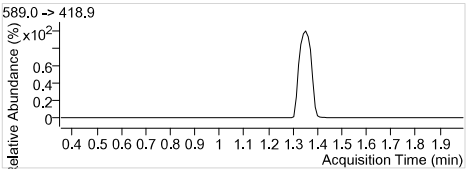
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 1.71 µg/L
Area ratio: 0.74370
Sample type: Calibration



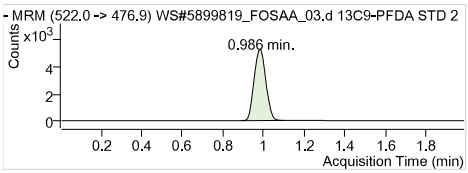


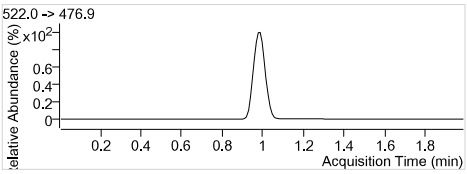
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 103.70 µg/L
Area ratio: 0.08795
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	101.94 µg/L
Area ratio:	0.07749
Sample type:	Calibration





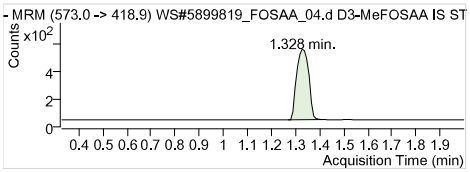
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.986 (0.986)
Calc. conc.	100.81 µg/L
Area ratio:	0
Sample type:	Calibration

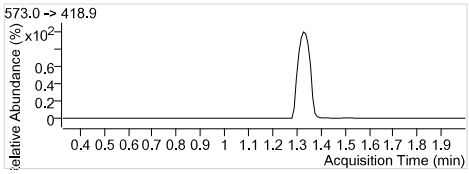
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_ETOxics

Sample Name	**STD 3**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_04.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A4
Acq. Date	2018/12/21 11:31:53 PM	**Injection Volume**	Per Method
Sample Annotation	-		

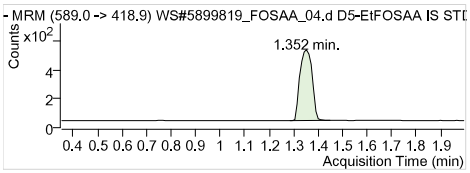
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1778	1.33	1 µg/L		
D5-EtFOSAA IS	1691	1.35	1 µg/L		
13C9-PFDA IS	20816	0.98	1 µg/L		

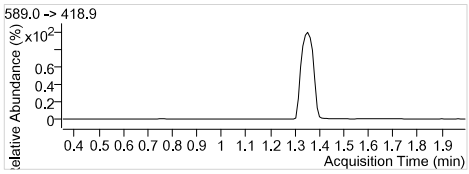
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	3141	1.33	5.00	5.08 µg/L	101.50
EtFOSAA 1	3571	1.35	5.00	4.81 µg/L	96.18
D3-MeFOSAA	1785	1.33	100.00	101.11 µg/L	101.11
D5-EtFOSAA	1694	1.35	100.00	107.07 µg/L	107.07
13C9-PFDA	20747	0.98	100.00	99.80 µg/L	99.80



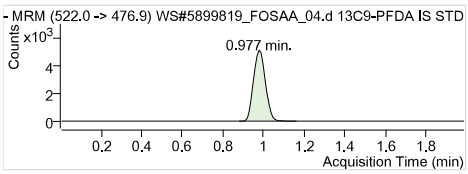


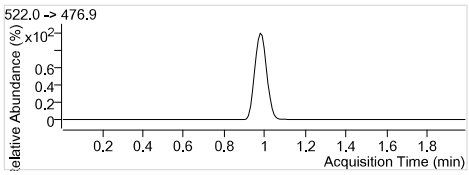
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



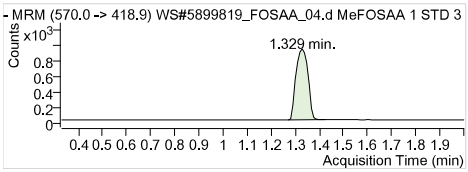


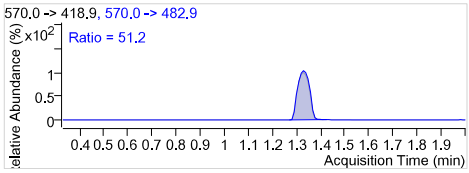
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



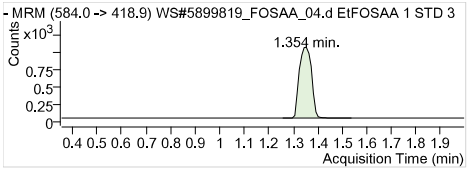


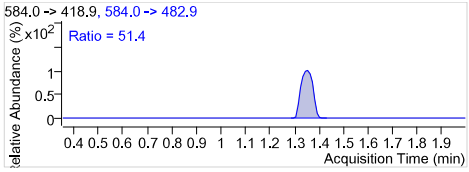
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



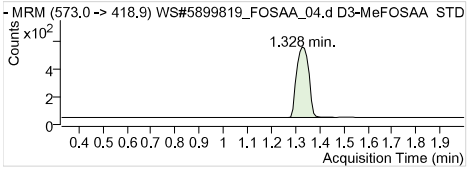


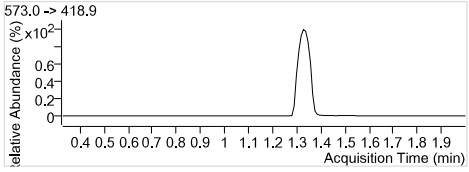
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 5.08 µg/L
Area ratio: 1.76659
Sample type: Calibration



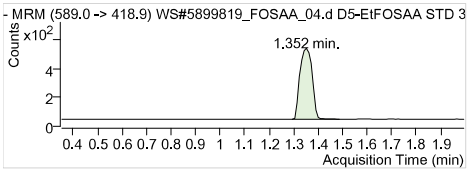


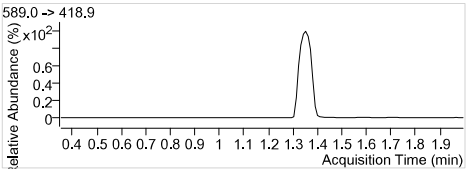
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 4.81 µg/L
Area ratio: 2.11177
Sample type: Calibration



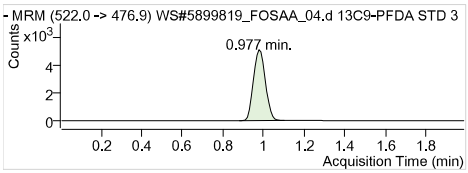


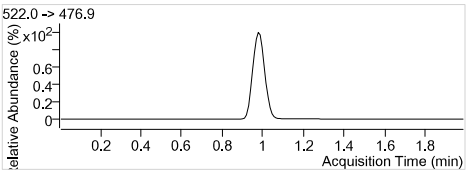
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 101.11 µg/L
Area ratio: 0.08575
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	107.07 µg/L
Area ratio:	0.08138
Sample type:	Calibration





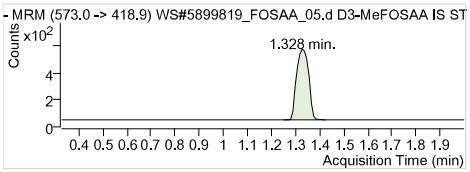
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.986)
Calc. conc.	99.80 µg/L
Area ratio:	0
Sample type:	Calibration

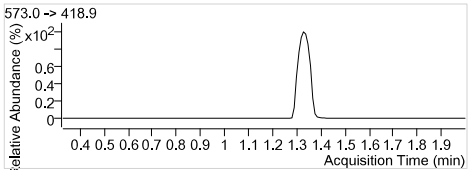
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_EToxics

Sample Name	**STD 4**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_05.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A5
Acq. Date	2018/12/21 11:34:16 PM	**Injection Volume**	Per Method
Sample Annotation	-		

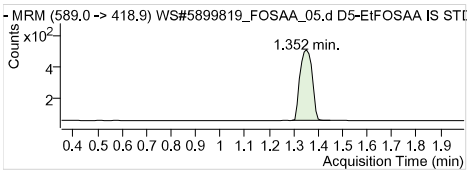
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1826	1.33	1 µg/L		
D5-EtFOSAA IS	1600	1.35	1 µg/L		
13C9-PFDA IS	21241	0.99	1 µg/L		

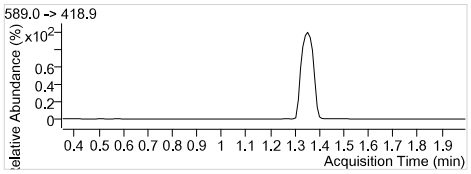
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	7776	1.33	12.50	12.39 µg/L	99.08
EtFOSAA 1	8620	1.35	12.50	12.22 µg/L	97.76
D3-MeFOSAA	1835	1.33	100.00	101.86 µg/L	101.86
D5-EtFOSAA	1603	1.35	100.00	99.29 µg/L	99.29
13C9-PFDA	21050	0.99	100.00	101.26 µg/L	101.26



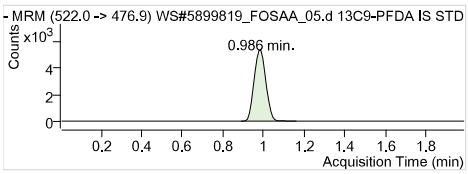


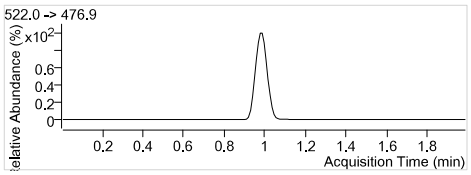
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



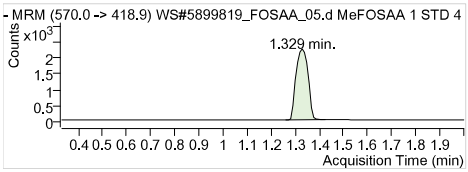


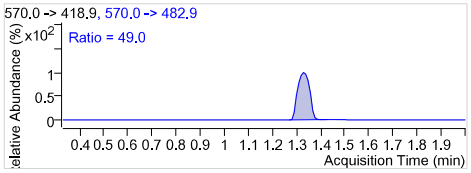
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



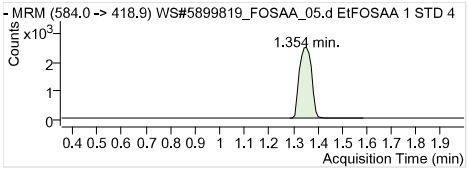


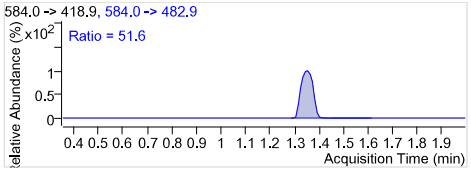
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.986 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



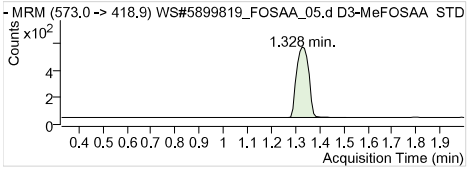


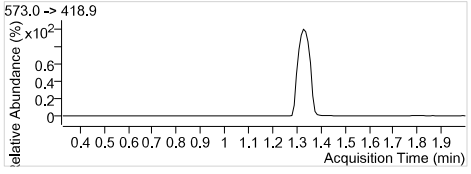
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 12.39 µg/L
Area ratio: 4.25849
Sample type: Calibration



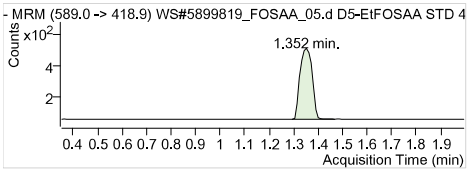


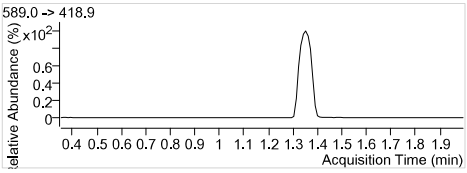
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 12.22 µg/L
Area ratio: 5.38750
Sample type: Calibration



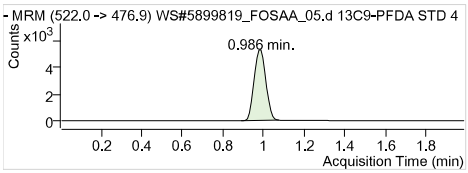


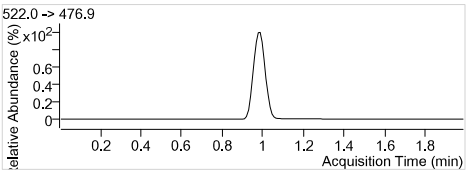
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 101.86 µg/L
Area ratio: 0.08639
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	99.29 µg/L
Area ratio:	0.07547
Sample type:	Calibration





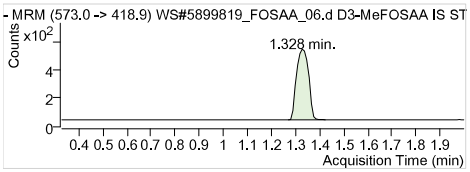
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.986 (0.986)
Calc. conc.	101.26 µg/L
Area ratio:	0
Sample type:	Calibration

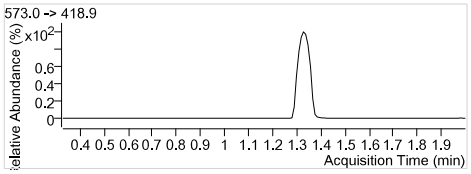
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_ETOxics

Sample Name	**STD 5**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_06.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A6
Acq. Date	2018/12/21 11:36:38 PM	**Injection Volume**	Per Method
Sample Annotation	-		

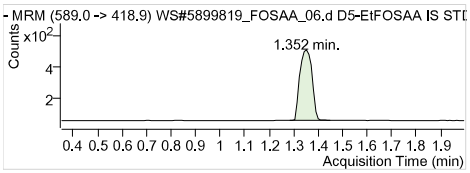
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1724	1.33	1 µg/L		
D5-EtFOSAA IS	1605	1.35	1 µg/L		
13C9-PFDA IS	20917	0.98	1 µg/L		

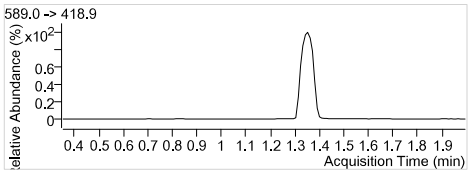
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	15232	1.33	25.00	25.81 µg/L	103.25
EtFOSAA 1	17389	1.35	25.00	24.54 µg/L	98.17
D3-MeFOSAA	1728	1.33	100.00	97.41 µg/L	97.41
D5-EtFOSAA	1611	1.35	100.00	101.33 µg/L	101.33
13C9-PFDA	20839	0.98	100.00	100.24 µg/L	100.24



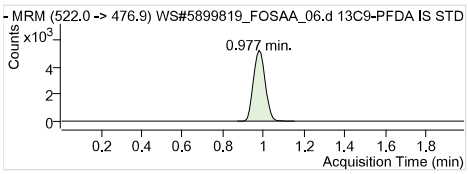


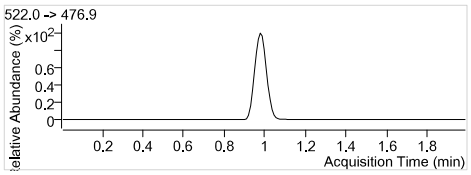
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



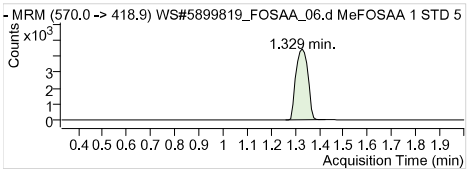


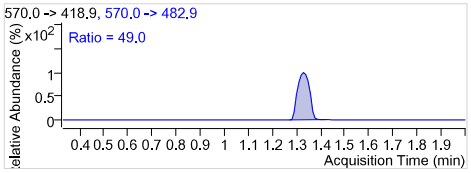
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



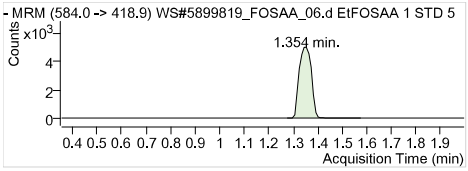


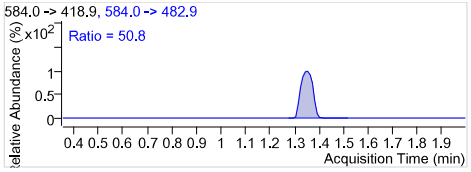
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



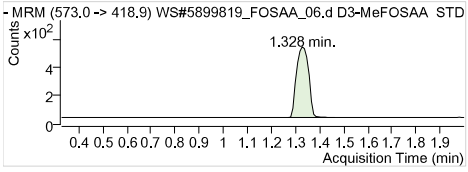


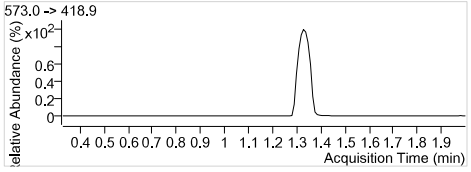
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 25.81 µg/L
Area ratio: 8.83527
Sample type: Calibration



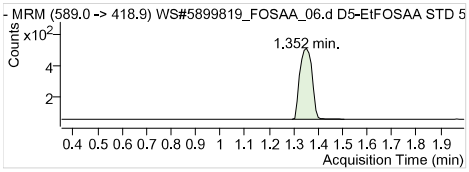


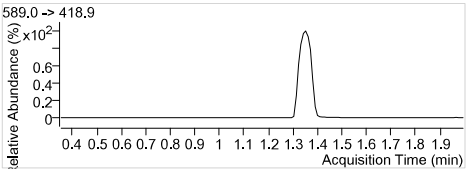
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 24.54 µg/L
Area ratio: 10.83427
Sample type: Calibration



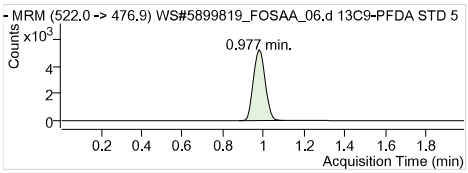


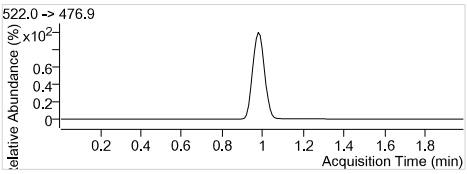
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 97.41 µg/L
Area ratio: 0.08261
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	101.33 µg/L
Area ratio:	0.07702
Sample type:	Calibration





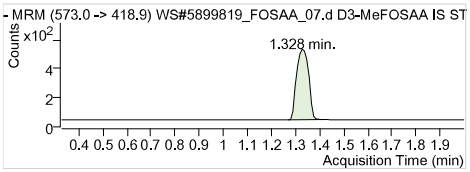
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.986)
Calc. conc.	100.24 µg/L
Area ratio:	0
Sample type:	Calibration

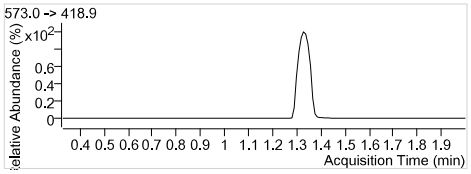
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_EToxics

Sample Name	**STD 6**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_07.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A7
Acq. Date	2018/12/21 11:39:00 PM	**Injection Volume**	Per Method
Sample Annotation	-		

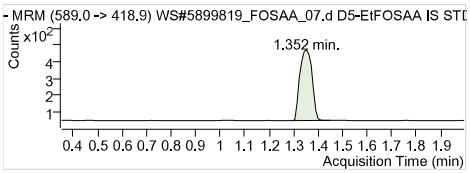
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1692	1.33	1 µg/L		
D5-EtFOSAA IS	1472	1.35	1 µg/L		
13C9-PFDA IS	20553	0.98	1 µg/L		

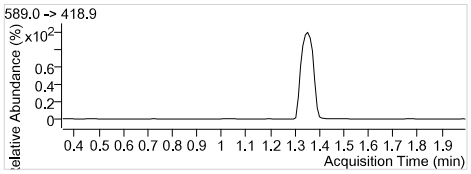
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	23687	1.33	41.70	40.96 µg/L	98.23
EtFOSAA 1	27682	1.35	41.70	42.58 µg/L	102.10
D3-MeFOSAA	1702	1.33	100.00	97.64 µg/L	97.64
D5-EtFOSAA	1472	1.35	100.00	94.22 µg/L	94.22
13C9-PFDA	20367	0.98	100.00	97.97 µg/L	97.97



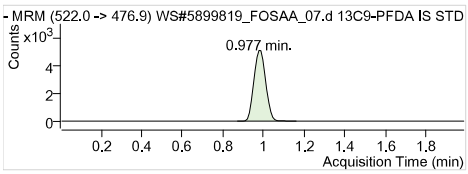


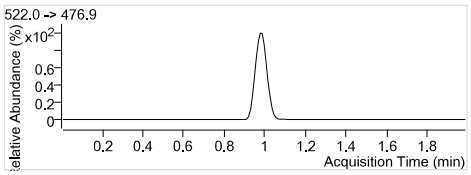
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: Calibration



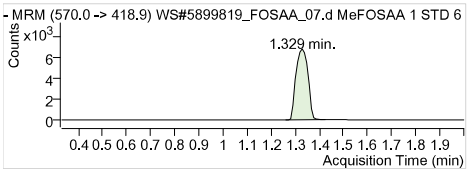


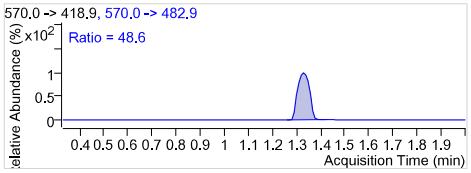
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: Calibration



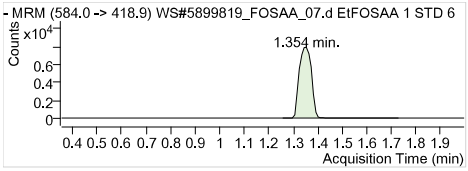


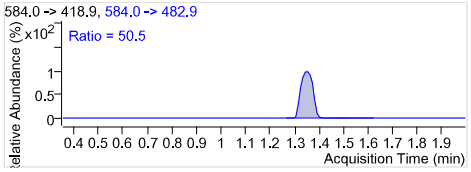
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.986)
Concentration: 1 µg/L
Sample type: Calibration



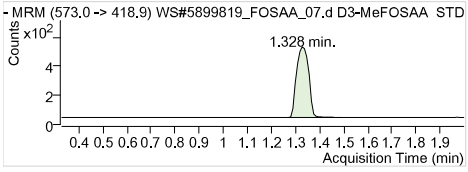


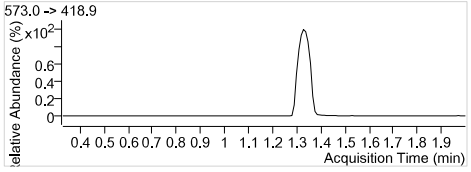
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 40.96 µg/L
Area ratio: 13.99941
Sample type: Calibration



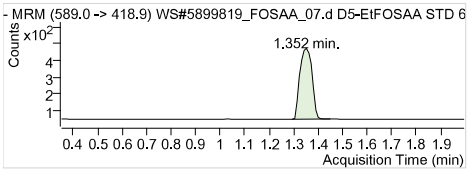


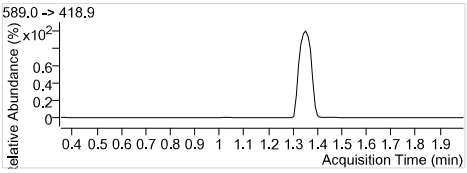
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 42.58 µg/L
Area ratio: 18.80571
Sample type: Calibration



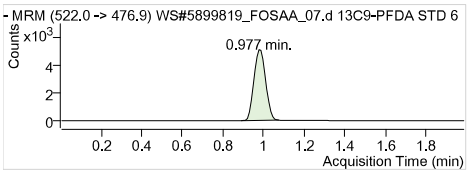


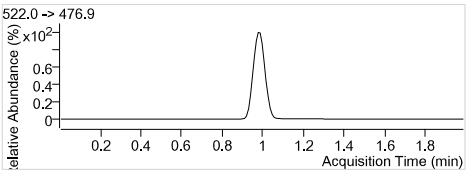
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 97.64 µg/L
Area ratio: 0.08281
Sample type: Calibration





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	94.22 µg/L
Area ratio:	0.07162
Sample type:	Calibration





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.986)
Calc. conc.	97.97 µg/L
Area ratio:	0
Sample type:	Calibration

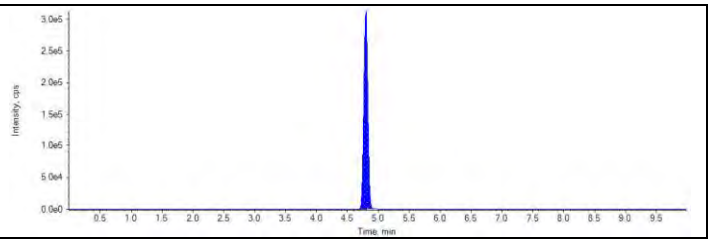
Sample ID	STD 1	**Injection Volume (µL)**	1.5
Sample Type	Quality Control	**Injection Vial**	2
Acquisition Date	2019/01/03 12:04:15 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	Re-injected, not used		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1400000.	4.80	1.00	-
MPFOS	212000.	5.53	1.00	-
D3-MeFOSAA IS	1340000.	6.34	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	38500	2.01	500.	342.	68.4
PFHxA 1	82300	2.90	500.	436.	87.3
PFHxS 1	17700	4.07	500.	288.	57.6
PFHpA 1	111000	3.95	500.	483.	96.6
PFOA 1	99100	4.81	500.	521.	104.0
PFOS 1	13700	5.54	500.	365.	73.0
PFNA 1	53800	5.51	500.	507.	101.0
PFDA 1	69100	6.12	500.	478.	95.6
PFUnA 1	53200	6.62	500.	458.	91.7
PFDoA 1	63700	7.05	500.	501.	100.0
PFTrDA 1	60900	7.42	500.	506.	101.0
PFTeDA 1	71700	7.75	500.	512.	102.0
MeFOSAA 1	73700	6.36	2000.	1660.	82.9
EtFOSAA 1	64700	6.61	2000.	1700.	84.9
13C2-PFHxA	1880000	2.89	10000.	10800.	108.0
13C2-PFDA	1400000	6.10	10000.	10900.	109.0
D5-EtFOSAA	986000	6.60	40000.	36100.	90.3

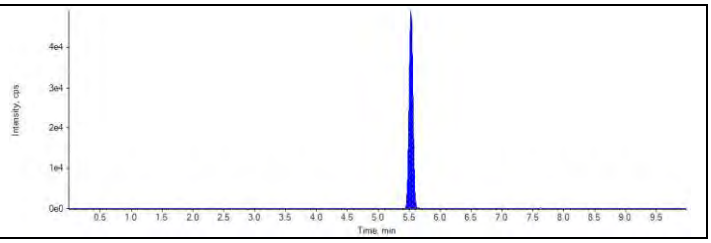
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



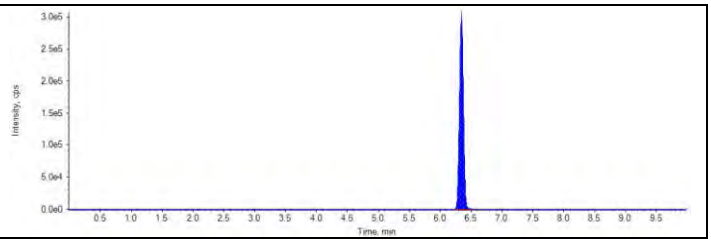
MPFOS (Internal Standard)

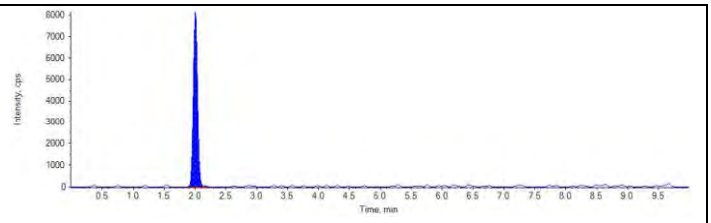
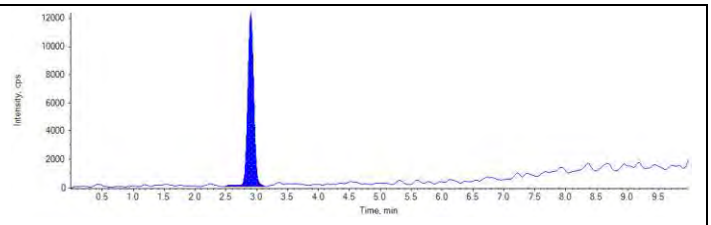
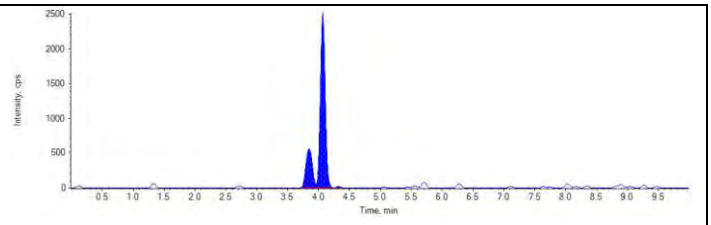
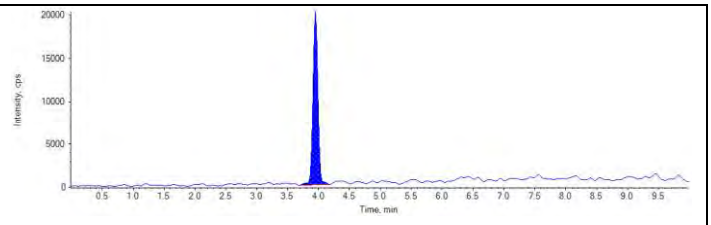
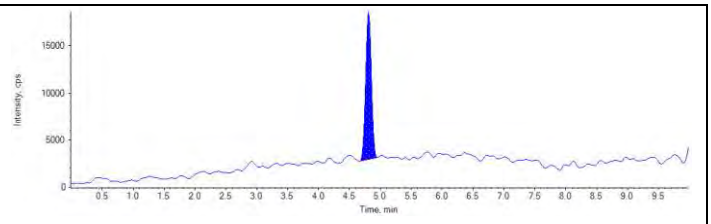
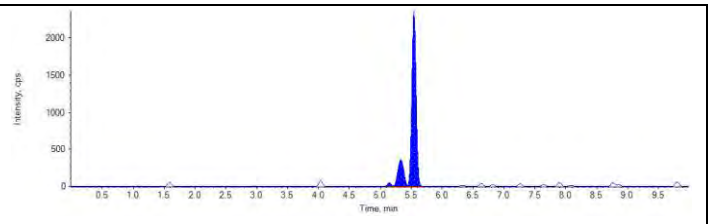
RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)

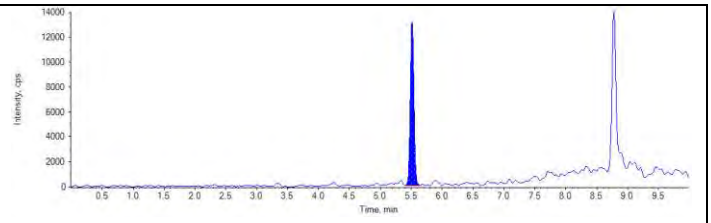
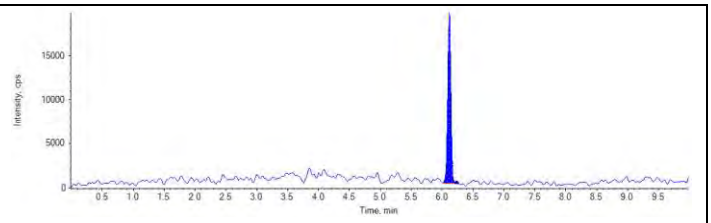
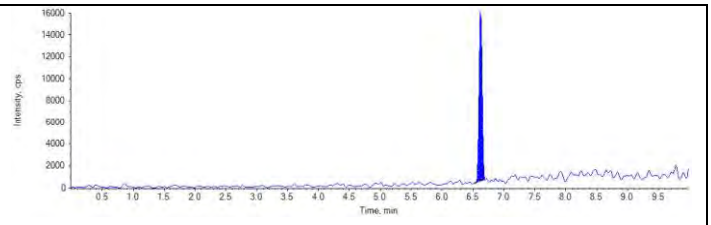
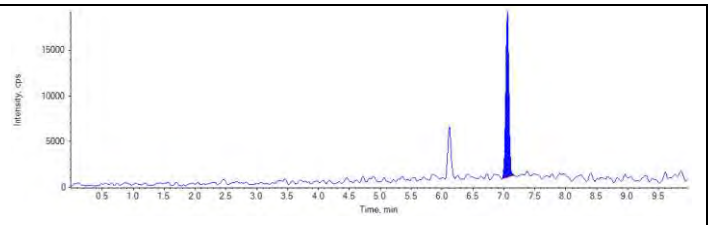
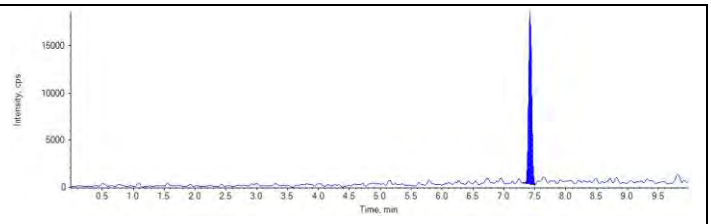
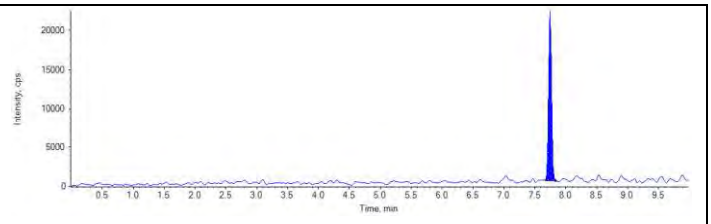


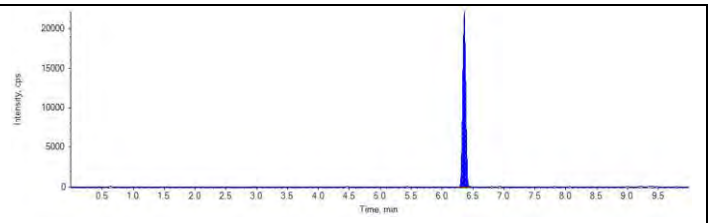
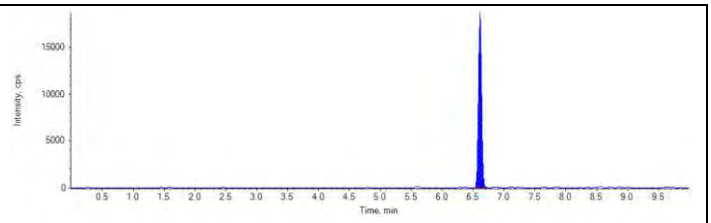
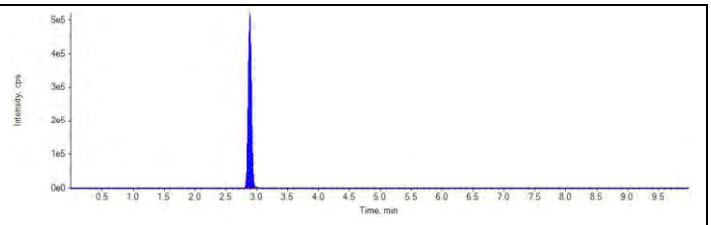
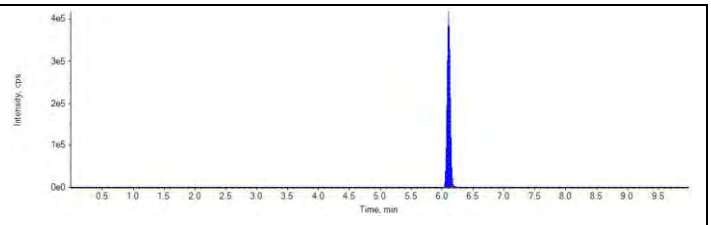
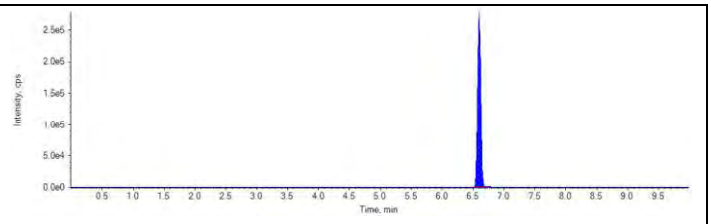
D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.34(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 342. ng/L Area Ratio: 0.182 Sample Type: (Quality Control)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 436. ng/L Area Ratio: 0.0589 Sample Type: (Quality Control)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 288. ng/L Area Ratio: 0.0838 Sample Type: (Quality Control)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 483. ng/L Area Ratio: 0.0791 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 521. ng/L Area Ratio: 0.0709 Sample Type: (Quality Control)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 365. ng/L Area Ratio: 0.0649 Sample Type: (Quality Control)	

PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.51 (5.49) min Calculated Conc: 507. ng/L Area Ratio: 0.0385 Sample Type: (Quality Control)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 478. ng/L Area Ratio: 0.0495 Sample Type: (Quality Control)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.62 (6.62) min Calculated Conc: 458. ng/L Area Ratio: 0.0381 Sample Type: (Quality Control)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.05 (7.04) min Calculated Conc: 501. ng/L Area Ratio: 0.0456 Sample Type: (Quality Control)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.42 (7.38) min Calculated Conc: 506. ng/L Area Ratio: 0.0435 Sample Type: (Quality Control)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 512. ng/L Area Ratio: 0.0513 Sample Type: (Quality Control)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 1660. ng/L Area Ratio: 0.0551 Sample Type: (Quality Control)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.61 (6.66) min Calculated Conc: 1700. ng/L Area Ratio: 0.0484 Sample Type: (Quality Control)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 10800. ng/L Area Ratio: 1.34 Sample Type: (Quality Control)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.10 (6.19) min Calculated Conc: 10900. ng/L Area Ratio: 0.999 Sample Type: (Quality Control)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 36100. ng/L Area Ratio: 0.737 Sample Type: (Quality Control)	

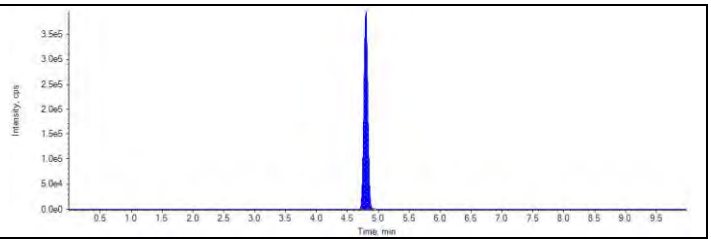
Sample ID	STD 1	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	2
Acquisition Date	2019/01/03 1:37:47 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1750000.	4.80	1.00	-
MPFOS	234000.	5.53	1.00	-
D3-MeFOSAA IS	1430000.	6.34	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	43800	2.01	500.	353.	70.6
PFHxA 1	103000	2.90	500.	439.	87.8
PFHxS 1	28300	4.07	500.	416.	83.2
PFHpA 1	123000	3.95	500.	429.	85.8
PFOA 1	108000	4.81	500.	452.	90.4
PFOS 1	15900	5.54	500.	383.	76.6
PFNA 1	58800	5.52	500.	443.	88.6
PFDA 1	79400	6.12	500.	439.	87.8
PFUnA 1	56000	6.62	500.	386.	77.1
PFDoA 1	62300	7.06	500.	392.	78.5
PFTrDA 1	70200	7.42	500.	467.	93.5
PFTeDA 1	68200	7.75	500.	390.	78.0
MeFOSAA 1	72700	6.36	2000.	1530.	76.5
EtFOSAA 1	69800	6.61	2000.	1710.	85.6
13C2-PFHxA	2110000	2.89	10000.	9670.	96.7
13C2-PFDA	1630000	6.11	10000.	10200.	102.0
D5-EtFOSAA	1190000	6.60	40000.	40700.	102.0

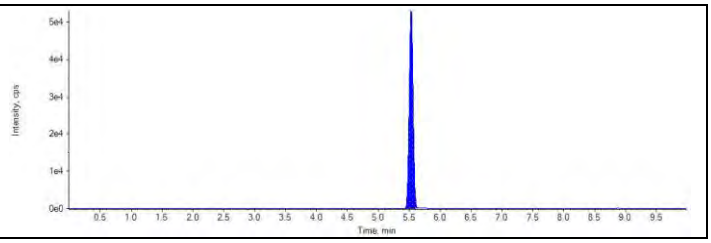
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



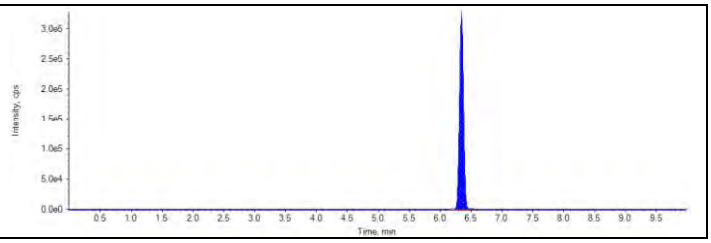
MPFOS (Internal Standard)

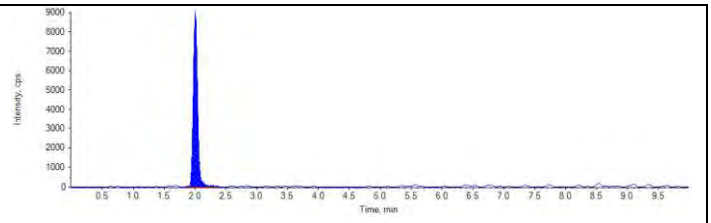
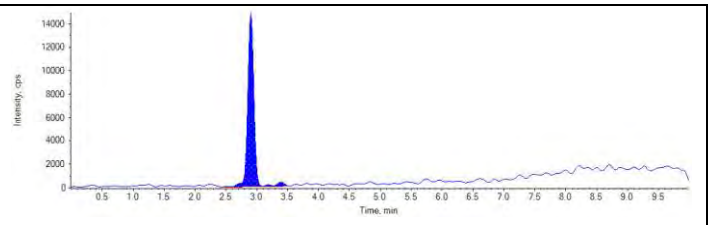
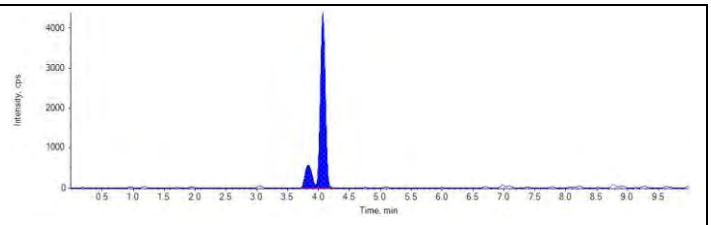
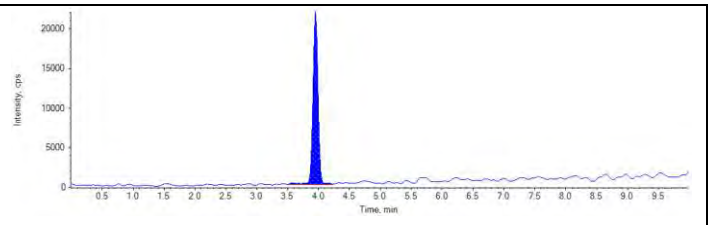
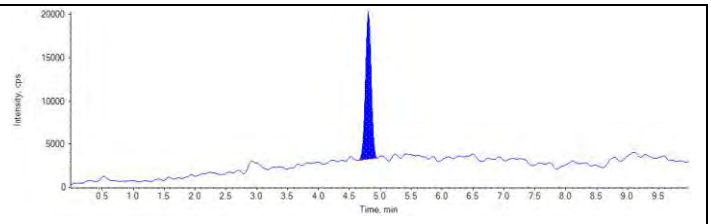
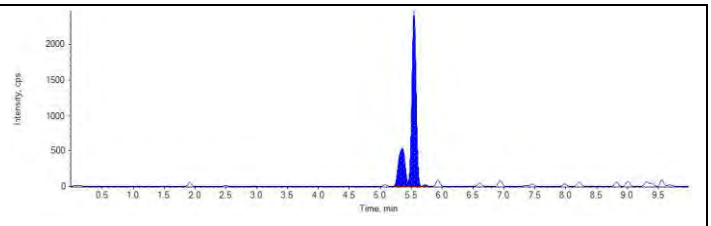
RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)

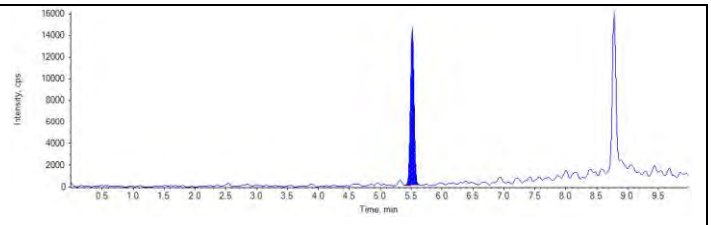
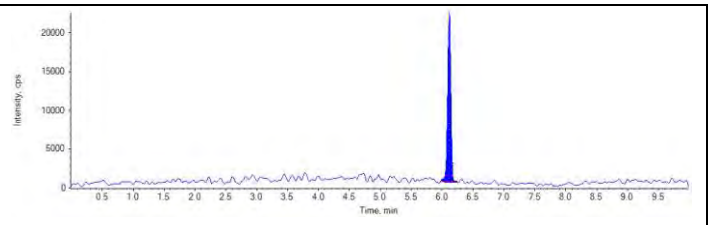
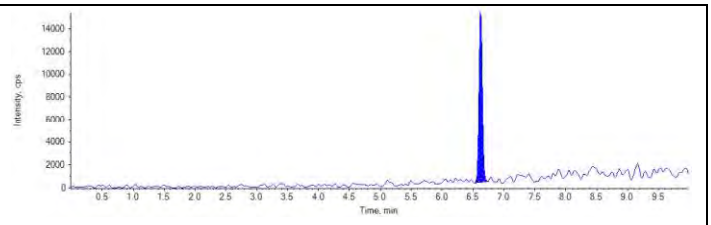
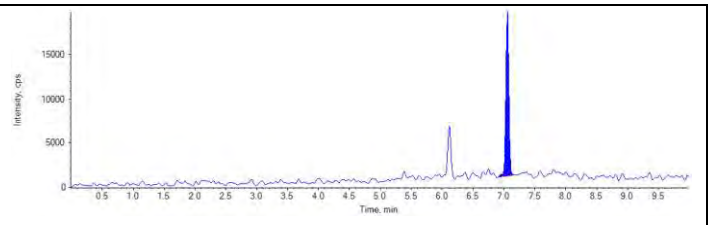
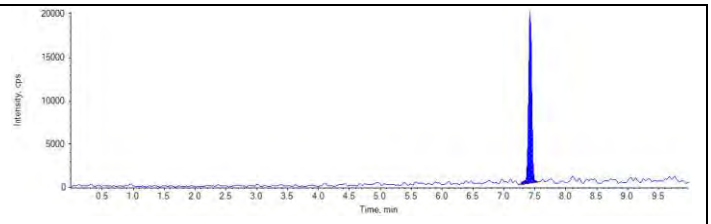
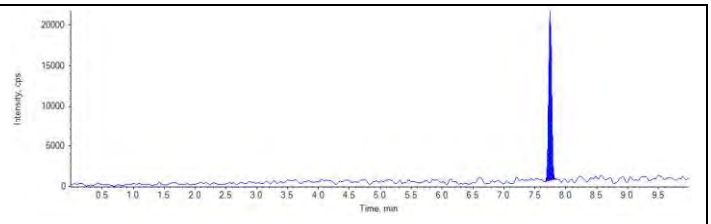


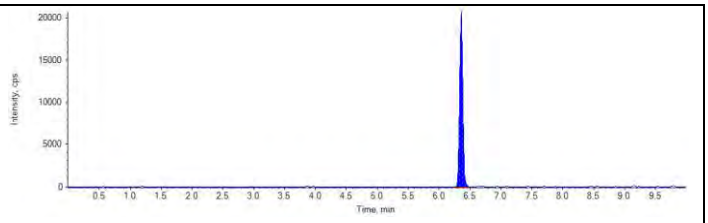
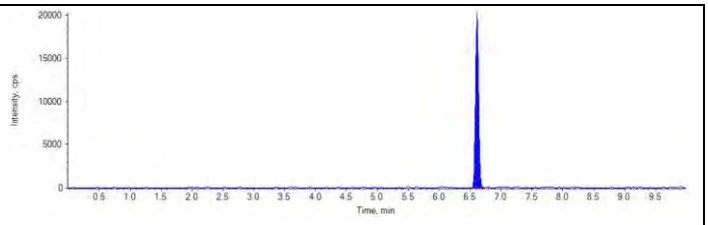
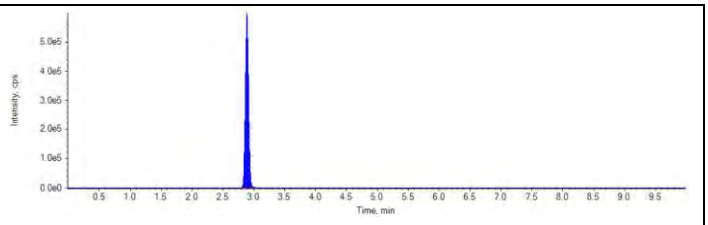
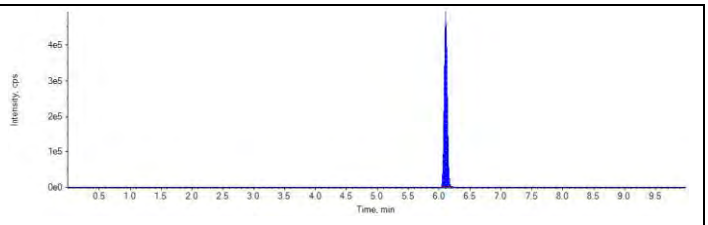
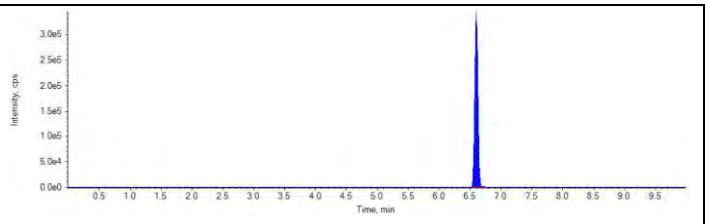
D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.34(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 353. ng/L Area Ratio: 0.187 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 439. ng/L Area Ratio: 0.0592 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 416. ng/L Area Ratio: 0.121 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 429. ng/L Area Ratio: 0.0703 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 452. ng/L Area Ratio: 0.0615 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 383. ng/L Area Ratio: 0.0681 Sample Type: (Standard)	

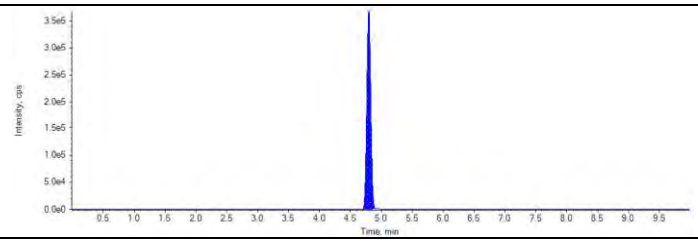
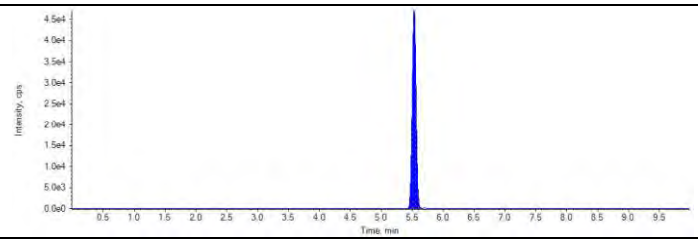
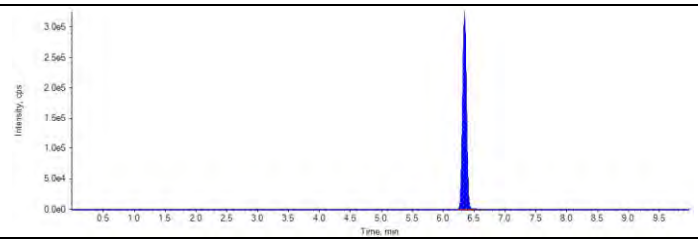
PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.52 (5.49) min Calculated Conc: 443. ng/L Area Ratio: 0.0336 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 439. ng/L Area Ratio: 0.0454 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.62 (6.62) min Calculated Conc: 386. ng/L Area Ratio: 0.0320 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.06 (7.04) min Calculated Conc: 392. ng/L Area Ratio: 0.0357 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.42 (7.38) min Calculated Conc: 467. ng/L Area Ratio: 0.0402 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 390. ng/L Area Ratio: 0.0390 Sample Type: (Standard)	

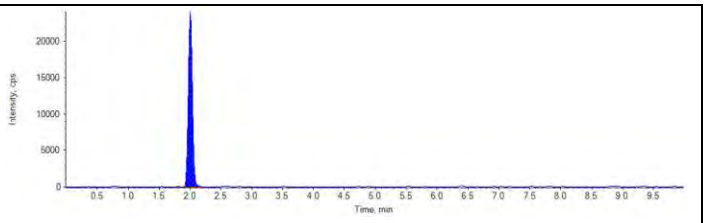
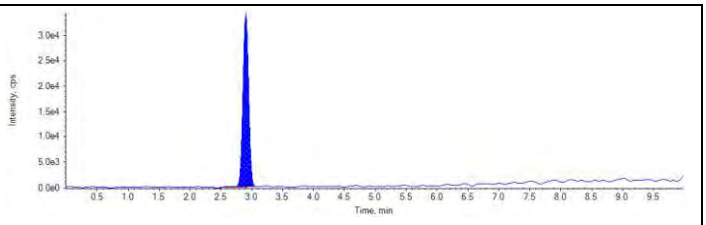
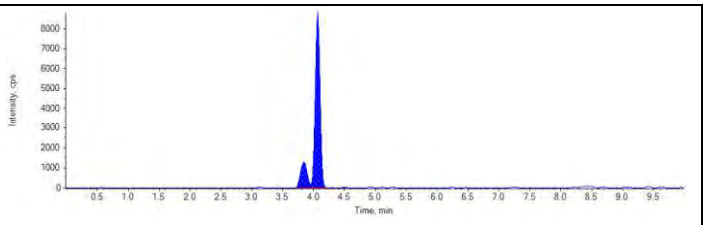
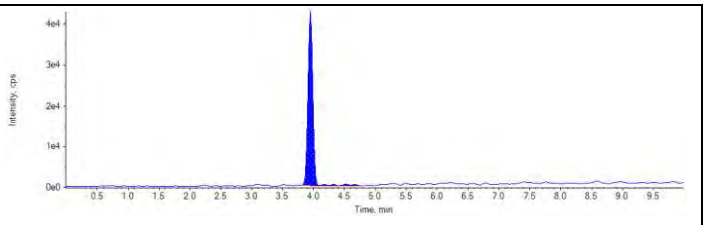
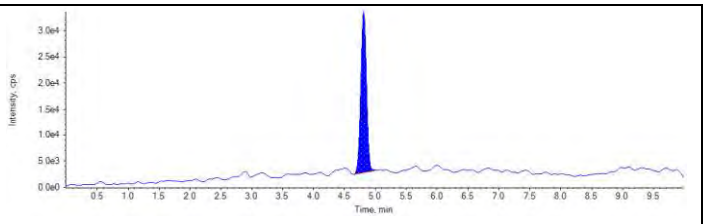
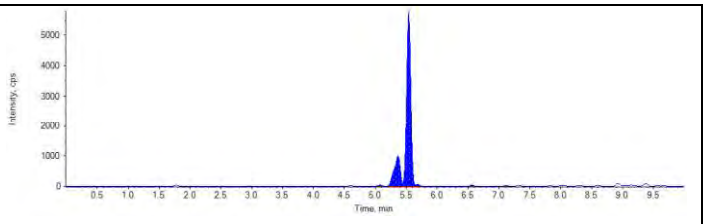
MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 1530. ng/L Area Ratio: 0.0508 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.61 (6.66) min Calculated Conc: 1710. ng/L Area Ratio: 0.0488 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 9670. ng/L Area Ratio: 1.21 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 10200. ng/L Area Ratio: 0.932 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 40700. ng/L Area Ratio: 0.832 Sample Type: (Standard)	

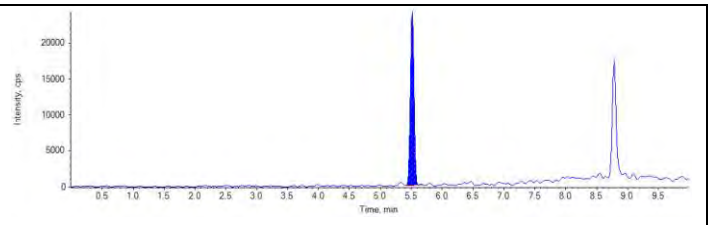
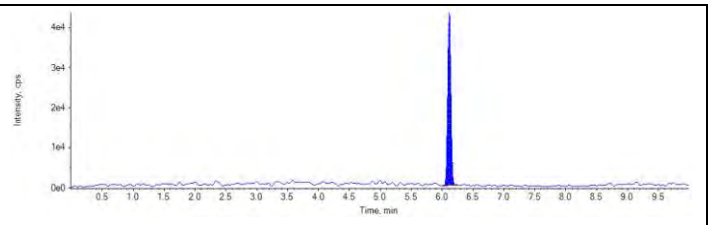
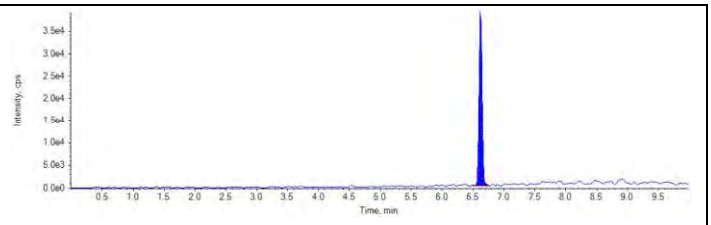
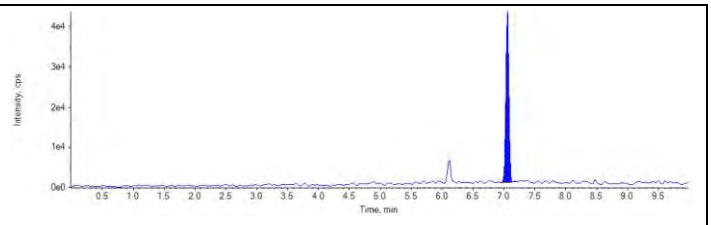
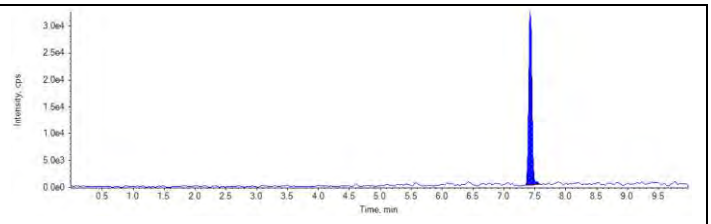
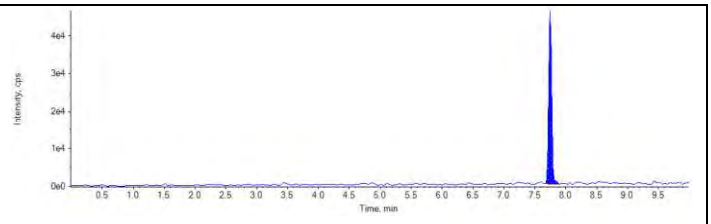
Sample ID	STD 2	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	3
Acquisition Date	2019/01/03 12:19:50 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

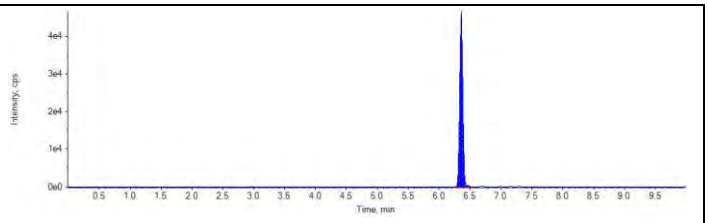
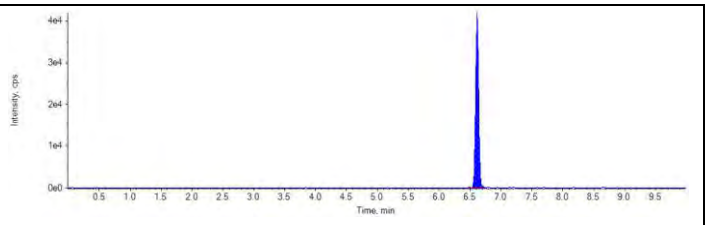
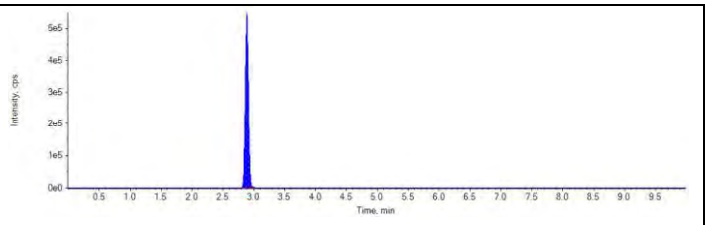
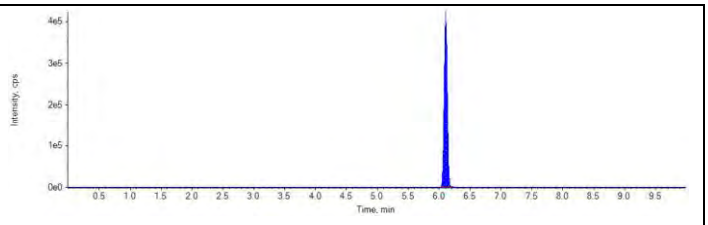
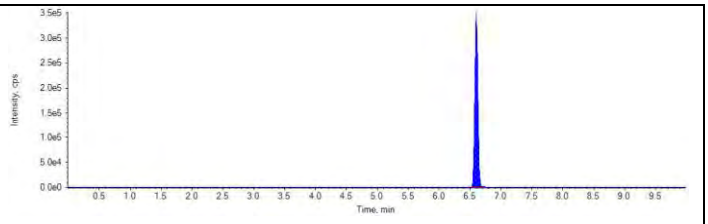
Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1650000.	4.80	1.00	-
MPFOS	207000.	5.53	1.00	-
D3-MeFOSAA IS	1400000.	6.34	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	110000	2.01	1000.	1000.	100.0
PFHxA 1	218000	2.90	1000.	979.	97.9
PFHxS 1	57300	4.07	1000.	954.	95.4
PFHpA 1	235000	3.95	1000.	872.	87.2
PFOA 1	197000	4.81	1000.	878.	87.8
PFOS 1	34500	5.54	1000.	940.	94.0
PFNA 1	99000	5.52	1000.	791.	79.1
PFDA 1	152000	6.11	1000.	893.	89.3
PFUnA 1	135000	6.62	1000.	990.	99.0
PFDoA 1	144000	7.06	1000.	961.	96.1
PFTrDA 1	116000	7.43	1000.	822.	82.2
PFTeDA 1	153000	7.75	1000.	929.	92.9
MeFOSAA 1	160000	6.36	4000.	3440.	86.0
EtFOSAA 1	141000	6.61	4000.	3540.	88.5
13C2-PFHxA	1930000	2.89	10000.	9370.	93.7
13C2-PFDA	1430000	6.11	10000.	9480.	94.8
D5-EtFOSAA	1190000	6.60	40000.	41600.	104.0

MPFOA (Internal Standard) RT (Exp. RT): 4.80(4.84) min Concentration: 1.00 ng/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 5.53(5.38) min Concentration: 1.00 ng/L Sample Type: (Standard)	
D3-MeFOSAA IS (Internal Standard) RT (Exp. RT): 6.34(6.43) min Concentration: 1.00 ng/L Sample Type: (Standard)	

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 1000. ng/L Area Ratio: 0.533 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 979. ng/L Area Ratio: 0.132 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 954. ng/L Area Ratio: 0.278 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 872. ng/L Area Ratio: 0.143 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 878. ng/L Area Ratio: 0.119 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 940. ng/L Area Ratio: 0.167 Sample Type: (Standard)	

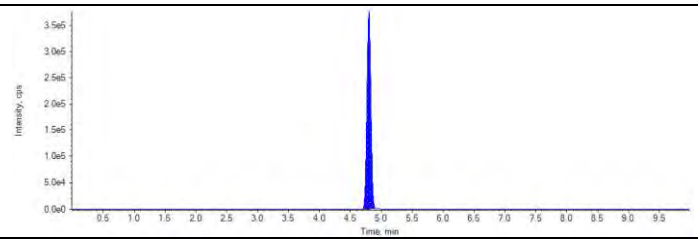
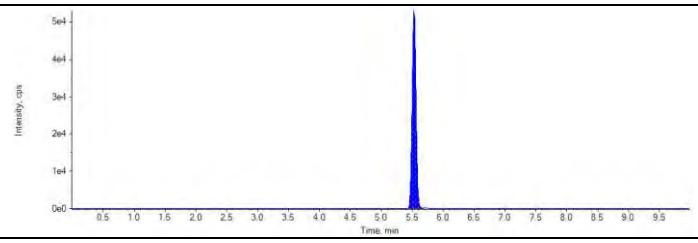
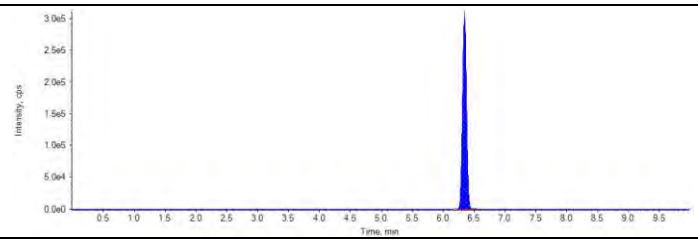
PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.52 (5.49) min Calculated Conc: 791. ng/L Area Ratio: 0.0601 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.11 (6.07) min Calculated Conc: 893. ng/L Area Ratio: 0.0924 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.62 (6.62) min Calculated Conc: 990. ng/L Area Ratio: 0.0822 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.06 (7.04) min Calculated Conc: 961. ng/L Area Ratio: 0.0873 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.43 (7.38) min Calculated Conc: 822. ng/L Area Ratio: 0.0707 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 929. ng/L Area Ratio: 0.0931 Sample Type: (Standard)	

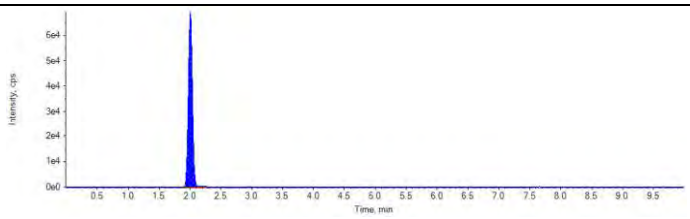
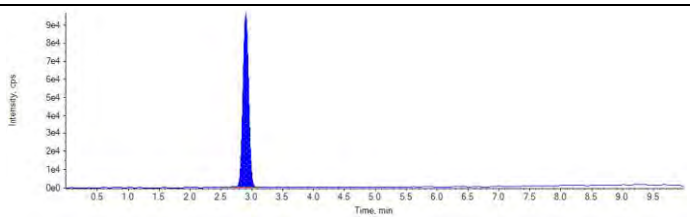
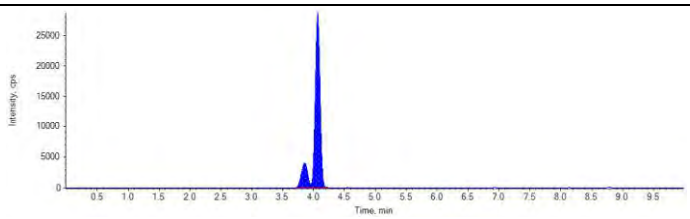
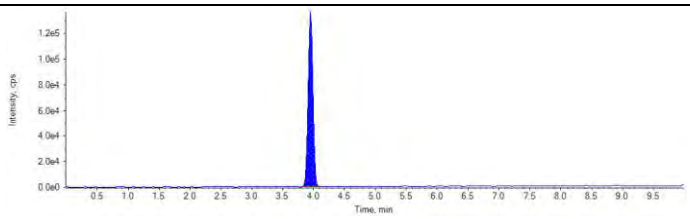
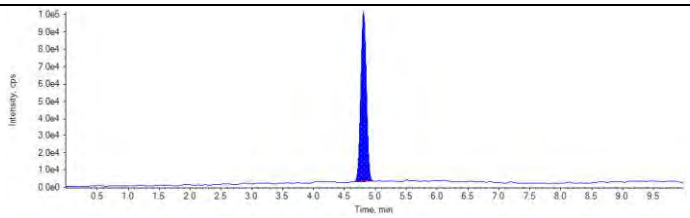
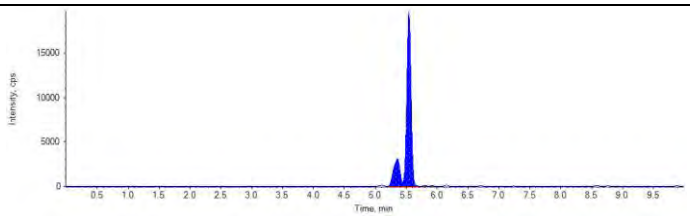
MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 3440. ng/L Area Ratio: 0.114 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.61 (6.66) min Calculated Conc: 3540. ng/L Area Ratio: 0.101 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 9370. ng/L Area Ratio: 1.17 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 9480. ng/L Area Ratio: 0.869 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 41600. ng/L Area Ratio: 0.849 Sample Type: (Standard)	

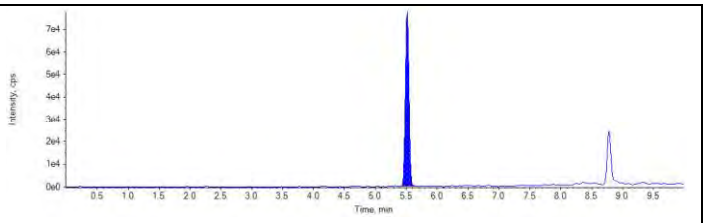
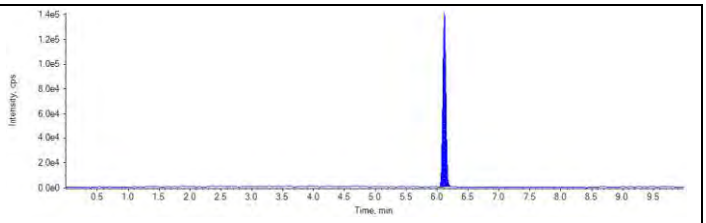
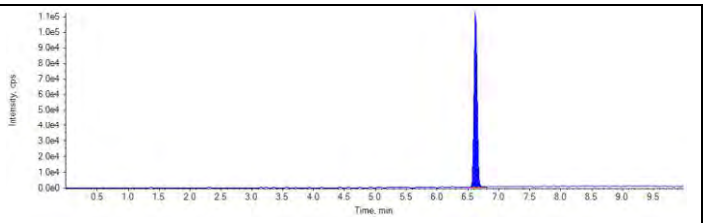
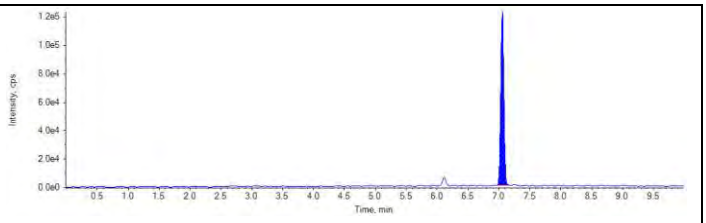
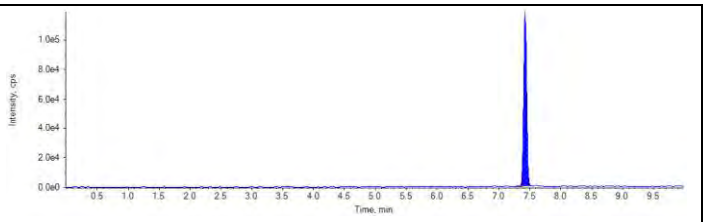
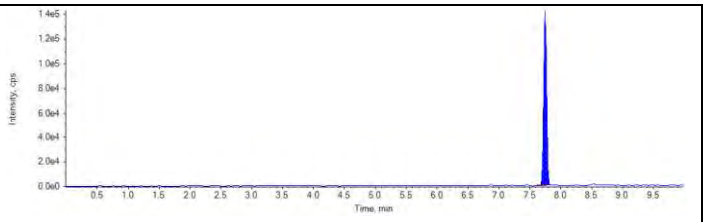
Sample ID	STD 3	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	4
Acquisition Date	2019/01/03 12:35:26 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

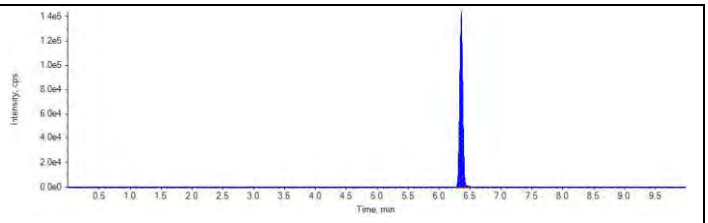
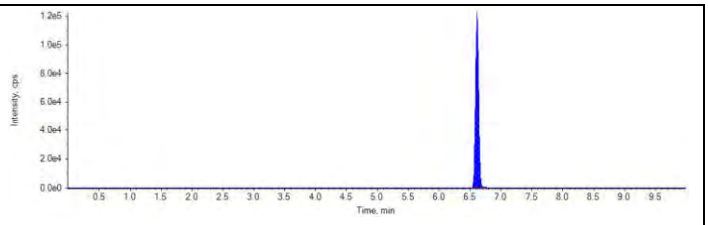
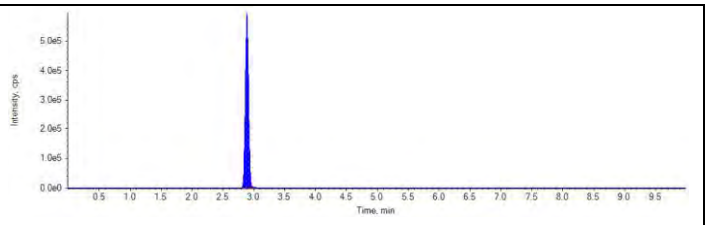
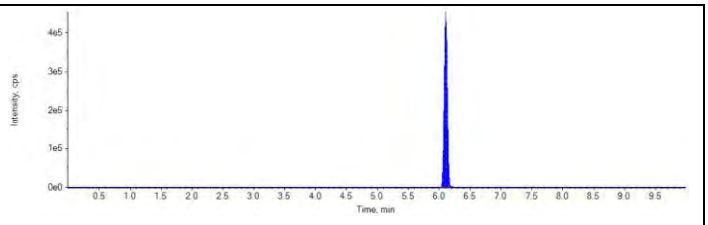
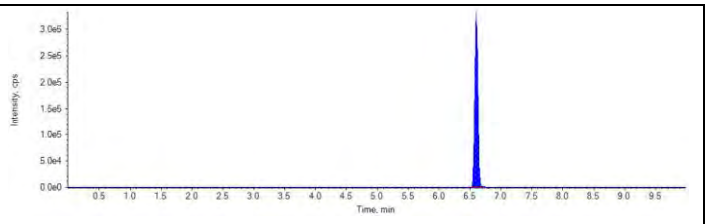
Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1660000.	4.80	1.00	-
MPFOS	234000.	5.53	1.00	-
D3-MeFOSAA IS	1360000.	6.34	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	320000	2.01	3000.	2580.	86.1
PFHxA 1	616000	2.90	3000.	2750.	91.6
PFHxS 1	184000	4.07	3000.	2700.	90.1
PFHpA 1	737000	3.95	3000.	2710.	90.3
PFOA 1	617000	4.81	3000.	2730.	91.0
PFOS 1	116000	5.54	3000.	2790.	93.0
PFNA 1	314000	5.51	3000.	2490.	83.0
PFDA 1	477000	6.12	3000.	2780.	92.5
PFUnA 1	394000	6.62	3000.	2860.	95.3
PFDoA 1	428000	7.05	3000.	2830.	94.5
PFTrDA 1	400000	7.42	3000.	2800.	93.4
PFTeDA 1	470000	7.75	3000.	2820.	94.1
MeFOSAA 1	488000	6.36	12000.	10800.	90.4
EtFOSAA 1	423000	6.61	12000.	10900.	91.2
13C2-PFHxA	2130000	2.89	10000.	10300.	103.0
13C2-PFDA	1550000	6.11	10000.	10200.	102.0
D5-EtFOSAA	1150000	6.60	40000.	41700.	104.0

MPFOA (Internal Standard) RT (Exp. RT): 4.80(4.84) min Concentration: 1.00 ng/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 5.53(5.38) min Concentration: 1.00 ng/L Sample Type: (Standard)	
D3-MeFOSAA IS (Internal Standard) RT (Exp. RT): 6.34(6.43) min Concentration: 1.00 ng/L Sample Type: (Standard)	

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 2580. ng/L Area Ratio: 1.37 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 2750. ng/L Area Ratio: 0.371 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 2700. ng/L Area Ratio: 0.786 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 2710. ng/L Area Ratio: 0.444 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 2730. ng/L Area Ratio: 0.372 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 2790. ng/L Area Ratio: 0.496 Sample Type: (Standard)	

PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.51 (5.49) min Calculated Conc: 2490. ng/L Area Ratio: 0.189 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 2780. ng/L Area Ratio: 0.287 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.62 (6.62) min Calculated Conc: 2860. ng/L Area Ratio: 0.237 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.05 (7.04) min Calculated Conc: 2830. ng/L Area Ratio: 0.258 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.42 (7.38) min Calculated Conc: 2800. ng/L Area Ratio: 0.241 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 2820. ng/L Area Ratio: 0.283 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 10800. ng/L Area Ratio: 0.360 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.61 (6.66) min Calculated Conc: 10900. ng/L Area Ratio: 0.312 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 10300. ng/L Area Ratio: 1.28 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 10200. ng/L Area Ratio: 0.935 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 41700. ng/L Area Ratio: 0.851 Sample Type: (Standard)	

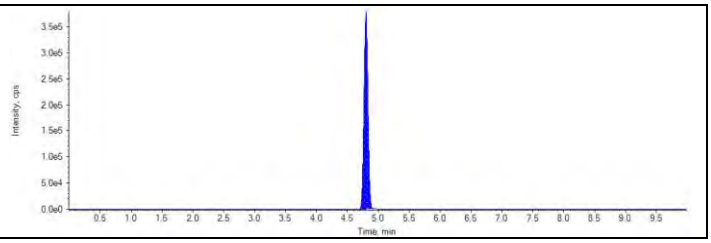
Sample ID	STD 4	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	5
Acquisition Date	2019/01/03 12:51:01 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1660000.	4.80	1.00	-
MPFOS	235000.	5.53	1.00	-
D3-MeFOSAA IS	1590000.	6.35	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	858000	2.00	7000.	6880.	98.2
PFHxA 1	1600000	2.90	7000.	7180.	103.0
PFHxS 1	461000	4.07	7000.	6750.	96.4
PFHpA 1	1940000	3.95	7000.	7160.	102.0
PFOA 1	1750000	4.81	7000.	7750.	111.0
PFOS 1	290000	5.55	7000.	6930.	99.0
PFNA 1	900000	5.52	7000.	7150.	102.0
PFDA 1	1270000	6.12	7000.	7400.	106.0
PFUnA 1	1080000	6.62	7000.	7850.	112.0
PFDoA 1	1120000	7.06	7000.	7420.	106.0
PFTrDA 1	1130000	7.43	7000.	7900.	113.0
PFTeDA 1	1290000	7.75	7000.	7750.	111.0
MeFOSAA 1	1290000	6.36	28000.	24400.	87.0
EtFOSAA 1	1050000	6.62	28000.	23000.	82.3
13C2-PFHxA	2270000	2.89	10000.	11000.	110.0
13C2-PFDA	1510000	6.11	10000.	9960.	99.6
D5-EtFOSAA	1280000	6.60	40000.	39300.	98.2

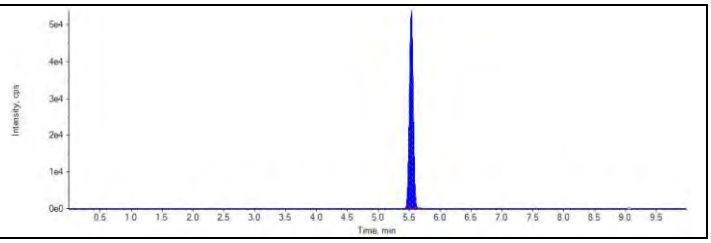
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



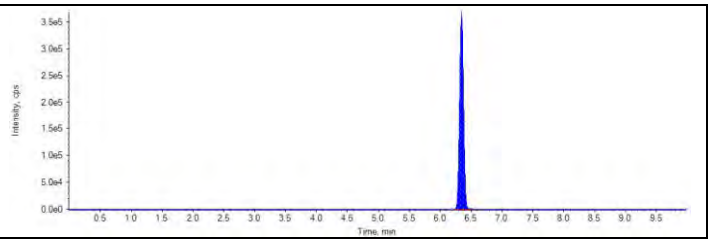
MPFOS (Internal Standard)

RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.35(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



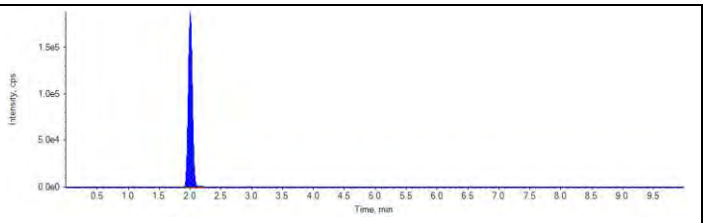
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 2.00 (1.85) min

Calculated Conc: 6880. ng/L

Area Ratio: 3.65

Sample Type: (Standard)



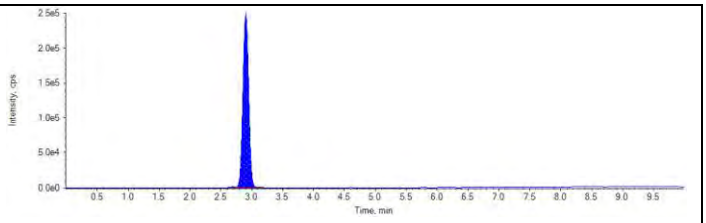
PFHxA 1 (313.000/269.000 Da)

RT (Exp. RT): 2.90 (2.97) min

Calculated Conc: 7180. ng/L

Area Ratio: 0.968

Sample Type: (Standard)



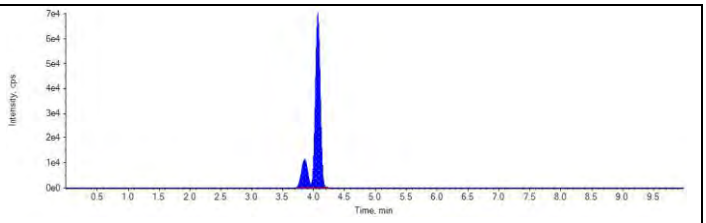
PFHxS 1 (398.900/79.900 Da)

RT (Exp. RT): 4.07 (4.00) min

Calculated Conc: 6750. ng/L

Area Ratio: 1.96

Sample Type: (Standard)



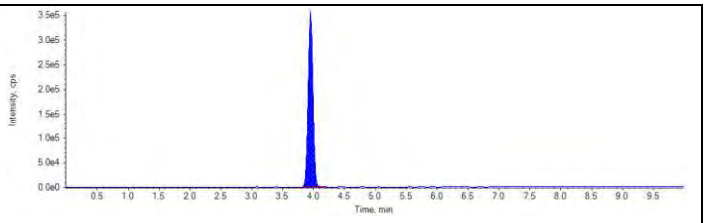
PFHpA 1 (363.000/319.000 Da)

RT (Exp. RT): 3.95 (3.91) min

Calculated Conc: 7160. ng/L

Area Ratio: 1.17

Sample Type: (Standard)



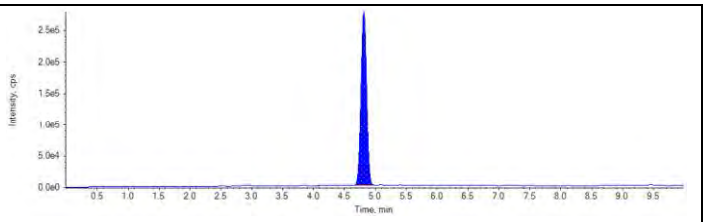
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 4.81 (4.89) min

Calculated Conc: 7750. ng/L

Area Ratio: 1.05

Sample Type: (Standard)



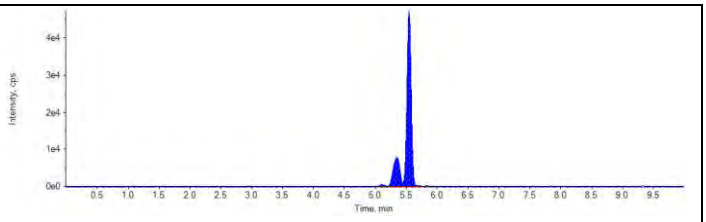
PFOS 1 (498.800/79.900 Da)

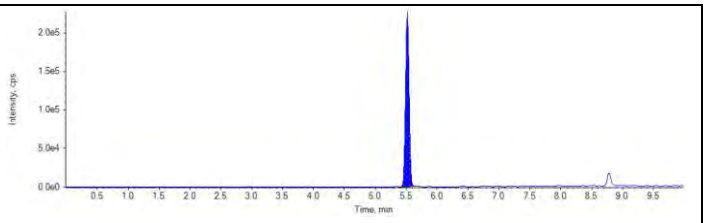
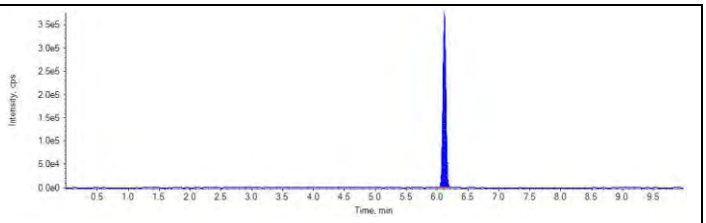
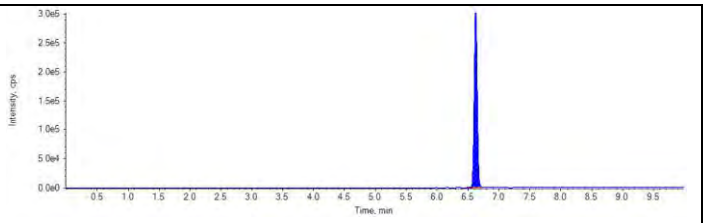
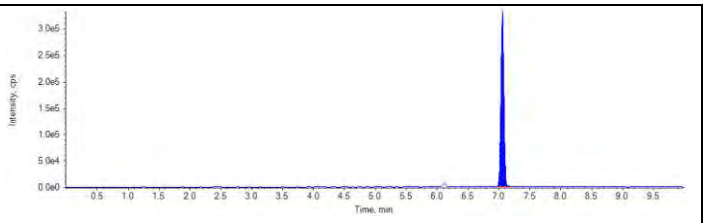
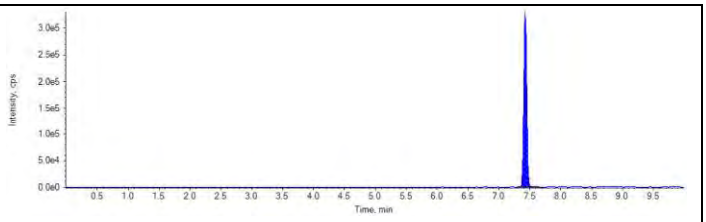
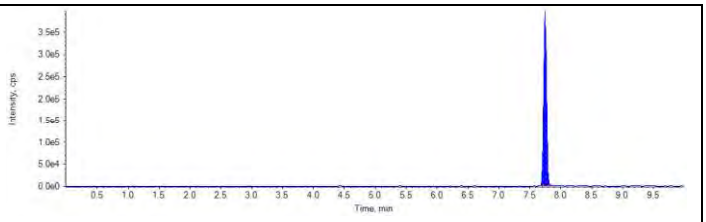
RT (Exp. RT): 5.55 (5.50) min

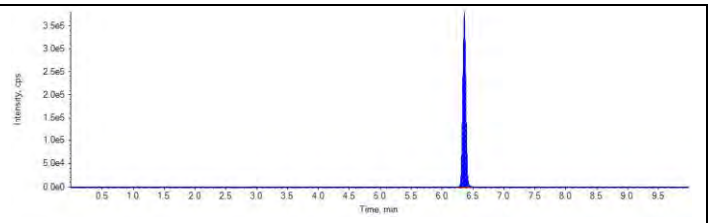
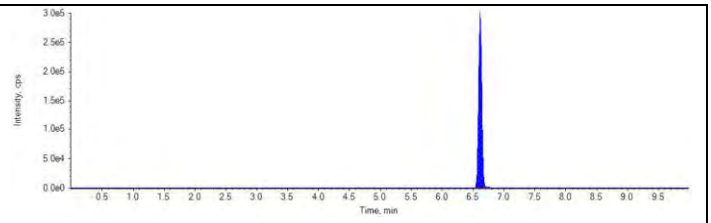
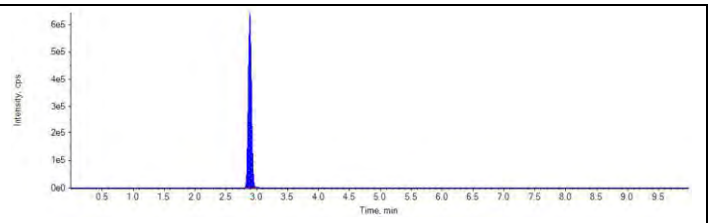
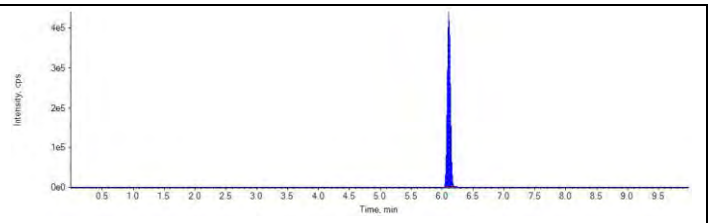
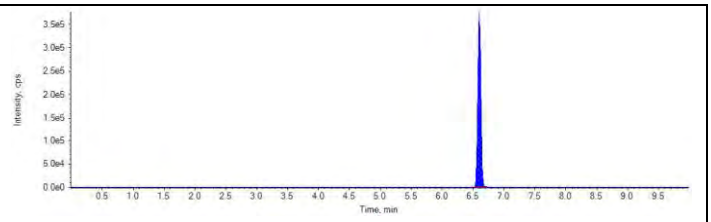
Calculated Conc: 6930. ng/L

Area Ratio: 1.23

Sample Type: (Standard)



PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.52 (5.49) min Calculated Conc: 7150. ng/L Area Ratio: 0.543 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 7400. ng/L Area Ratio: 0.766 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.62 (6.62) min Calculated Conc: 7850. ng/L Area Ratio: 0.652 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.06 (7.04) min Calculated Conc: 7420. ng/L Area Ratio: 0.674 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.43 (7.38) min Calculated Conc: 7900. ng/L Area Ratio: 0.679 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 7750. ng/L Area Ratio: 0.777 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 24400. ng/L Area Ratio: 0.809 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.62 (6.66) min Calculated Conc: 23000. ng/L Area Ratio: 0.656 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 11000. ng/L Area Ratio: 1.37 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 9960. ng/L Area Ratio: 0.913 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 39300. ng/L Area Ratio: 0.802 Sample Type: (Standard)	

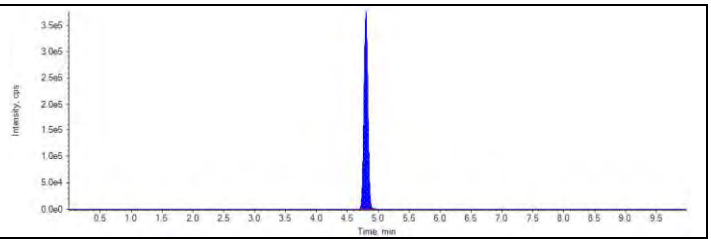
Sample ID	STD 5	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	6
Acquisition Date	2019/01/03 1:06:37 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1660000.	4.80	1.00	-
MPFOS	224000.	5.53	1.00	-
D3-MeFOSAA IS	1410000.	6.35	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	1850000	2.01	15000.	15600.	104.0
PFHxA 1	3620000	2.90	15000.	16200.	108.0
PFHxS 1	1020000	4.07	15000.	15600.	104.0
PFHpA 1	4510000	3.95	15000.	16600.	110.0
PFOA 1	3680000	4.81	15000.	16300.	109.0
PFOS 1	643000	5.54	15000.	16200.	108.0
PFNA 1	2120000	5.52	15000.	16800.	112.0
PFDA 1	2810000	6.12	15000.	16300.	109.0
PFUnA 1	2290000	6.63	15000.	16600.	111.0
PFDoA 1	2390000	7.06	15000.	15800.	105.0
PFTrDA 1	2290000	7.43	15000.	16000.	107.0
PFTeDA 1	2530000	7.75	15000.	15200.	101.0
MeFOSAA 1	2900000	6.36	60000.	61700.	103.0
EtFOSAA 1	2710000	6.62	60000.	67400.	112.0
13C2-PFHxA	2090000	2.89	10000.	10100.	101.0
13C2-PFDA	1590000	6.11	10000.	10500.	105.0
D5-EtFOSAA	1110000	6.60	40000.	38400.	96.0

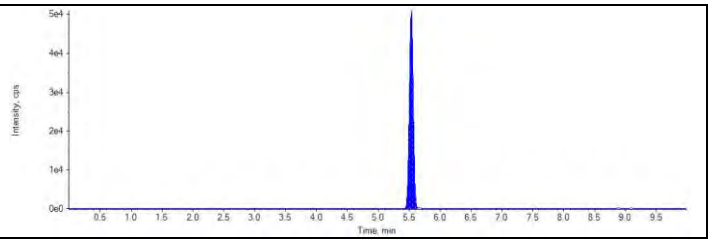
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



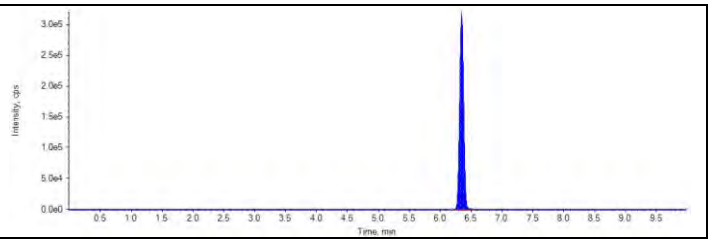
MPFOS (Internal Standard)

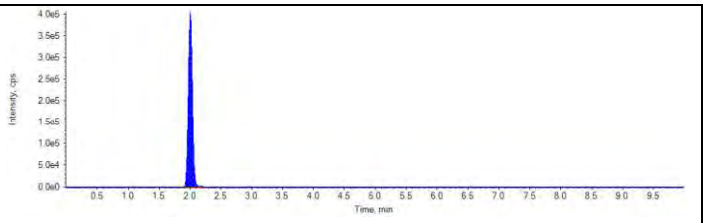
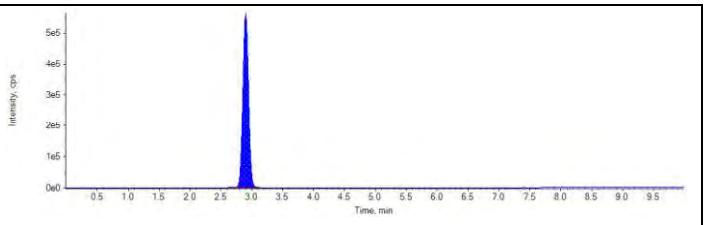
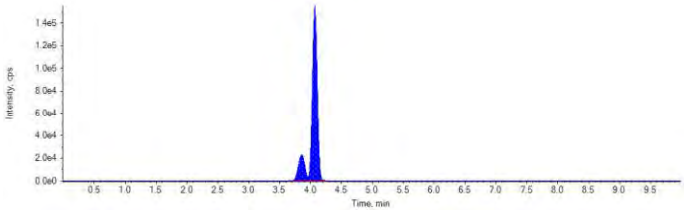
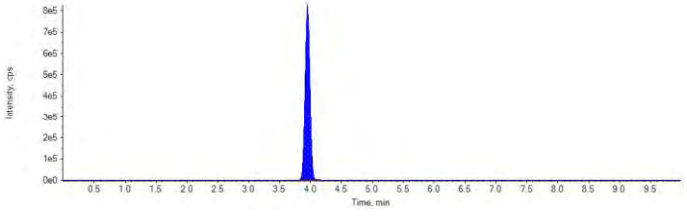
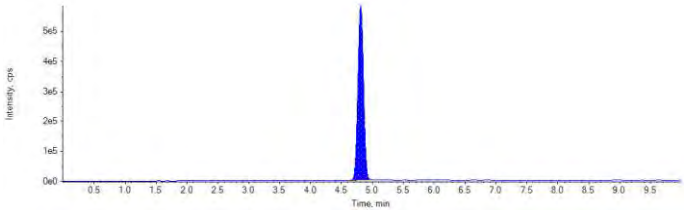
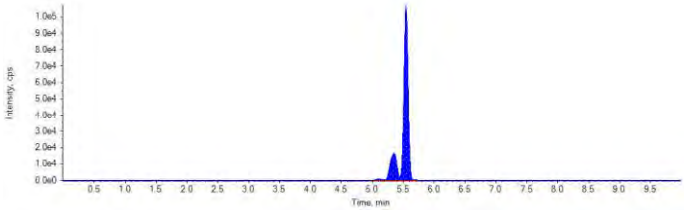
RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)

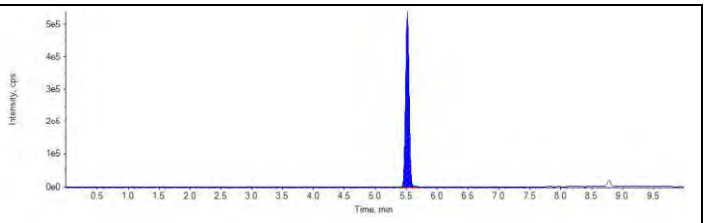
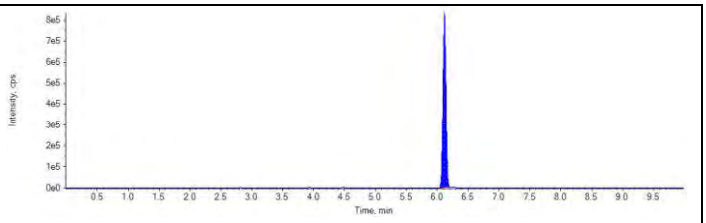
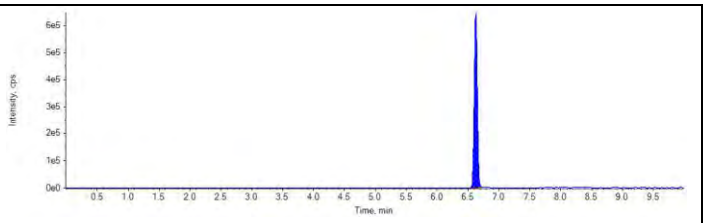
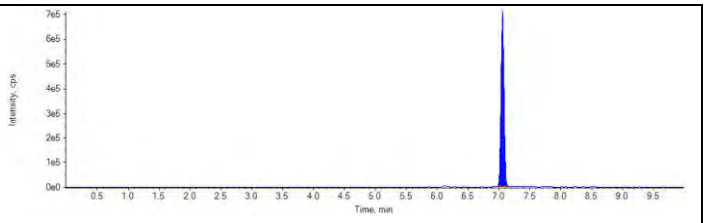
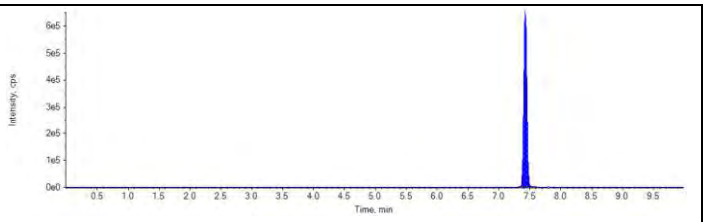
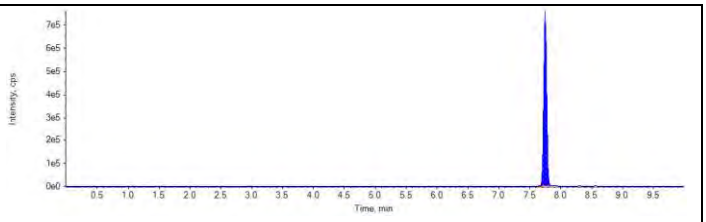


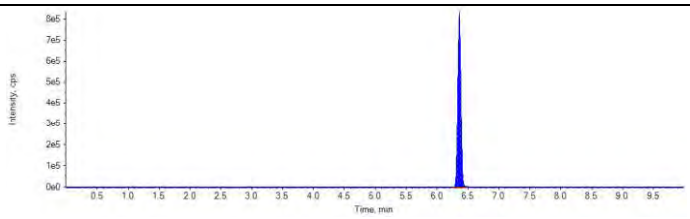
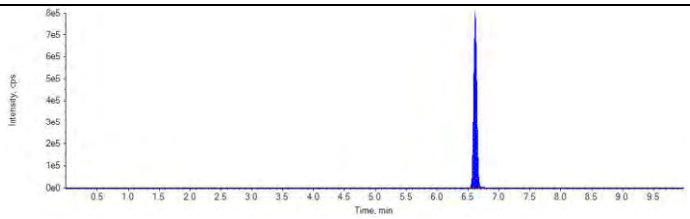
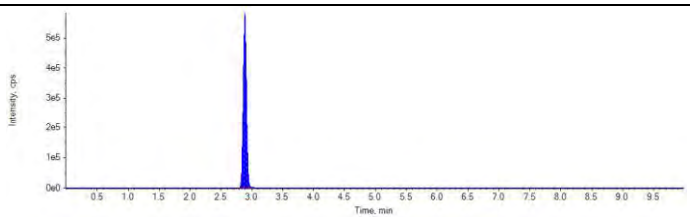
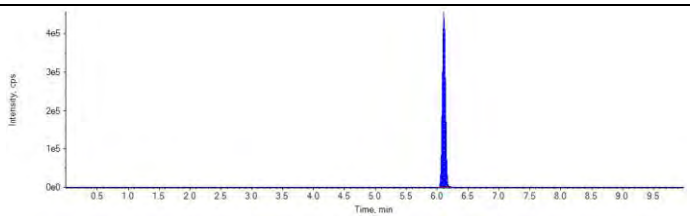
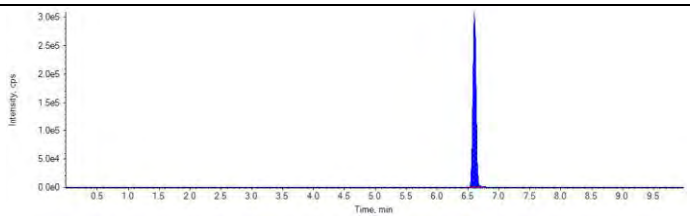
D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.35(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 15600. ng/L Area Ratio: 8.28 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 16200. ng/L Area Ratio: 2.18 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 15600. ng/L Area Ratio: 4.55 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 16600. ng/L Area Ratio: 2.71 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 16300. ng/L Area Ratio: 2.22 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 16200. ng/L Area Ratio: 2.87 Sample Type: (Standard)	

PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.52 (5.49) min Calculated Conc: 16800. ng/L Area Ratio: 1.28 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 16300. ng/L Area Ratio: 1.69 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.63 (6.62) min Calculated Conc: 16600. ng/L Area Ratio: 1.38 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.06 (7.04) min Calculated Conc: 15800. ng/L Area Ratio: 1.44 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.43 (7.38) min Calculated Conc: 16000. ng/L Area Ratio: 1.38 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 15200. ng/L Area Ratio: 1.52 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 61700. ng/L Area Ratio: 2.05 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.62 (6.66) min Calculated Conc: 67400. ng/L Area Ratio: 1.92 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 10100. ng/L Area Ratio: 1.26 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 10500. ng/L Area Ratio: 0.959 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 38400. ng/L Area Ratio: 0.784 Sample Type: (Standard)	

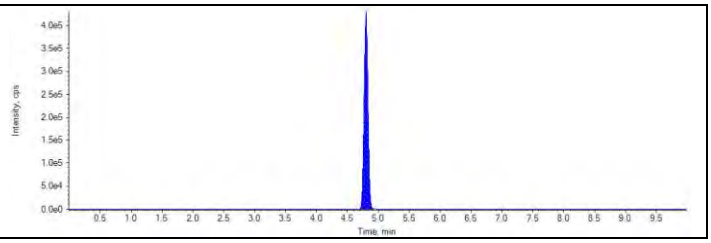
Sample ID	STD 6	**Injection Volume (µL)**	1.5
Sample Type	Standard	**Injection Vial**	7
Acquisition Date	2019/01/03 1:22:12 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1850000.	4.80	1.00	-
MPFOS	235000.	5.53	1.00	-
D3-MeFOSAA IS	1480000.	6.35	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	3120000	2.01	25000.	25100.	100.0
PFHxA 1	5990000	2.90	25000.	24000.	95.9
PFHxS 1	1710000	4.07	25000.	25000.	100.0
PFHpA 1	7220000	3.95	25000.	23800.	95.1
PFOA 1	5900000	4.81	25000.	23400.	93.7
PFOS 1	1010000	5.54	25000.	24300.	97.2
PFNA 1	3350000	5.52	25000.	23800.	95.1
PFDA 1	4530000	6.12	25000.	23700.	94.6
PFUnA 1	3510000	6.63	25000.	22800.	91.3
PFDoA 1	4060000	7.06	25000.	24100.	96.4
PFTrDA 1	3740000	7.43	25000.	23500.	93.9
PFTeDA 1	4530000	7.75	25000.	24400.	97.6
MeFOSAA 1	5100000	6.36	100000.	104000.	104.0
EtFOSAA 1	4180000	6.62	100000.	99300.	99.3
13C2-PFHxA	2240000	2.89	10000.	9660.	96.6
13C2-PFDA	1650000	6.11	10000.	9720.	97.2
D5-EtFOSAA	1160000	6.60	40000.	38400.	96.0

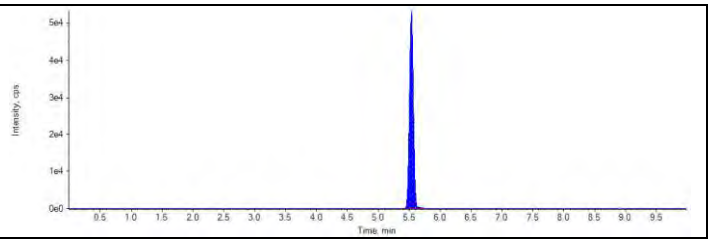
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



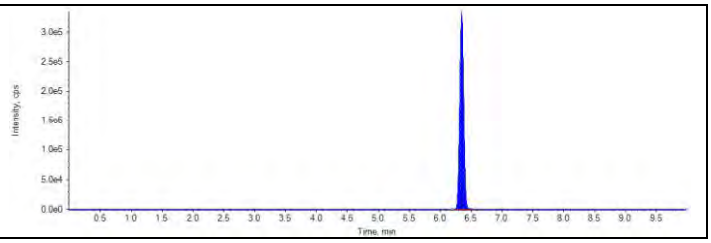
MPFOS (Internal Standard)

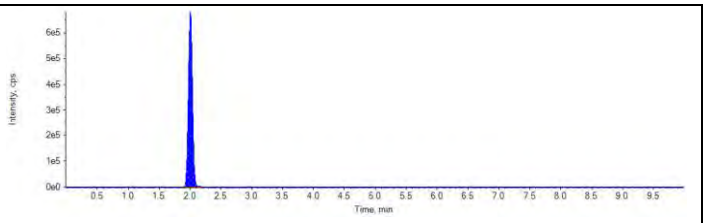
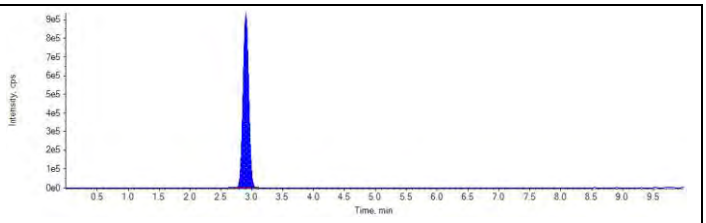
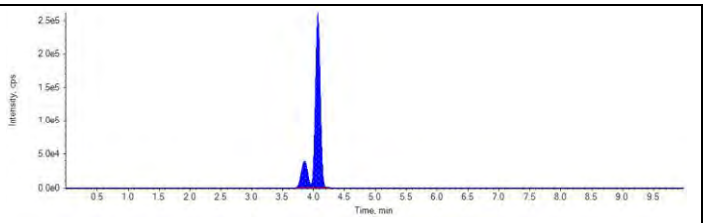
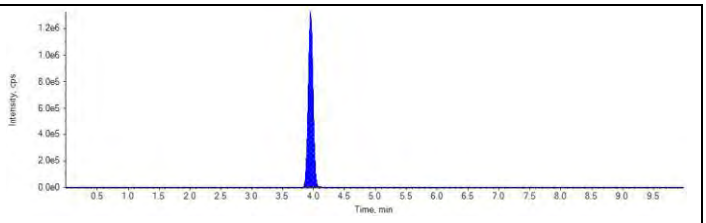
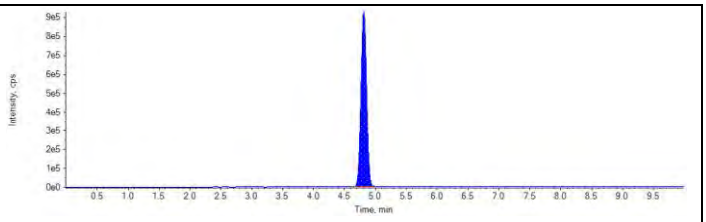
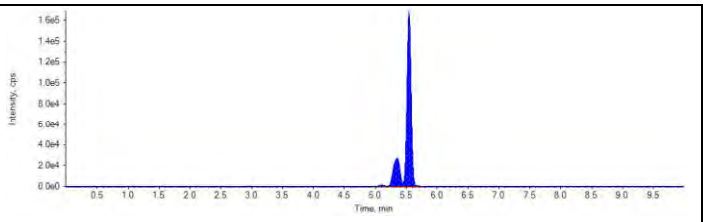
RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Standard)

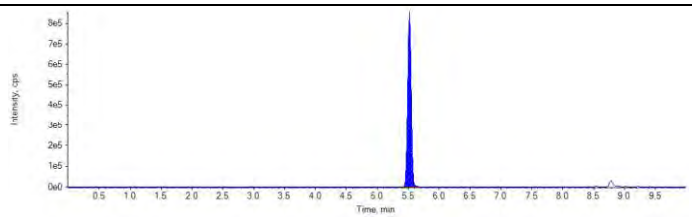
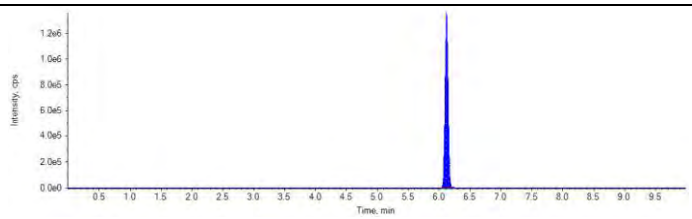
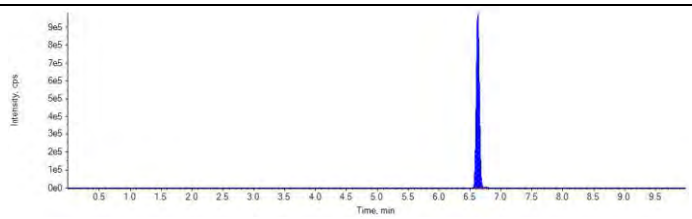
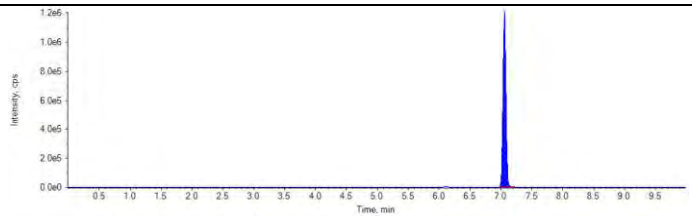
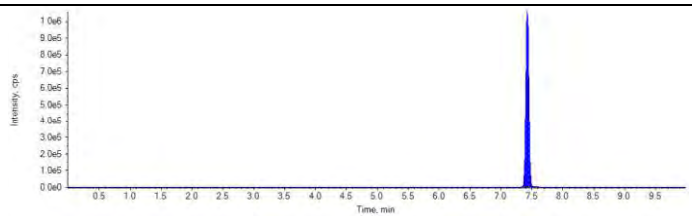
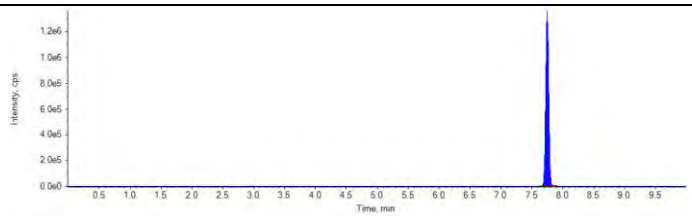


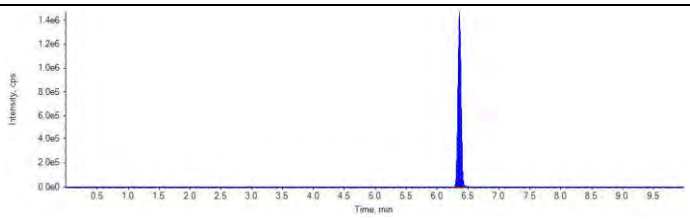
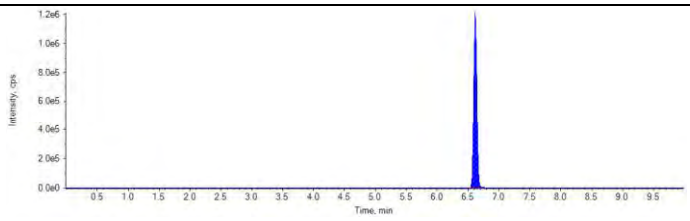
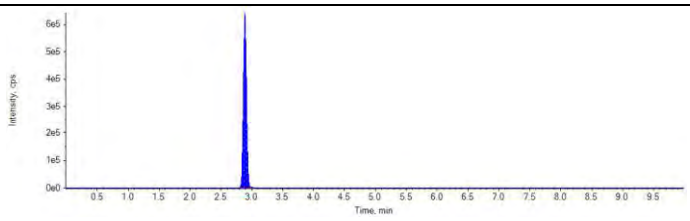
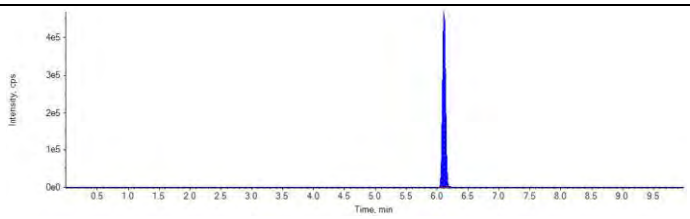
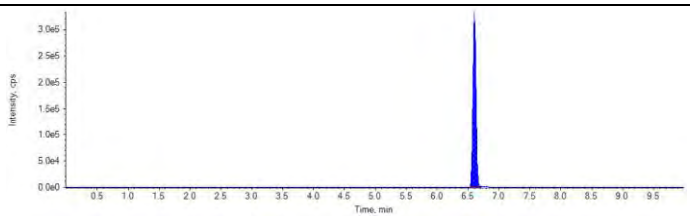
D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.35(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Standard)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 25100. ng/L Area Ratio: 13.3 Sample Type: (Standard)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 24000. ng/L Area Ratio: 3.23 Sample Type: (Standard)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 25000. ng/L Area Ratio: 7.28 Sample Type: (Standard)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 23800. ng/L Area Ratio: 3.90 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 23400. ng/L Area Ratio: 3.19 Sample Type: (Standard)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 24300. ng/L Area Ratio: 4.32 Sample Type: (Standard)	

PFNA 1 (462.900/419.200 Da) RT (Exp. RT): 5.52 (5.49) min Calculated Conc: 23800. ng/L Area Ratio: 1.81 Sample Type: (Standard)	
PFDA 1 (513.000/469.100 Da) RT (Exp. RT): 6.12 (6.07) min Calculated Conc: 23700. ng/L Area Ratio: 2.45 Sample Type: (Standard)	
PFUnA 1 (562.900/519.000 Da) RT (Exp. RT): 6.63 (6.62) min Calculated Conc: 22800. ng/L Area Ratio: 1.89 Sample Type: (Standard)	
PFDoA 1 (612.900/569.000 Da) RT (Exp. RT): 7.06 (7.04) min Calculated Conc: 24100. ng/L Area Ratio: 2.19 Sample Type: (Standard)	
PFTrDA 1 (663.000/619.000 Da) RT (Exp. RT): 7.43 (7.38) min Calculated Conc: 23500. ng/L Area Ratio: 2.02 Sample Type: (Standard)	
PFTeDA 1 (713.000/669.000 Da) RT (Exp. RT): 7.75 (7.74) min Calculated Conc: 24400. ng/L Area Ratio: 2.44 Sample Type: (Standard)	

MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 104000. ng/L Area Ratio: 3.45 Sample Type: (Standard)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.62 (6.66) min Calculated Conc: 99300. ng/L Area Ratio: 2.83 Sample Type: (Standard)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 9660. ng/L Area Ratio: 1.21 Sample Type: (Standard)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 9720. ng/L Area Ratio: 0.891 Sample Type: (Standard)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 38400. ng/L Area Ratio: 0.784 Sample Type: (Standard)	

Quantitation Results

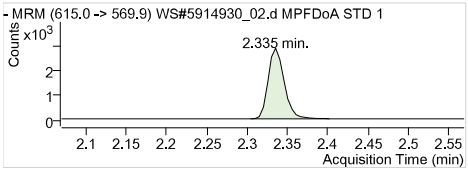
Agilent Technologies

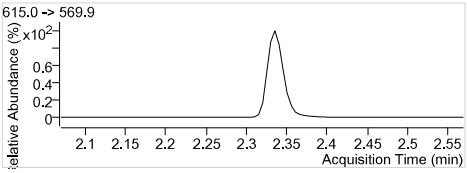
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 1**	**Instrument**	LCMS04
Data File	WS#5914930_02.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D1
Acq. Date	2019/01/05 7:45:37 PM	**Injection Volume**	Per Method
Sample Annotation	-		

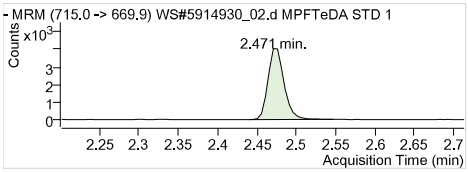
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3960	2.34	1 µg/L		
MPFTeDA	5667	2.47	1 µg/L		
13C9-PFDA IS	14340	2.15	1 µg/L		

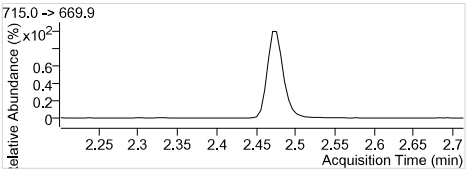
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	1489	2.33	0.83	0.87 µg/L	105.26
PFTeDA 1	1939	2.48	0.83	0.83 µg/L	100.14
13C2-PFDoA	3960	2.34	100.00	99.67 µg/L	99.67
13C2-PFTeDA	5667	2.47	100.00	104.44 µg/L	104.44
13C9-PFDA	14340	2.15	100.00	100.29 µg/L	100.29



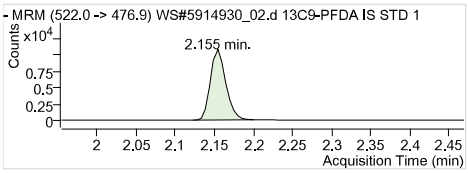


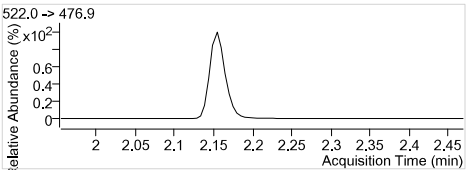
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



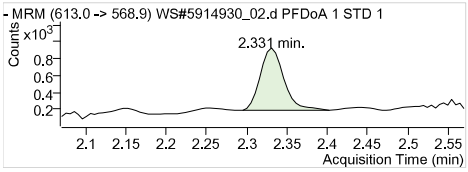


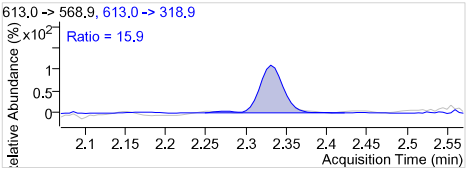
MPFTeDA Internal Standard
RT (Exp. RT): 2.471 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



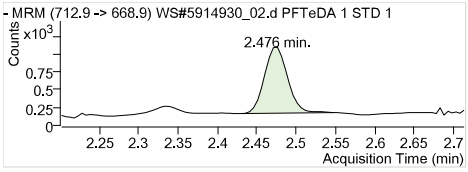


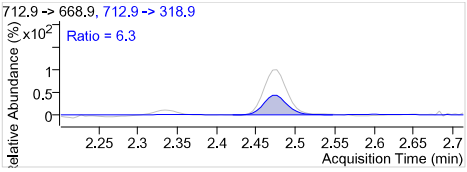
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



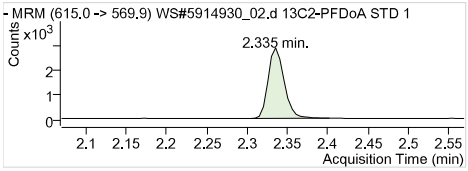


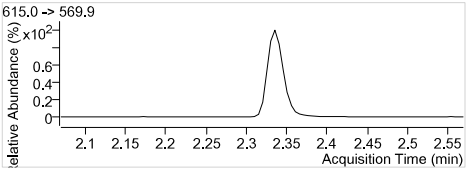
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 0.87 µg/L
Area ratio: 0.37601
Sample type: Calibration



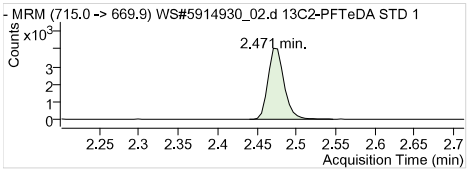


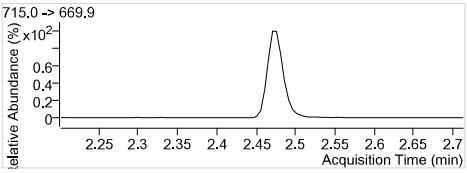
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.476 (2.476)
Calc. conc. 0.83 µg/L
Area ratio: 0.34216
Sample type: Calibration



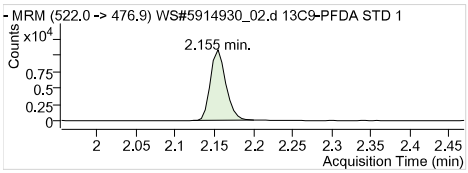


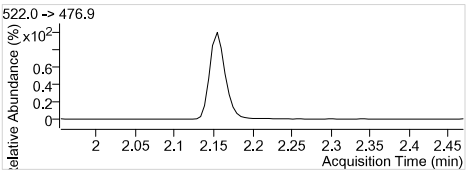
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 99.67 µg/L
Area ratio: 0.27615
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.471 (2.476)
Calc. conc.	104.44 µg/L
Area ratio:	0.39519
Sample type:	Calibration





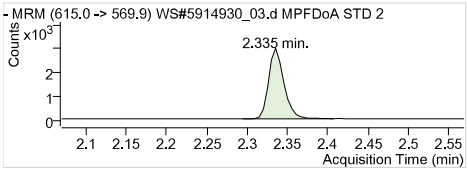
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	100.29 µg/L
Area ratio:	0
Sample type:	Calibration

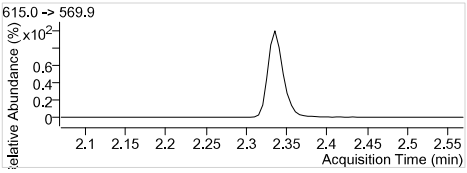
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 2**	**Instrument**	LCMS04
Data File	WS#5914930_03.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D2
Acq. Date	2019/01/05 7:50:31 PM	**Injection Volume**	Per Method
Sample Annotation	-		

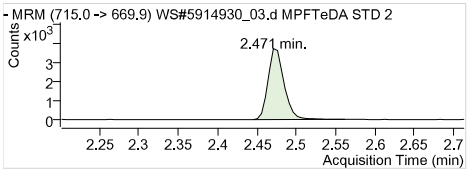
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3908	2.34	1 µg/L		
MPFTeDA	5203	2.47	1 µg/L		
13C9-PFDA IS	14026	2.15	1 µg/L		

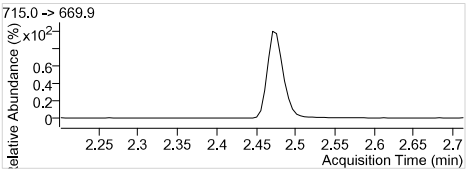
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	2874	2.33	1.70	1.64 µg/L	96.32
PFTeDA 1	3784	2.47	1.70	1.73 µg/L	101.56
13C2-PFDoA	3908	2.34	100.00	100.56 µg/L	100.56
13C2-PFTeDA	5203	2.47	100.00	98.03 µg/L	98.03
13C9-PFDA	14026	2.15	100.00	98.09 µg/L	98.09



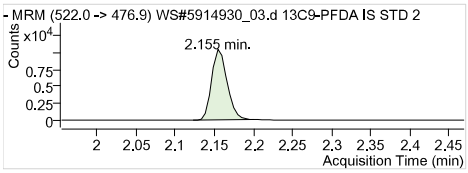


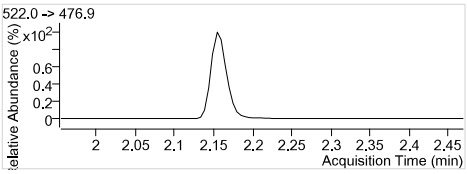
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



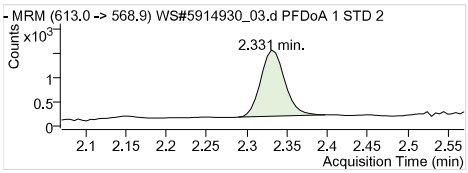


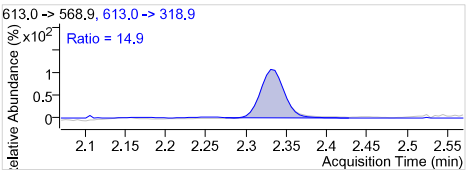
MPFTeDA Internal Standard
RT (Exp. RT): 2.471 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



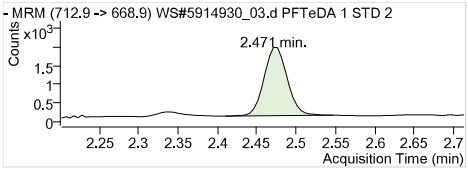


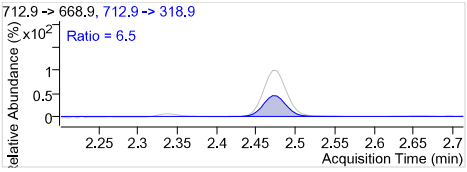
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



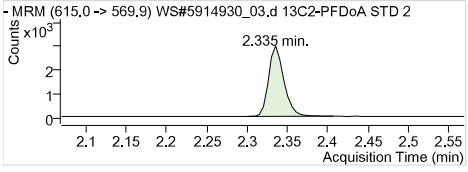


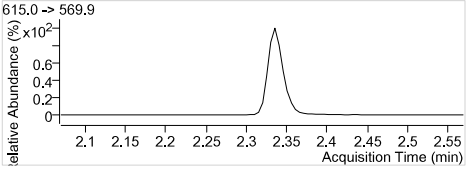
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 1.64 µg/L
Area ratio: 0.73541
Sample type: Calibration



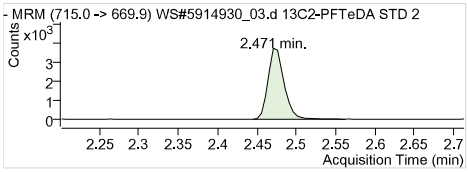


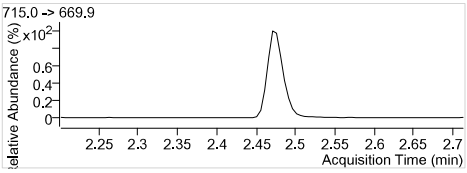
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.471 (2.476)
Calc. conc. 1.73 µg/L
Area ratio: 0.72727
Sample type: Calibration



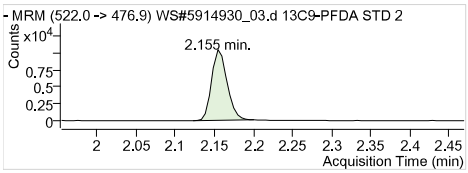


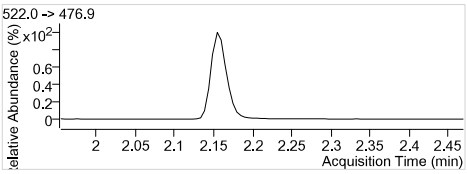
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 100.56 µg/L
Area ratio: 0.27863
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.471 (2.476)
Calc. conc.	98.03 µg/L
Area ratio:	0.37095
Sample type:	Calibration





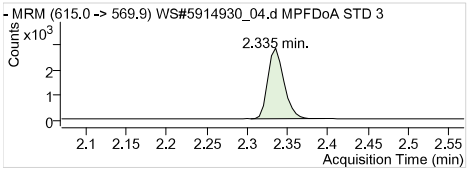
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	98.09 µg/L
Area ratio:	0
Sample type:	Calibration

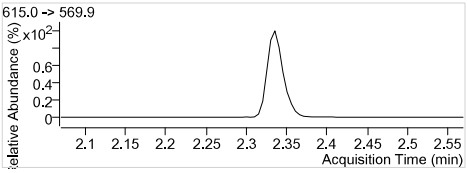
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 3**	**Instrument**	LCMS04
Data File	WS#5914930_04.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D3
Acq. Date	2019/01/05 7:55:26 PM	**Injection Volume**	Per Method
Sample Annotation	-		

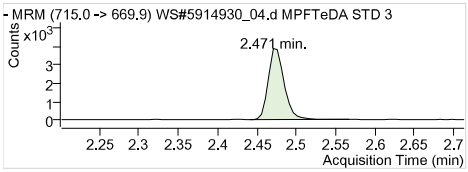
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3875	2.34	1 µg/L		
MPFTeDA	5393	2.47	1 µg/L		
13C9-PFDA IS	13523	2.15	1 µg/L		

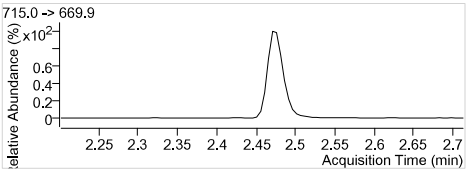
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	8959	2.33	5.00	4.99 µg/L	99.75
PFTeDA 1	11164	2.48	5.00	4.85 µg/L	96.97
13C2-PFDoA	3875	2.34	100.00	103.42 µg/L	103.42
13C2-PFTeDA	5393	2.47	100.00	105.39 µg/L	105.39
13C9-PFDA	13523	2.15	100.00	94.58 µg/L	94.58



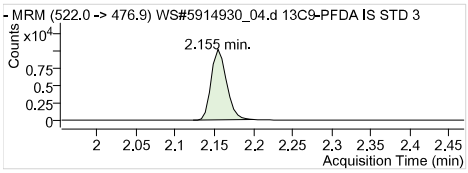


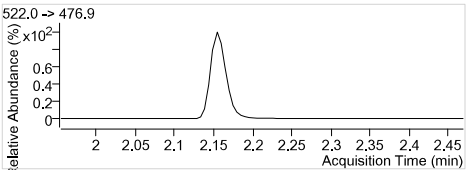
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



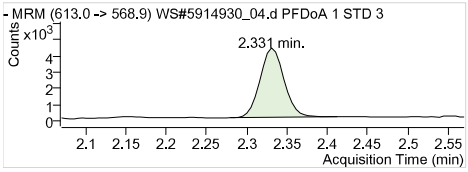


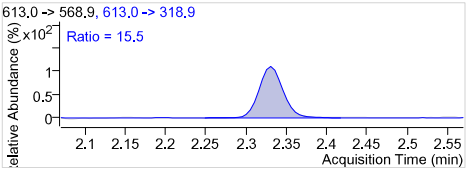
MPFTeDA Internal Standard
RT (Exp. RT): 2.471 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



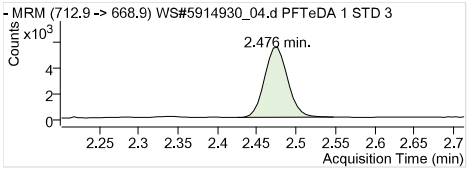


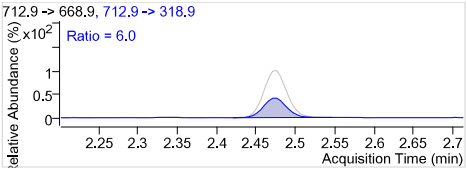
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



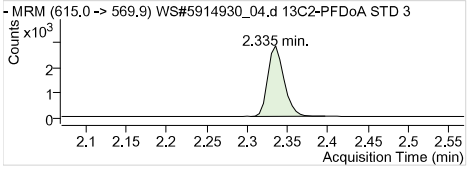


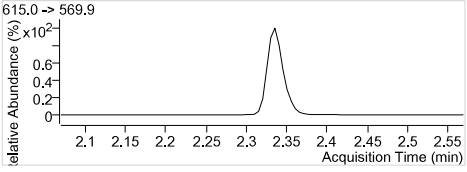
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 4.99 µg/L
Area ratio: 2.31200
Sample type: Calibration



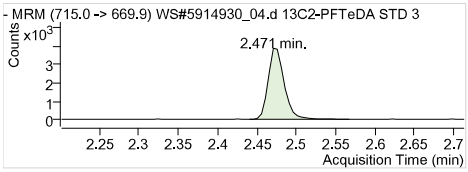


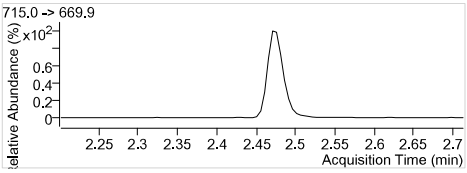
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.476 (2.476)
Calc. conc. 4.85 µg/L
Area ratio: 2.07009
Sample type: Calibration



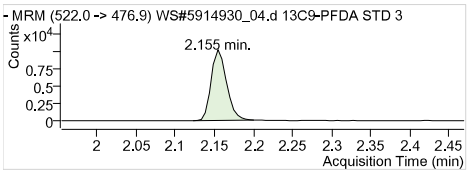


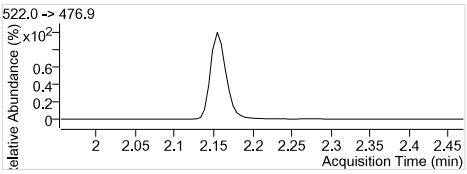
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 103.42 µg/L
Area ratio: 0.28655
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.471 (2.476)
Calc. conc.	105.39 µg/L
Area ratio:	0.39880
Sample type:	Calibration





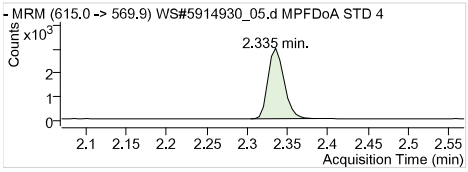
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	94.58 µg/L
Area ratio:	0
Sample type:	Calibration

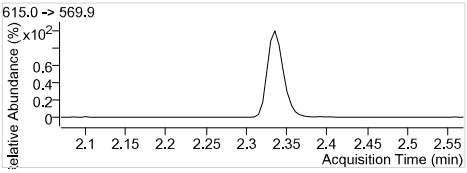
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 4**	**Instrument**	LCMS04
Data File	WS#5914930_05.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D4
Acq. Date	2019/01/05 8:00:20 PM	**Injection Volume**	Per Method
Sample Annotation	-		

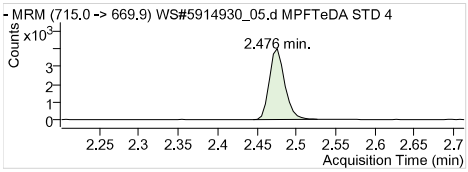
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	4104	2.34	1 µg/L		
MPFTeDA	5345	2.48	1 µg/L		
13C9-PFDA IS	14690	2.15	1 µg/L		

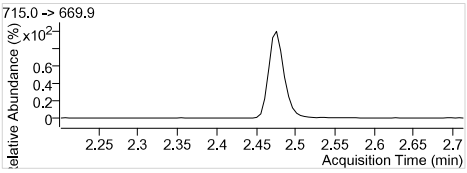
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	23024	2.33	12.50	12.00 µg/L	95.97
PFTeDA 1	29098	2.48	12.50	12.69 µg/L	101.54
13C2-PFDoA	4104	2.34	100.00	100.83 µg/L	100.83
13C2-PFTeDA	5345	2.48	100.00	96.16 µg/L	96.16
13C9-PFDA	14690	2.15	100.00	102.74 µg/L	102.74



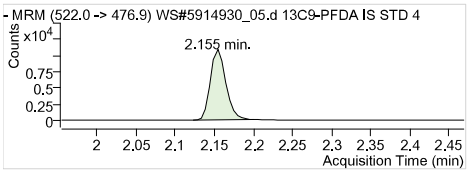


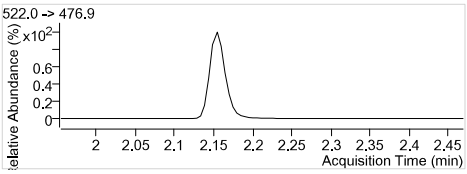
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



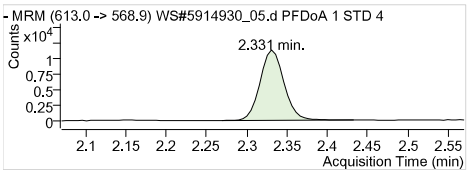


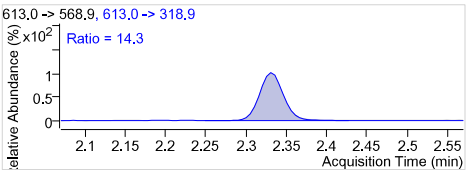
MPFTeDA Internal Standard
RT (Exp. RT): 2.476 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



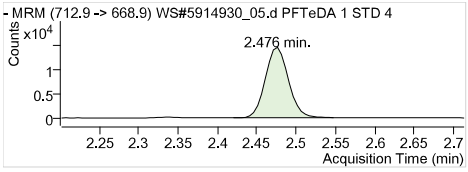


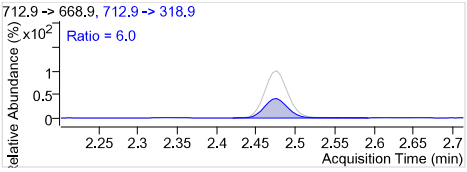
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



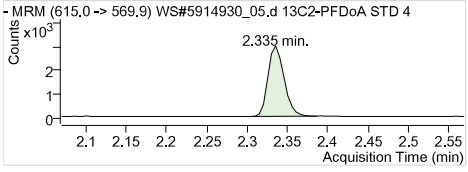


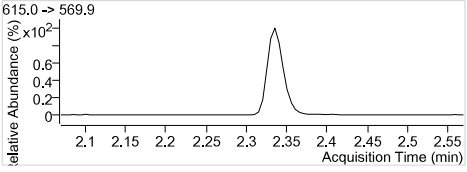
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 12.00 µg/L
Area ratio: 5.61014
Sample type: Calibration



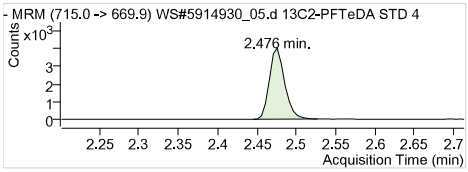


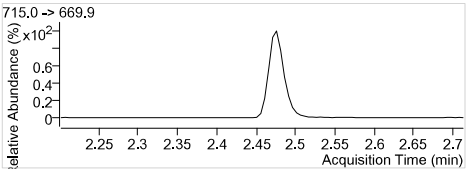
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.476 (2.476)
Calc. conc. 12.69 µg/L
Area ratio: 5.44397
Sample type: Calibration



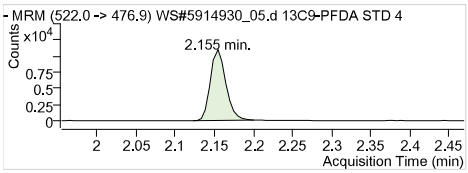


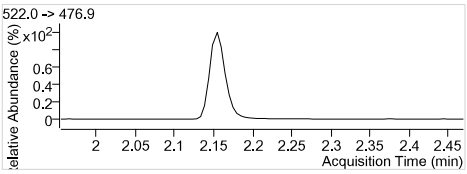
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 100.83 µg/L
Area ratio: 0.27937
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.476 (2.476)
Calc. conc.	96.16 µg/L
Area ratio:	0.36385
Sample type:	Calibration





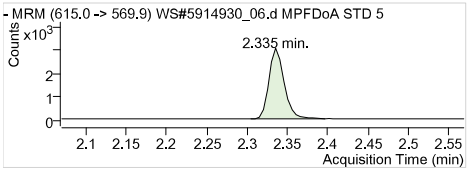
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	102.74 µg/L
Area ratio:	0
Sample type:	Calibration

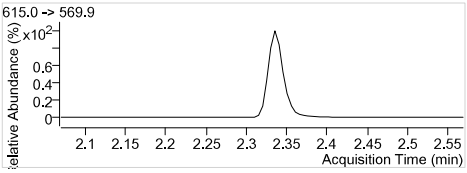
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 5**	**Instrument**	LCMS04
Data File	WS#5914930_06.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D5
Acq. Date	2019/01/05 8:05:15 PM	**Injection Volume**	Per Method
Sample Annotation	-		

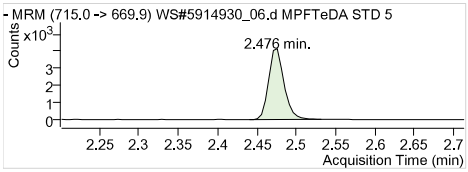
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3966	2.34	1 µg/L		
MPFTeDA	5572	2.48	1 µg/L		
13C9-PFDA IS	15167	2.15	1 µg/L		

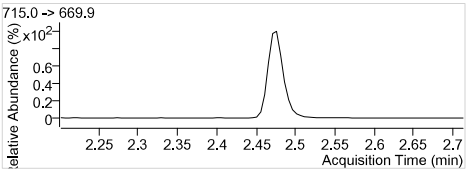
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	48176	2.33	25.00	25.89 µg/L	103.55
PFTeDA 1	59758	2.48	25.00	24.97 µg/L	99.88
13C2-PFDoA	3966	2.34	100.00	94.38 µg/L	94.38
13C2-PFTeDA	5572	2.48	100.00	97.09 µg/L	97.09
13C9-PFDA	15167	2.15	100.00	106.07 µg/L	106.07



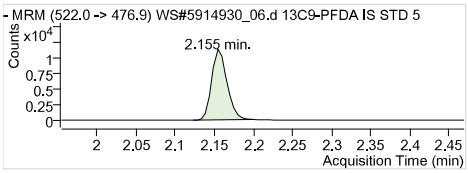


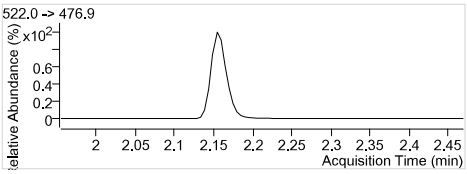
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



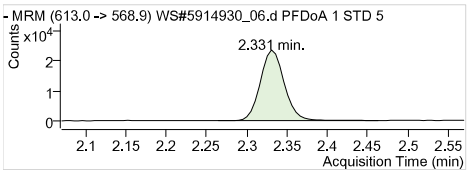


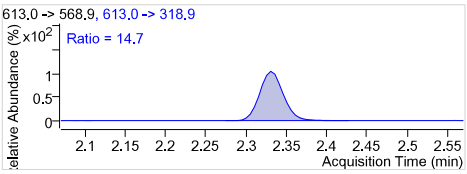
MPFTeDA Internal Standard
RT (Exp. RT): 2.476 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



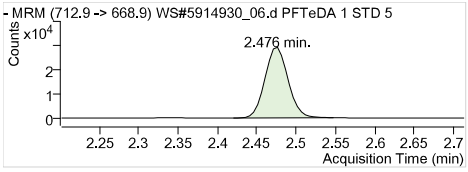


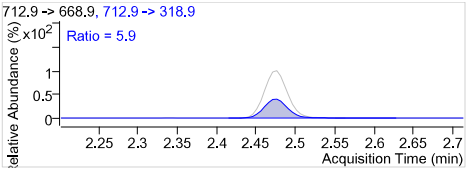
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



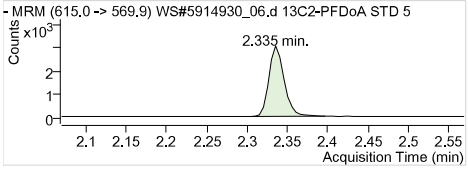


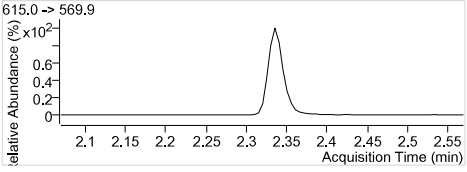
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 25.89 µg/L
Area ratio: 12.14725
Sample type: Calibration



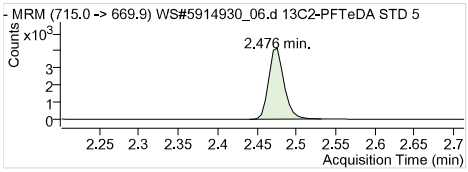


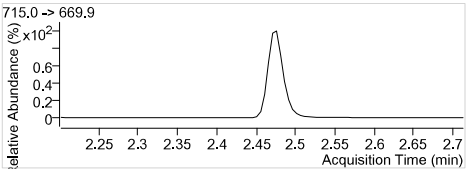
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.476 (2.476)
Calc. conc. 24.97 µg/L
Area ratio: 10.72469
Sample type: Calibration



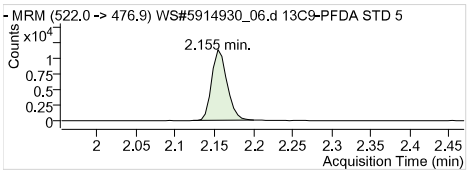


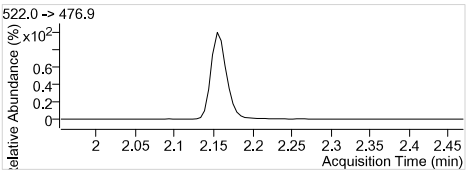
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 94.38 µg/L
Area ratio: 0.26149
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.476 (2.476)
Calc. conc.	97.09 µg/L
Area ratio:	0.36738
Sample type:	Calibration





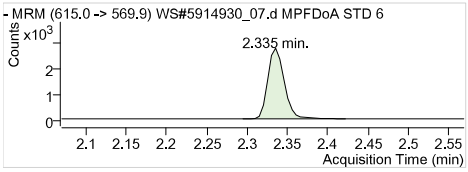
13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	106.07 µg/L
Area ratio:	0
Sample type:	Calibration

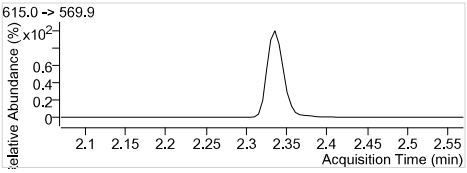
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**STD 6**	**Instrument**	LCMS04
Data File	WS#5914930_07.d	**Operator**	
Sample Type	Cal	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D6
Acq. Date	2019/01/05 8:10:10 PM	**Injection Volume**	Per Method
Sample Annotation	-		

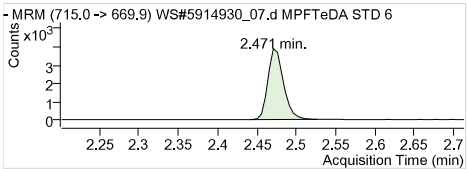
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3936	2.34	1 µg/L		
MPFTeDA	5256	2.47	1 µg/L		
13C9-PFDA IS	14046	2.15	1 µg/L		

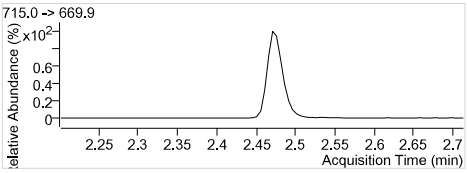
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	76446	2.33	41.70	41.35 µg/L	99.15
PFTeDA 1	94105	2.47	41.70	41.66 µg/L	99.91
13C2-PFDoA	3936	2.34	100.00	101.14 µg/L	101.14
13C2-PFTeDA	5256	2.47	100.00	98.89 µg/L	98.89
13C9-PFDA	14046	2.15	100.00	98.23 µg/L	98.23



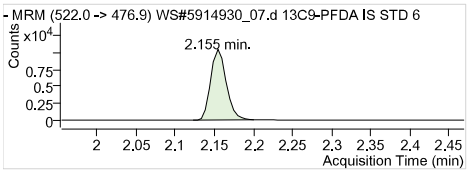


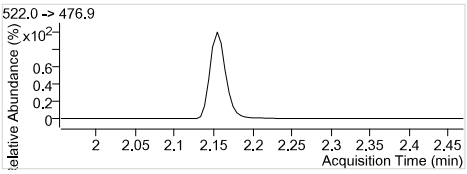
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: Calibration



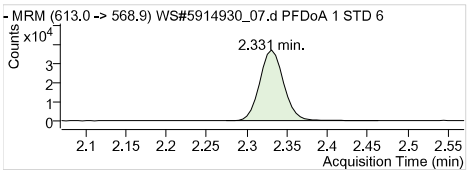


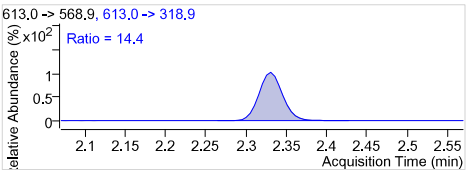
MPFTeDA Internal Standard
RT (Exp. RT): 2.471 (2.476)
Concentration: 1 µg/L
Sample type: Calibration



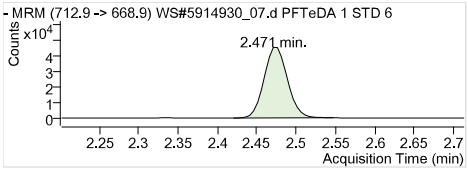


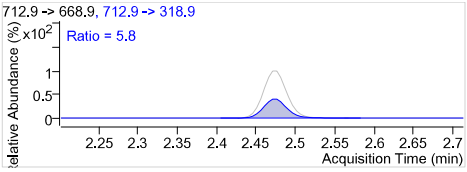
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: Calibration



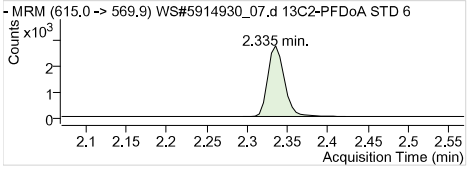


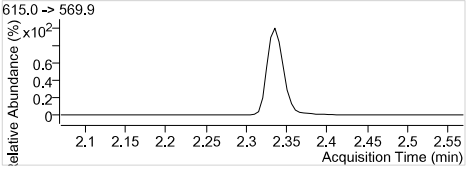
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 41.35 µg/L
Area ratio: 19.42226
Sample type: Calibration



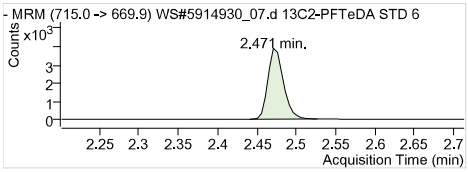


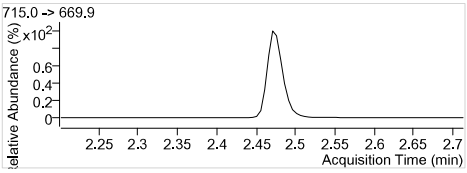
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.471 (2.476)
Calc. conc. 41.66 µg/L
Area ratio: 17.90430
Sample type: Calibration



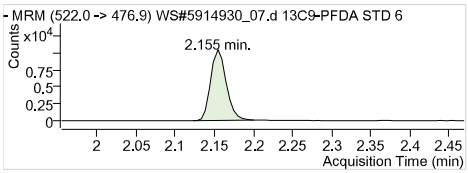


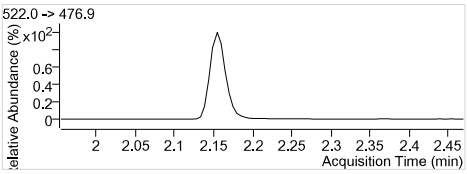
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 101.14 µg/L
Area ratio: 0.28022
Sample type: Calibration





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.471 (2.476)
Calc. conc.	98.89 µg/L
Area ratio:	0.37420
Sample type:	Calibration





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	98.23 µg/L
Area ratio:	0
Sample type:	Calibration

Quantitation Results

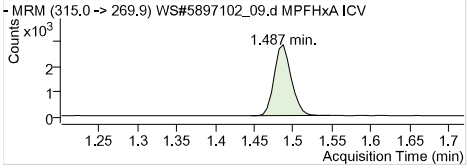
Agilent Technologies

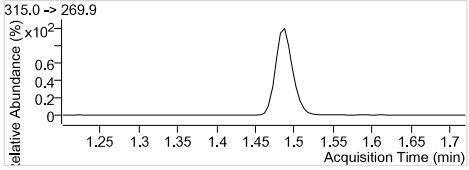
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics

Sample Name	**ICV**	**Instrument**	LCMS04
Data File	WS#5897102_09.d	**Operator**	
Sample Type	QC	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P2-A9
Acq. Date	2018/12/21 8:01:17 PM	**Injection Volume**	Per Method
Sample Annotation	-		

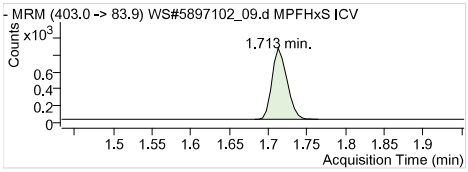
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	4283	1.49	1 µg/L		
MPFHxS	1093	1.71	1 µg/L		
MPFHpA	6250	1.73	1 µg/L		
MPFOA	5532	1.91	1 µg/L		
MPFOS	1213	2.00	1 µg/L		
MPFNA	5514	2.05	1 µg/L		
MPFDA	3656	2.16	1 µg/L		
MPFUnA	4631	2.26	1 µg/L		
MPFDoA	5733	2.35	1 µg/L		
MPFTeDA	8193	2.48	1 µg/L		
13C6-PFHxA IS	14261	1.49	1 µg/L		
13C9-PFDA IS	17223	2.16	1 µg/L		

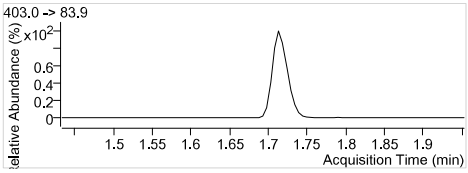
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	13503	1.16	20.80	20.61 µg/L	99.07
PFHxA 1	39362	1.49	20.80	20.28 µg/L	97.49
PFHxS 1	10353	1.71	20.80	20.90 µg/L	100.50
PFHpA 1	54455	1.74	20.80	20.33 µg/L	97.75
PFOA 1	52887	1.91	20.80	21.56 µg/L	103.65
PFOS 1	10491	2.00	20.80	20.94 µg/L	100.65
PFNA 1	41520	2.05	20.80	20.08 µg/L	96.53
PFDA 1	46011	2.16	20.80	21.81 µg/L	104.87
PFUnA 1	42780	2.26	20.80	20.35 µg/L	97.82
PFDoA 1	48469	2.35	20.80	21.38 µg/L	102.78
PFTrDA 1	60676	2.42	20.80	21.27 µg/L	102.24
PFTeDA 1	64241	2.48	20.80	21.54 µg/L	103.58
13C2-PFHxA	4283	1.49	100.00	111.89 µg/L	111.89
18O2-PFHxS	1093	1.71	100.00	107.21 µg/L	107.21
13C4-PFHpA	6250	1.73	100.00	110.68 µg/L	110.68
13C4-PFOA	5532	1.91	100.00	106.70 µg/L	106.70
13C4-PFOS	1213	2.00	100.00	107.55 µg/L	107.55
13C5-PFNA	5514	2.05	100.00	115.19 µg/L	115.19
13C2-PFDA	3656	2.16	100.00	104.14 µg/L	104.14
13C2-PFUnA	4631	2.26	100.00	113.11 µg/L	113.11
13C2-PFDoA	5733	2.35	100.00	108.38 µg/L	108.38
13C2-PFTeDA	8193	2.48	100.00	107.84 µg/L	107.84
13C6-PFHxA	14261	1.49	100.00	97.14 µg/L	97.14
13C9-PFDA	17223	2.16	100.00	99.65 µg/L	99.65



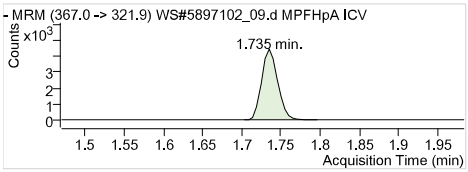


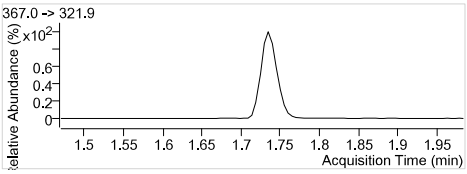
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	QC



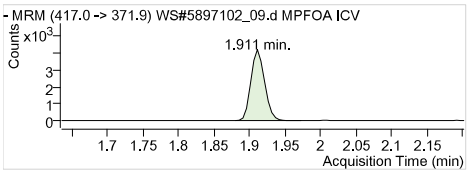


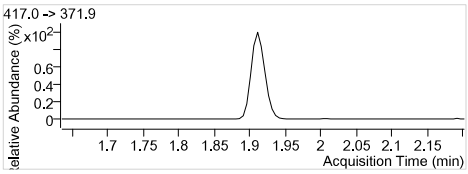
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: QC



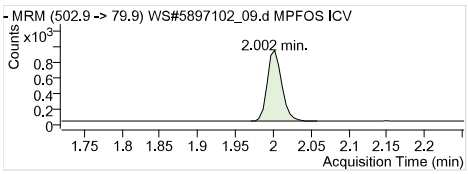


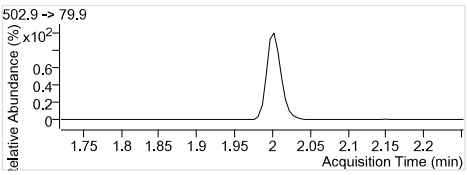
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: QC



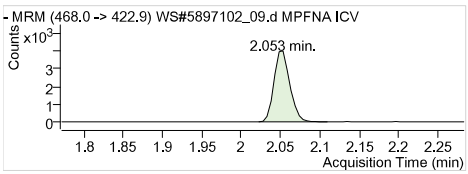


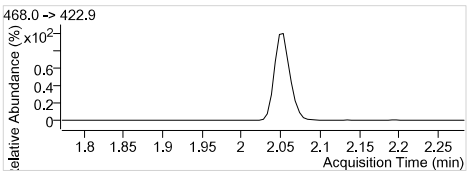
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: QC



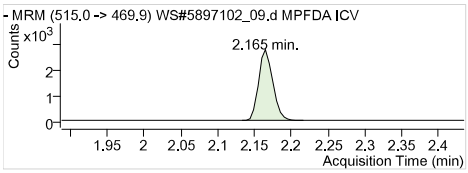


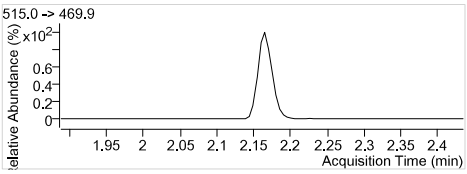
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: QC



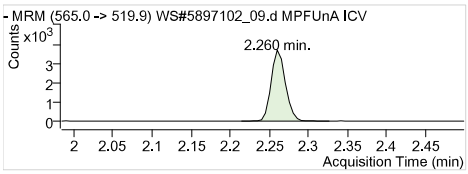


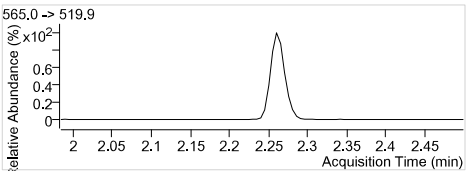
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: QC



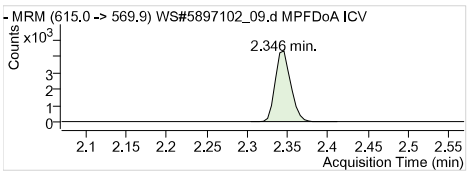


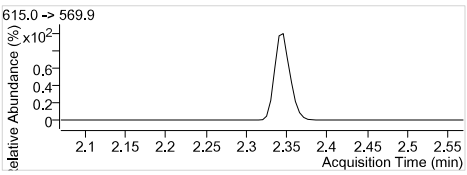
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: QC



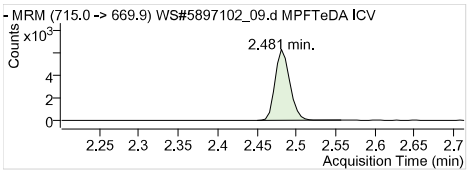


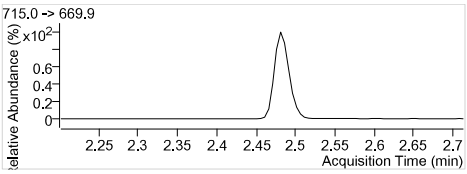
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: QC



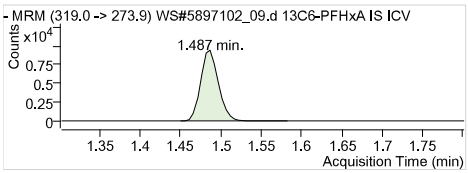


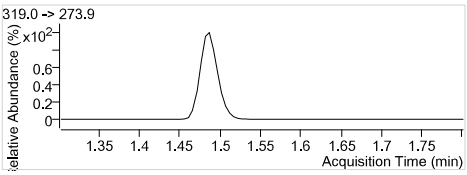
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: QC



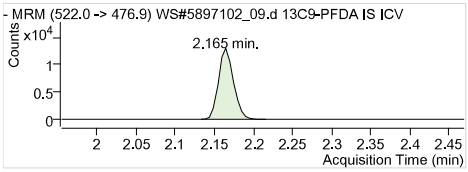


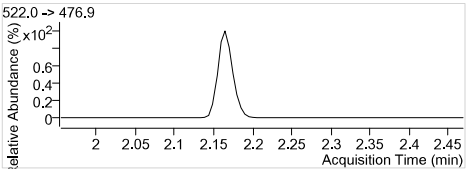
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: QC



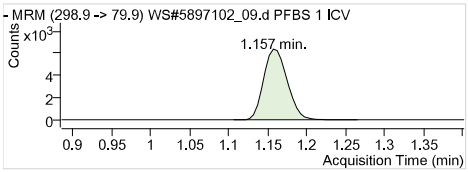


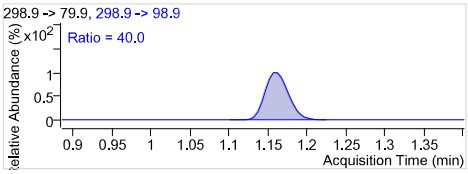
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: QC



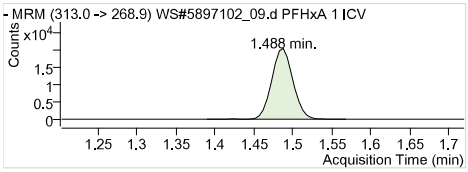


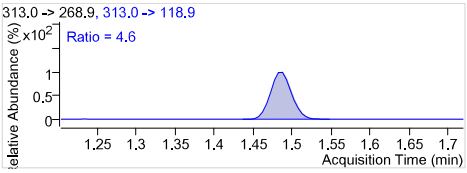
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: QC



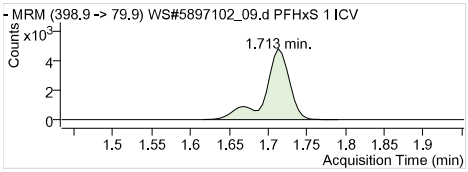


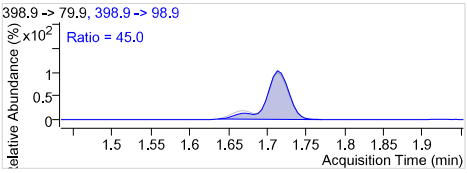
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 20.61 µg/L
Area ratio: 12.35407
Sample type: QC



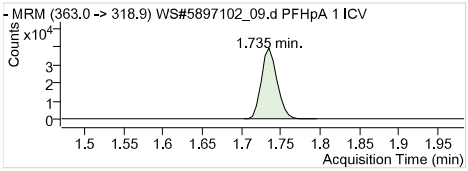


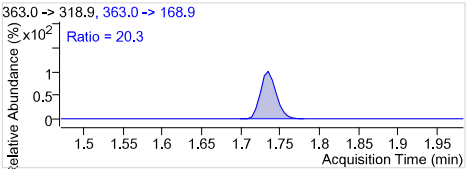
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 20.28 µg/L
Area ratio: 9.19029
Sample type: QC



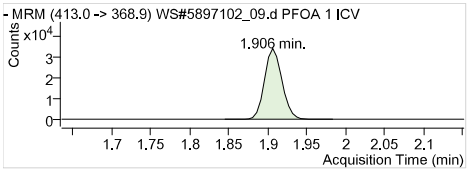


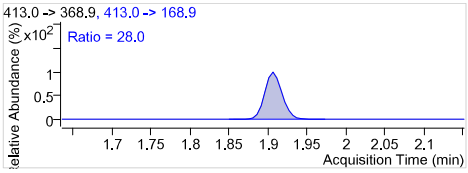
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 20.90 µg/L
Area ratio: 9.47210
Sample type: QC



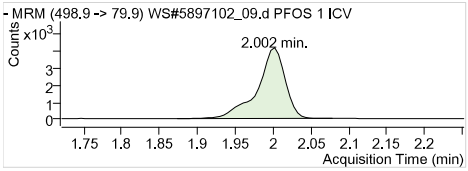


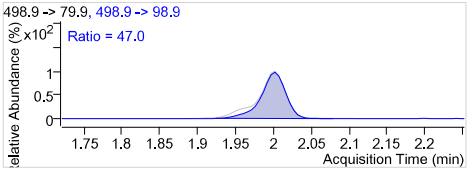
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 20.33 µg/L
Area ratio: 8.71280
Sample type: QC



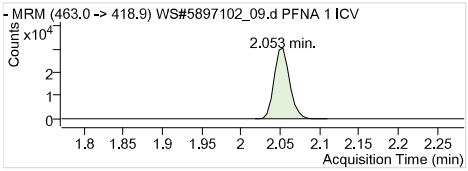


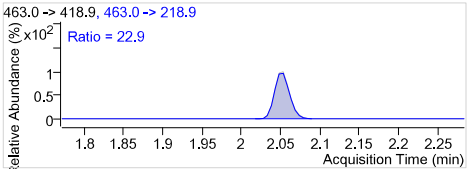
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.906 (1.912)
Calc. conc. 21.56 µg/L
Area ratio: 9.56020
Sample type: QC



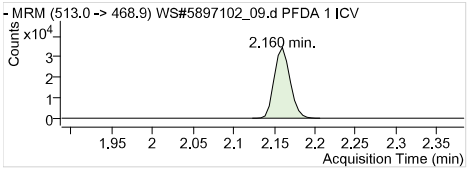


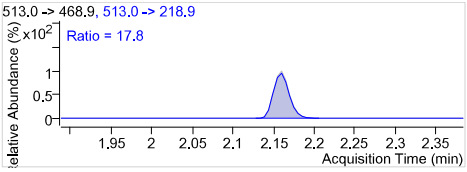
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 20.94 µg/L
Area ratio: 8.64880
Sample type: QC



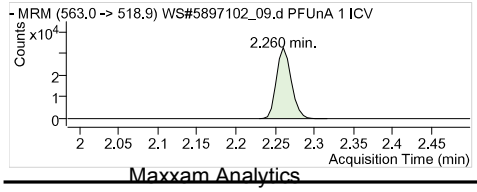


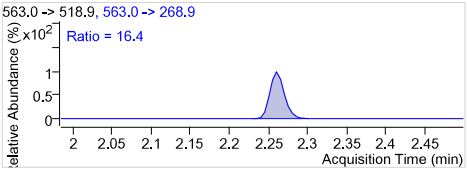
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 20.08 µg/L
Area ratio: 7.52992
Sample type: QC



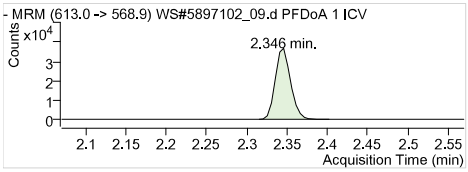


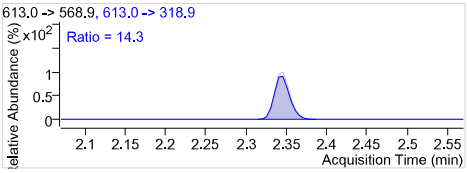
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.160 (2.165)
Calc. conc. 21.81 µg/L
Area ratio: 12.58507
Sample type: QC



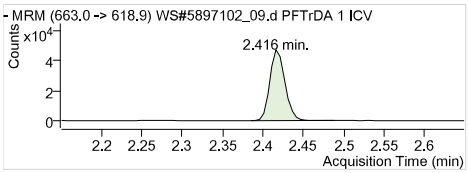


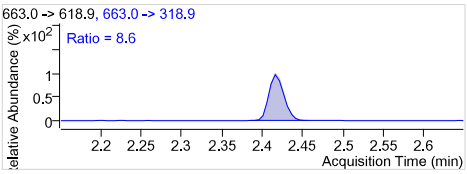
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 20.35 µg/L
Area ratio: 9.23775
Sample type: QC



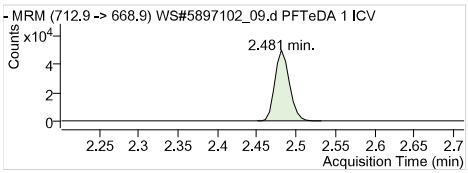


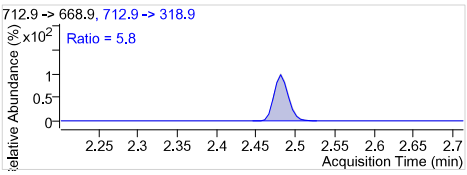
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	21.38 µg/L
Area ratio:	8.45439
Sample type:	QC



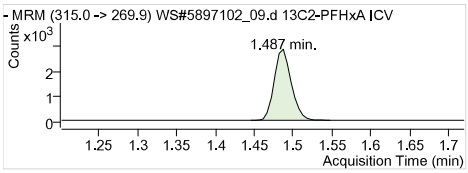


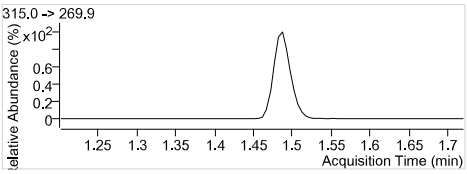
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	21.27 µg/L
Area ratio:	7.40583
Sample type:	QC



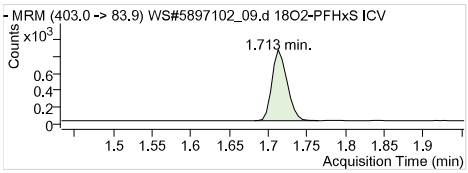


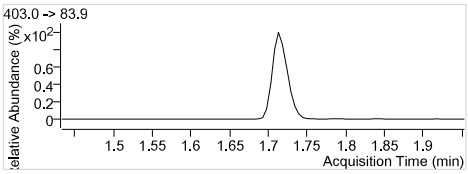
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	21.54 µg/L
Area ratio:	7.84096
Sample type:	QC



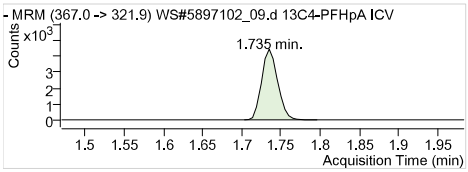


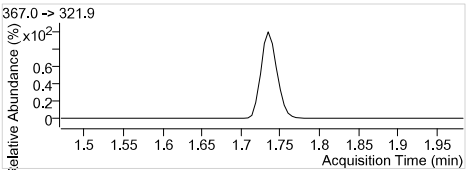
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	111.89 µg/L
Area ratio:	0.30033
Sample type:	QC



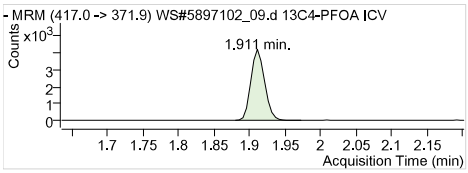


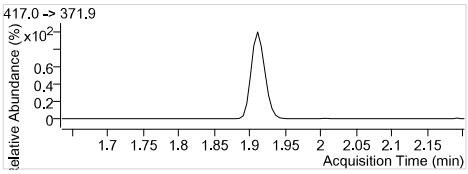
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	107.21 µg/L
Area ratio:	0.07664
Sample type:	QC



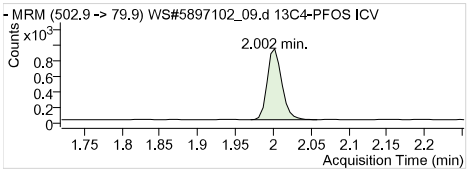


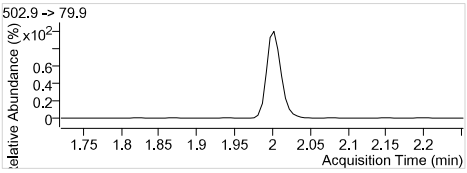
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	110.68 µg/L
Area ratio:	0.43826
Sample type:	QC



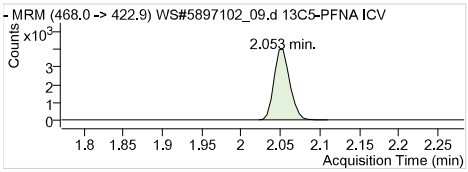


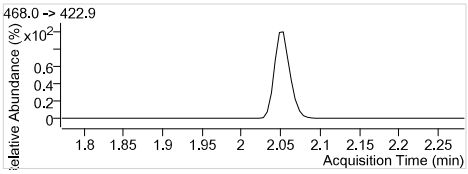
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	106.70 µg/L
Area ratio:	0.38791
Sample type:	QC



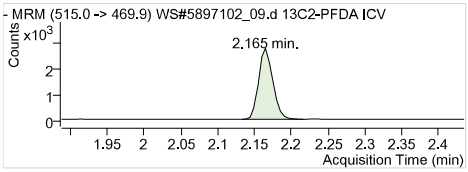


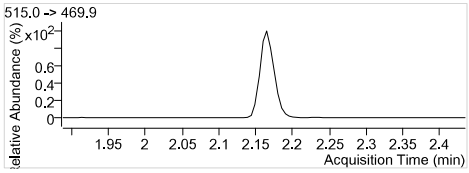
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	107.55 µg/L
Area ratio:	0.08506
Sample type:	QC



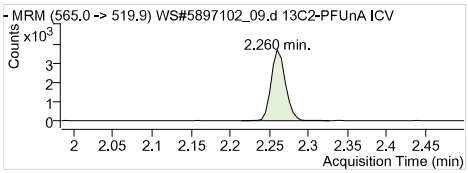


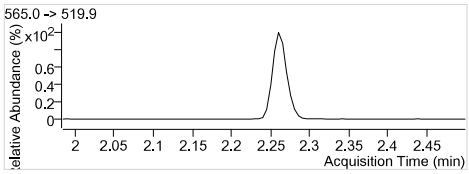
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	115.19 µg/L
Area ratio:	0.38665
Sample type:	QC



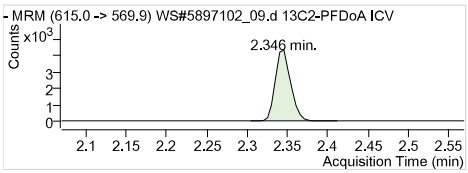


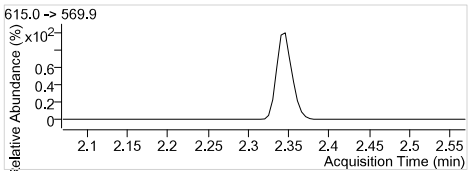
13C2-PFDA 515.0 -> 469.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 104.14 µg/L
Area ratio: 0.21227
Sample type: QC



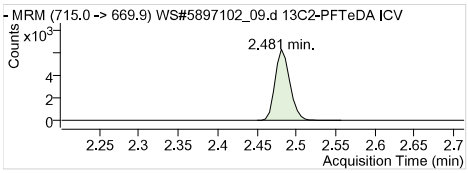


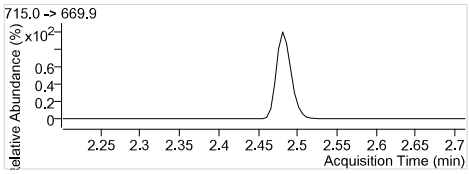
13C2-PFUnA 565.0 -> 519.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 113.11 µg/L
Area ratio: 0.26888
Sample type: QC



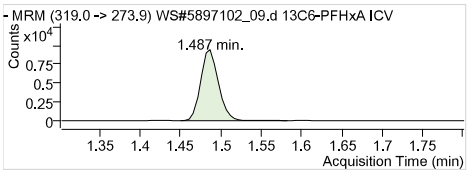


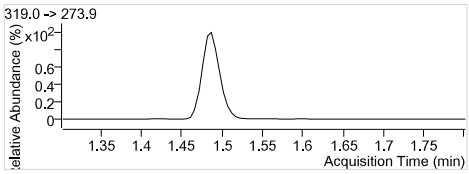
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.346 (2.346)
Calc. conc. 108.38 µg/L
Area ratio: 0.33287
Sample type: QC



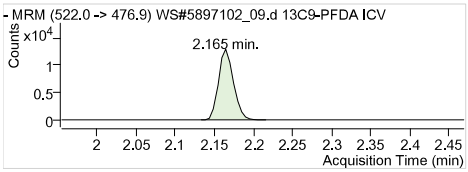


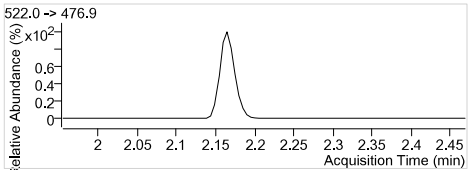
13C2-PFTeDA 715.0 -> 669.9
RT (Exp. RT): 2.481 (2.481)
Calc. conc. 107.84 µg/L
Area ratio: 0.47570
Sample type: QC





13C6-PFHxA 319.0 -> 273.9
RT (Exp. RT): 1.487 (1.487)
Calc. conc. 97.14 µg/L
Area ratio: 0
Sample type: QC





13C9-PFDA 522.0 -> 476.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 99.65 µg/L
Area ratio: 0
Sample type: QC

Quantitation Results

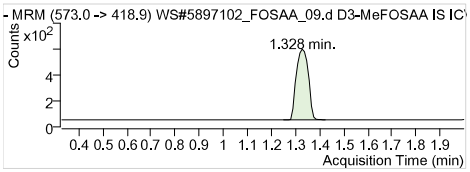
Agilent Technologies

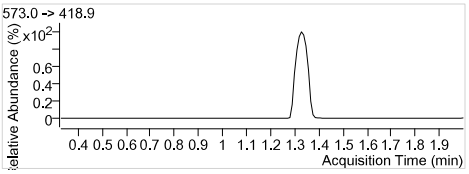
Batch Path	T:\LCMS04\PFC\20181221\WS#5897102_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5897102_FOSAA_EToxics

Sample Name	**ICV**	**Instrument**	LCMS04
Data File	WS#5897102_FOSAA_09.d	**Operator**	
Sample Type	QC	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P2-A9
Acq. Date	2018/12/22 12:48:20 AM	**Injection Volume**	Per Method
Sample Annotation	-		

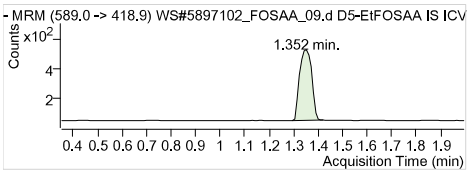
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1914	1.33	1 µg/L		
D5-EtFOSAA IS	1661	1.35	1 µg/L		
13C9-PFDA IS	17591	0.98	1 µg/L		

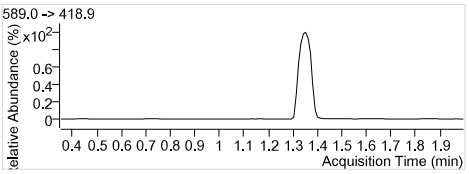
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	13186	1.33	20.80	19.81 µg/L	95.22
EtFOSAA 1	14866	1.34	20.80	20.87 µg/L	100.33
D3-MeFOSAA	1913	1.33	100.00	112.67 µg/L	112.67
D5-EtFOSAA	1671	1.35	100.00	108.40 µg/L	108.40
13C9-PFDA	17656	0.98	100.00	94.32 µg/L	94.32



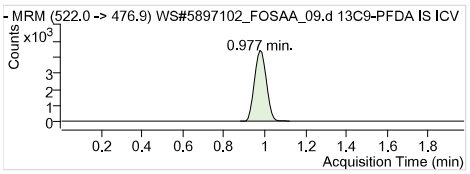


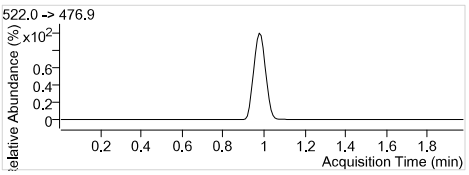
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: QC



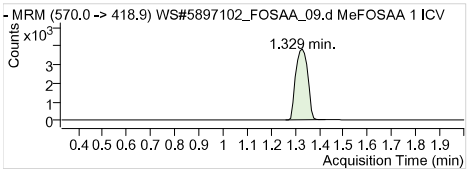


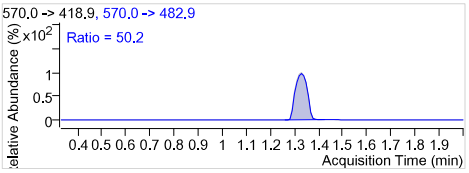
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: QC



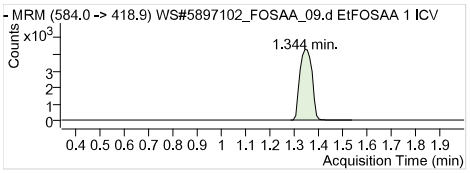


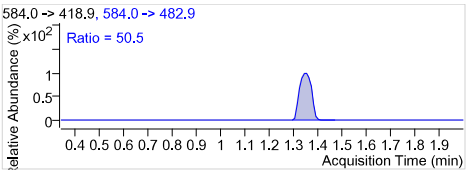
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.977 (0.977)
Concentration: 1 µg/L
Sample type: QC



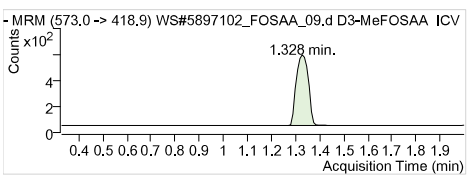


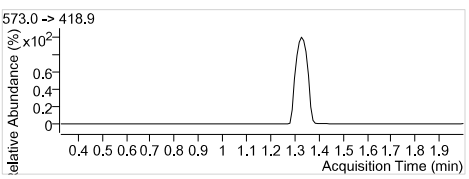
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 19.81 µg/L
Area ratio: 6.88924
Sample type: QC



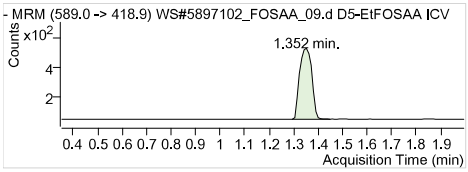


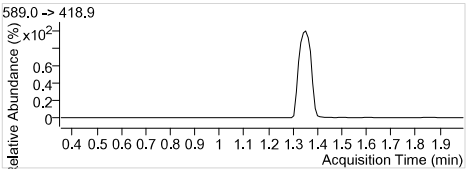
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.344 (1.344)
Calc. conc. 20.87 µg/L
Area ratio: 8.95003
Sample type: QC



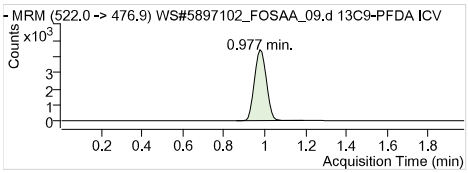


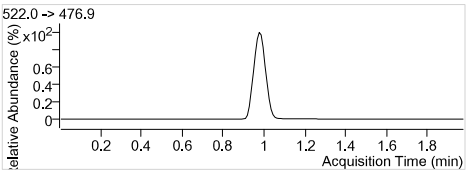
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 112.67 µg/L
Area ratio: 0.10875
Sample type: QC





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	108.40 µg/L
Area ratio:	0.09499
Sample type:	QC





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.977 (0.977)
Calc. conc.	94.32 µg/L
Area ratio:	0
Sample type:	QC

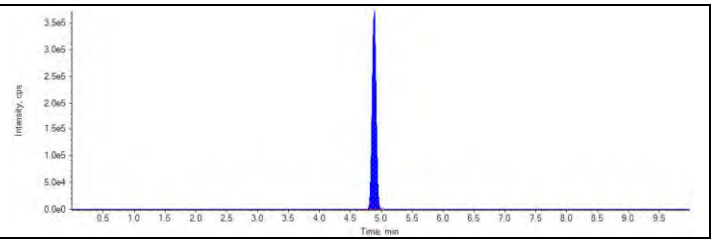
Sample ID	ICV	**Injection Volume (µL)**	1.5
Sample Type	Quality Control	**Injection Vial**	8
Acquisition Date	2018/12/21 2:01:25 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181221\WS#5898852.wiff		
Result Table	PFC_Water_181221_5898852_EPA537_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1650000.	4.88	1.00	-
MPFOS	169000.	5.61	1.00	-
D3-MeFOSAA IS	1500000.	6.43	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	1180000	2.07	12500.	14200.	114.0
PFHxA 1	3260000	2.98	12500.	13800.	111.0
PFHxS 1	574000	4.15	12500.	12000.	96.3
PFHpA 1	3440000	4.03	12500.	12800.	103.0
PFOA 1	2980000	4.89	12500.	13500.	108.0
PFOS 1	356000	5.63	12500.	13100.	105.0
PFNA 1	1880000	5.60	12500.	15800.	127.0
PFDA 1	2450000	6.20	12500.	14200.	113.0
PFUnA 1	2260000	6.71	12500.	14700.	117.0
PFDoA 1	2320000	7.14	12500.	13100.	105.0
PFTrDA 1	2240000	7.51	12500.	12500.	99.7
PFTeDA 1	2570000	7.83	12500.	12200.	97.8
MeFOSAA 1	2330000	6.44	50000.	51600.	103.0
EtFOSAA 1	1870000	6.70	50000.	45200.	90.3
13C2-PFHxA	2290000	2.96	10000.	10600.	106.0
13C2-PFDA	1840000	6.19	10000.	11600.	116.0
D5-EtFOSAA	1340000	6.69	40000.	41300.	103.0

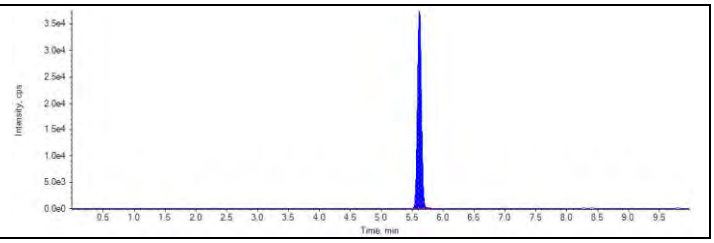
MPFOA (Internal Standard)

RT (Exp. RT): 4.88(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



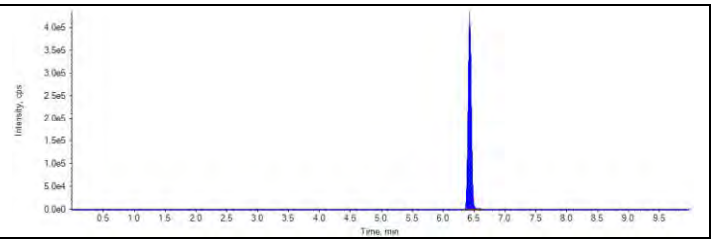
MPFOS (Internal Standard)

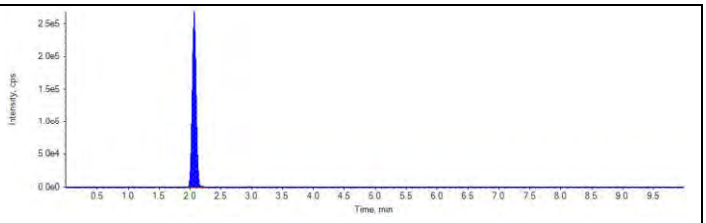
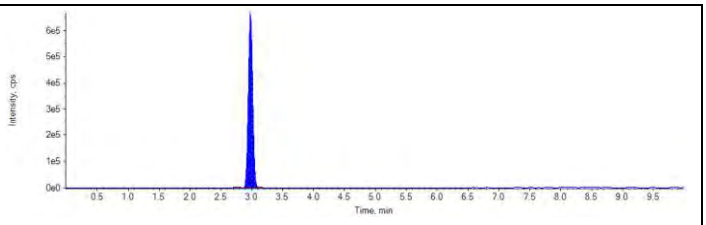
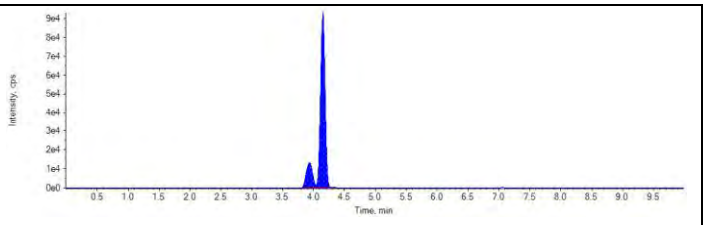
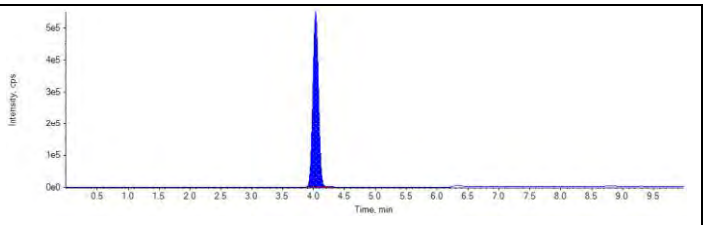
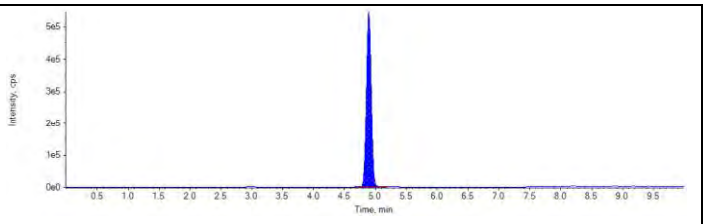
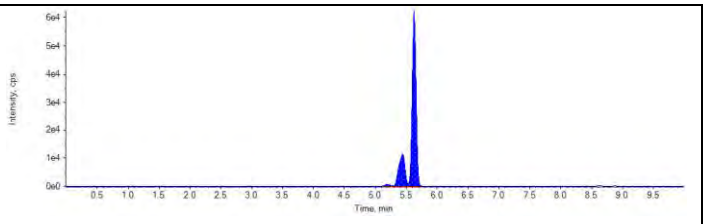
RT (Exp. RT): 5.61(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.43(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.07 (1.85) min Calculated Conc: 14200. ng/L Area Ratio: 6.97 Sample Type: (Quality Control)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.98 (2.97) min Calculated Conc: 13800. ng/L Area Ratio: 1.97 Sample Type: (Quality Control)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.15 (4.05) min Calculated Conc: 12000. ng/L Area Ratio: 3.40 Sample Type: (Quality Control)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 4.03 (3.91) min Calculated Conc: 12800. ng/L Area Ratio: 2.08 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.89 (4.89) min Calculated Conc: 13500. ng/L Area Ratio: 1.80 Sample Type: (Quality Control)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.63 (5.38) min Calculated Conc: 13100. ng/L Area Ratio: 2.11 Sample Type: (Quality Control)	

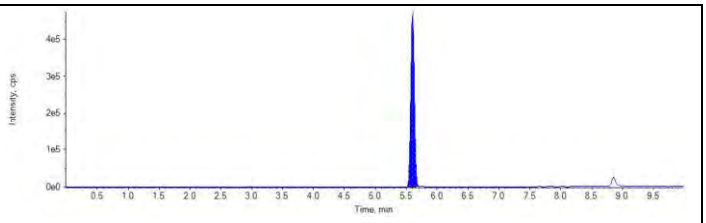
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.60 (5.49) min

Calculated Conc: 15800. ng/L

Area Ratio: 1.13

Sample Type: (Quality Control)



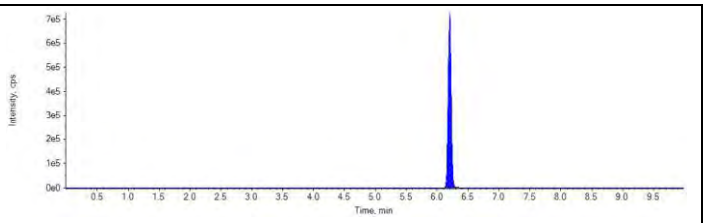
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.20 (6.07) min

Calculated Conc: 14200. ng/L

Area Ratio: 1.48

Sample Type: (Quality Control)



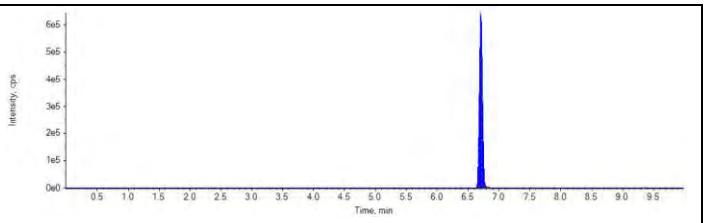
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.71 (6.62) min

Calculated Conc: 14700. ng/L

Area Ratio: 1.36

Sample Type: (Quality Control)



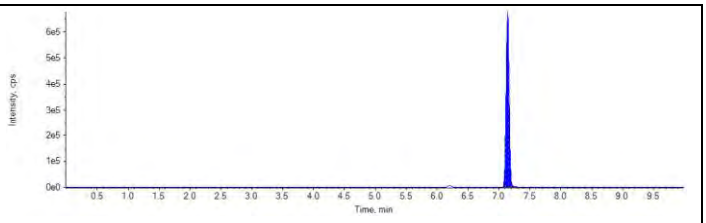
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.14 (7.04) min

Calculated Conc: 13100. ng/L

Area Ratio: 1.40

Sample Type: (Quality Control)



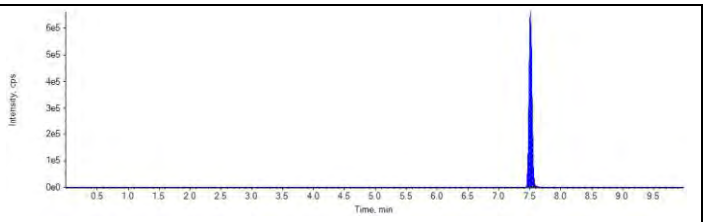
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.51 (7.38) min

Calculated Conc: 12500. ng/L

Area Ratio: 1.35

Sample Type: (Quality Control)



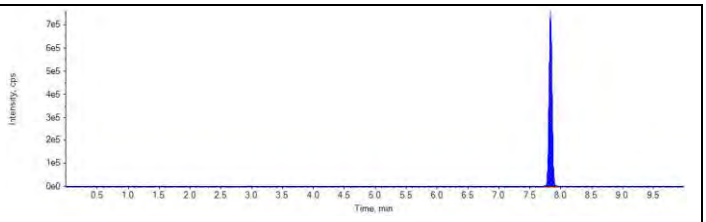
PFTeDA 1 (713.000/669.000 Da)

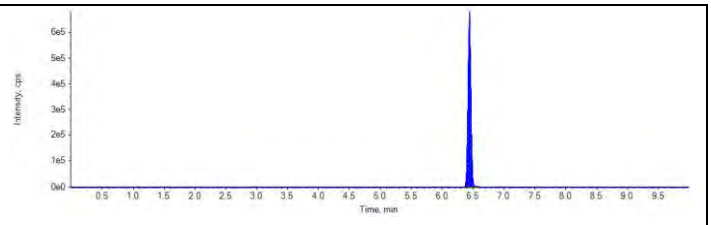
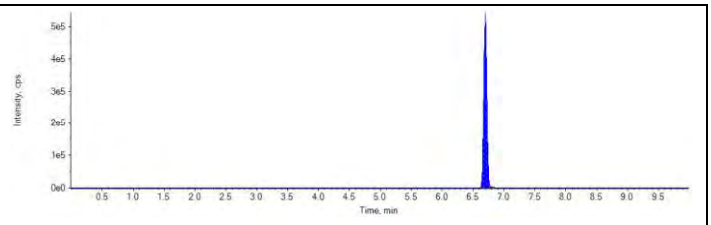
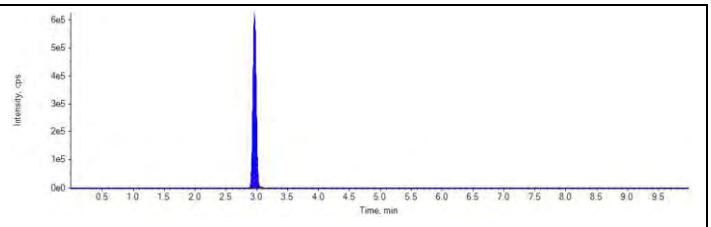
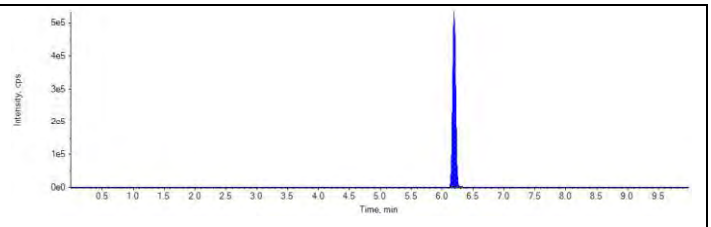
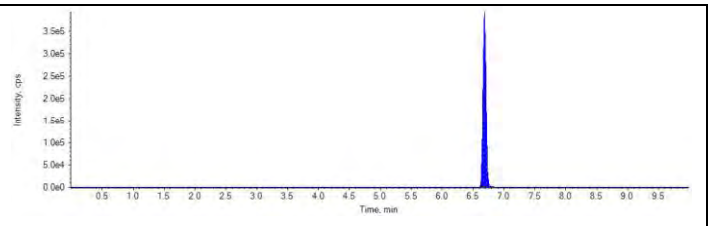
RT (Exp. RT): 7.83 (7.64) min

Calculated Conc: 12200. ng/L

Area Ratio: 1.55

Sample Type: (Quality Control)



MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.44 (6.29) min Calculated Conc: 51600. ng/L Area Ratio: 1.56 Sample Type: (Quality Control)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.70 (6.66) min Calculated Conc: 45200. ng/L Area Ratio: 1.25 Sample Type: (Quality Control)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.96 (2.96) min Calculated Conc: 10600. ng/L Area Ratio: 1.39 Sample Type: (Quality Control)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.19 (6.19) min Calculated Conc: 11600. ng/L Area Ratio: 1.11 Sample Type: (Quality Control)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.69 (6.68) min Calculated Conc: 41300. ng/L Area Ratio: 0.895 Sample Type: (Quality Control)	

Quantitation Results

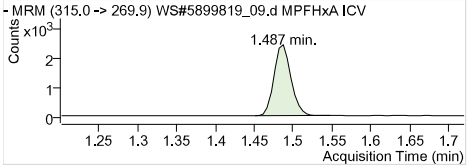
Agilent Technologies

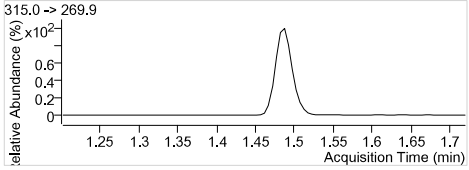
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819\QuantResults\PFC_Water_Low_20181221_WS#5899819_EToxics

Sample Name	**ICV**	**Instrument**	LCMS04
Data File	WS#5899819_09.d	**Operator**	
Sample Type	QC	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P1-A9
Acq. Date	2018/12/21 5:13:55 PM	**Injection Volume**	Per Method
Sample Annotation	-		

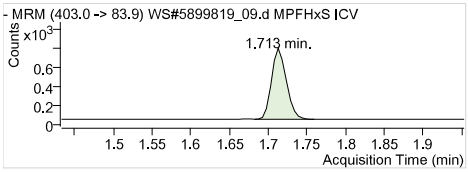
ISTD Compounds	Response	RT	Target conc.		
MPFHxA	3667	1.49	1 µg/L		
MPFHxS	979	1.71	1 µg/L		
MPFHpA	5473	1.73	1 µg/L		
MPFOA	5015	1.91	1 µg/L		
MPFOS	1086	2.00	1 µg/L		
MPFNA	4751	2.05	1 µg/L		
MPFDA	3398	2.16	1 µg/L		
MPFUnA	3914	2.26	1 µg/L		
MPFDoA	4798	2.35	1 µg/L		
MPFTeDA	7230	2.48	1 µg/L		
13C6-PFHxA IS	16794	1.49	1 µg/L		
13C9-PFDA IS	20302	2.16	1 µg/L		

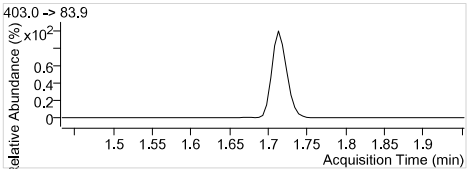
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFBS 1	11904	1.16	20.80	20.15 µg/L	96.89
PFHxA 1	33551	1.49	20.80	20.34 µg/L	97.78
PFHxS 1	9018	1.71	20.80	19.81 µg/L	95.25
PFHpA 1	47644	1.74	20.80	19.93 µg/L	95.83
PFOA 1	47059	1.91	20.80	21.39 µg/L	102.82
PFOS 1	8773	2.00	20.80	19.50 µg/L	93.77
PFNA 1	35938	2.05	20.80	20.81 µg/L	100.03
PFDA 1	39364	2.17	20.80	19.60 µg/L	94.21
PFUnA 1	38148	2.26	20.80	20.74 µg/L	99.71
PFDoA 1	42986	2.35	20.80	21.58 µg/L	103.75
PFTrDA 1	52097	2.42	20.80	20.69 µg/L	99.47
PFTeDA 1	56430	2.48	20.80	21.40 µg/L	102.90
13C2-PFHxA	3667	1.49	100.00	96.63 µg/L	96.63
18O2-PFHxS	979	1.71	100.00	100.71 µg/L	100.71
13C4-PFHpA	5473	1.73	100.00	99.74 µg/L	99.74
13C4-PFOA	5015	1.91	100.00	97.70 µg/L	97.70
13C4-PFOS	1086	2.00	100.00	101.30 µg/L	101.30
13C5-PFNA	4751	2.05	100.00	97.21 µg/L	97.21
13C2-PFDA	3398	2.16	100.00	97.85 µg/L	97.85
13C2-PFUnA	3914	2.26	100.00	96.56 µg/L	96.56
13C2-PFDoA	4798	2.35	100.00	92.16 µg/L	92.16
13C2-PFTeDA	7230	2.48	100.00	95.25 µg/L	95.25
13C6-PFHxA	16794	1.49	100.00	99.99 µg/L	99.99
13C9-PFDA	20302	2.16	100.00	102.00 µg/L	102.00



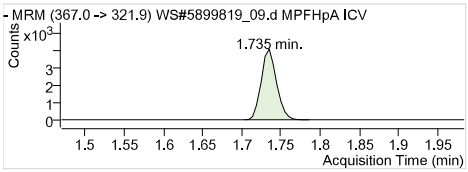


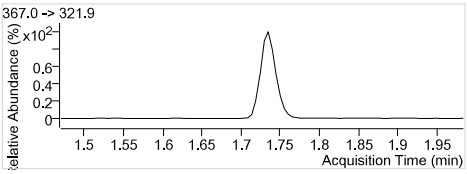
MPFHxA	Internal Standard
RT (Exp. RT):	1.487 (1.487)
Concentration:	1 µg/L
Sample type:	QC



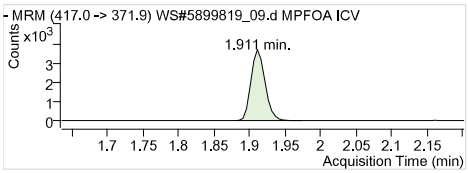


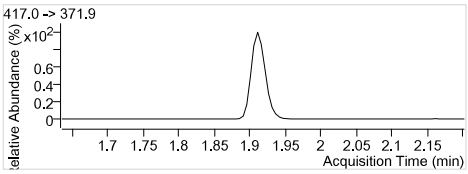
MPFHxS Internal Standard
RT (Exp. RT): 1.713 (1.713)
Concentration: 1 µg/L
Sample type: QC



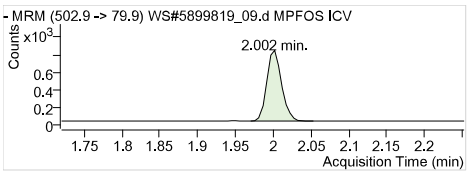


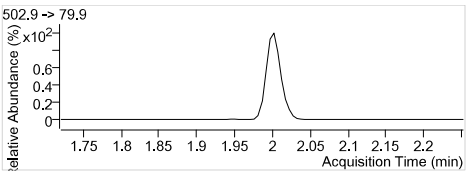
MPFHpA Internal Standard
RT (Exp. RT): 1.735 (1.735)
Concentration: 1 µg/L
Sample type: QC



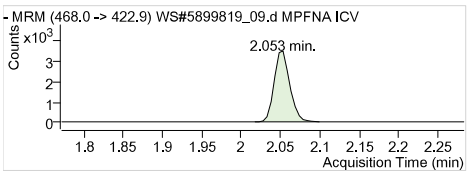


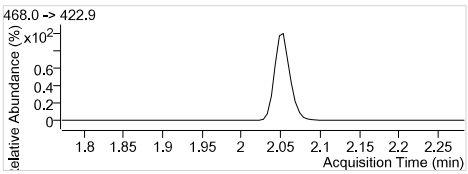
MPFOA Internal Standard
RT (Exp. RT): 1.911 (1.911)
Concentration: 1 µg/L
Sample type: QC



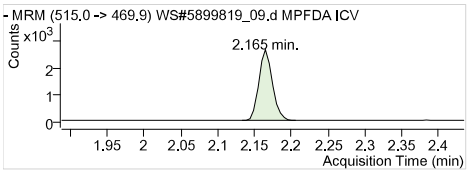


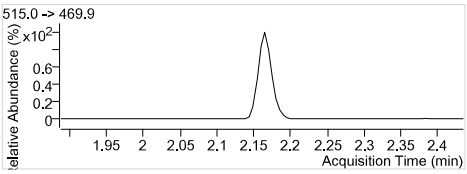
MPFOS Internal Standard
RT (Exp. RT): 2.002 (2.002)
Concentration: 1 µg/L
Sample type: QC



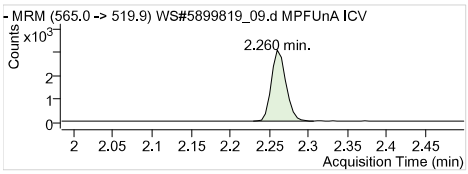


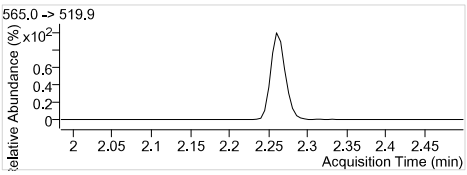
MPFNA Internal Standard
RT (Exp. RT): 2.053 (2.053)
Concentration: 1 µg/L
Sample type: QC



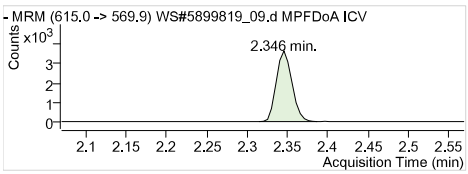


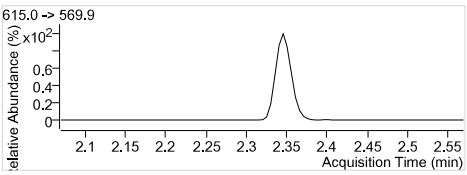
MPFDA Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: QC



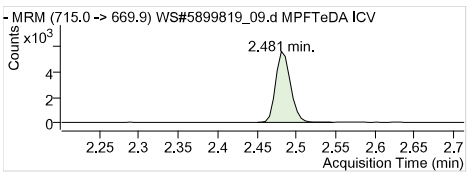


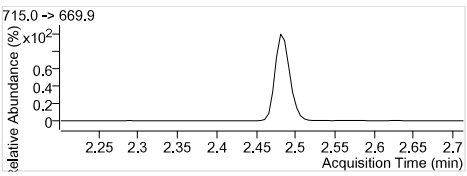
MPFUnA Internal Standard
RT (Exp. RT): 2.260 (2.260)
Concentration: 1 µg/L
Sample type: QC



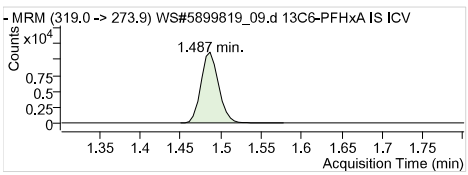


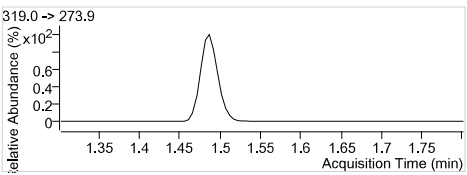
MPFDoA Internal Standard
RT (Exp. RT): 2.346 (2.346)
Concentration: 1 µg/L
Sample type: QC



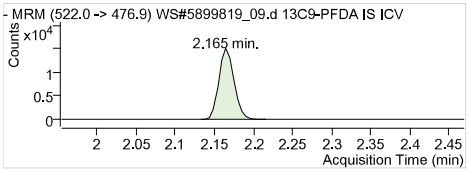


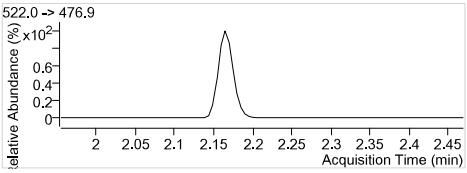
MPFTeDA Internal Standard
RT (Exp. RT): 2.481 (2.481)
Concentration: 1 µg/L
Sample type: QC



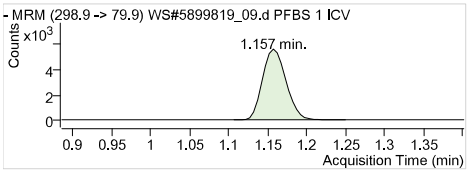


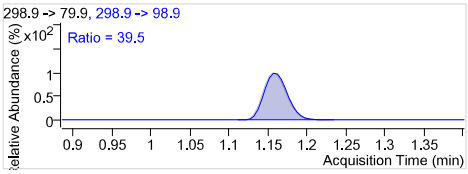
13C6-PFHxA IS Internal Standard
RT (Exp. RT): 1.487 (1.487)
Concentration: 1 µg/L
Sample type: QC



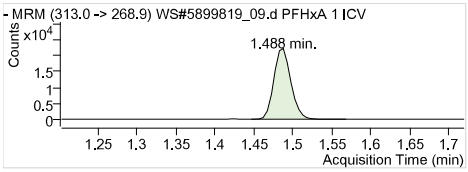


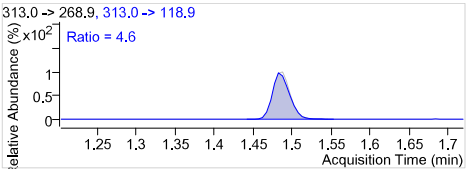
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.165 (2.165)
Concentration: 1 µg/L
Sample type: QC



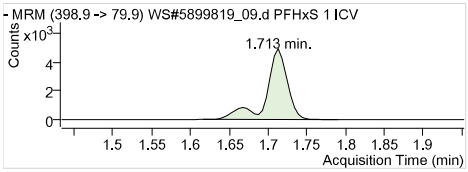


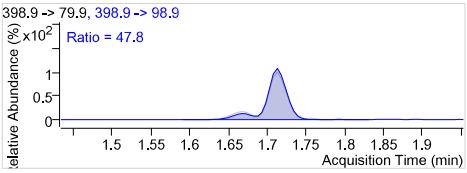
PFBS 1 298.9 -> 79.9
RT (Exp. RT): 1.157 (1.162)
Calc. conc. 20.15 µg/L
Area ratio: 12.15935
Sample type: QC



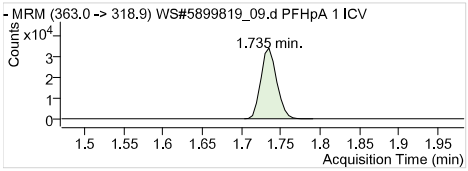


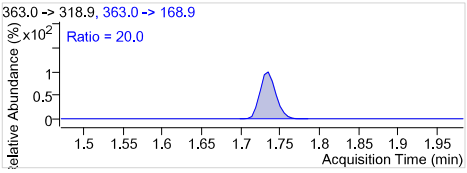
PFHxA 1 313.0 -> 268.9
RT (Exp. RT): 1.488 (1.488)
Calc. conc. 20.34 µg/L
Area ratio: 9.14944
Sample type: QC



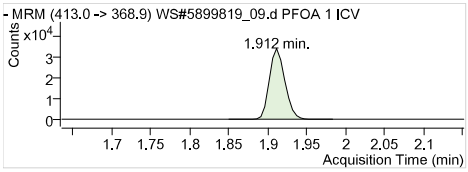


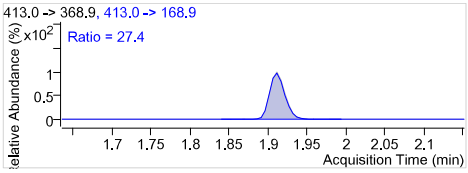
PFHxS 1 398.9 -> 79.9
RT (Exp. RT): 1.713 (1.713)
Calc. conc. 19.81 µg/L
Area ratio: 9.21144
Sample type: QC



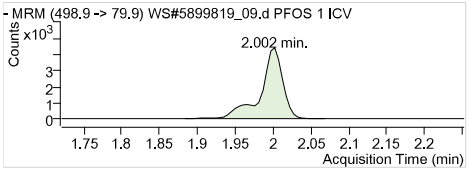


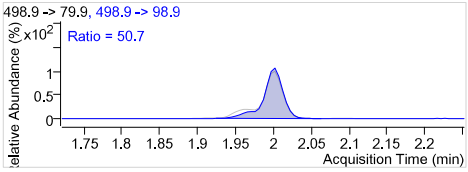
PFHpA 1 363.0 -> 318.9
RT (Exp. RT): 1.735 (1.735)
Calc. conc. 19.93 µg/L
Area ratio: 8.70528
Sample type: QC



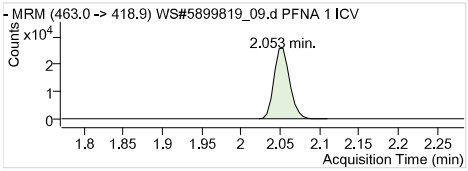


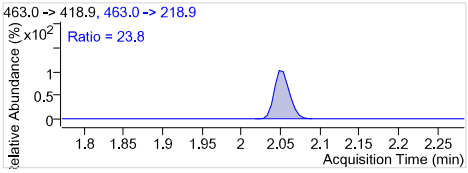
PFOA 1 413.0 -> 368.9
RT (Exp. RT): 1.912 (1.912)
Calc. conc. 21.39 µg/L
Area ratio: 9.38365
Sample type: QC



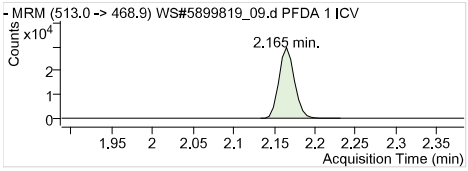


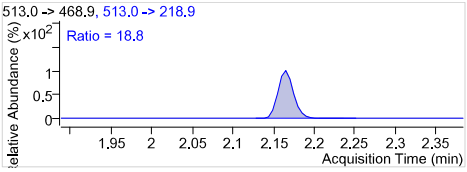
PFOS 1 498.9 -> 79.9
RT (Exp. RT): 2.002 (2.002)
Calc. conc. 19.50 µg/L
Area ratio: 8.07827
Sample type: QC



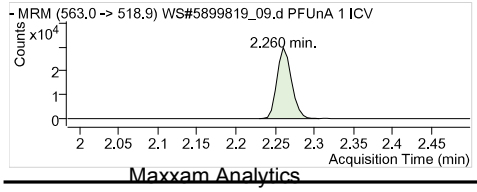


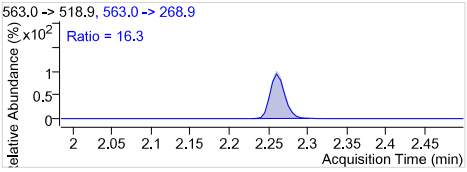
PFNA 1 463.0 -> 418.9
RT (Exp. RT): 2.053 (2.053)
Calc. conc. 20.81 µg/L
Area ratio: 7.56430
Sample type: QC



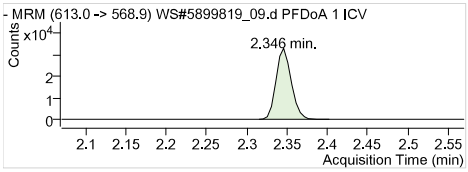


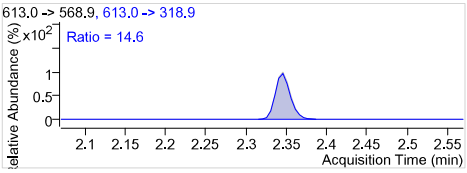
PFDA 1 513.0 -> 468.9
RT (Exp. RT): 2.165 (2.165)
Calc. conc. 19.60 µg/L
Area ratio: 11.58446
Sample type: QC



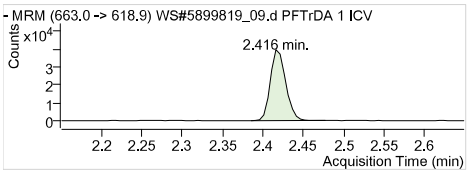


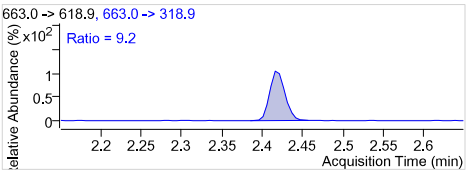
PFUnA 1 563.0 -> 518.9
RT (Exp. RT): 2.260 (2.260)
Calc. conc. 20.74 µg/L
Area ratio: 9.74655
Sample type: QC



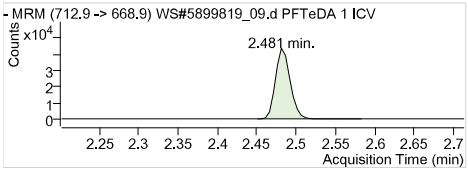


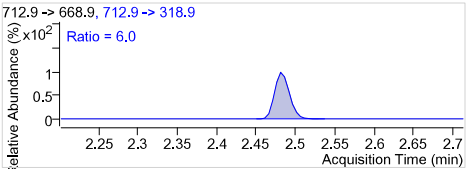
PFDoA 1	613.0 -> 568.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	21.58 µg/L
Area ratio:	8.95915
Sample type:	QC



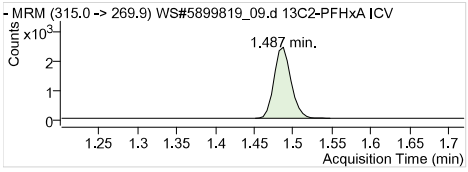


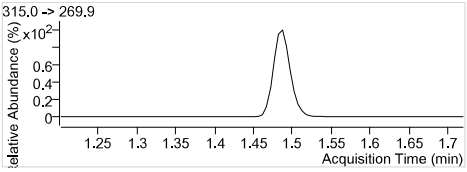
PFTrDA 1	663.0 -> 618.9
RT (Exp. RT):	2.416 (2.416)
Calc. conc.	20.69 µg/L
Area ratio:	7.20567
Sample type:	QC



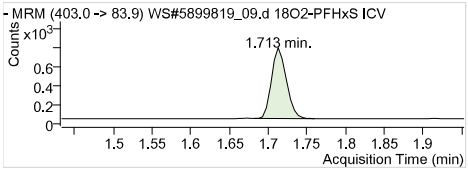


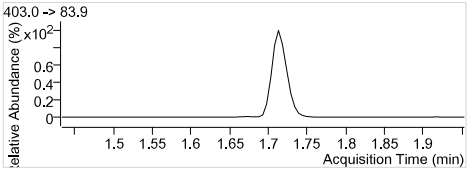
PFTeDA 1	712.9 -> 668.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	21.40 µg/L
Area ratio:	7.80498
Sample type:	QC



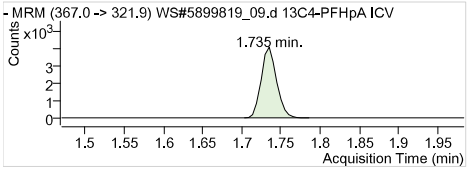


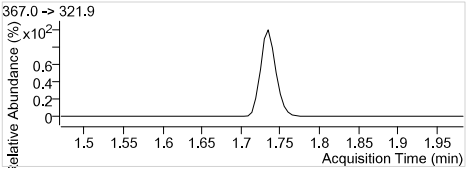
13C2-PFHxA	315.0 -> 269.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	96.63 µg/L
Area ratio:	0.21835
Sample type:	QC



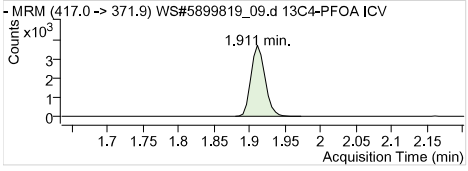


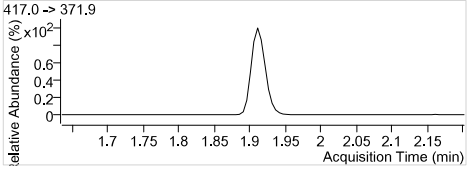
18O2-PFHxS	403.0 -> 83.9
RT (Exp. RT):	1.713 (1.713)
Calc. conc.	100.71 µg/L
Area ratio:	0.05829
Sample type:	QC



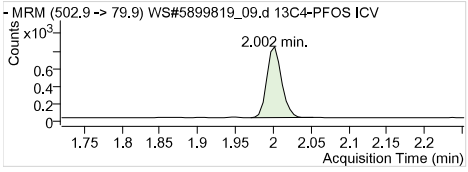


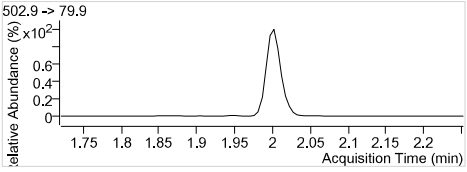
13C4-PFHpA	367.0 -> 321.9
RT (Exp. RT):	1.735 (1.735)
Calc. conc.	99.74 µg/L
Area ratio:	0.32589
Sample type:	QC



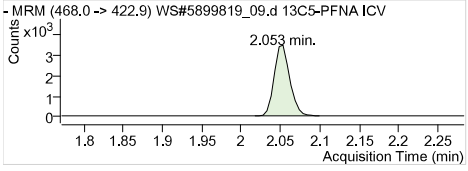


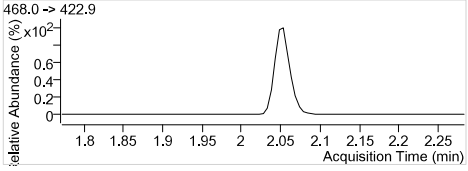
13C4-PFOA	417.0 -> 371.9
RT (Exp. RT):	1.911 (1.911)
Calc. conc.	97.70 µg/L
Area ratio:	0.29862
Sample type:	QC



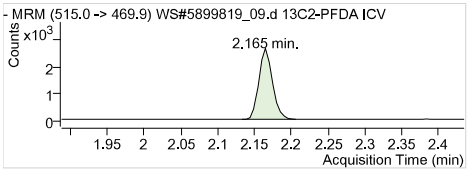


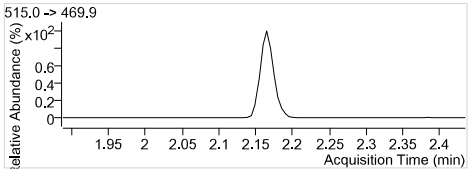
13C4-PFOS	502.9 -> 79.9
RT (Exp. RT):	2.002 (2.002)
Calc. conc.	101.30 µg/L
Area ratio:	0.06467
Sample type:	QC



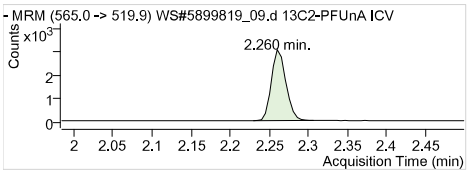


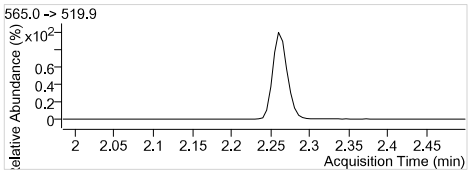
13C5-PFNA	468.0 -> 422.9
RT (Exp. RT):	2.053 (2.053)
Calc. conc.	97.21 µg/L
Area ratio:	0.28290
Sample type:	QC



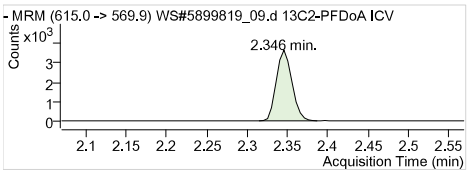


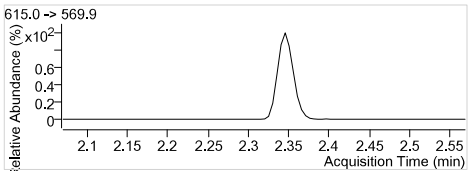
13C2-PFDA	515.0 -> 469.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	97.85 µg/L
Area ratio:	0.16737
Sample type:	QC



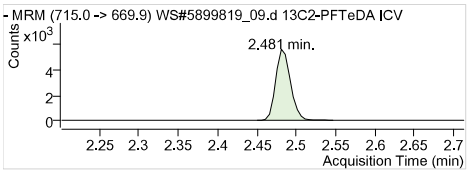


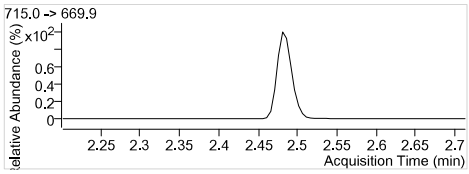
13C2-PFUnA	565.0 -> 519.9
RT (Exp. RT):	2.260 (2.260)
Calc. conc.	96.56 µg/L
Area ratio:	0.19279
Sample type:	QC



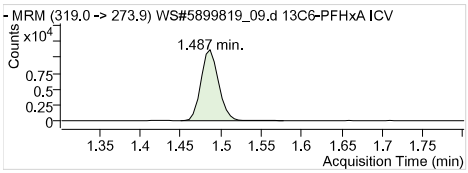


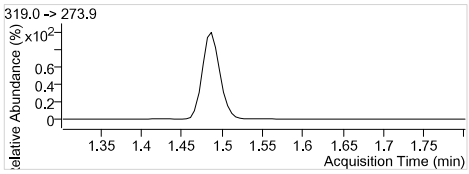
13C2-PFDoA	615.0 -> 569.9
RT (Exp. RT):	2.346 (2.346)
Calc. conc.	92.16 µg/L
Area ratio:	0.23633
Sample type:	QC



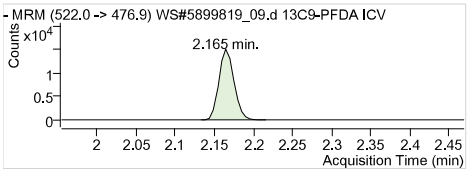


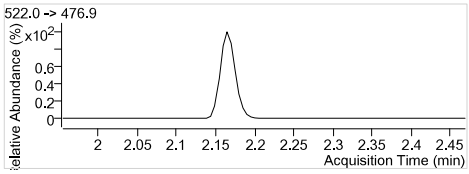
13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.481 (2.481)
Calc. conc.	95.25 µg/L
Area ratio:	0.35612
Sample type:	QC





13C6-PFHxA	319.0 -> 273.9
RT (Exp. RT):	1.487 (1.487)
Calc. conc.	99.99 µg/L
Area ratio:	0
Sample type:	QC





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.165 (2.165)
Calc. conc.	102.00 µg/L
Area ratio:	0
Sample type:	QC

Quantitation Results

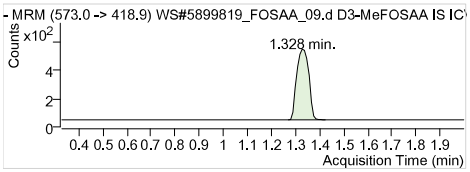
Agilent Technologies

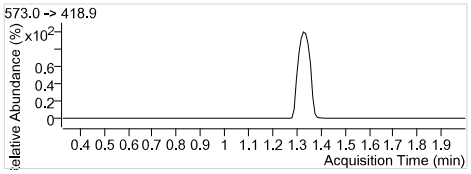
Batch Path	T:\LCMS04\PFC\20181221\WS#5899819_FOSAA\QuantResults\PFC_Water_Low_20181221_WS#5899819_FOSAA_ETOxics

Sample Name	**ICV**	**Instrument**	LCMS04
Data File	WS#5899819_FOSAA_09.d	**Operator**	
Sample Type	QC	**Dilution**	1
Acq. Method	PFC_Water_Low_FOSAA.m	**Position**	P1-A9
Acq. Date	2018/12/21 11:43:48 PM	**Injection Volume**	Per Method
Sample Annotation	-		

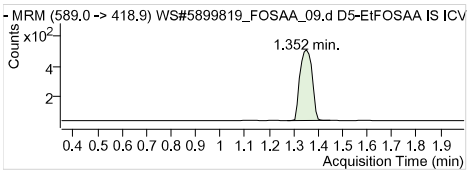
ISTD Compounds	Response	RT	Target conc.		
D3-MeFOSAA IS	1743	1.33	1 µg/L		
D5-EtFOSAA IS	1588	1.35	1 µg/L		
13C9-PFDA IS	21675	0.99	1 µg/L		

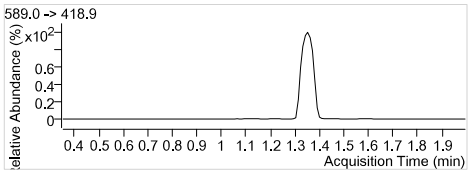
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
MeFOSAA 1	12397	1.33	20.80	20.76 µg/L	99.80
EtFOSAA 1	14074	1.35	20.80	20.08 µg/L	96.54
D3-MeFOSAA	1749	1.33	100.00	95.14 µg/L	95.14
D5-EtFOSAA	1590	1.35	100.00	96.51 µg/L	96.51
13C9-PFDA	21578	0.99	100.00	103.80 µg/L	103.80



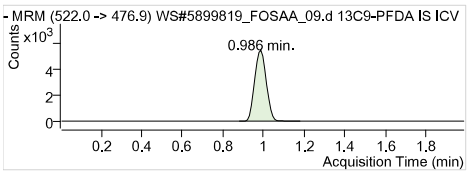


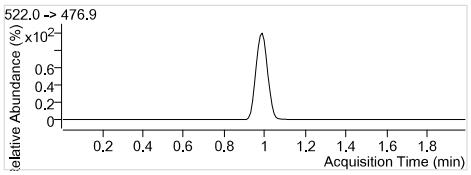
D3-MeFOSAA IS Internal Standard
RT (Exp. RT): 1.328 (1.328)
Concentration: 1 µg/L
Sample type: QC



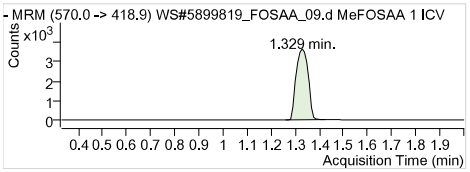


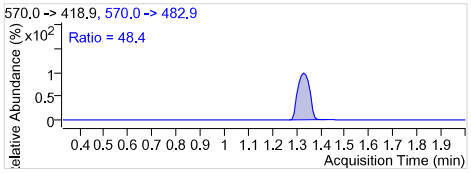
D5-EtFOSAA IS Internal Standard
RT (Exp. RT): 1.352 (1.352)
Concentration: 1 µg/L
Sample type: QC



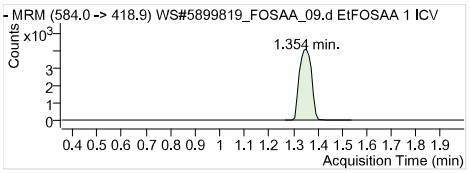


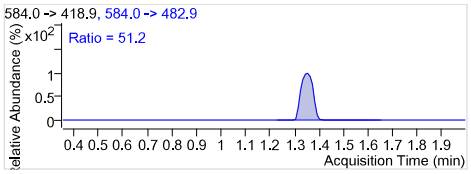
13C9-PFDA IS Internal Standard
RT (Exp. RT): 0.986 (0.986)
Concentration: 1 µg/L
Sample type: QC



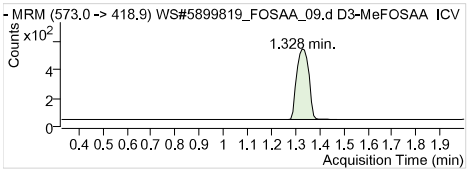


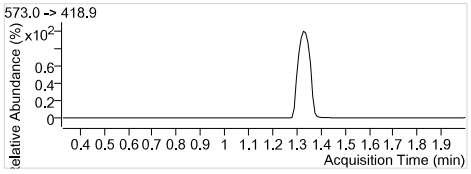
MeFOSAA 1 570.0 -> 418.9
RT (Exp. RT): 1.329 (1.329)
Calc. conc. 20.76 µg/L
Area ratio: 7.11245
Sample type: QC



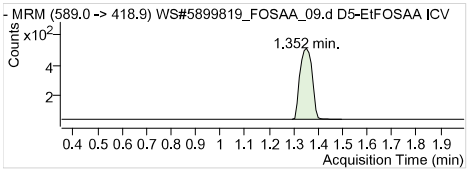


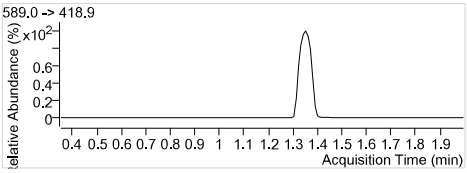
EtFOSAA 1 584.0 -> 418.9
RT (Exp. RT): 1.354 (1.354)
Calc. conc. 20.08 µg/L
Area ratio: 8.86272
Sample type: QC



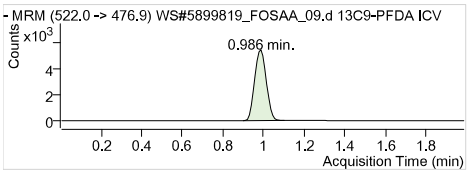


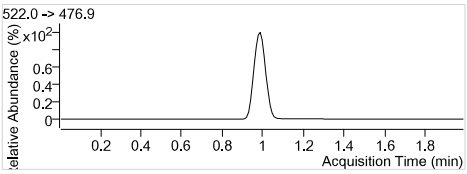
D3-MeFOSAA 573.0 -> 418.9
RT (Exp. RT): 1.328 (1.328)
Calc. conc. 95.14 µg/L
Area ratio: 0.08069
Sample type: QC





D5-EtFOSAA	589.0 -> 418.9
RT (Exp. RT):	1.352 (1.352)
Calc. conc.	96.51 µg/L
Area ratio:	0.07336
Sample type:	QC





13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	0.986 (0.986)
Calc. conc.	103.80 µg/L
Area ratio:	0
Sample type:	QC

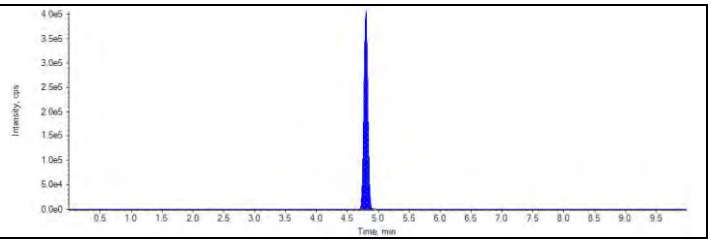
Sample ID	ICV	**Injection Volume (µL)**	1.5
Sample Type	Quality Control	**Injection Vial**	8
Acquisition Date	2019/01/03 1:53:23 PM	**Dilution Factor**	1.00
Acquisition Method	PFC_Water_EPA537.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_181228\WS#5907027.wiff		
Result Table	PFC_Water_181231_5907027_EPA537_MI_EToxics.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)
MPFOA	1790000.	4.80	1.00	-
MPFOS	227000.	5.53	1.00	-
D3-MeFOSAA IS	1440000.	6.34	1.00	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ng/L)	Calc. Conc. (ng/L)	Accuracy (%)
PFBS 1	1210000	2.01	12500.	10000.	80.3
PFHxA 1	2970000	2.90	12500.	12300.	98.8
PFHxS 1	728000	4.07	12500.	11000.	88.4
PFHpA 1	3500000	3.95	12500.	12000.	95.8
PFOA 1	2700000	4.81	12500.	11100.	89.0
PFOS 1	428000	5.54	12500.	10600.	85.0
PFNA 1	1870000	5.51	12500.	13800.	110.0
PFDA 1	2030000	6.11	12500.	11000.	88.1
PFUnA 1	1900000	6.62	12500.	12800.	103.0
PFDoA 1	2040000	7.06	12500.	12600.	101.0
PFTrDA 1	1900000	7.42	12500.	12400.	98.8
PFTeDA 1	2190000	7.75	12500.	12200.	97.8
MeFOSAA 1	2000000	6.36	50000.	42000.	84.1
EtFOSAA 1	1740000	6.61	50000.	42500.	85.0
13C2-PFHxA	2320000	2.89	10000.	10400.	104.0
13C2-PFDA	1560000	6.11	10000.	9520.	95.2
D5-EtFOSAA	1350000	6.60	40000.	45900.	115.0

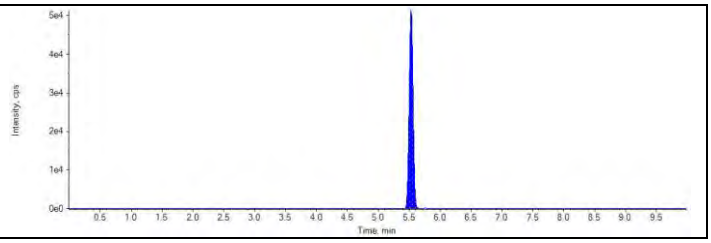
MPFOA (Internal Standard)

RT (Exp. RT): 4.80(4.84) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



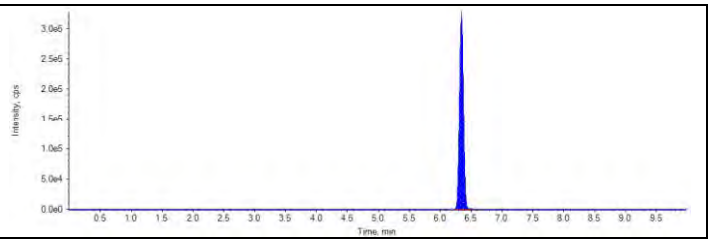
MPFOS (Internal Standard)

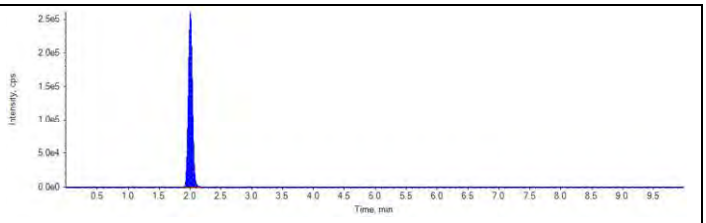
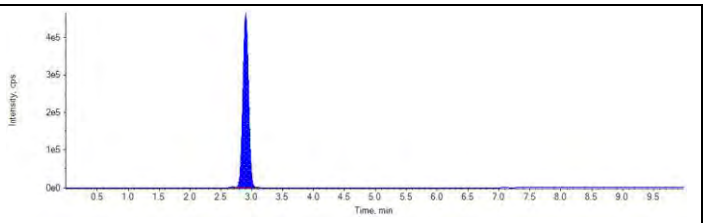
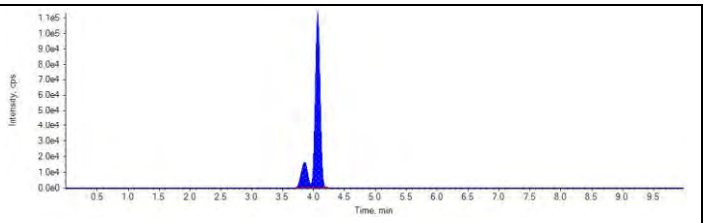
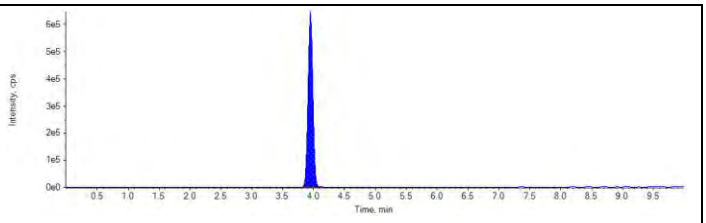
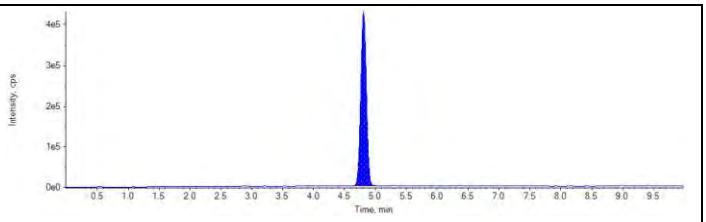
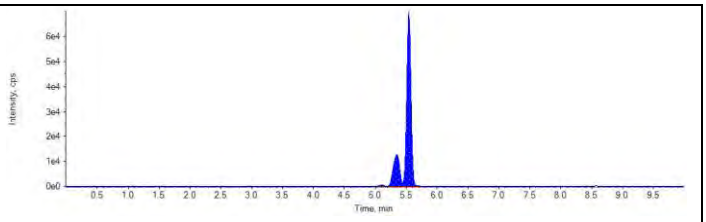
RT (Exp. RT): 5.53(5.38) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



D3-MeFOSAA IS (Internal Standard)

RT (Exp. RT): 6.34(6.43) min
Concentration: 1.00 ng/L
Sample Type: (Quality Control)



PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 2.01 (1.85) min Calculated Conc: 10000. ng/L Area Ratio: 5.33 Sample Type: (Quality Control)	
PFHxA 1 (313.000/269.000 Da) RT (Exp. RT): 2.90 (2.97) min Calculated Conc: 12300. ng/L Area Ratio: 1.67 Sample Type: (Quality Control)	
PFHxS 1 (398.900/79.900 Da) RT (Exp. RT): 4.07 (4.00) min Calculated Conc: 11000. ng/L Area Ratio: 3.21 Sample Type: (Quality Control)	
PFHpA 1 (363.000/319.000 Da) RT (Exp. RT): 3.95 (3.91) min Calculated Conc: 12000. ng/L Area Ratio: 1.96 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 4.81 (4.89) min Calculated Conc: 11100. ng/L Area Ratio: 1.51 Sample Type: (Quality Control)	
PFOS 1 (498.800/79.900 Da) RT (Exp. RT): 5.54 (5.50) min Calculated Conc: 10600. ng/L Area Ratio: 1.89 Sample Type: (Quality Control)	

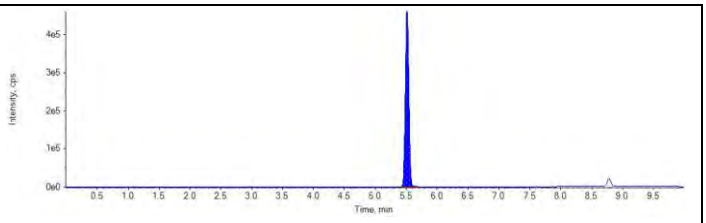
PFNA 1 (462.900/419.200 Da)

RT (Exp. RT): 5.51 (5.49) min

Calculated Conc: 13800. ng/L

Area Ratio: 1.05

Sample Type: (Quality Control)



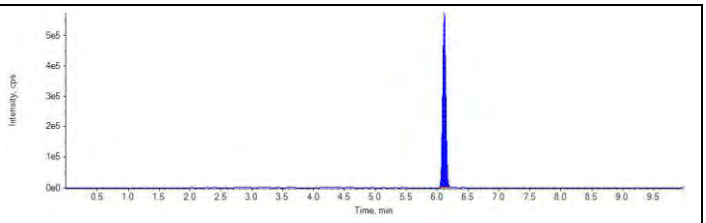
PFDA 1 (513.000/469.100 Da)

RT (Exp. RT): 6.11 (6.07) min

Calculated Conc: 11000. ng/L

Area Ratio: 1.14

Sample Type: (Quality Control)



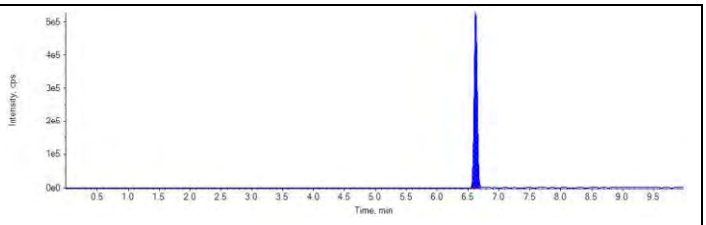
PFUnA 1 (562.900/519.000 Da)

RT (Exp. RT): 6.62 (6.62) min

Calculated Conc: 12800. ng/L

Area Ratio: 1.06

Sample Type: (Quality Control)



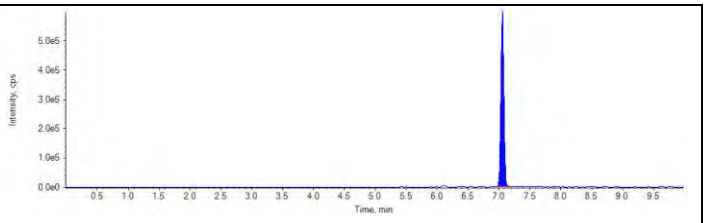
PFDoA 1 (612.900/569.000 Da)

RT (Exp. RT): 7.06 (7.04) min

Calculated Conc: 12600. ng/L

Area Ratio: 1.14

Sample Type: (Quality Control)



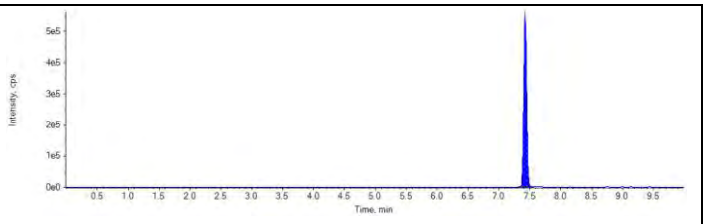
PFTrDA 1 (663.000/619.000 Da)

RT (Exp. RT): 7.42 (7.38) min

Calculated Conc: 12400. ng/L

Area Ratio: 1.06

Sample Type: (Quality Control)



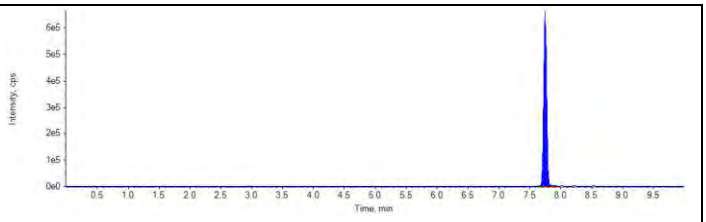
PFTeDA 1 (713.000/669.000 Da)

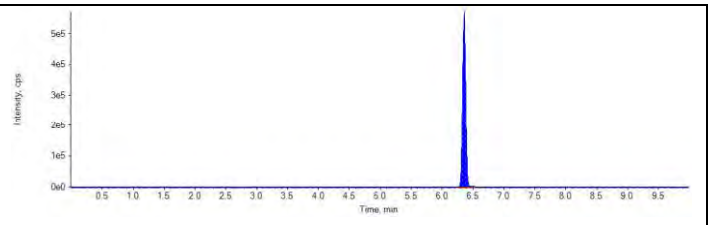
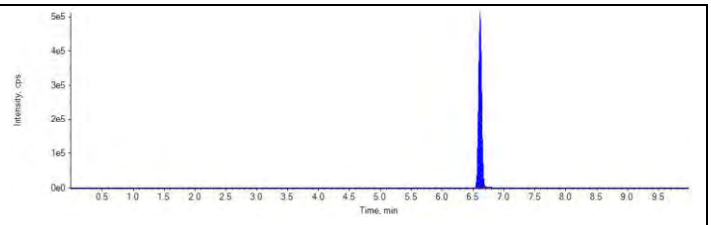
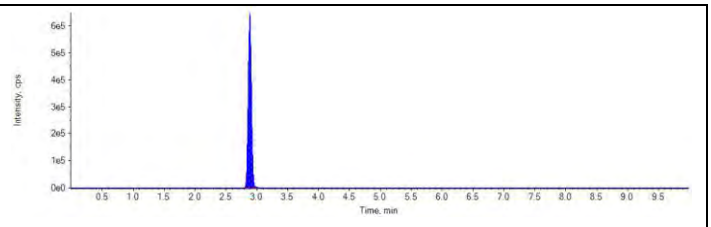
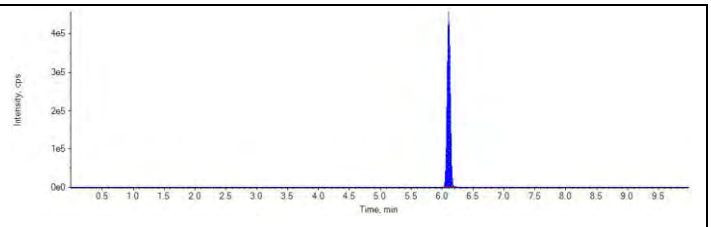
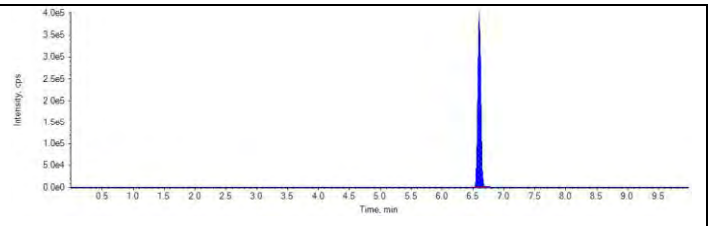
RT (Exp. RT): 7.75 (7.74) min

Calculated Conc: 12200. ng/L

Area Ratio: 1.22

Sample Type: (Quality Control)



MeFOSAA 1 (570.100/419.100 Da) RT (Exp. RT): 6.36 (6.29) min Calculated Conc: 42000. ng/L Area Ratio: 1.40 Sample Type: (Quality Control)	
EtFOSAA 1 (584.100/419.100 Da) RT (Exp. RT): 6.61 (6.66) min Calculated Conc: 42500. ng/L Area Ratio: 1.21 Sample Type: (Quality Control)	
13C2-PFHxA (314.900/270.000 Da) RT (Exp. RT): 2.89 (2.96) min Calculated Conc: 10400. ng/L Area Ratio: 1.30 Sample Type: (Quality Control)	
13C2-PFDA (514.900/470.000 Da) RT (Exp. RT): 6.11 (6.19) min Calculated Conc: 9520. ng/L Area Ratio: 0.872 Sample Type: (Quality Control)	
D5-EtFOSAA (589.200/419.000 Da) RT (Exp. RT): 6.60 (6.68) min Calculated Conc: 45900. ng/L Area Ratio: 0.938 Sample Type: (Quality Control)	

Quantitation Results

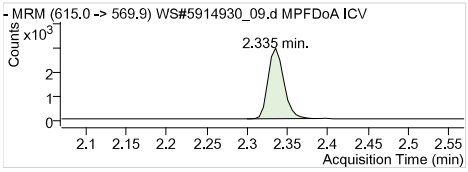
Agilent Technologies

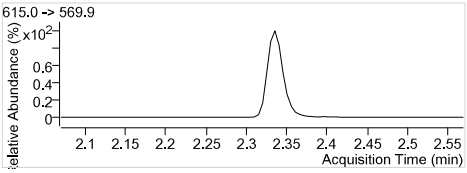
Batch Path	T:\LCMS04\PFC\20190105\WS#5914930\QuantResults\PFC_Water_Low_190105_WS#5914930_EToxics

Sample Name	**ICV**	**Instrument**	LCMS04
Data File	WS#5914930_09.d	**Operator**	
Sample Type	QC	**Dilution**	1
Acq. Method	PFC_Water_Low.m	**Position**	P3-D8
Acq. Date	2019/01/05 8:19:59 PM	**Injection Volume**	Per Method
Sample Annotation	-		

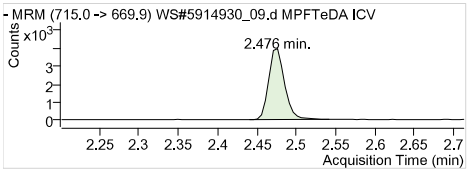
ISTD Compounds	Response	RT	Target conc.		
MPFDoA	3987	2.34	1 µg/L		
MPFTeDA	5512	2.48	1 µg/L		
13C9-PFDA IS	14081	2.15	1 µg/L		

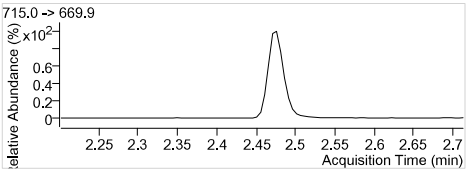
Compound	Response	RT	Target Conc.	Calc. Conc.	Accuracy
PFDoA 1	34599	2.33	20.80	18.52 µg/L	89.02
PFTeDA 1	44485	2.48	20.80	18.80 µg/L	90.38
13C2-PFDoA	3987	2.34	100.00	102.19 µg/L	102.19
13C2-PFTeDA	5512	2.48	100.00	103.45 µg/L	103.45
13C9-PFDA	14081	2.15	100.00	98.48 µg/L	98.48



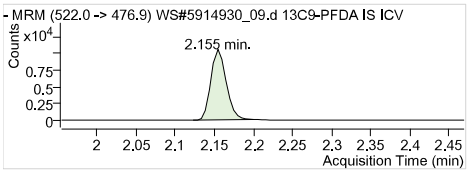


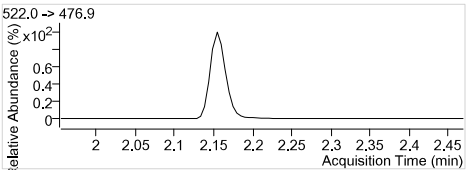
MPFDoA Internal Standard
RT (Exp. RT): 2.335 (2.335)
Concentration: 1 µg/L
Sample type: QC



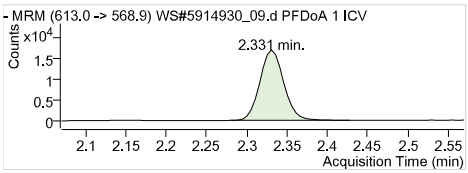


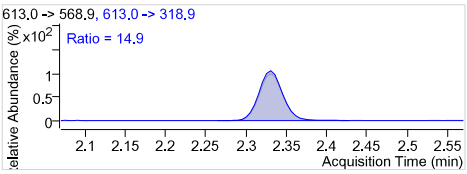
MPFTeDA Internal Standard
RT (Exp. RT): 2.476 (2.476)
Concentration: 1 µg/L
Sample type: QC



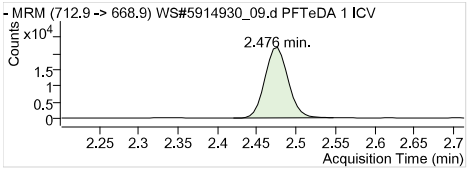


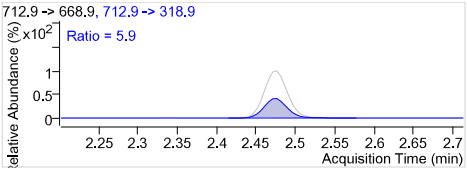
13C9-PFDA IS Internal Standard
RT (Exp. RT): 2.155 (2.155)
Concentration: 1 µg/L
Sample type: QC



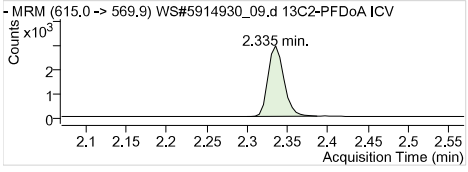


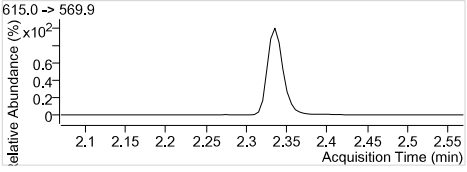
PFDoA 1 613.0 -> 568.9
RT (Exp. RT): 2.331 (2.336)
Calc. conc. 18.52 µg/L
Area ratio: 8.67795
Sample type: QC



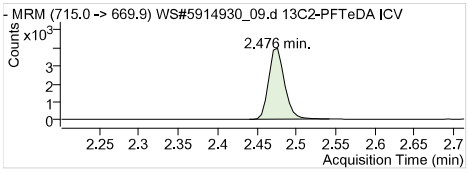


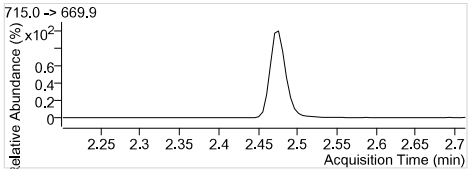
PFTeDA 1 712.9 -> 668.9
RT (Exp. RT): 2.476 (2.476)
Calc. conc. 18.80 µg/L
Area ratio: 8.07057
Sample type: QC



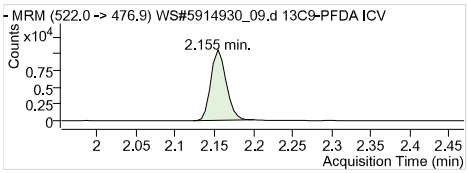


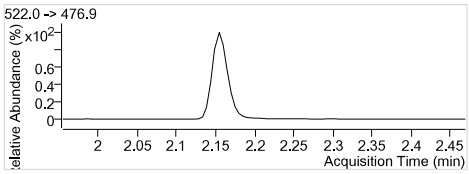
13C2-PFDoA 615.0 -> 569.9
RT (Exp. RT): 2.335 (2.335)
Calc. conc. 102.19 µg/L
Area ratio: 0.28315
Sample type: QC





13C2-PFTeDA	715.0 -> 669.9
RT (Exp. RT):	2.476 (2.476)
Calc. conc.	103.45 µg/L
Area ratio:	0.39145
Sample type:	QC

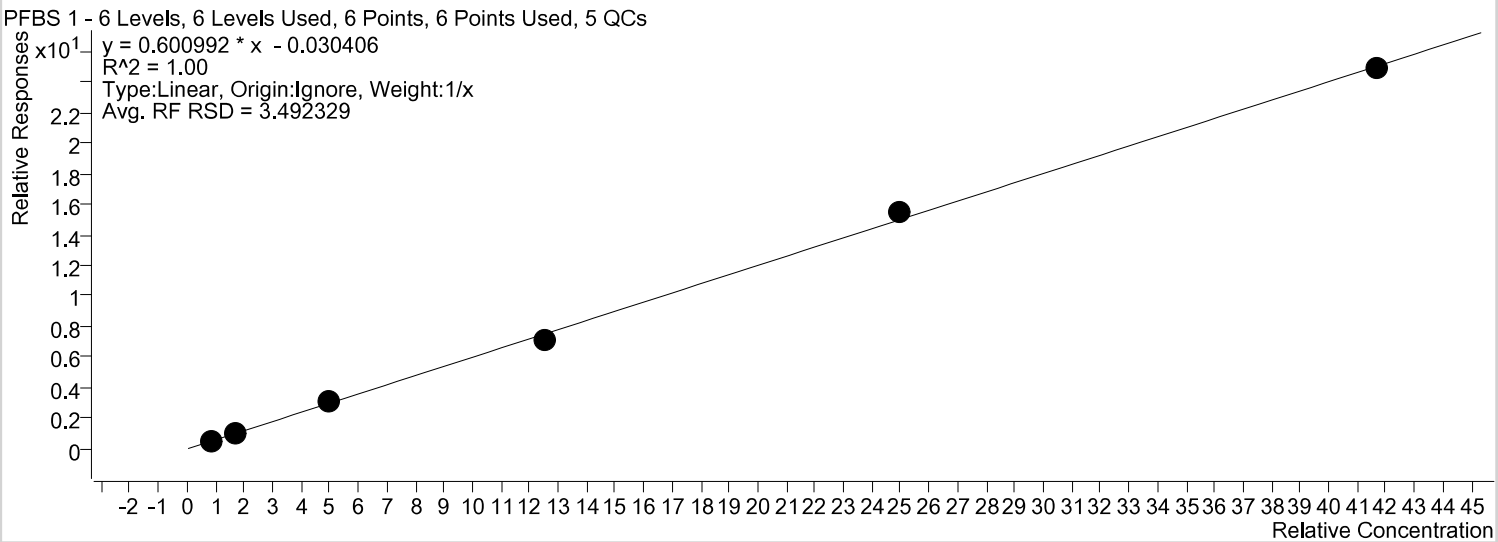




13C9-PFDA	522.0 -> 476.9
RT (Exp. RT):	2.155 (2.155)
Calc. conc.	98.48 µg/L
Area ratio:	0
Sample type:	QC

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

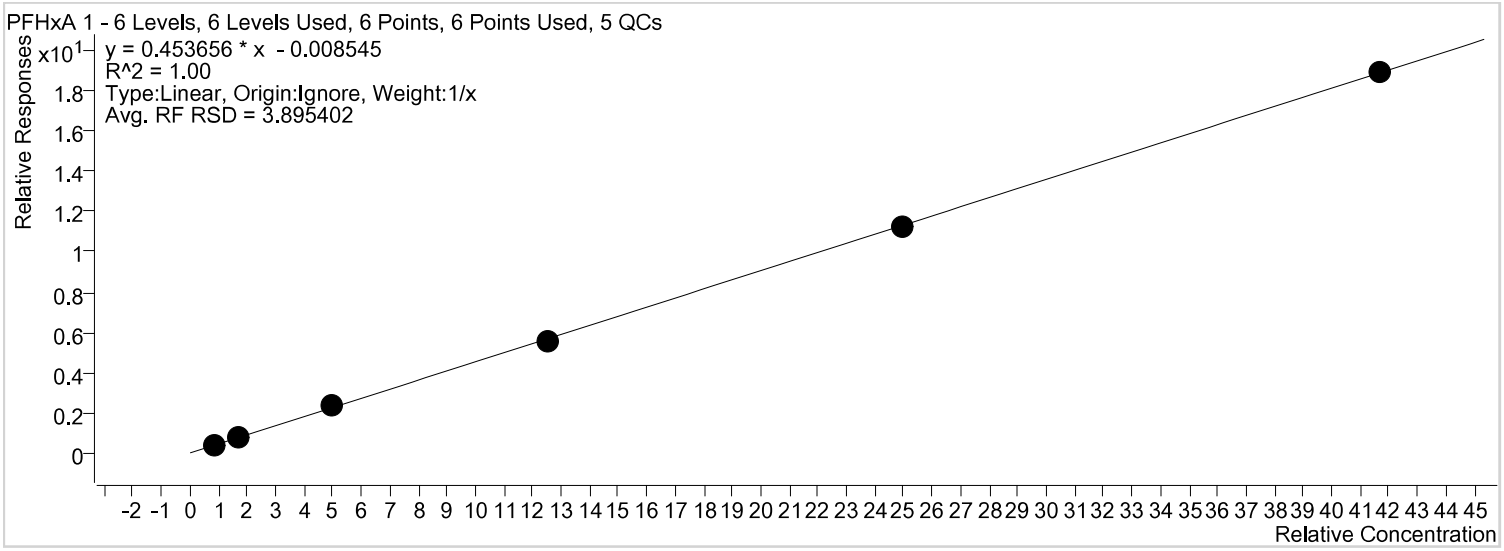
Analyte: PFBS 1
Internal Standard: MPFHxS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.84	510	0.5748	152	101.7
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.69	1011	0.5796	255	99.4
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.08	3140	0.6050	754	101.7
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	11.80	7617	0.5647	1049	94.4
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	25.82	15456	0.6195	1637	103.3
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.50	27025	0.5973	2521	99.5

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

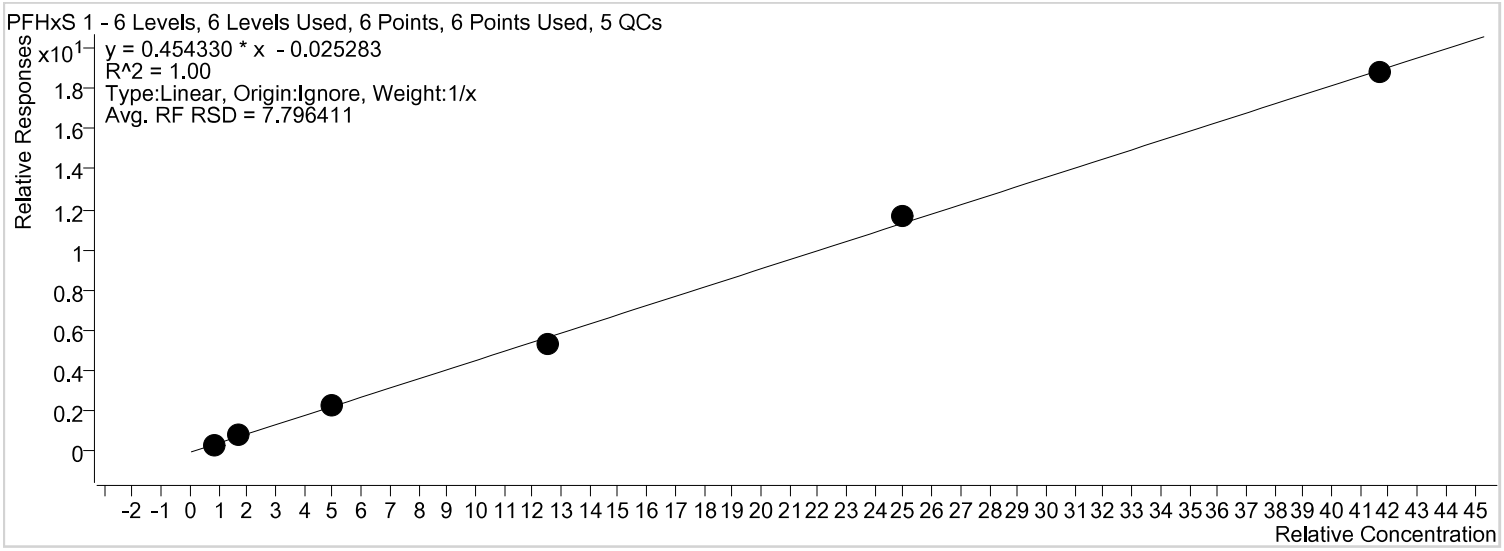
Analyte: PFHxA 1
Internal Standard: MPFHxA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.85	1469	0.4553	104	102.6
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.59	2820	0.4205	255	93.8
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.25	8951	0.4747	439	105.0
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.33	22298	0.4469	936	98.7
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.93	44595	0.4521	2374	99.7
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.77	77582	0.4542	3489	100.2

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

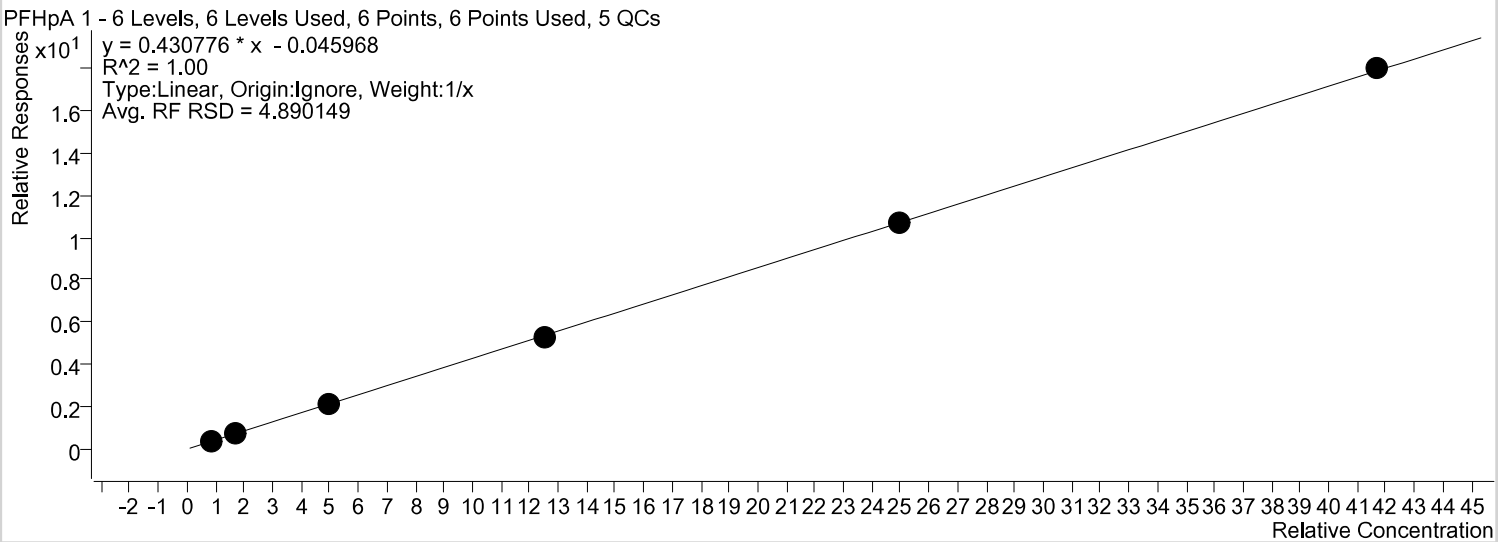
Analyte: PFHxS 1
Internal Standard: MPFHxS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.76	341	0.3843	217	91.3
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.85	836	0.4793	348	108.8
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.17	2411	0.4645	476	103.4
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	11.80	5758	0.4269	1060	94.4
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	25.67	11614	0.4655	880	102.7
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.48	20422	0.4514	954	99.5

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

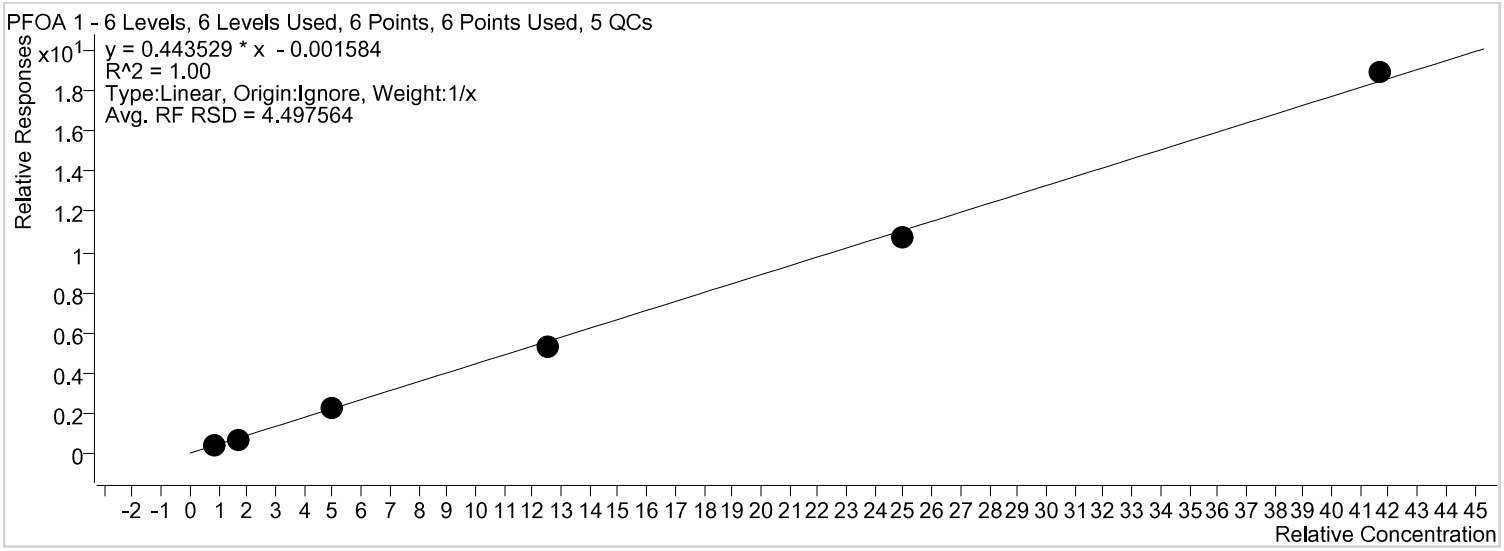
Analyte: PFHpA 1
Internal Standard: MPFHpA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.86	1950	0.3910	41	103.6
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.64	3798	0.3875	70	96.2
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.10	12201	0.4306	303	102.1
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.21	30347	0.4171	486	97.7
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.91	62150	0.4274	1279	99.6
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	42.01	104514	0.4329	1624	100.7

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

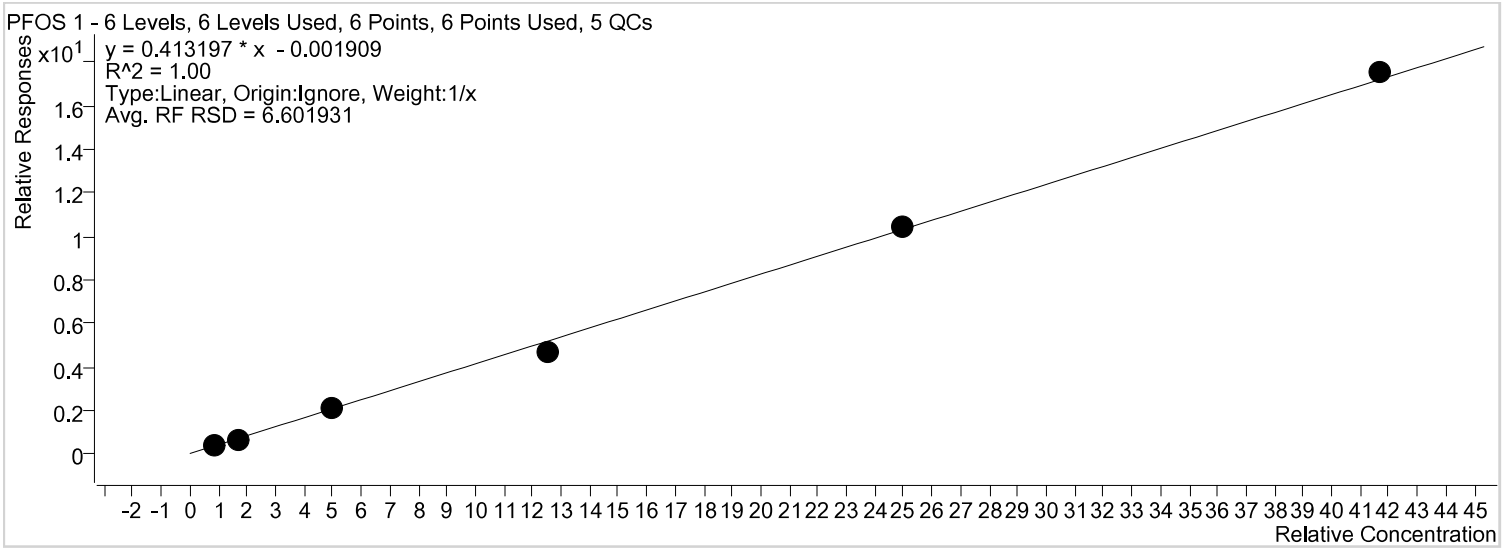
Analyte: PFOA 1
Internal Standard: MPFOA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.87	2033	0.4656	44	105.4
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.61	3854	0.4188	101	94.6
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.21	11787	0.4615	322	104.1
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.03	28862	0.4268	592	96.3
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.28	58489	0.4306	1763	97.1
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	42.73	102072	0.4545	1596	102.5

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

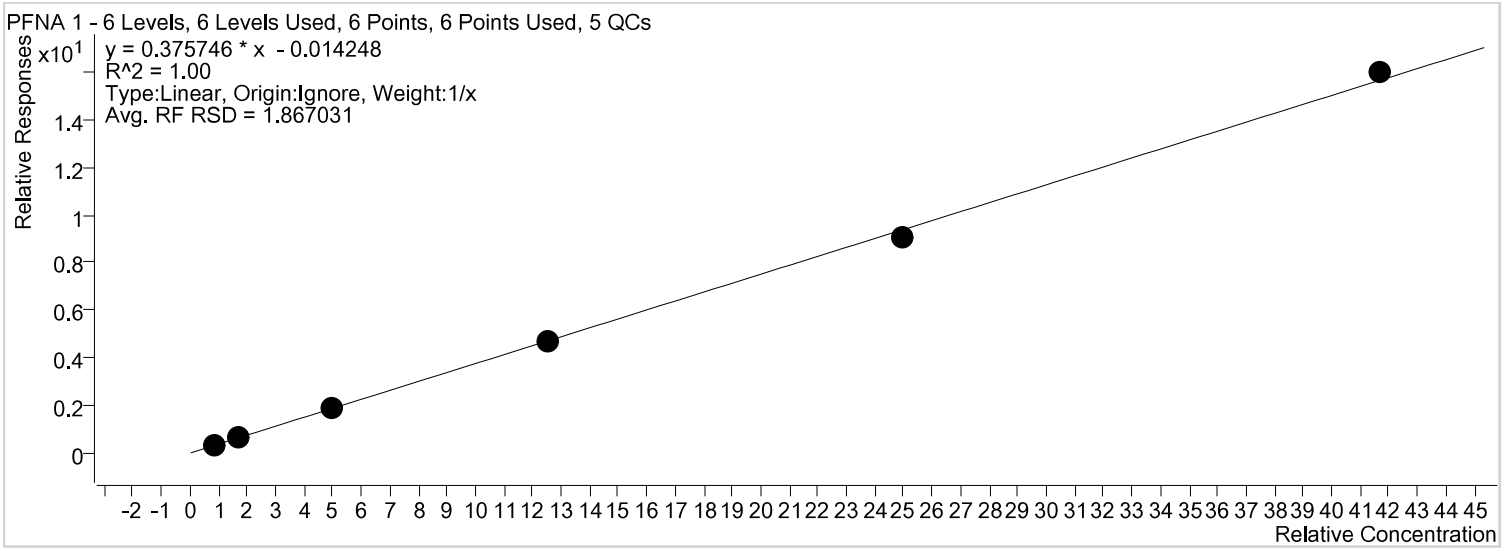
Analyte: PFOS 1
Internal Standard: MPFOS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.92	417	0.4555	88	110.8
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.63	752	0.3946	76	95.8
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	4.96	2400	0.4099	366	99.3
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	11.35	5867	0.3749	333	90.8
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	25.35	11751	0.4189	1123	101.4
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	42.52	20993	0.4213	1382	102.0

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

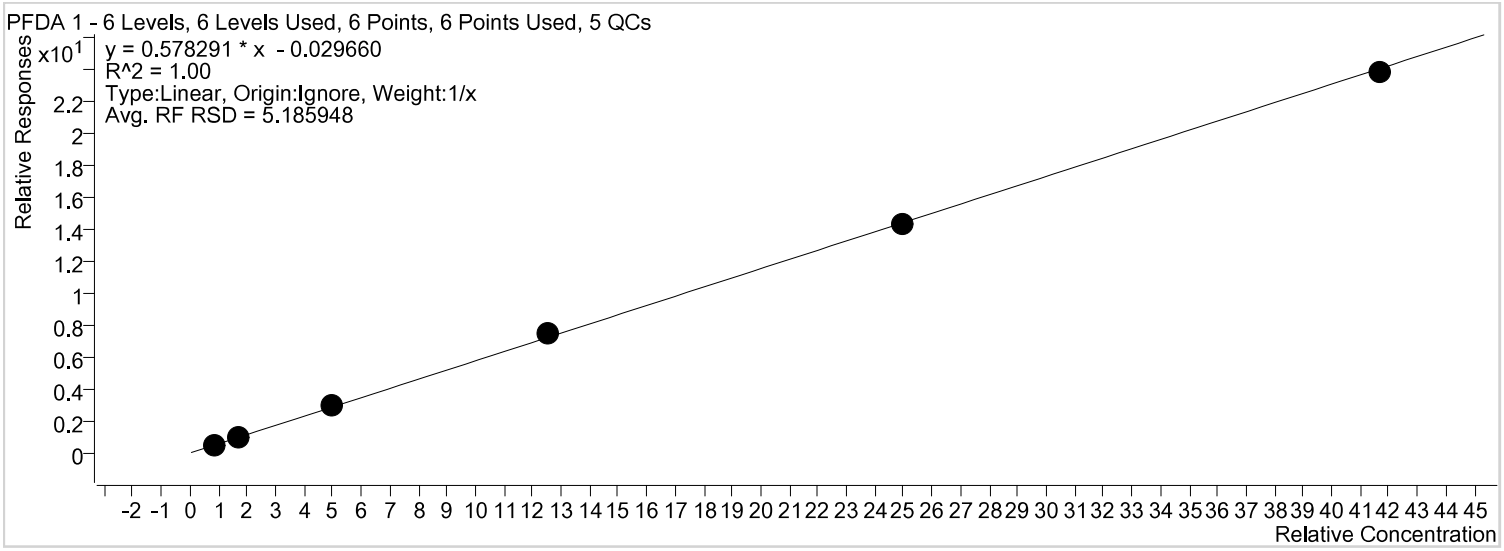
Analyte: PFNA 1
Internal Standard: MPFNA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.86	1515	0.3713	37	103.4
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.70	2980	0.3668	42	99.8
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	4.93	9052	0.3674	179	98.5
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.37	22755	0.3708	334	99.0
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.26	45125	0.3640	749	97.0
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	42.62	80971	0.3837	1135	102.2

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

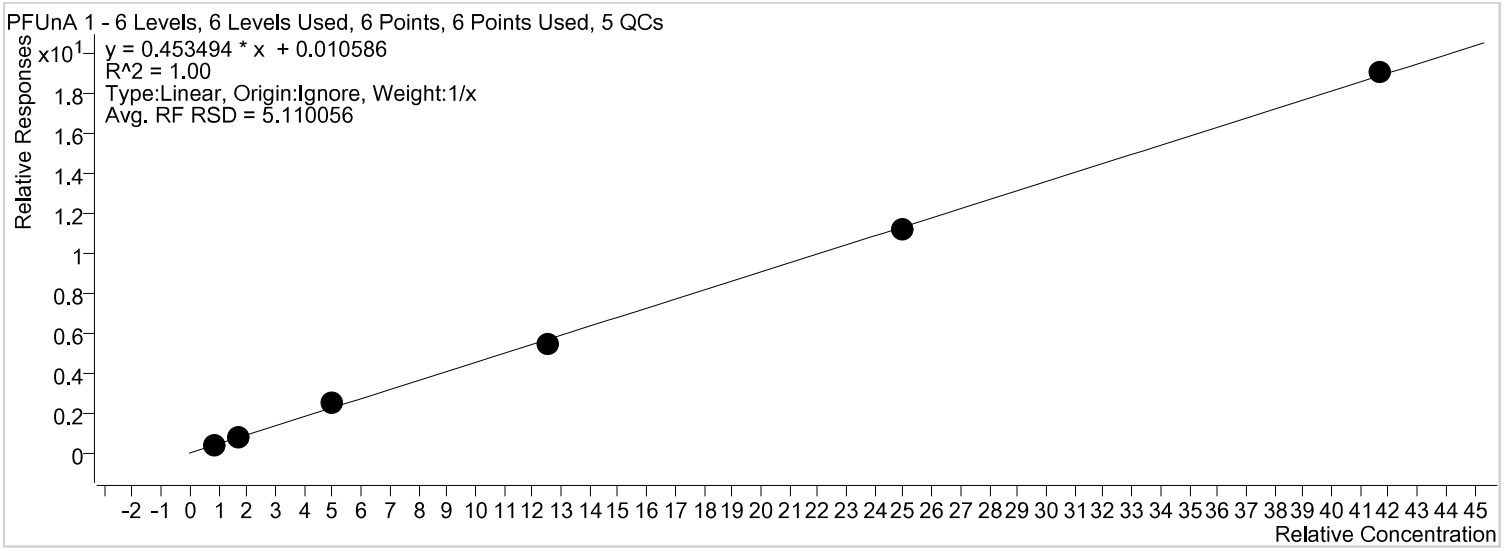
Analyte: PFDA 1
Internal Standard: MPFDA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.84	1600	0.5498	66	101.3
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.58	3129	0.5188	89	92.7
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.21	10075	0.5963	373	104.1
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.91	25362	0.5948	773	103.3
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.88	51561	0.5743	1315	99.5
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.32	88319	0.5723	2824	99.1

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

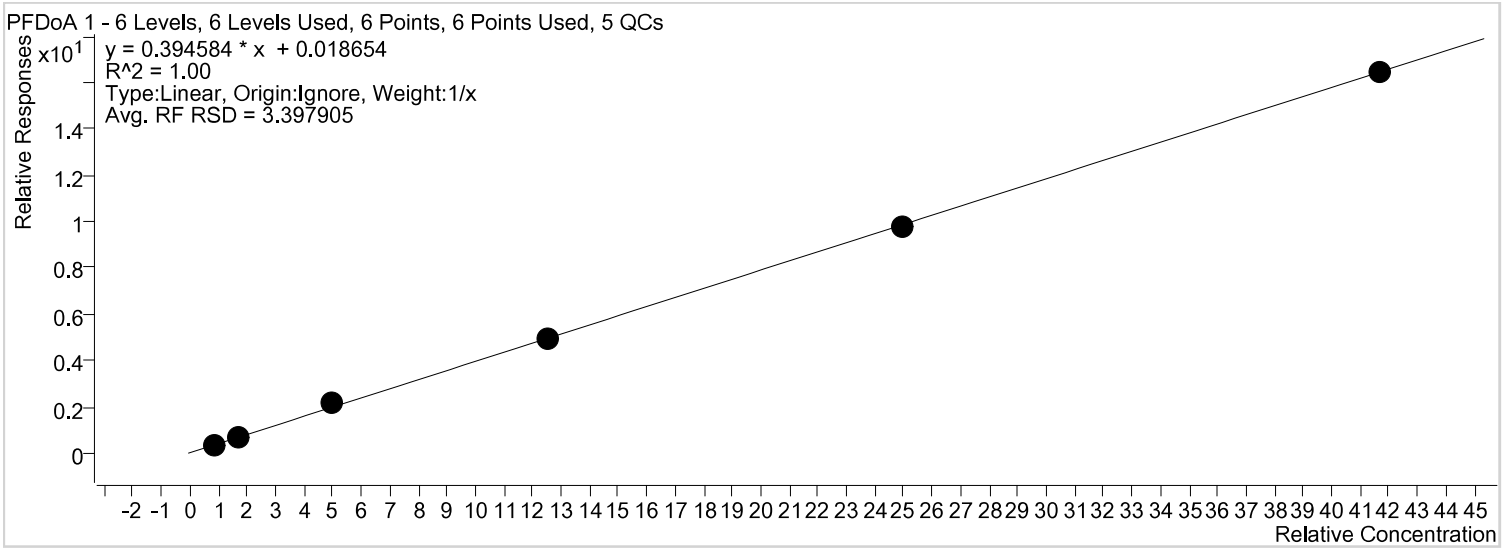
Analyte: PFUnA 1
Internal Standard: MPFUnA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.83	1554	0.4687	41	100.5
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.60	3001	0.4332	74	94.2
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.46	9611	0.4971	271	109.1
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.07	23419	0.4387	558	96.5
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.66	46865	0.4478	1322	98.7
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	42.11	81293	0.4582	2340	101.0

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

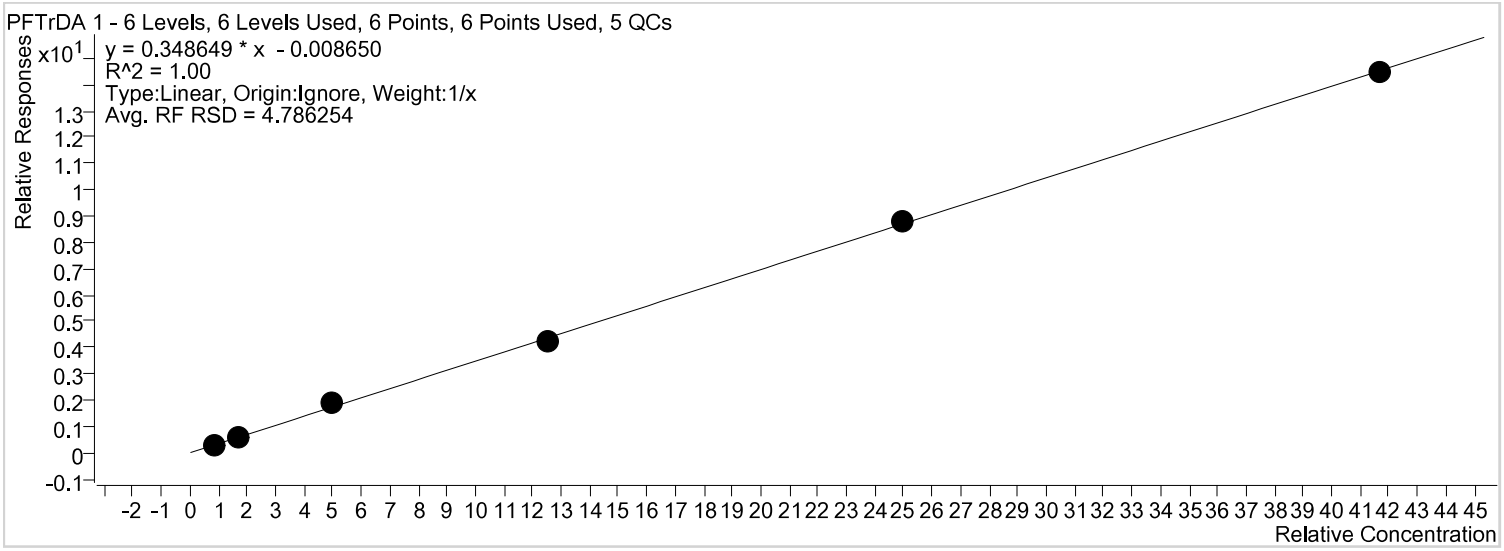
Analyte: PFDoA 1
Internal Standard: MPFDoA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.81	1751	0.4096	44	98.1
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.64	3498	0.3907	76	96.2
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.34	10860	0.4254	247	106.9
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.46	26154	0.3948	605	99.7
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	24.80	52801	0.3921	967	99.2
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.68	92781	0.3948	1228	100.0

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

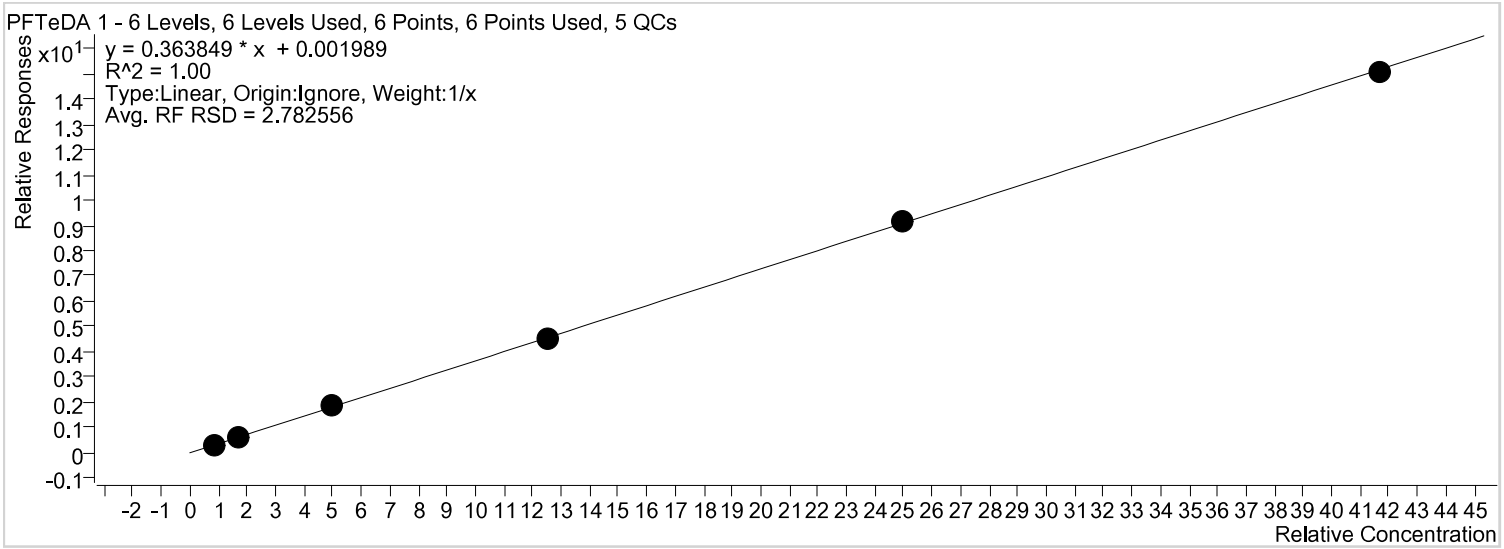
Analyte: PFTrDA 1
Internal Standard: MPFTeDA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.82	2134	0.3350	42	99.1
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.62	4172	0.3266	84	95.1
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.40	13463	0.3745	227	107.9
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.21	32836	0.3399	498	97.7
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	25.14	66574	0.3503	1044	100.6
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.54	116414	0.3471	1560	99.6

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

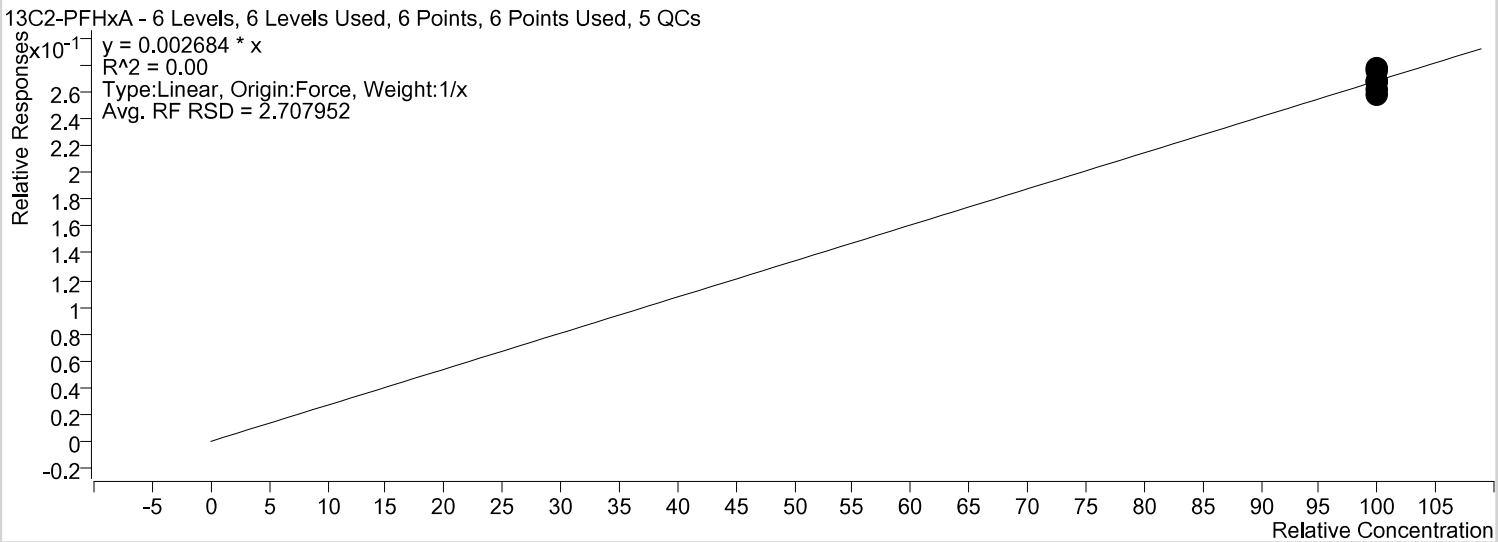
Analyte: PFTeDA 1
Internal Standard: MPFTeDA



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	0.83	0.82	2294	0.3601	45	98.3
STD 2	STD 2	x	2018/12/21 7:31:48 PM	1.70	1.65	4525	0.3542	68	97.0
STD 3	STD 3	x	2018/12/21 7:36:43 PM	5.00	5.27	13791	0.3837	164	105.3
STD 4	STD 4	x	2018/12/21 7:41:38 PM	12.50	12.41	34926	0.3615	516	99.3
STD 5	STD 5	x	2018/12/21 7:46:33 PM	25.00	25.17	69652	0.3664	838	100.7
STD 6	STD 6	x	2018/12/21 7:51:27 PM	41.70	41.41	121186	0.3614	1412	99.3

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

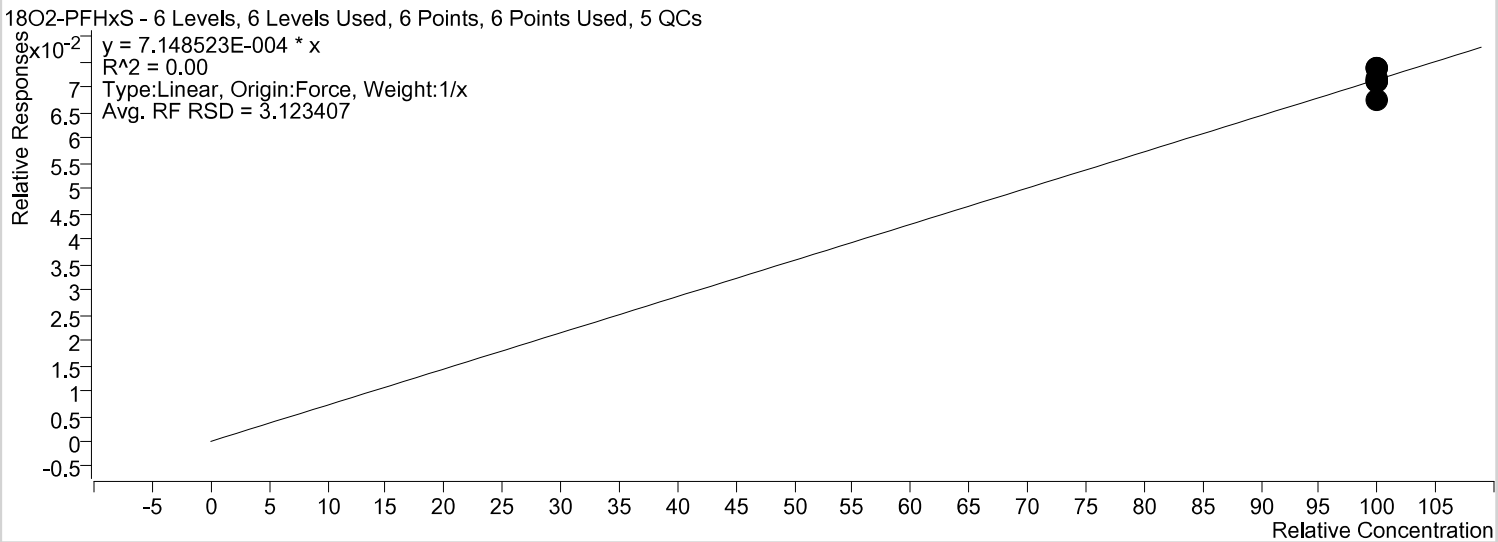
Analyte: 13C2-PFHxA
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	96.38	3887	0.0026	806	96.4
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	102.60	3945	0.0028	990	102.6
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	99.84	3771	0.0027	920	99.8
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	98.00	3992	0.0026	423	98.0
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	99.62	3946	0.0027	528	99.6
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	103.55	4096	0.0028	706	103.6

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

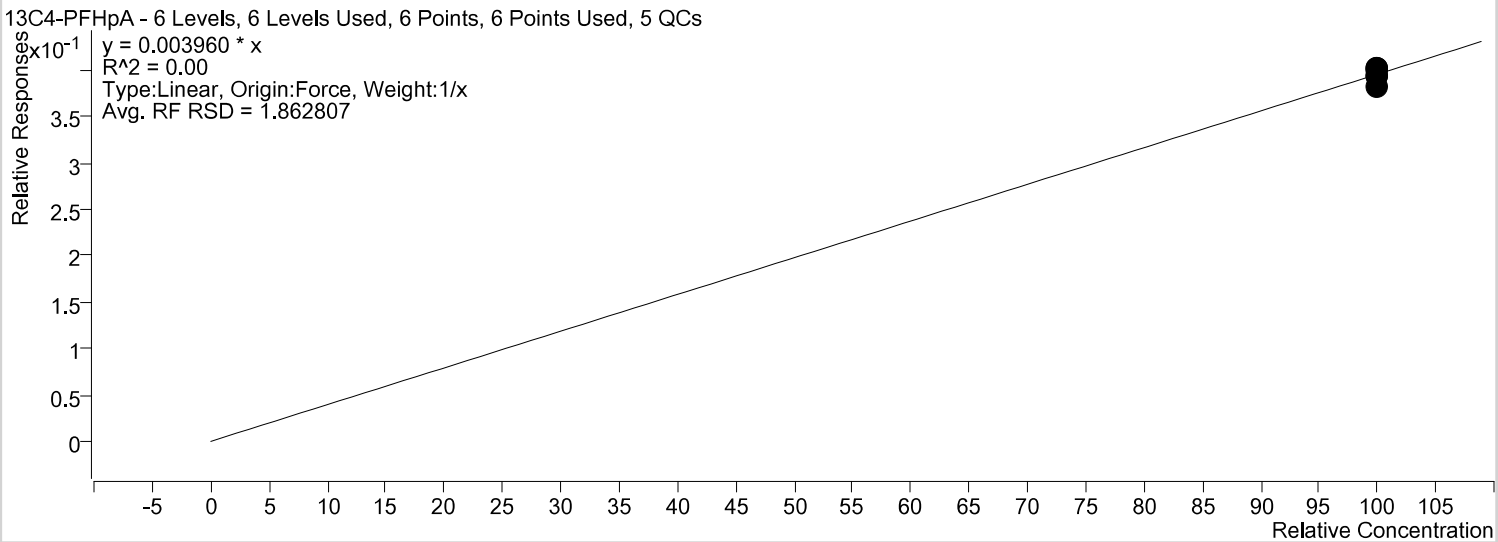
Analyte: 18O2-PFHxS
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	99.53	1069	0.0007	626	99.5
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	100.20	1026	0.0007	526	100.2
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	103.19	1038	0.0007	1707	103.2
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	99.47	1079	0.0007	245	99.5
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	94.61	998	0.0007	295	94.6
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	103.00	1085	0.0007	427	103.0

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

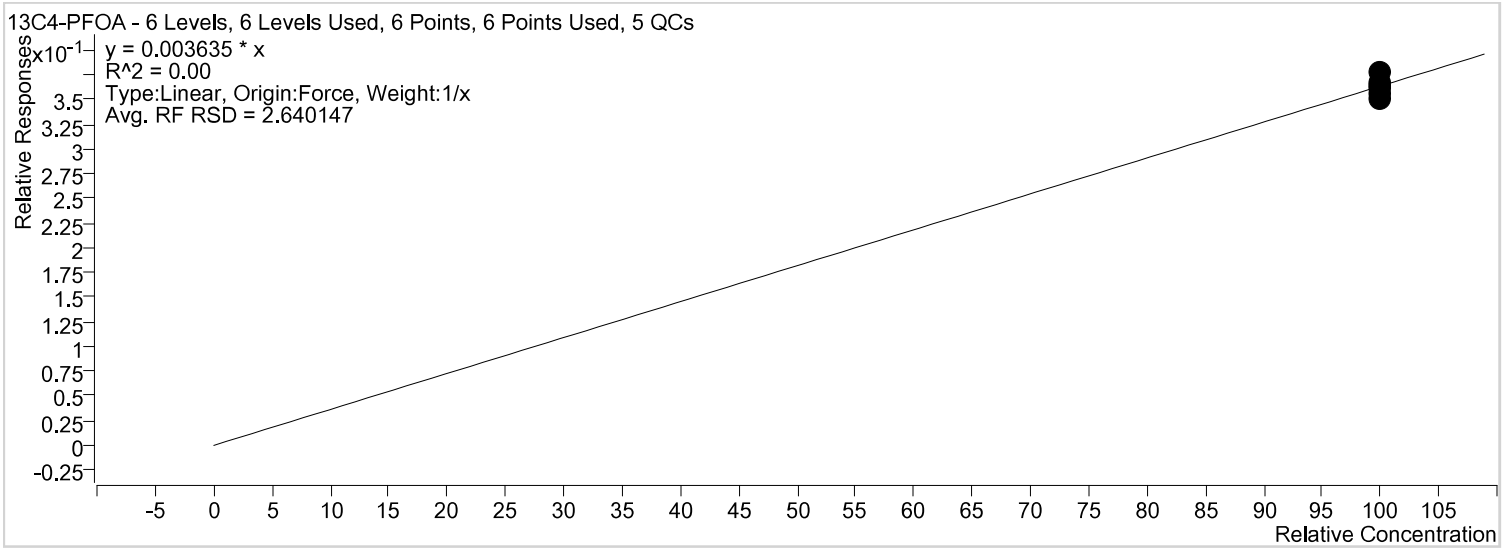
Analyte: 13C4-PFHpA
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	101.00	6009	0.0040	1785	101.0
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	101.66	5766	0.0040	792	101.7
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	101.71	5667	0.0040	1123	101.7
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	96.86	5820	0.0038	861	96.9
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	99.55	5817	0.0039	748	99.6
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	99.23	5790	0.0039	1112	99.2

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

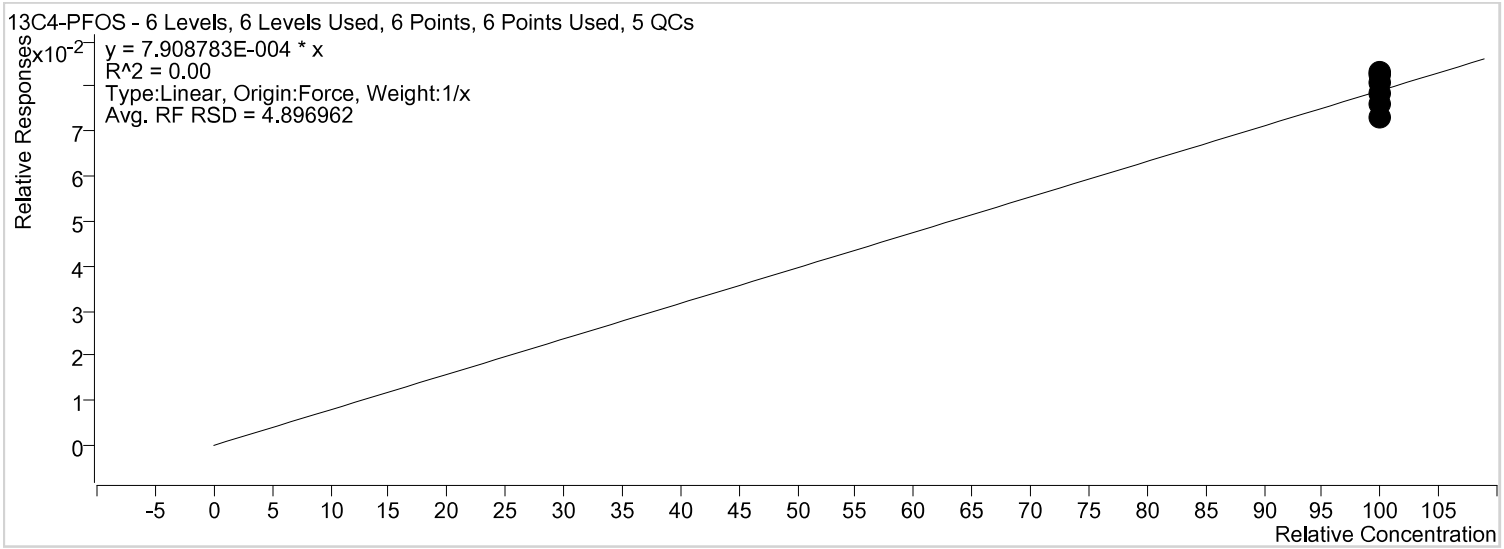
Analyte: 13C4-PFOA
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	96.32	5261	0.0035	1013	96.3
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	103.95	5413	0.0038	451	103.9
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	99.86	5108	0.0036	749	99.9
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	98.06	5410	0.0036	569	98.1
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	101.28	5433	0.0037	579	101.3
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	100.54	5386	0.0037	392	100.5

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

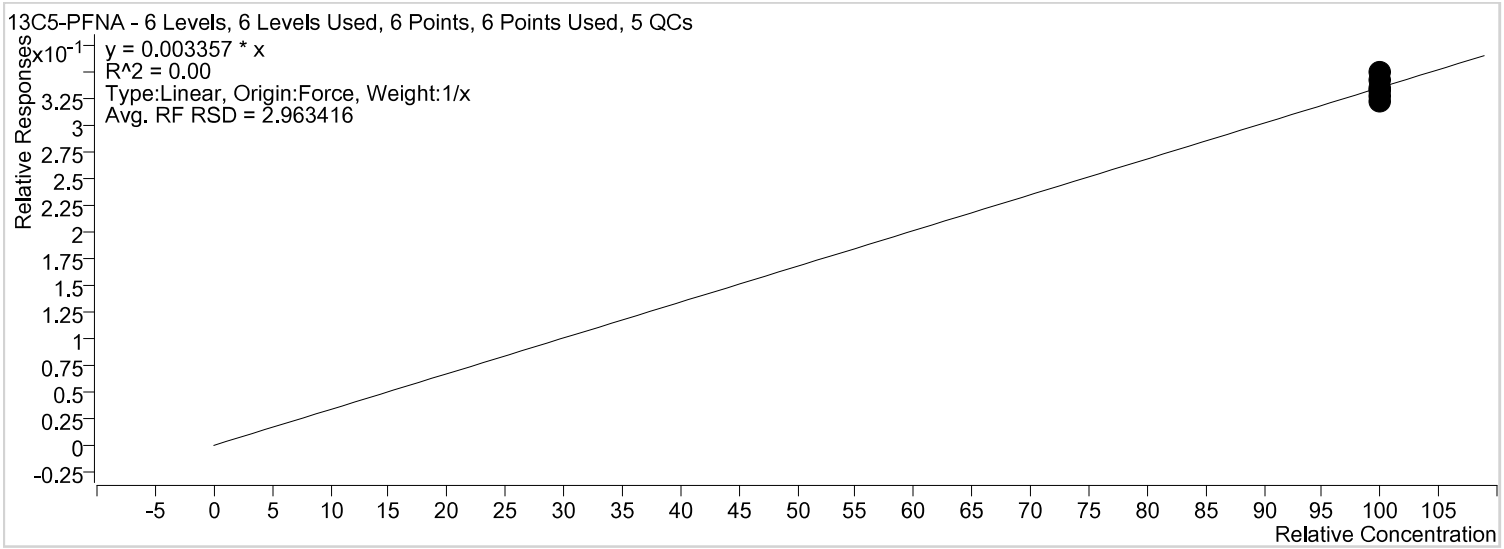
Analyte: 13C4-PFOS
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	92.82	1103	0.0007	275	92.8
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	98.95	1121	0.0008	164	99.0
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	105.23	1171	0.0008	279	105.2
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	104.32	1252	0.0008	244	104.3
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	96.14	1122	0.0008	598	96.1
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	102.54	1195	0.0008	301	102.5

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

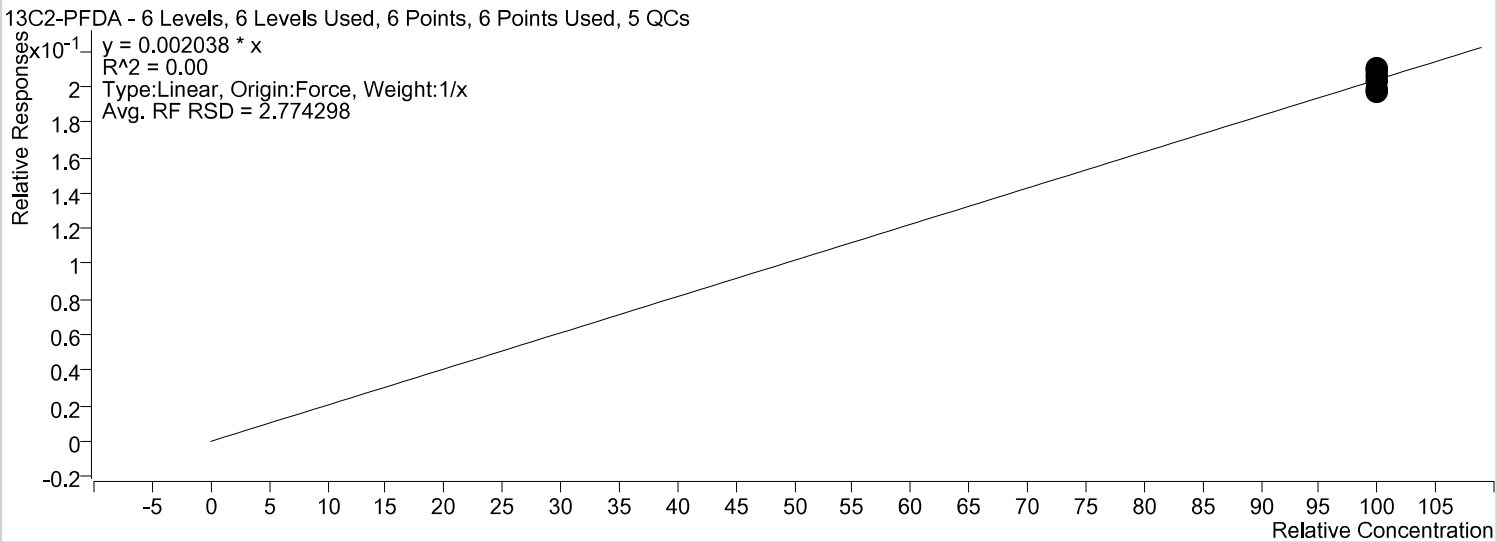
Analyte: 13C5-PFNA
Internal Standard: 13C6-PFHxA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	97.48	4916	0.0033	6181	97.5
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	99.40	4779	0.0033	811	99.4
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	104.32	4927	0.0035	1449	104.3
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	96.37	4909	0.0032	1556	96.4
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	100.12	4959	0.0034	630	100.1
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	102.32	5061	0.0034	1471	102.3

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

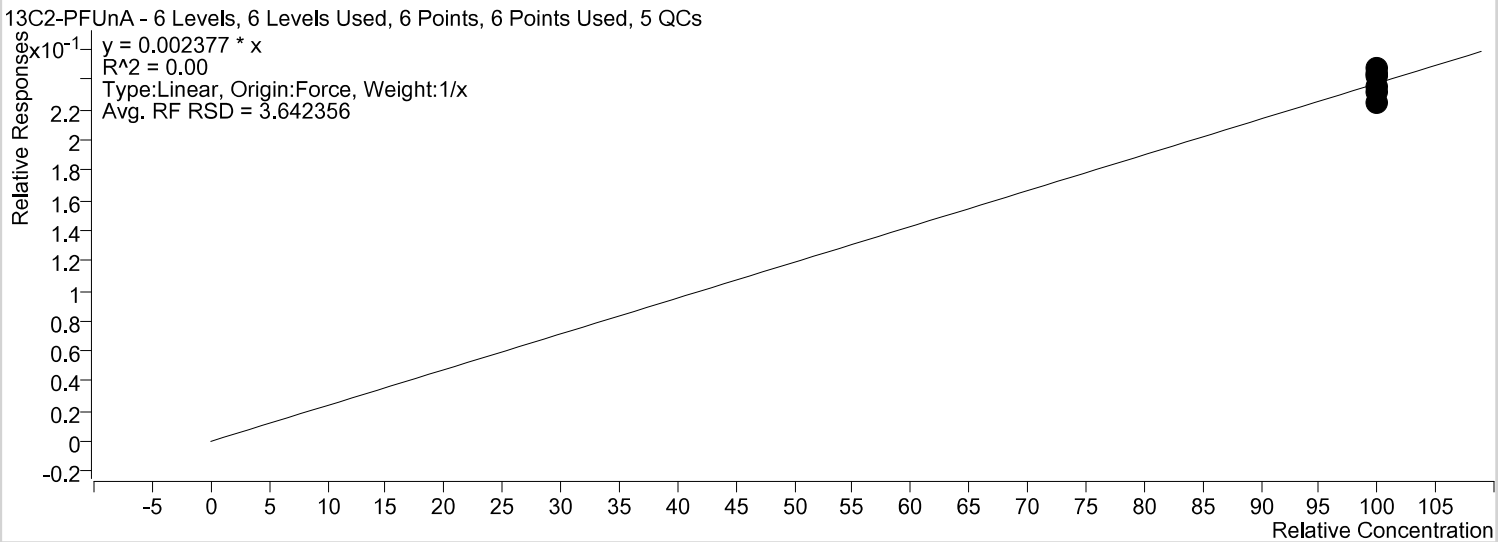
Analyte: 13C2-PFDA
Internal Standard: 13C9-PFDA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	96.70	3506	0.0020	575	96.7
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	100.92	3548	0.0021	574	100.9
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	99.26	3379	0.0020	619	99.3
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	97.13	3411	0.0020	721	97.1
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	102.76	3591	0.0021	582	102.8
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	103.22	3701	0.0021	487	103.2

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

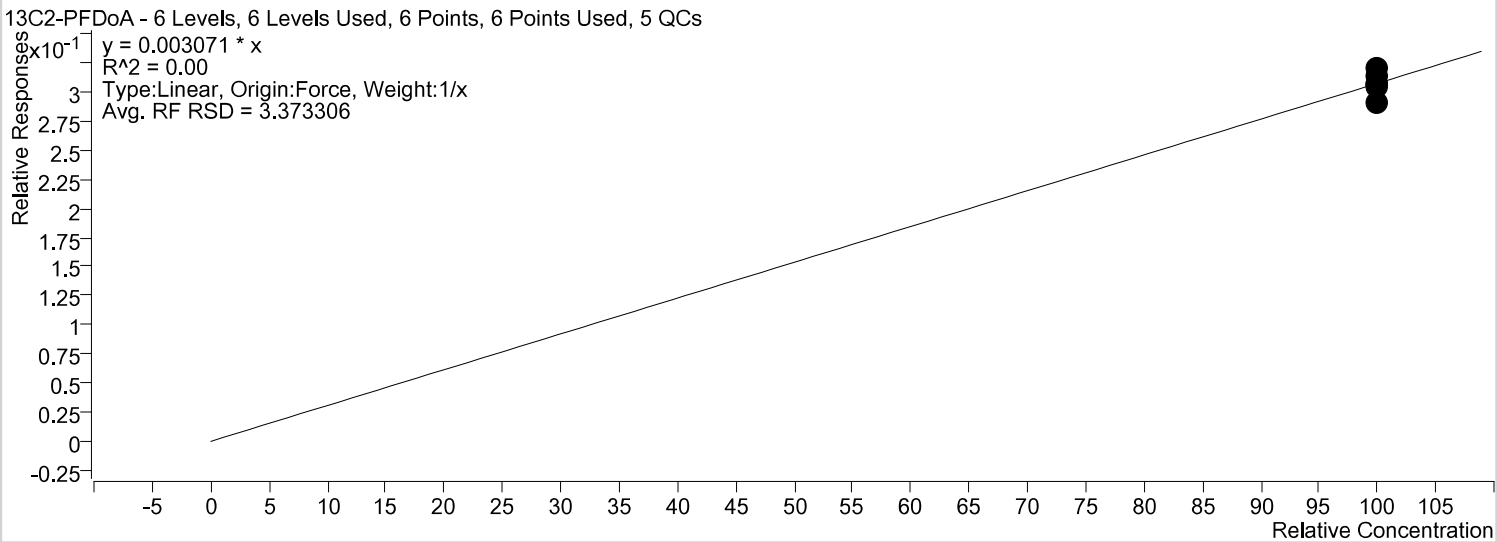
Analyte: 13C2-PFUnA
Internal Standard: 13C9-PFDA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	94.48	3995	0.0022	519	94.5
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	99.38	4075	0.0024	598	99.4
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	97.40	3867	0.0023	993	97.4
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	104.28	4271	0.0025	823	104.3
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	102.71	4186	0.0024	447	102.7
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	101.75	4255	0.0024	592	101.8

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

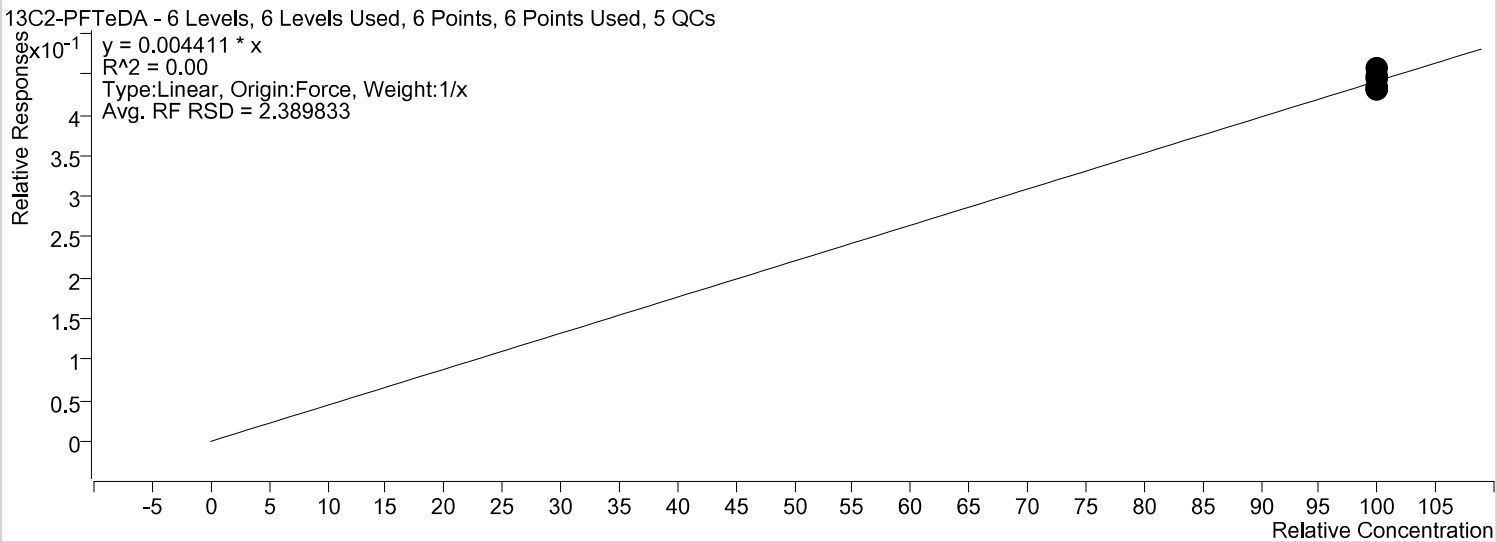
Analyte: 13C2-PFDoA
Internal Standard: 13C9-PFDA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	94.29	5151	0.0029	1021	94.3
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	99.42	5267	0.0031	825	99.4
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	99.54	5106	0.0031	1134	99.5
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	100.16	5300	0.0031	1359	100.2
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	102.29	5386	0.0031	717	102.3
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	104.30	5635	0.0032	1276	104.3

Batch Path T:\LCMS04\PFC\20181221\WS#5897102\QuantResults\PFC_Water_Low_20181221_WS#5897102_EToxics.batch.bin
Last Calib Update 2019/01/07 9:31:29 AM
Instrument: LCMS04

Analyte: 13C2-PFTeDA
Internal Standard: 13C9-PFDA IS



Sample	Level	Enabled	Acquisition Time	Exp. Conc.	Concentration	Response	RF	S/N	Accuracy
STD 1	STD 1	x	2018/12/21 7:26:54 PM	100.00	97.81	7675	0.0043	884	97.8
STD 2	STD 2	x	2018/12/21 7:31:48 PM	100.00	98.75	7514	0.0044	1216	98.7
STD 3	STD 3	x	2018/12/21 7:36:43 PM	100.00	97.58	7189	0.0043	969	97.6
STD 4	STD 4	x	2018/12/21 7:41:38 PM	100.00	101.69	7729	0.0045	869	101.7
STD 5	STD 5	x	2018/12/21 7:46:33 PM	100.00	100.53	7603	0.0044	1225	100.5
STD 6	STD 6	x	2018/12/21 7:51:27 PM	100.00	103.63	8042	0.0046	851	103.6