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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC2228

Sampling Date: 01/25/23

Report to:

AECOM, Inc
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Total number of pages in report: **662**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **5**
Section 4: Sample Results **6**
4.1: FC2228-1: AF-RHMW16-WGN01LF-2301W4 7
4.2: FC2228-2: AF-RHMW12A-WGN01LF-2301W4 10
4.3: FC2228-3: AF-RHMW12A-WGFD01LF-2301W4 13
Section 5: Misc. Forms **16**
5.1: Chain of Custody 17
5.2: QC Evaluation: DOD QSM5.x Limits 20
Section 6: MS Semi-volatiles - QC Data Summaries **21**
6.1: Method Blank Summary 22
6.2: Blank Spike Summary 28
6.3: Matrix Spike Summary 32
6.4: Duplicate Summary 34
6.5: Injection Standard Area Summaries 36
6.6: TDCA Retention Time Checks 40
6.7: Ion Ratio Summaries 44
6.8: Isotope Dilution Standard Recovery Summaries 45
6.9: Initial and Continuing Calibration Summaries 48
6.10: Run Sequence Reports 66
Section 7: MS Semi-volatiles - Raw Data **70**
7.1: Samples 71
7.2: Method Blanks 106
7.3: Blank Spikes 140
7.4: Matrix Spikes 184
7.5: Duplicates 206
7.6: Retention Time Markers 218
7.7: Initial and Continuing Calibrations 270
7.8: Instrument Run Logs 602
7.9: Standard Prep Logs 607
7.10: Sample Prep Logs 662

SGS North America Inc.

Sample Summary

AECOM, INC.

Job No: FC2228

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC2228-1	01/25/23	12:45	MYNT	01/26/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2301W4
FC2228-2	01/25/23	10:00	MYNT	01/26/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2301W4
FC2228-3	01/25/23	10:00	MYNT	01/26/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2301W4

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FC2228

Site: N6274223F0104 RH Fire Suppression System **Report Date:** 2/7/2023 4:42:49 PM

On 01/26/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC2228 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: AQ **Batch ID:** OP95216

Sample(s) FC2239-1MS, FC2270-2DUP were used as the QC samples indicated.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Kim Benham, Client Services *(Signature on File)*

Summary of Hits

Job Number: FC2228
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/25/23

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC2228-1	**AF-RHMW16-WGN01LF-2301W4**					
No hits reported in this sample.						
FC2228-2	**AF-RHMW12A-WGN01LF-2301W4**					
Perfluoropentanoic acid		5.0 J	8.9	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid		1.3 J	4.5	0.89	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate		3.2 J	18	7.1	ng/l	EPA DRAFT 1633
FC2228-3	**AF-RHMW12A-WGFD01LF-2301W4**					
Perfluoropentanoic acid		4.8 J	8.9	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid		1.3 J	4.5	0.89	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid		2.8 J	4.5	1.8	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate		3.2 J	18	7.1	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2301W4		
Lab Sample ID:	FC2228-1	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q12895.D	1	02/03/23 12:35	MV	01/30/23 09:00	OP95216	S6Q198
Run #2							

	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.7 U	19	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.3	1.9	0.87	ng/l	
307-24-4	Perfluorohexanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-85-9	Perfluoroheptanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.6	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.6	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.6	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.6	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.6	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	
PERFLUOROOCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.6	1.9	0.62	ng/l	
31506-32-8	MeFOSA	1.9 U	4.6	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.6	1.9	0.93	ng/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2301W4		
Lab Sample ID:	FC2228-1	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS							
24448-09-7	MeFOSE	9.3 U	46	9.3	4.1	ng/l	
1691-99-2	EtFOSE	19 U	46	19	6.9	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS							
13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l	
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS							
756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.72	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS							
356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	105%		20-150%
	13C5-PFPeA	113%		20-150%
	13C5-PFHxA	117%		20-150%
	13C4-PFHpA	112%		20-150%
	13C8-PFOA	110%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	96%		20-150%
	13C2-PFDoDA	91%		20-150%
	13C2-PFTeDA	83%		20-150%
	13C3-PFBS	104%		20-150%
	13C3-PFHxS	115%		20-150%

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Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2301W4		
Lab Sample ID:	FC2228-1	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	105%		20-150%
	13C8-FOSA	109%		20-150%
	d3-MeFOSA	101%		20-150%
	d5-EtFOSA	97%		20-150%
	d3-MeFOSAA	102%		20-150%
	d5-EtFOSAA	94%		20-150%
	d7-MeFOSE	98%		20-150%
	d9-EtFOSE	101%		20-150%
	13C2-4:2FTS	123%		20-150%
	13C2-6:2FTS	122%		20-150%
	13C2-8:2FTS	115%		20-150%
	13C3-HFPO-DA	115%		20-150%

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LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2301W4		
Lab Sample ID:	FC2228-2	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q12896.D	1	02/03/23 12:49	MV	01/30/23 09:00	OP95216	S6Q198
Run #2							

	Initial Volume	Final Volume
Run #1	560 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	5.0	8.9	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.5	0.89	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	3.2	18	7.1	3.1	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	ng/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2301W4		
Lab Sample ID:	FC2228-2	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS							
24448-09-7	MeFOSE	8.9 U	45	8.9	3.9	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.6	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS							
13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.89	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	8.9	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	8.9	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	8.9	3.6	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS							
756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	8.9	1.8	0.70	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS							
356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	22	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	44%		20-150%
	13C5-PFPeA	109%		20-150%
	13C5-PFHxA	112%		20-150%
	13C4-PFHpA	108%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	104%		20-150%
	13C6-PFDA	107%		20-150%
	13C7-PFUnDA	100%		20-150%
	13C2-PFDoDA	94%		20-150%
	13C2-PFTeDA	89%		20-150%
	13C3-PFBS	106%		20-150%
	13C3-PFHxS	113%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2301W4		
Lab Sample ID:	FC2228-2	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		20-150%
	13C8-FOSA	101%		20-150%
	d3-MeFOSA	98%		20-150%
	d5-EtFOSA	96%		20-150%
	d3-MeFOSAA	101%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	94%		20-150%
	d9-EtFOSE	98%		20-150%
	13C2-4:2FTS	124%		20-150%
	13C2-6:2FTS	114%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	116%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2301W4		
Lab Sample ID:	FC2228-3	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q12897.D	1	02/03/23 13:03	MV	01/30/23 09:00	OP95216	S6Q198
Run #2							

	Initial Volume	Final Volume
Run #1	560 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	4.8	8.9	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.5	0.89	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.8	4.5	1.8	0.48	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	3.2	18	7.1	3.1	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	ng/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2301W4		
Lab Sample ID:	FC2228-3	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS							
24448-09-7	MeFOSE	8.9 U	45	8.9	3.9	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.6	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS							
13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.89	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	8.9	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	8.9	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	8.9	3.6	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS							
756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	8.9	1.8	0.70	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS							
356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	22	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	40%		20-150%
	13C5-PFPeA	109%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	109%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	95%		20-150%
	13C6-PFDA	114%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	87%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	94%		20-150%
	13C3-PFHxS	90%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2301W4		
Lab Sample ID:	FC2228-3	**Date Sampled:**	01/25/23
Matrix:	AQ - Ground Water	**Date Received:**	01/26/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	**Percent Solids:**	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	103%		20-150%
	13C8-FOSA	107%		20-150%
	d3-MeFOSA	92%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	96%		20-150%
	d5-EtFOSAA	89%		20-150%
	d7-MeFOSE	89%		20-150%
	d9-EtFOSE	90%		20-150%
	13C2-4:2FTS	116%		20-150%
	13C2-6:2FTS	103%		20-150%
	13C2-8:2FTS	109%		20-150%
	13C3-HFPO-DA	113%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

FC2228

COC #: 2301W4AFSG06

PAGE 1 OF 1

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # :

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu **State:** HI **Zip:** 96813
Project Contact: Katie Abbott **Email:** katie.abbott@aecom.com
Project Manager: Watson Tanji **Email:** watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: Matt Yim **Sampler 2:**

Project Information

Project Name: N6274223F0104 RH Fire Suppression System
Street
City Honolulu **State** Hawaii
Project # 60697810
Fax #
Client Purchase Order #

Analytical Information

PFAS EPA Draft 1633

MY 1/25/23

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS EPA Draft 1633	LAB USE ONLY
1	AF-RHMW16-WGN01LF-2301W4	1/25/23	1245	MY	GW	3		X								X	

MY 1/25/23

INITIAL ASSESSMENT

LABEL VERIFICATION

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
[5 Day]
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

[ ] COMMERCIAL "A" (RESULTS ONLY)
[ ] COMMERCIAL "B" (RESULTS PLUS QC)
[ ] REDT1 (EPA LEVEL 3)
[x] FULLT1 (EPA LEVEL 4)
[x] EDD'S

Comments / Remarks

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AWB 016-80153695

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 Matt Yim	1400 1/25/23	2 AECOM	3 AECOM	1535 01/25/23	4 1400 1/26/23
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 2.8 IBI

http://www.sgs.com/en/terms-and-conditions

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FC2228

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL 407-425-6700 FAX: 407-425-0707
www.sgs.com

COC #: 2301W4AFSG05
SGS - ORLANDO JOB # :
PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: Katie Abbott Email: katie.abbott@aecom.com
Project Manager: Watson Tanji Email: watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: NOAH TURNER Sampler 2:

Project Information

Project Name: N6274223F0104 RH Fire Suppression System
Street
City Honolulu State Hawaii
Project # 60697810
Fax #
Client Purchase Order #

Analytical Information

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH-ZNAC	DI WATER	MEOH	PFAS EPA Draft 1633
2	AF-RHMW12A-WGN01LF-2301W4	01/25/23	1000	AY, MY, NT	GW	3		X								X
3	AF-RHMW12A-WGFD01LF-2301W4	↓	1000	↓	GW	3		X								X

NT 01-25-2023

INITIAL ASSESSMENT
LABEL VERIFICATION

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

LAB USE ONLY

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
[5 Day]
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

[ ] COMMERCIAL "A" (RESULTS ONLY)
[ ] COMMERCIAL "B" (RESULTS PLUS QC)
[ ] REDT1 (EPA LEVEL 3)
[x] FULLT1 (EPA LEVEL 4)
[x] EDD'S

Comments / Remarks

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AWB ok - 8915 3695

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 / AECOM	1400 01/25/2023	2 AECOM	3 AECOM	1525 1/25/23	4
Relinquished by/Affiliation 5	Date Time:	Received By/Affiliation 6	Relinquished By/Affiliation 7	Date Time:	Received By/Affiliation 8

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

PFAS_COCs_ALL.xls Rev 031318

5.1 5

FC2228: Chain of Custody
Page 2 of 3

SGS Sample Receipt Summary

Job Number: FC2228 **Client:** AECOM **Project:** N6274223F0104 RH Fire Suppression System

Date / Time Received: 1/26/2023 2:00:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-80153695

Therm ID: IR 1; **Therm CF:** 0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.6);

Cooler Temps (Corrected) °C: Cooler 1: (2.8);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☐	☑
2. Trip Blank listed on COC	☐		☐	☑
	W	**or**	**S**	**N/A**
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: ZANEB Date: 1/26/2023 2:00:00 PM Reviewer: NS Date: 1/27/2023

FC2228: Chain of Custody
Page 3 of 3

QC Evaluation: DOD QSM5.x Limits

Job Number: FC2228
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/25/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC2228

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-IBLK	6Q12887.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	0.0025	0.0050	0.0010	ug/l	J
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	0.0086	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0154	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-IBLK	6Q12887.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-3	5:3 Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	101%	20-150%
	13C4-PFHpA	99%	20-150%
	13C8-PFOA	94%	20-150%
	13C9-PFNA	101%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	99%	20-150%
	13C2-PFTeDA	107%	20-150%
	13C3-PFBS	105%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	99%	20-150%
	13C8-FOSA	107%	20-150%
	d3-MeFOSA	98%	20-150%
	d5-EtFOSA	99%	20-150%
	d3-MeFOSAA	101%	20-150%
	d5-EtFOSAA	102%	20-150%
	d7-MeFOSE	105%	20-150%
	d9-EtFOSE	107%	20-150%
	13C2-4:2FTS	114%	20-150%
	13C2-6:2FTS	115%	20-150%
	13C2-8:2FTS	114%	20-150%
	13C3-HFPO-DA	98%	20-150%

Method Blank Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MB	6Q12892.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MB	6Q12892.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-3	5:3 Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	20-150%
	13C5-PFPeA	108%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	105%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	113%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	94%	20-150%
	13C2-PFTeDA	90%	20-150%
	13C3-PFBS	91%	20-150%
	13C3-PFHxS	94%	20-150%
	13C8-PFOS	93%	20-150%
	13C8-FOSA	92%	20-150%
	d3-MeFOSA	79%	20-150%
	d5-EtFOSA	81%	20-150%
	d3-MeFOSAA	85%	20-150%
	d5-EtFOSAA	84%	20-150%
	d7-MeFOSE	88%	20-150%
	d9-EtFOSE	94%	20-150%
	13C2-4:2FTS	105%	20-150%
	13C2-6:2FTS	109%	20-150%
	13C2-8:2FTS	107%	20-150%
	13C3-HFPO-DA	107%	20-150%

Continuing Calibration Blank

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-ICCB	6Q12901.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP95216-DUP

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-ICCB	6Q12901.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP95216-DUP

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-3	5:3 Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	98%	20-150%
	13C5-PFPeA	99%	20-150%
	13C5-PFHxA	92%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	102%	20-150%
	13C9-PFNA	92%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	99%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	95%	20-150%
	13C3-PFHxS	88%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	109%	20-150%
	d3-MeFOSAA	103%	20-150%
	d5-EtFOSAA	108%	20-150%
	13C2-4:2FTS	110%	20-150%
	13C2-6:2FTS	96%	20-150%
	13C2-8:2FTS	94%	20-150%

Blank Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-LLBS	6Q12891.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0396	99	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0205	103	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0104	104	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0096	96	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0107	107	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0103	103	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0105	105	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0106	106	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0103	103	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0098	98	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0112	112	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0090	101	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0091	97	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0095	104	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0100	105	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0094	101	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0098	102	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0082	85	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0081	84	40-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0375	0.0377	101	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0388	102	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0358	93	40-150
754-91-6	PFOSA	0.01	0.0106	106	40-150
31506-32-8	MeFOSA	0.01	0.0097	97	40-150
4151-50-2	EtFOSA	0.01	0.0092	92	40-150
2355-31-9	MeFOSAA	0.01	0.010	100	40-150
2991-50-6	EtFOSAA	0.01	0.0087	87	40-150
24448-09-7	MeFOSE	0.1	0.0914	91	40-150
1691-99-2	EtFOSE	0.1	0.0878	88	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0424	106	40-150
919005-14-4	ADONA	0.0378	0.0360	95	40-150
377-73-1	PFMPA	0.02	0.0206	103	40-150
863090-89-5	PFMBA	0.02	0.0195	98	40-150
151772-58-6	NFDHA	0.02	0.0219	110	40-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0374	0.0390	104	40-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0378	0.0364	96	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-LLBS	6Q12891.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0176	99	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0421	84	40-150
914637-49-3	5:3 Fluorotelomer carboxylate	0.25	0.233	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.238	95	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	106%	20-150%
	13C5-PFPeA	108%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	99%	20-150%
	13C9-PFNA	102%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	100%	20-150%
	13C2-PFTeDA	80%	20-150%
	13C3-PFBS	101%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	101%	20-150%
	d3-MeFOSA	85%	20-150%
	d5-EtFOSA	83%	20-150%
	d3-MeFOSAA	107%	20-150%
	d5-EtFOSAA	99%	20-150%
	d7-MeFOSE	90%	20-150%
	d9-EtFOSE	94%	20-150%
	13C2-4:2FTS	124%	20-150%
	13C2-6:2FTS	114%	20-150%
	13C2-8:2FTS	123%	20-150%
	13C3-HFPO-DA	113%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-BS	6Q12890.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0962	96	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0487	97	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0231	92	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0239	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0234	94	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0224	90	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0241	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0245	98	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0242	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0248	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0246	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0206	93	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0227	96	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0216	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0242	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0221	95	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0221	92	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0221	92	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0217	89	40-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0938	0.0894	95	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0914	96	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0970	101	40-150
754-91-6	PFOSA	0.025	0.0227	91	40-150
31506-32-8	MeFOSA	0.025	0.0217	87	40-150
4151-50-2	EtFOSA	0.025	0.0209	84	40-150
2355-31-9	MeFOSAA	0.025	0.0242	97	40-150
2991-50-6	EtFOSAA	0.025	0.0221	88	40-150
24448-09-7	MeFOSE	0.25	0.239	96	40-150
1691-99-2	EtFOSE	0.25	0.213	85	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0967	97	40-150
919005-14-4	ADONA	0.0945	0.0939	99	40-150
377-73-1	PFMPA	0.05	0.0226	45	40-150
863090-89-5	PFMBA	0.05	0.0508	102	40-150
151772-58-6	NFDHA	0.05	0.0483	97	40-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0935	0.0859	92	40-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0945	0.0858	91	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-BS	6Q12890.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0405	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0776	62	40-150
914637-49-3	5:3 Fluorotelomer carboxylate	0.625	0.556	89	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.563	90	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	23%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	114%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	114%	20-150%
	13C9-PFNA	115%	20-150%
	13C6-PFDA	117%	20-150%
	13C7-PFUnDA	110%	20-150%
	13C2-PFDoDA	105%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	109%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	115%	20-150%
	13C8-FOSA	123%	20-150%
	d3-MeFOSA	112%	20-150%
	d5-EtFOSA	112%	20-150%
	d3-MeFOSAA	119%	20-150%
	d5-EtFOSAA	119%	20-150%
	d7-MeFOSE	109%	20-150%
	d9-EtFOSE	118%	20-150%
	13C2-4:2FTS	117%	20-150%
	13C2-6:2FTS	123%	20-150%
	13C2-8:2FTS	117%	20-150%
	13C3-HFPO-DA	116%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MS	6Q12899.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2239-1	6Q12898.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	FC2239-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.020	U	0.098	0.0996	102	40-150
2706-90-3	Perfluoropentanoic acid	0.0098	U	0.049	0.0509	104	40-150
307-24-4	Perfluorohexanoic acid	0.00086	J	0.0245	0.0237	93	40-150
375-85-9	Perfluoroheptanoic acid	0.0049	U	0.0245	0.0253	103	40-150
335-67-1	Perfluorooctanoic acid	0.00093	J	0.0245	0.0270	106	40-150
375-95-1	Perfluorononanoic acid	0.0049	U	0.0245	0.0242	99	40-150
335-76-2	Perfluorodecanoic acid	0.0049	U	0.0245	0.0241	98	40-150
2058-94-8	Perfluoroundecanoic acid	0.0049	U	0.0245	0.0254	104	40-150
307-55-1	Perfluorododecanoic acid	0.0049	U	0.0245	0.0269	110	40-150
72629-94-8	Perfluorotridecanoic acid	0.0049	U	0.0245	0.0224	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.0049	U	0.0245	0.0269	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0049	U	0.0217	0.0228	105	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0049	U	0.0231	0.0240	104	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0010	J	0.0224	0.0250	107	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0049	U	0.0234	0.0235	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0049	U	0.0227	0.0309	136	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0049	U	0.0236	0.0224	95	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0049	U	0.0237	0.0209	88	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0049	U	0.0238	0.0204	86	40-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.020	U	0.0919	0.0942	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.020	U	0.0931	0.0945	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.020	U	0.0941	0.0977	104	40-150
754-91-6	PFOSA	0.0049	U	0.0245	0.0246	100	40-150
31506-32-8	MeFOSA	0.0049	U	0.0245	0.0236	96	40-150
4151-50-2	EtFOSA	0.0049	U	0.0245	0.0235	96	40-150
2355-31-9	MeFOSAA	0.0049	U	0.0245	0.0242	99	40-150
2991-50-6	EtFOSAA	0.0049	U	0.0245	0.0233	95	40-150
24448-09-7	MeFOSE	0.049	U	0.245	0.251	102	40-150
1691-99-2	EtFOSE	0.049	U	0.245	0.241	98	40-150
13252-13-6	HFPO-DA (GenX)	0.020	U	0.098	0.0900	92	40-150
919005-14-4	ADONA	0.020	U	0.0926	0.0856	92	40-150
377-73-1	PFMPA	0.0098	U	0.049	0.0482	98	40-150
863090-89-5	PFMBA	0.0098	U	0.049	0.0504	103	40-150
151772-58-6	NFDHA	0.0098	U	0.049	0.0483	99	40-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.020	U	0.0917	0.0806	88	40-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.020	U	0.0926	0.0746	81	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MS	6Q12899.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2239-1	6Q12898.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	FC2239-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0098	U	0.0436	0.0417	96	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.025	U	0.123	0.104	85	40-150
914637-49-3	5:3 Fluorotelomer carboxylate	0.12	U	0.613	0.540	88	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12	U	0.613	0.549	90	40-150

CAS No.	ID Standard Recoveries	MS	FC2239-1	Limits
	13C4-PFBA	101%	108%	20-150%
	13C5-PFPeA	113%	118%	20-150%
	13C5-PFHxA	118%	112%	20-150%
	13C4-PFHpA	112%	117%	20-150%
	13C8-PFOA	105%	102%	20-150%
	13C9-PFNA	101%	121%	20-150%
	13C6-PFDA	114%	112%	20-150%
	13C7-PFUnDA	105%	115%	20-150%
	13C2-PFDoDA	93%	107%	20-150%
	13C2-PFTeDA	77%	88%	20-150%
	13C3-PFBS	110%	109%	20-150%
	13C3-PFHxS	113%	111%	20-150%
	13C8-PFOS	95%	113%	20-150%
	13C8-FOSA	99%	104%	20-150%
	d3-MeFOSA	83%	94%	20-150%
	d5-EtFOSA	83%	88%	20-150%
	d3-MeFOSAA	95%	94%	20-150%
	d5-EtFOSAA	91%	105%	20-150%
	d7-MeFOSE	80%	96%	20-150%
	d9-EtFOSE	82%	96%	20-150%
	13C2-4:2FTS	121%	127%	20-150%
	13C2-6:2FTS	124%	127%	20-150%
	13C2-8:2FTS	119%	116%	20-150%
	13C3-HFPO-DA	124%	123%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-DUP	6Q12907.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2	6Q12906.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2 [a]	6Q13141.D	5	02/06/23	MV	01/30/23	OP95216	S6Q201

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	FC2270-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.019 U		ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0096 U		ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0048 U		ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0048 U		ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0048 U		ND		nc	30
375-95-1	Perfluorononanoic acid	0.0048 U		ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0048 U		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0048 U		ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0048 U		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0048 U		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0048 U		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0048 U		ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0048 U		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0048 U		ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0048 U		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0048 U		ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0048 U		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0048 U		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0048 U		ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.019 U		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0064	J	0.0061	J	5	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		ND		nc	30
754-91-6	PFOSA	0.0048 U		ND		nc	30
31506-32-8	MeFOSA	0.0048 U		ND		nc	30
4151-50-2	EtFOSA	0.0048 U		ND		nc	30
2355-31-9	MeFOSAA	0.0048 U		ND		nc	30
2991-50-6	EtFOSAA	0.024 U [b]		ND		nc	30
24448-09-7	MeFOSE	0.048 U		ND		nc	30
1691-99-2	EtFOSE	0.048 U		ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.019 U		ND		nc	30
919005-14-4	ADONA	0.019 U		ND		nc	30
377-73-1	PFMPA	0.0096 U		ND		nc	30
863090-89-5	PFMBA	0.0096 U		ND		nc	30
151772-58-6	NFDHA	0.0096 U		ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.019 U		ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.019 U		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-DUP	6Q12907.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2	6Q12906.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2 [a]	6Q13141.D	5	02/06/23	MV	01/30/23	OP95216	S6Q201

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC2228-1, FC2228-2, FC2228-3

CAS No.	Compound	FC2270-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0096 U		ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.024 U		ND		nc	30
914637-49-3	5:3 Fluorotelomer carboxylate	0.12 U		ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U		ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC2270-2	FC2270-2	Limits
	13C4-PFBA	104%	110%	110%	20-150%
	13C5-PFPeA	108%	117%	112%	20-150%
	13C5-PFHxA	105%	116%	107%	20-150%
	13C4-PFHpA	108%	115%	110%	20-150%
	13C8-PFOA	96%	110%	108%	20-150%
	13C9-PFNA	102%	121%	97%	20-150%
	13C6-PFDA	117%	99%	118%	20-150%
	13C7-PFUnDA	103%	99%	110%	20-150%
	13C2-PFDoDA	100%	88%	85%	20-150%
	13C2-PFTeDA	80%	63%	71%	20-150%
	13C3-PFBS	99%	99%	124%	20-150%
	13C3-PFHxS	105%	109%	131%	20-150%
	13C8-PFOS	109%	108%	67%	20-150%
	13C8-FOSA	127%	108%	51%	20-150%
	d3-MeFOSA	110%	92%	43%	20-150%
	d5-EtFOSA	104%	87%	44%	20-150%
	d3-MeFOSAA	167%* [c]	136%	62%	20-150%
	d5-EtFOSAA	176%* [c]	152%* [c]	60%	20-150%
	d7-MeFOSE	106%	96%	46%	20-150%
	d9-EtFOSE	111%	96%	48%	20-150%
	13C2-4:2FTS	116%	117%	122%	20-150%
	13C2-6:2FTS	96%	100%	126%	20-150%
	13C2-8:2FTS	94%	100%	96%	20-150%
	13C3-HFPO-DA	110%	117%	124%	20-150%

(a) Dilution required (ID recovery standard failure).
(b) Result is from Run #2.
(c) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	**Injection Date:**	02/03/23
Lab File ID:	6Q12888.D	**Injection Time:**	10:58
Instrument ID:	GCMS6Q	**Method:**	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [b]	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std [c]	35403	2.98	34451	5.56	80369	7.15	31704	7.69	26364	8.17
Upper Limit [d]	68964	3.38	70420	5.96	156538	7.55	63540	8.09	55058	8.57
Lower Limit [e]	10345	2.58	10563	5.16	23481	6.75	9531	7.29	8259	7.77

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF [a]
OP95216-BS	29575	3.02	29232	5.56	62572	7.15	26495	7.68	22396	8.17	1
OP95216-LLBS	29513	3.02	28510	5.58	64619	7.15	26767	7.69	22147	8.17	1
OP95216-MB	30247	3.00	28140	5.56	66517	7.15	26845	7.68	20773	8.17	1
ZZZZZZ	29765	3.02	29006	5.56	65474	7.15	28715	7.68	22414	8.17	1
ZZZZZZ	29446	3.02	28595	5.58	65969	7.15	26113	7.68	23981	8.17	1
FC2228-1	30023	3.02	28887	5.58	64519	7.15	27936	7.69	23934	8.17	1
FC2228-2	30366	3.02	28416	5.56	63987	7.15	26940	7.69	23236	8.17	1
FC2228-3	30114	3.02	28964	5.56	65050	7.16	27759	7.69	22134	8.17	1
FC2239-1	30366	3.02	27586	5.56	69032	7.15	26283	7.68	21627	8.17	1
OP95216-MS	29819	3.02	28614	5.58	65584	7.15	27513	7.68	23132	8.17	1

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFHxA
IS 3 = 13C4-PFOA
IS 4 = 13C5-PFNA
IS 5 = 13C2-PFDA

(a) Sample areas corrected for dilution where applicable.
(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.
(c) Check Std Limit = -70 to +100% of initial cal area.
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	**Injection Date:**	02/03/23
Lab File ID:	6Q12888.D	**Injection Time:**	10:58
Instrument ID:	GCMS6Q	**Method:**	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal [b]	6781	7.29	10607	8.35
Check Std [c]	7014	7.27	10625	8.35
Upper Limit [d]	13562	7.67	21214	8.75
Lower Limit [e]	2034	6.87	3182	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF [a]
OP95216-BS	5827	7.27	8521	8.35	1
OP95216-LLBS	5637	7.27	9113	8.35	1
OP95216-MB	6310	7.27	9809	8.35	1
ZZZZZZ	5624	7.27	10166	8.35	1
ZZZZZZ	5941	7.27	9169	8.35	1
FC2228-1	5709	7.29	9483	8.35	1
FC2228-2	5637	7.27	9736	8.35	1
FC2228-3	6230	7.29	9400	8.35	1
FC2239-1	5694	7.27	9575	8.35	1
OP95216-MS	5494	7.27	10088	8.35	1

IS 6 = 18O2-PFHXS
IS 7 = 13C4-PFOS

(a) Sample areas corrected for dilution where applicable.
(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.
(c) Check Std Limit = -70 to +100% of initial cal area.
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	**Injection Date:**	02/03/23
Lab File ID:	6Q12900.D	**Injection Time:**	13:45
Instrument ID:	GCMS6Q	**Method:**	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [b]	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std [c]	35888	2.98	35238	5.56	79067	7.15	31662	7.68	26924	8.17
Upper Limit [d]	68964	3.38	70420	5.96	156538	7.55	63540	8.08	55058	8.57
Lower Limit [e]	10345	2.58	10563	5.16	23481	6.75	9531	7.28	8259	7.77

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF [a]
S6Q198-ICCB	33648	2.98	33372	5.56	74311	7.15	30830	7.69	25270	8.17	1
ZZZZZZ	30878	3.02	29001	5.58	66657	7.15	27611	7.69	22958	8.18	1
ZZZZZZ	30292	3.00	28109	5.58	65511	7.15	27174	7.69	22481	8.17	1
ZZZZZZ	31071	3.02	29460	5.58	66625	7.15	29552	7.68	24040	8.17	1
ZZZZZZ	30461	3.02	28858	5.58	70213	7.15	29094	7.68	21831	8.17	1
FC2270-2	30266	3.02	28002	5.56	65040	7.15	26308	7.68	25805	8.16	1
OP95216-DUP	30735	3.02	29904	5.58	71582	7.15	27455	7.68	23071	8.17	1
ZZZZZZ	30797	3.02	30744	5.58	68044	7.16	26788	7.69	22673	8.17	1
ZZZZZZ	30979	3.02	29682	5.58	69376	7.15	26799	7.69	23549	8.18	1
ZZZZZZ	29695	3.02	28387	5.56	61140	7.15	26214	7.68	20648	8.17	1

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFHxA
IS 3 = 13C4-PFOA
IS 4 = 13C5-PFNA
IS 5 = 13C2-PFDA

(a) Sample areas corrected for dilution where applicable.
(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.
(c) Check Std Limit = -70 to +100% of initial cal area.
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	**Injection Date:**	02/03/23
Lab File ID:	6Q12900.D	**Injection Time:**	13:45
Instrument ID:	GCMS6Q	**Method:**	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal [b]	6781	7.29	10607	8.35
Check Std [c]	6699	7.27	10964	8.35
Upper Limit [d]	13562	7.67	21214	8.75
Lower Limit [e]	2034	6.87	3182	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF [a]
S6Q198-ICCB	6785	7.29	9829	8.35	1
ZZZZZZ	5564	7.29	9968	8.35	1
ZZZZZZ	6117	7.27	9789	8.35	1
ZZZZZZ	5818	7.27	10000	8.35	1
ZZZZZZ	6152	7.27	9473	8.35	1
FC2270-2	5813	7.27	9399	8.33	1
OP95216-DUP	5877	7.27	8058	8.33	1
ZZZZZZ	5764	7.29	9283	8.35	1
ZZZZZZ	5840	7.29	10179	8.35	1
ZZZZZZ	4925	7.27	7950	8.35	1

IS 6 = 18O2-PFHXS
IS 7 = 13C4-PFOS

(a) Sample areas corrected for dilution where applicable.
(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.
(c) Check Std Limit = -70 to +100% of initial cal area.
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

TDCA Retention Time Check

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-RT
Lab File ID: 6Q12720.D
Instrument ID: GCMS6Q
Injection Date: 02/01/23
Injection Time: 17:09

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.347	--	--
TDCA	6.832	1.515	1.000
TCDCA	6.671	1.676	1.000
TUDCA	5.819	2.528	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q196-IC196	6Q12722.D	02/01/23	17:37	00:28	Mass Calibration Verification
S6Q196-IC196	6Q12723.D	02/01/23	17:51	00:42	Initial cal 1
S6Q196-IC196	6Q12724.D	02/01/23	18:05	00:56	Initial cal 2
S6Q196-IC196	6Q12725.D	02/01/23	18:19	01:10	Initial cal 3
S6Q196-ICC196	6Q12726.D	02/01/23	18:33	01:24	Initial cal 4
S6Q196-IC196	6Q12727.D	02/01/23	18:47	01:38	Initial cal 5
S6Q196-IC196	6Q12728.D	02/01/23	19:01	01:52	Initial cal 6
S6Q196-IC196	6Q12729.D	02/01/23	19:15	02:06	Initial cal 7
S6Q196-IC196	6Q12730.D	02/01/23	19:29	02:20	Initial cal 8
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-ICV196	6Q12732.D	02/01/23	19:57	02:48	Initial cal verification 4
S6Q196-ICV196	6Q12733.D	02/01/23	20:11	03:02	Initial cal verification 4
S6Q196-CC196	6Q12734.D	02/01/23	20:25	03:16	Continuing cal 4
S6Q196-CC196	6Q12735.D	02/01/23	20:39	03:30	Continuing cal 1.0LL
OP94938-BS	6Q12736.D	02/01/23	20:53	03:44	Blank Spike
OP94938-LLBS	6Q12737.D	02/01/23	21:07	03:58	Blank Spike
OP94938-MB	6Q12738.D	02/01/23	21:21	04:12	Method Blank
ZZZZZZ	6Q12739.D	02/01/23	21:35	04:26	(unrelated sample)
ZZZZZZ	6Q12740.D	02/01/23	21:49	04:40	(unrelated sample)
ZZZZZZ	6Q12741.D	02/01/23	22:03	04:54	(unrelated sample)
ZZZZZZ	6Q12742.D	02/01/23	22:17	05:08	(unrelated sample)
ZZZZZZ	6Q12743.D	02/01/23	22:31	05:22	(unrelated sample)
FC1643-12	6Q12744.D	02/01/23	22:45	05:36	(used for QC only; not part of job FC2228)
OP94938-MS	6Q12745.D	02/01/23	22:59	05:50	Matrix Spike
S6Q196-CC196	6Q12746.D	02/01/23	23:13	06:04	Continuing cal 4
S6Q196-ICCB	6Q12747.D	02/01/23	23:27	06:18	Continuing Calibration Blank
FC1643-13	6Q12748.D	02/01/23	23:41	06:32	(used for QC only; not part of job FC2228)
OP94938-DUP	6Q12749.D	02/01/23	23:55	06:46	Duplicate
ZZZZZZ	6Q12750.D	02/02/23	00:09	07:00	(unrelated sample)
ZZZZZZ	6Q12751.D	02/02/23	00:22	07:13	(unrelated sample)
ZZZZZZ	6Q12752.D	02/02/23	00:36	07:27	(unrelated sample)
ZZZZZZ	6Q12753.D	02/02/23	00:50	07:41	(unrelated sample)
ZZZZZZ	6Q12755.D	02/02/23	01:18	08:09	(unrelated sample)

TDCA Retention Time Check

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-RT
Lab File ID: 6Q12720.D
Instrument ID: GCMS6Q
Injection Date: 02/01/23
Injection Time: 17:09

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q12756.D	02/02/23	01:32	08:23	(unrelated sample)
ZZZZZZ	6Q12757.D	02/02/23	01:46	08:37	(unrelated sample)
S6Q196-CC196	6Q12758.D	02/02/23	02:00	08:51	Continuing cal 4
S6Q196-ICCB	6Q12759.D	02/02/23	02:14	09:05	Continuing Calibration Blank
ZZZZZZ	6Q12761.D	02/02/23	02:42	09:33	(unrelated sample)
ZZZZZZ	6Q12762.D	02/02/23	02:56	09:47	(unrelated sample)
ZZZZZZ	6Q12763.D	02/02/23	03:10	10:01	(unrelated sample)
ZZZZZZ	6Q12764.D	02/02/23	03:24	10:15	(unrelated sample)
ZZZZZZ	6Q12765.D	02/02/23	03:38	10:29	(unrelated sample)
ZZZZZZ	6Q12766.D	02/02/23	03:52	10:43	(unrelated sample)
ZZZZZZ	6Q12767.D	02/02/23	04:06	10:57	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23	04:34	11:25	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23	04:48	11:39	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23	05:02	11:53	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23	05:16	12:07	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23	05:30	12:21	Blank Spike

TDCA Retention Time Check

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-RT
Lab File ID: 6Q12884.D
Instrument ID: GCMS6Q
Injection Date: 02/03/23
Injection Time: 10:02

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.334	--	--
TDCA	6.820	1.514	1.000
TCDCA	6.658	1.676	1.000
TUDCA	5.806	2.528	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q198-IBLK	6Q12887.D	02/03/23	10:44	00:42	Instrument Blank
S6Q198-IBLK	6Q12887.D	02/03/23	10:44	00:42	Instrument Blank
S6Q198-CC196	6Q12888.D	02/03/23	10:58	00:56	Continuing cal 4
S6Q198-CC196	6Q12889.D	02/03/23	11:12	01:10	Continuing cal 1.0LL
OP95216-BS	6Q12890.D	02/03/23	11:26	01:24	Blank Spike
OP95216-LLBS	6Q12891.D	02/03/23	11:40	01:38	Blank Spike
OP95216-MB	6Q12892.D	02/03/23	11:54	01:52	Method Blank
ZZZZZZ	6Q12893.D	02/03/23	12:08	02:06	(unrelated sample)
ZZZZZZ	6Q12894.D	02/03/23	12:21	02:19	(unrelated sample)
FC2228-1	6Q12895.D	02/03/23	12:35	02:33	AF-RHMW16-WGN01LF-2301W4
FC2228-2	6Q12896.D	02/03/23	12:49	02:47	AF-RHMW12A-WGN01LF-2301W4
FC2228-3	6Q12897.D	02/03/23	13:03	03:01	AF-RHMW12A-WGFD01LF-2301W4
FC2239-1	6Q12898.D	02/03/23	13:17	03:15	(used for QC only; not part of job FC2228)
OP95216-MS	6Q12899.D	02/03/23	13:31	03:29	Matrix Spike
S6Q198-CC196	6Q12900.D	02/03/23	13:45	03:43	Continuing cal 4
S6Q198-ICCB	6Q12901.D	02/03/23	13:59	03:57	Continuing Calibration Blank
ZZZZZZ	6Q12902.D	02/03/23	14:13	04:11	(unrelated sample)
ZZZZZZ	6Q12903.D	02/03/23	14:27	04:25	(unrelated sample)
ZZZZZZ	6Q12904.D	02/03/23	14:41	04:39	(unrelated sample)
ZZZZZZ	6Q12905.D	02/03/23	14:55	04:53	(unrelated sample)
FC2270-2	6Q12906.D	02/03/23	15:09	05:07	(used for QC only; not part of job FC2228)
OP95216-DUP	6Q12907.D	02/03/23	15:23	05:21	Duplicate
ZZZZZZ	6Q12908.D	02/03/23	15:37	05:35	(unrelated sample)
ZZZZZZ	6Q12909.D	02/03/23	15:51	05:49	(unrelated sample)
ZZZZZZ	6Q12910.D	02/03/23	16:05	06:03	(unrelated sample)
S6Q198-CC196	6Q12911.D	02/03/23	16:19	06:17	Continuing cal 4
S6Q198-CC196	6Q12912.D	02/03/23	16:33	06:31	Continuing cal 1.0LL
S6Q198-ICCB	6Q12913.D	02/03/23	16:47	06:45	Continuing Calibration Blank
OP95034-BS	6Q12914.D	02/03/23	17:01	06:59	Blank Spike
OP95034-LLBS	6Q12915.D	02/03/23	17:15	07:13	Blank Spike
OP95034-MB	6Q12916.D	02/03/23	17:29	07:27	Method Blank
ZZZZZZ	6Q12917.D	02/03/23	17:43	07:41	(unrelated sample)
JD58693-1B	6Q12918.D	02/03/23	17:57	07:55	(used for QC only; not part of job FC2228)
OP95034-MS	6Q12919.D	02/03/23	18:11	08:09	Matrix Spike

TDCA Retention Time Check

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-RT
Lab File ID: 6Q12884.D
Instrument ID: GCMS6Q
Injection Date: 02/03/23
Injection Time: 10:02

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP95034-MSD	6Q12920.D	02/03/23	18:25	08:23	Matrix Spike Duplicate
ZZZZZZ	6Q12921.D	02/03/23	18:39	08:37	(unrelated sample)
ZZZZZZ	6Q12922.D	02/03/23	18:53	08:51	(unrelated sample)
ZZZZZZ	6Q12923.D	02/03/23	19:07	09:05	(unrelated sample)
S6Q198-CC196	6Q12924.D	02/03/23	19:21	09:19	Continuing cal 4
S6Q198-ICCB	6Q12925.D	02/03/23	19:35	09:33	Continuing Calibration Blank
ZZZZZZ	6Q12926.D	02/03/23	19:49	09:47	(unrelated sample)
ZZZZZZ	6Q12927.D	02/03/23	20:03	10:01	(unrelated sample)
ZZZZZZ	6Q12928.D	02/03/23	20:17	10:15	(unrelated sample)
ZZZZZZ	6Q12929.D	02/03/23	20:31	10:29	(unrelated sample)
ZZZZZZ	6Q12930.D	02/03/23	20:45	10:43	(unrelated sample)
ZZZZZZ	6Q12931.D	02/03/23	20:59	10:57	(unrelated sample)
ZZZZZZ	6Q12932.D	02/03/23	21:13	11:11	(unrelated sample)
ZZZZZZ	6Q12933.D	02/03/23	21:27	11:25	(unrelated sample)
ZZZZZZ	6Q12934.D	02/03/23	21:41	11:39	(unrelated sample)
ZZZZZZ	6Q12935.D	02/03/23	21:55	11:53	(unrelated sample)
S6Q198-CC196	6Q12936.D	02/03/23	22:09	12:07	Continuing cal 4
S6Q198-ICCB	6Q12937.D	02/03/23	22:23	12:21	Continuing Calibration Blank
ZZZZZZ	6Q12938.D	02/03/23	22:37	12:35	(unrelated sample)
ZZZZZZ	6Q12939.D	02/03/23	22:51	12:49	(unrelated sample)
ZZZZZZ	6Q12940.D	02/03/23	23:05	13:03	(unrelated sample)
ZZZZZZ	6Q12941.D	02/03/23	23:19	13:17	(unrelated sample)
OP95035-BS	6Q12942.D	02/03/23	23:33	13:31	Blank Spike
OP95035-LLBS	6Q12943.D	02/03/23	23:47	13:45	Blank Spike
OP95035-MB	6Q12944.D	02/04/23	00:01	13:59	Method Blank
JD58693-19B	6Q12945.D	02/04/23	00:15	14:13	(used for QC only; not part of job FC2228)
OP95035-MS	6Q12946.D	02/04/23	00:29	14:27	Matrix Spike
OP95035-MSD	6Q12947.D	02/04/23	00:43	14:41	Matrix Spike Duplicate
S6Q198-CC196	6Q12948.D	02/04/23	00:57	14:55	Continuing cal 4
S6Q198-ICCB	6Q12949.D	02/04/23	01:11	15:09	Continuing Calibration Blank
ZZZZZZ	6Q12950.D	02/04/23	01:24	15:22	(unrelated sample)
ZZZZZZ	6Q12951.D	02/04/23	01:38	15:36	(unrelated sample)
ZZZZZZ	6Q12952.D	02/04/23	01:52	15:50	(unrelated sample)
ZZZZZZ	6Q12953.D	02/04/23	02:06	16:04	(unrelated sample)
ZZZZZZ	6Q12954.D	02/04/23	02:20	16:18	(unrelated sample)
S6Q198-ECC196	6Q12955.D	02/04/23	02:34	16:32	Ending cal 4
S6Q198-ICCB	6Q12956.D	02/04/23	02:48	16:46	Continuing Calibration Blank

Ion Ratio Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q198 **Method:** EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios PFPeA	PFHxA	PFOS	6:2FTS
S6Q196-ICC196	6Q12726.D	0	4.3	68.1	18.6
FC2228-1	6Q12895.D				
FC2228-2	6Q12896.D	0	3.2		19.9
FC2228-3	6Q12897.D	0	5.7	60.4	20.2

Isotope Dilution Standard Recovery Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC2228-1	6Q12895.D	105	113	117	112	110	103	103	96
FC2228-2	6Q12896.D	44	109	112	108	107	104	107	100
FC2228-3	6Q12897.D	40	109	108	109	107	95	114	101
OP95216-BS	6Q12890.D	23	109	114	108	114	115	117	110
OP95216-DUP	6Q12907.D	104	108	105	108	96	102	117	103
OP95216-LLBS	6Q12891.D	106	108	107	108	99	102	106	103
OP95216-MB	6Q12892.D	101	108	107	107	105	107	113	112
OP95216-MS	6Q12899.D	101	113	118	112	105	101	114	105
S6Q198-IBLK	6Q12887.D	100	102	101	99	94	101	112	107
S6Q198-ICCB	6Q12901.D	98	99	92	104	102	92	105	99

Isotope Dilution Standards	Recovery Limits
S1 = 13C4-PFBA	20-150%
S2 = 13C5-PFPeA	20-150%
S3 = 13C5-PFHxA	20-150%
S4 = 13C4-PFHpA	20-150%
S5 = 13C8-PFOA	20-150%
S6 = 13C9-PFNA	20-150%
S7 = 13C6-PFDA	20-150%
S8 = 13C7-PFUnDA	20-150%

Isotope Dilution Standard Recovery Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC2228-1	6Q12895.D	91	83	104	115	105	109	101	97
FC2228-2	6Q12896.D	94	89	106	113	97	101	98	96
FC2228-3	6Q12897.D	87	79	94	90	103	107	92	93
OP95216-BS	6Q12890.D	105	104	109	110	115	123	112	112
OP95216-DUP	6Q12907.D	100	80	99	105	109	127	110	104
OP95216-LLBS	6Q12891.D	100	80	101	110	105	101	85	83
OP95216-MB	6Q12892.D	94	90	91	94	93	92	79	81
OP95216-MS	6Q12899.D	93	77	110	113	95	99	83	83
S6Q198-IBLK	6Q12887.D	99	107	105	105	99	107	98	99
S6Q198-ICCB	6Q12901.D	99	104	95	88	105	109		

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	20-150%
S10 = 13C2-PFTeDA	20-150%
S11 = 13C3-PFBS	20-150%
S12 = 13C3-PFHxS	20-150%
S13 = 13C8-PFOS	20-150%
S14 = 13C8-FOSA	20-150%
S15 = d3-MeFOSA	20-150%
S16 = d5-EtFOSA	20-150%

Isotope Dilution Standard Recovery Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC2228-1	6Q12895.D	102	94	98	101	123	122	115	115
FC2228-2	6Q12896.D	101	93	94	98	124	114	113	116
FC2228-3	6Q12897.D	96	89	89	90	116	103	109	113
OP95216-BS	6Q12890.D	119	119	109	118	117	123	117	116
OP95216-DUP	6Q12907.D	167* [a]	176* [a]	106	111	116	96	94	110
OP95216-LLBS	6Q12891.D	107	99	90	94	124	114	123	113
OP95216-MB	6Q12892.D	85	84	88	94	105	109	107	107
OP95216-MS	6Q12899.D	95	91	80	82	121	124	119	124
S6Q198-IBLK	6Q12887.D	101	102	105	107	114	115	114	98
S6Q198-ICCB	6Q12901.D	103	108			110	96	94	

Isotope Dilution Standards	Recovery Limits
S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

(a) Outside control limits.

Initial Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
Lab FileID: 6Q12726.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	1633_020223_S6Q196.quantmethod.xml
Batch Name	D:\MassHunter\Data\020123_1633_S6Q196\QuantResults\S6Q196.batch.bin
Last Calib Update	2/2/2023 9:18:07 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d	2/1/2023 5:51:17 PM	2/2/2023 9:18:07 AM
2	D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d	2/1/2023 6:05:15 PM	2/2/2023 9:18:07 AM
3	D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d	2/1/2023 6:19:14 PM	2/2/2023 9:18:07 AM
4	D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d	2/1/2023 6:33:16 PM	2/2/2023 9:18:07 AM
5	D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d	2/1/2023 6:47:16 PM	2/2/2023 9:18:07 AM
6	D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d	2/1/2023 7:01:15 PM	2/2/2023 9:18:07 AM
7	D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d	2/1/2023 7:15:14 PM	2/2/2023 9:18:07 AM
8	D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d	2/1/2023 7:29:13 PM	2/2/2023 9:18:07 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M4-PFBA				---------- ISTD ----------							
T PFBA	Avg RF	0.2276	0.2186	0.2063	0.2053	0.2231	0.2267	0.2405	0.2387	0.2233	5.862
I M5-PFPeA				---------- ISTD ----------							
T PFMPA	Avg RF	0.2898	0.2844	0.2616	0.2528	0.2786	0.2819	0.3031	0.3004	0.2816	6.191
T 3:3FTCA	Avg RF	0.0503	0.0504	0.0470	0.0471	0.0519	0.0531	0.0569	0.0580	0.0519	7.825
T PFPeA	Avg RF	1.0896	1.0782	0.9681	0.9537	1.0510	1.0728	1.1367	1.0963	1.0558	6.018
T PFMBA	Avg RF	0.3013	0.2949	0.2744	0.2677	0.3014	0.2935	0.3232	0.3191	0.2969	6.488
I M5-PFHxA				---------- ISTD ----------							
T NFDHA	Avg RF	0.0619	0.0639	0.0522	0.0545	0.0555	0.0567	0.0609	0.0582	0.0580	6.948
T PFHxA	Avg RF	1.0729	0.9805	0.9278	0.8722	0.9592	0.9179	1.0959	1.0197	0.9808	7.924
T PFEESA	Avg RF	1.4355	1.3846	1.2799	1.3482	1.4696	1.3505	1.5544	1.4703	1.4116	6.199
T 5:3FTCA	Avg RF	0.1919	0.2100	0.2007	0.1964	0.2025	0.2024	0.2250	0.2114	0.2050	5.026
T 7:3FTCA	Avg RF	0.1385	0.1426	0.1232	0.1230	0.1328	0.1302	0.1440	0.1379	0.1340	6.078
I M4-PFHpA				---------- ISTD ----------							
T PFHpA	Avg RF	1.6502	1.4699	1.3467	1.3667	1.5041	1.4091	1.6025	1.4971	1.4808	7.245
I M8-PFOA				---------- ISTD ----------							
T PFOA	Avg RF	1.0927	1.1466	1.1478	0.9761	1.1128	1.0473	1.1619	1.1229	1.1010	5.657
I M9-PFNA				---------- ISTD ----------							
T PFNA	Avg RF	0.9226	0.8817	0.7398	0.7480	0.8690	0.8777	0.8562	0.8508	0.8432	7.714
I M6-PFDA				---------- ISTD ----------							
T PFDA	Avg RF	1.4209	1.4499	1.3862	1.3341	1.4190	1.3885	1.5003	1.4809	1.4225	3.805
I M7-PFUnDA				---------- ISTD ----------							
T PFUnDA	Avg RF	1.0138	0.9904	0.9062	0.9216	0.9586	0.9023	1.0968	0.9975	0.9734	6.749
I M2-PFDoDA				---------- ISTD ----------							

Generated at 9:25 AM on 2/2/2023

Initial Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
Lab FileID: 6Q12726.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0869	0.8485	0.8749	0.8659	0.8957	0.9382	0.9315	0.8856	0.9159	8.257
T PFTrDA	Avg RF	0.8998	0.9351	0.8755	0.8081	0.9157	0.8672	0.9244	0.7824	0.8760	6.317
I M2-PFTeDA				---------- ISTD ----------							
T PFTeDA	Avg RF	1.4016	1.4058	1.3373	1.2453	1.3806	1.4287	1.3422	1.2474	1.3486	5.213
I M8-FOSA				---------- ISTD ----------							
T FOSA	Avg RF	1.0891	0.9836	0.9477	0.9188	0.9805	1.0433	1.0192	0.9998	0.9978	5.373
I M3-PFBS				---------- ISTD ----------							
T PFBS	Avg RF	1.0164	0.9927	0.8723	0.9341	0.9337	0.9182	0.9839	1.0317	0.9604	5.669
I M3-PFHxS				---------- ISTD ----------							
T PFPeS	Avg RF	1.4478	1.3486	1.3135	1.2398	1.2409	1.2780	1.2732	1.3102	1.3065	5.213
T PFHxS	Avg RF	1.1838	1.1824	1.1680	1.0216	1.0951	1.0861	1.1297	1.1193	1.1233	4.959
I M8-PFOS				---------- ISTD ----------							
T PFHpS	Avg RF	1.0476	0.9667	1.0647	0.9956	1.0452	1.0704	1.2115	1.0825	1.0605	6.839
T PFOS	Avg RF	1.1857	1.2286	1.1889	1.0099	1.0487	1.1202	1.2552	1.1386	1.1470	7.432
T PFNS	Avg RF	1.1067	1.0964	1.1371	1.0284	1.0840	1.1028	1.1930	1.1426	1.1114	4.337
T PFDS	Avg RF	1.0305	0.7885	0.8257	0.7592	0.8124	0.8558	0.8595	0.8435	0.8469	9.647
T PFDoDS	Avg RF	0.5549	0.4534	0.5598	0.4511	0.5036	0.4958	0.5543	0.4792	0.5065	8.898
I M2-4:2FTS				---------- ISTD ----------							
T 4:2FTS	Avg RF	11.19	11.51	10.01	11.13	12.29	12.08	10.61	10.87	11.21	6.675
I M2-6:2FTS				---------- ISTD ----------							
T 6:2FTS	Avg RF	7.5607	7.5633	6.7468	7.1612	7.3014	7.5899	7.6131	7.0353	7.3215	4.353
I M2-8:2FTS				---------- ISTD ----------							
T 8:2FTS	Avg RF	4.8811	3.8177	3.8178	4.2246	3.1202	3.9674	3.8311	3.4051	3.8831	13.562
I M3-MeFOSAA				---------- ISTD ----------							
T MeFOSAA	Avg RF	0.9674	0.8304	0.8441	0.8334	0.9649	0.9193	0.9903	0.9808	0.9163	7.613
I M3-HFPO-DA				---------- ISTD ----------							
T HFPO-DA	Avg RF	0.8589	0.9429	0.8775	0.8316	1.0035	1.0176	0.9671	0.9835	0.9353	7.533
T ADONA	Avg RF	23.52	20.89	19.96	19.80	22.49	22.43	22.58	21.89	21.69	6.174
T 9Cl-PF3ONS	Avg RF	12.20	11.68	12.28	11.41	12.43	12.47	12.67	11.91	12.13	3.544
T 11Cl-PF3OUdS	Avg RF	7.5319	6.9540	6.8739	6.5937	7.4538	7.7075	7.3631	6.9299	7.1760	5.426
I M5-EtFOSAA				---------- ISTD ----------							
T EtFOSAA	Avg RF	0.9077	0.7765	0.8579	0.7570	0.7208	0.7665	0.8126	0.8076	0.8008	7.457
I M7-MeFOSE				---------- ISTD ----------							
T MeFOSE	Avg RF	1.0489	0.9573	0.8407	0.9142	1.0213	1.0748	1.0489	1.0722	0.9973	8.521
I M9-EtFOSE				---------- ISTD ----------							
T EtFOSE	Avg RF	1.1380	1.0263	0.9375	0.9659	1.0687	1.0494	1.1224	1.2521	1.0700	9.428

Generated at 9:25 AM on 2/2/2023

Initial Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
Lab FileID: 6Q12726.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EtFOSA				---------- ISTD ----------							
T EtFOSA	Avg RF	1.2028	1.2186	1.1488	1.1382	1.2362	1.1454	1.2307	1.2247	1.1932	3.507
I M3-MeFOSA				---------- ISTD ----------							
T MeFOSA	Avg RF	1.0138	1.1668	1.0985	1.0489	1.0960	1.1108	1.0839	1.0328	1.0814	4.511
I 13C4-PFOS				---------- ISTD ----------							
S d3-MeFOSAA	Linear	1.3569	1.4568	1.3571	1.3674	1.4321	1.3628	1.3447	1.2851	1.3704	3.865
S 13C8-PFOS	Linear	0.7870	0.8704	0.7773	0.8452	0.8821	0.8224	0.7658	0.8248	0.8219	5.220
S d5-EtFOSAA	Linear	1.1118	1.1374	1.0231	1.0810	1.2855	1.1796	1.1416	1.1353	1.1369	6.700
S 13C8-FOSA	Linear	1.5538	1.7346	1.6616	1.6593	1.6703	1.5708	1.5605	1.6168	1.6285	3.934
S d7-MeFOSE	Linear	0.2778	0.3024	0.2941	0.2850	0.2948	0.2700	0.2780	0.2687	0.2839	4.337
S d3-MeFOSA	Linear	0.6548	0.6685	0.6762	0.6713	0.7405	0.7128	0.7266	0.7615	0.7015	5.574
S d9-EtFOSE	Linear	0.1853	0.2058	0.2028	0.1928	0.2076	0.2049	0.1907	0.1752	0.1956	5.931
S d5-EtFOSA	Linear	0.7202	0.7499	0.7557	0.7451	0.7856	0.8086	0.7716	0.7687	0.7632	3.530
I 13C3-PFBA				---------- ISTD ----------							
S 13C4-PFBA	Linear	1.0956	1.1107	1.1148	1.1092	1.1080	1.0994	1.1283	1.1114	1.1097	0.890
I 18O2-PFHxS				---------- ISTD ----------							
S 13C2-4:2FTS	Linear	0.1768	0.1841	0.1871	0.1586	0.1563	0.1495	0.1597	0.1285	0.1626	11.994
S 13C3-PFBS	Linear	2.0574	2.1353	2.0836	1.9350	2.0478	2.0947	1.9897	1.9483	2.0365	3.531
S 13C2-6:2FTS	Linear	0.2319	0.2311	0.2354	0.2185	0.2245	0.2074	0.1992	0.1774	0.2157	9.240
S 13C3-PFHxS	Linear	1.2719	1.2903	1.2870	1.2640	1.3253	1.3372	1.3914	1.3481	1.3144	3.325
S 13C2-8:2FTS	Linear	0.2200	0.2385	0.2366	0.1955	0.2234	0.2057	0.2105	0.2027	0.2166	7.265
I 13C4-PFOA				---------- ISTD ----------							
S 13C8-PFOA	Linear	0.8679	0.8294	0.8117	0.8535	0.8360	0.8507	0.8137	0.8159	0.8348	2.505
I 13C2-PFDA				---------- ISTD ----------							
S 13C6-PFDA	Linear	0.7226	0.6539	0.7100	0.7085	0.6791	0.7016	0.6964	0.6915	0.6954	3.058
S 13C7-PFUnDA	Linear	0.8718	0.7912	0.8611	0.8732	0.8156	0.8562	0.8084	0.7752	0.8316	4.644
S 13C2-PFDoDA	Linear	0.9377	0.8998	0.9674	0.9856	0.9570	0.9483	0.9260	0.9877	0.9512	3.151
S 13C2-PFTeDA	Linear	0.5454	0.5096	0.5432	0.5657	0.5411	0.5437	0.5638	0.5823	0.5493	3.949
I 13C5-PFNA				---------- ISTD ----------							
S 13C9-PFNA	Linear	0.8608	0.8203	0.9476	0.9161	0.8220	0.8447	0.8814	0.9452	0.8798	5.871
I 13C2-PFHxA				---------- ISTD ----------							
S 13C5-PFPeA	Linear	0.5721	0.5315	0.5921	0.5764	0.5544	0.5415	0.5295	0.5595	0.5571	4.015
S 13C5-PFHxA	Linear	1.0323	0.9467	1.0342	0.9981	0.9985	0.9768	0.9156	1.0123	0.9893	4.178
S 13C3-HFPO-DA	Linear	0.1033	0.1027	0.1078	0.1044	0.1007	0.0955	0.1003	0.1025	0.1022	3.480
S 13C4-PFHpA	Linear	1.0274	1.0208	1.0891	1.0647	1.0182	1.0227	0.9510	1.0603	1.0318	4.032

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:25 AM on 2/2/2023

Initial Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
Lab FileID: 6Q12726.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	y = 1.109666 * x	
S 13C5-PFPeA	Linear	y = 0.557122 * x	
S 13C2-4:2FTS	Linear	y = 0.162589 * x	
S 13C3-PFBS	Linear	y = 2.036463 * x	
S 13C5-PFHxA	Linear	y = 0.989296 * x	
S 13C3-HFPO-DA	Linear	y = 0.102160 * x	
S 13C4-PFHpA	Linear	y = 1.031788 * x	
S 13C2-6:2FTS	Linear	y = 0.215677 * x	
S 13C8-PFOA	Linear	y = 0.834844 * x	
S 13C3-PFHxS	Linear	y = 1.314395 * x	
S 13C9-PFNA	Linear	y = 0.879761 * x	
S 13C2-8:2FTS	Linear	y = 0.216620 * x	
S 13C6-PFDA	Linear	y = 0.695428 * x	
S d3-MeFOSAA	Linear	y = 1.370372 * x	
S 13C8-PFOS	Linear	y = 0.821867 * x	
S d5-EtFOSAA	Linear	y = 1.136923 * x	
S 13C7-PFUnDA	Linear	y = 0.831601 * x	
S 13C2-PFDoDA	Linear	y = 0.951192 * x	
S 13C8-FOSA	Linear	y = 1.628463 * x	
S 13C2-PFTeDA	Linear	y = 0.549346 * x	
S d7-MeFOSE	Linear	y = 0.283861 * x	
S d3-MeFOSA	Linear	y = 0.701522 * x	
S d9-EtFOSE	Linear	y = 0.195634 * x	
S d5-EtFOSA	Linear	y = 0.763177 * x	

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:25 AM on 2/2/2023

Initial Calibration Verification

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q196-ICV196
Lab FileID: 6Q12732.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\S6Q196.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12732
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.205	4.1	104.1
13C2-6:2FTS	5.000	4.783	-4.3	95.7
13C2-8:2FTS	5.000	5.360	7.2	107.2
13C2-PFDoDA	1.250	1.214	-2.9	97.1
13C2-PFTeDA	1.250	1.262	1.0	101.0
13C3-PFBS	2.500	2.408	-3.7	96.3
13C3-PFHxS	2.500	2.594	3.8	103.8
13C4-PFBA	10.000	10.155	1.5	101.5
13C4-PFHpA	2.500	2.572	2.9	102.9
13C5-PFHxA	2.500	2.583	3.3	103.3
13C5-PFPeA	5.000	5.009	0.2	100.2
13C6-PFDA	1.250	1.234	-1.3	98.7
13C7-PFUnDA	1.250	1.306	4.5	104.5
13C8-FOSA	2.500	2.421	-3.1	96.9
13C8-PFOA	2.500	2.460	-1.6	98.4
13C8-PFOS	2.500	2.148	-14.1	85.9
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	9.375	9.356	-0.2	99.8
6:2FTS	9.500	10.247	7.9	107.9
8:2FTS	9.600	8.962	-6.6	93.4
d3-MeFOSAA	5.000	4.572	-8.6	91.4
EtFOSAA	2.500	2.406	-3.8	96.2
FOSA	2.500	2.417	-3.3	96.7
MeFOSAA	2.500	2.534	1.3	101.3
PFBA	10.000	9.843	-1.6	98.4
PFBS	2.218	2.206	-0.5	99.5
PFDA	2.500	2.494	-0.3	99.7
PFDoDA	2.500	2.527	1.1	101.1
PFDS	2.413	2.460	1.9	101.9
PFHpA	2.500	2.308	-7.7	92.3
PFHpS	2.383	2.541	6.6	106.6
PFHxA	2.500	2.400	-4.0	96.0
PFHxS	2.285	2.057	-10.0	90.0
PFNA	2.500	2.317	-7.3	92.7
PFNS	2.405	2.686	11.7	111.7
PFOA	2.500	2.378	-4.9	95.1
PFOS	2.320	2.546	9.7	109.7

Initial Calibration Verification

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
Lab FileID: 6Q12732.D

PFPeA	5.000	5.008	0.2	100.2
PFPeS	2.353	2.227	-5.4	94.6
PFTeDA	2.500	2.395	-4.2	95.8
PFTrDA	2.500	2.528	1.1	101.1
PFUnDA	2.500	2.451	-2.0	98.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	9.292	-1.7	98.3
13C3-HFPO-DA	10.000	10.088	0.9	100.9
9Cl-PF3ONS	9.350	9.080	-2.9	97.1
ADONA	9.450	9.393	-0.6	99.4
HFPO-DA	10.000	10.009	0.1	100.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.036	-3.6	96.4
5:3FTCA	62.400	60.099	-3.7	96.3
7:3FTCA	62.400	61.061	-2.1	97.9
d3-MeFOSA	2.500	2.337	-6.5	93.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.581	3.2	103.2
EtFOSE	25.000	23.324	-6.7	93.3
MeFOSA	2.500	2.516	0.6	100.6
MeFOSE	25.000	26.157	4.6	104.6
PFDoDS	2.425	2.443	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.681	-6.4	93.6
d7-MeFOSE	25.000	22.426	-10.3	89.7
d9-EtFOSE	25.000	24.207	-3.2	96.8
d5-EtFOSA	2.500	2.277	-8.9	91.1
NFDHA	5.000	5.074	1.5	101.5
PFMBA	5.000	5.051	1.0	101.0
PFMPA	5.000	5.022	0.4	100.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.329	-2.7	97.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q196-ICV196
Lab FileID: 6Q12733.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\S6Q196.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12733
Type : QC
Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.593	11.9	111.9
13C2-6:2FTS	5.000	5.181	3.6	103.6
13C2-8:2FTS	5.000	5.492	9.8	109.8
13C2-PFDoDA	1.250	1.252	0.2	100.2
13C2-PFTeDA	1.250	1.200	-4.0	96.0
13C3-PFBS	2.500	2.722	8.9	108.9
13C3-PFHxS	2.500	2.672	6.9	106.9
13C4-PFBA	10.000	10.158	1.6	101.6
13C4-PFHpA	2.500	2.649	6.0	106.0
13C5-PFHxA	2.500	2.567	2.7	102.7
13C5-PFPeA	5.000	5.175	3.5	103.5
13C6-PFDA	1.250	1.282	2.5	102.5
13C7-PFUnDA	1.250	1.226	-1.9	98.1
13C8-FOSA	2.500	2.462	-1.5	98.5
13C8-PFOA	2.500	2.518	0.7	100.7
13C8-PFOS	2.500	2.373	-5.1	94.9
13C9-PFNA	1.250	1.320	5.6	105.6
4:2FTS	20.000	19.315	-3.4	96.6
6:2FTS	20.000	20.624	3.1	103.1
8:2FTS	20.000	20.446	2.2	102.2
d3-MeFOSAA	5.000	4.841	-3.2	96.8
EtFOSAA	20.000	19.986	-0.1	99.9
FOSA	20.000	19.512	-2.4	97.6
MeFOSAA	20.000	18.847	-5.8	94.2
PFBA	20.000	18.040	-9.8	90.2
PFBS	20.000	18.840	-5.8	94.2
PFDA	20.000	19.107	-4.5	95.5
PFDoDA	20.000	17.445	-12.8	87.2
PFDS	20.000	18.543	-7.3	92.7
PFHpA	20.000	17.611	-11.9	88.1
PFHpS	20.000	19.526	-2.4	97.6
PFHxA	20.000	21.244	6.2	106.2
PFHxS	20.000	19.561	-2.2	97.8
PFNA	20.000	19.101	-4.5	95.5
PFNS	20.000	19.797	-1.0	99.0
PFOA	20.000	17.925	-10.4	89.6
PFOS	20.000	16.352	-18.2	81.8

Initial Calibration Verification

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
Lab FileID: 6Q12733.D

PFPeA	20.000	20.419	2.1	102.1
PFPeS	20.000	19.996	0.0	100.0
PFTeDA	20.000	20.962	4.8	104.8
PFTrDA	20.000	17.258	-13.7	86.3
PFUnDA	20.000	18.333	-8.3	91.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.535	2.7	102.7
13C3-HFPO-DA	10.000	10.808	8.1	108.1
9Cl-PF3ONS	20.000	18.389	-8.1	91.9
ADONA	20.000	19.883	-0.6	99.4
HFPO-DA	20.000	18.803	-6.0	94.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.461	-2.7	97.3
5:3FTCA	20.000	19.982	-0.1	99.9
7:3FTCA	20.000	18.979	-5.1	94.9
d3-MeFOSA	2.500	2.381	-4.8	95.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.114	-4.4	95.6
EtFOSE	100.000	93.804	-6.2	93.8
MeFOSA	20.000	20.123	0.6	100.6
MeFOSE	100.000	89.300	-10.7	89.3
PFDoDS	20.000	18.241	-8.8	91.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.685	-6.3	93.7
d7-MeFOSE	25.000	23.932	-4.3	95.7
d9-EtFOSE	25.000	24.440	-2.2	97.8
d5-EtFOSA	2.500	2.410	-3.6	96.4
NFDHA	20.000	18.187	-9.1	90.9
PFMBA	20.000	19.219	-3.9	96.1
PFMPA	20.000	19.012	-4.9	95.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.298	-13.5	86.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12888.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\s6q198.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12888
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.054	1.1	101.1
13C2-6:2FTS	5.000	5.565	11.3	111.3
13C2-8:2FTS	5.000	4.671	-6.6	93.4
13C2-PFDoDA	1.250	1.201	-3.9	96.1
13C2-PFTeDA	1.250	1.257	0.5	100.5
13C3-PFBS	2.500	2.329	-6.8	93.2
13C3-PFHxS	2.500	2.249	-10.1	89.9
13C4-PFBA	10.000	9.982	-0.2	99.8
13C4-PFHpA	2.500	2.559	2.4	102.4
13C5-PFHxA	2.500	2.745	9.8	109.8
13C5-PFPeA	5.000	5.277	5.5	105.5
13C6-PFDA	1.250	1.299	3.9	103.9
13C7-PFUnDA	1.250	1.308	4.7	104.7
13C8-FOSA	2.500	2.552	2.1	102.1
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.509	0.3	100.3
13C9-PFNA	1.250	1.287	3.0	103.0
4:2FTS	9.375	9.603	2.4	102.4
6:2FTS	9.500	8.334	-12.3	87.7
8:2FTS	9.600	10.185	6.1	106.1
d3-MeFOSAA	5.000	5.213	4.3	104.3
EtFOSAA	2.500	2.337	-6.5	93.5
FOSA	2.500	2.285	-8.6	91.4
MeFOSAA	2.500	2.215	-11.4	88.6
PFBA	10.000	9.354	-6.5	93.5
PFBS	2.218	2.250	1.4	101.4
PFDA	2.500	2.469	-1.2	98.8
PFDoDA	2.500	2.421	-3.2	96.8
PFDS	2.413	2.167	-10.2	89.8
PFHpA	2.500	2.234	-10.7	89.3
PFHpS	2.383	2.256	-5.3	94.7
PFHxA	2.500	2.208	-11.7	88.3
PFHxS	2.285	2.257	-1.2	98.8
PFNA	2.500	2.339	-6.5	93.5
PFNS	2.405	2.281	-5.2	94.8
PFOA	2.500	2.146	-14.2	85.8
PFOS	2.320	2.136	-7.9	92.1

Continuing Calibration Summary

Job Number: FC2228 **Sample:** S6Q198-CC196
Account: AECOMCOD AECOM, INC. **Lab FileID:** 6Q12888.D
Project: N6274223F0104 RH Fire Suppression System

PFPeA	5.000	4.509	-9.8	90.2
PFPeS	2.353	2.392	1.7	101.7
PFTeDA	2.500	2.396	-4.2	95.8
PFTrDA	2.500	2.467	-1.3	98.7
PFUnDA	2.500	2.424	-3.0	97.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	8.823	-6.6	93.4
13C3-HFPO-DA	10.000	10.072	0.7	100.7
9Cl-PF3ONS	9.350	8.711	-6.8	93.2
ADONA	9.450	9.435	-0.2	99.8
HFPO-DA	10.000	10.107	1.1	101.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.321	-9.3	90.7
5:3FTCA	62.400	53.223	-14.7	85.3
7:3FTCA	62.400	54.329	-12.9	87.1
d3-MeFOSA	2.500	2.456	-1.8	98.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.204	-11.8	88.2
EtFOSE	25.000	22.039	-11.8	88.2
MeFOSA	2.500	2.348	-6.1	93.9
MeFOSE	25.000	21.984	-12.1	87.9
PFDoDS	2.425	2.141	-11.7	88.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.290	5.8	105.8
d7-MeFOSE	25.000	26.112	4.4	104.4
d9-EtFOSE	25.000	25.964	3.9	103.9
d5-EtFOSA	2.500	2.608	4.3	104.3
NFDHA	5.000	4.430	-11.4	88.6
PFMBA	5.000	4.723	-5.5	94.5
PFMPA	5.000	4.566	-8.7	91.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.795	-14.7	85.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12889.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\s6q198.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12889
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.750	15.0	115.0
13C2-6:2FTS	5.000	5.636	12.7	112.7
13C2-8:2FTS	5.000	5.250	5.0	105.0
13C2-PFDoDA	1.250	1.343	7.4	107.4
13C2-PFTeDA	1.250	1.361	8.9	108.9
13C3-PFBS	2.500	2.637	5.5	105.5
13C3-PFHxS	2.500	2.614	4.6	104.6
13C4-PFBA	10.000	10.154	1.5	101.5
13C4-PFHpA	2.500	2.461	-1.6	98.4
13C5-PFHxA	2.500	2.558	2.3	102.3
13C5-PFPeA	5.000	5.047	0.9	100.9
13C6-PFDA	1.250	1.392	11.3	111.3
13C7-PFUnDA	1.250	1.391	11.2	111.2
13C8-FOSA	2.500	2.598	3.9	103.9
13C8-PFOA	2.500	2.545	1.8	101.8
13C8-PFOS	2.500	2.620	4.8	104.8
13C9-PFNA	1.250	1.386	10.9	110.9
4:2FTS	0.750	0.753	0.4	100.4
6:2FTS	0.760	0.802	5.5	105.5
8:2FTS	0.768	0.976	27.0	127.0
d3-MeFOSAA	5.000	5.407	8.1	108.1
EtFOSAA	0.200	0.212	6.1	106.1
FOSA	0.200	0.215	7.5	107.5
MeFOSAA	0.200	0.230	15.2	115.2
PFBA	0.800	0.879	9.9	109.9
PFBS	0.177	0.163	-8.1	91.9
PFDA	0.200	0.224	11.8	111.8
PFDoDA	0.200	0.216	7.9	107.9
PFDS	0.193	0.195	1.3	101.3
PFHpA	0.200	0.224	12.2	112.2
PFHpS	0.191	0.246	28.6	128.6
PFHxA	0.200	0.209	4.6	104.6
PFHxS	0.183	0.199	8.8	108.8
PFNA	0.200	0.197	-1.4	98.6
PFNS	0.192	0.205	7.0	107.0
PFOA	0.200	0.170	-15.1	84.9
PFOS	0.186	0.212	13.8	113.8

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196
Lab FileID: 6Q12889.D

PFPeA	0.400	0.435	8.6	108.6
PFPeS	0.188	0.200	6.3	106.3
PFTeDA	0.200	0.224	12.0	112.0
PFTrDA	0.200	0.259	29.4	129.4
PFUnDA	0.200	0.208	4.1	104.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	0.756	0.714	-5.6	94.4
13C3-HFPO-DA	10.000	10.545	5.4	105.4
9Cl-PF3ONS	0.748	0.702	-6.2	93.8
ADONA	0.756	0.739	-2.2	97.8
HFPO-DA	0.800	0.828	3.5	103.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.975	-2.3	97.7
5:3FTCA	4.992	4.823	-3.4	96.6
7:3FTCA	4.992	4.874	-2.4	97.6
d3-MeFOSA	2.500	2.521	0.8	100.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.206	3.1	103.1
EtFOSE	2.000	2.060	3.0	103.0
MeFOSA	0.200	0.200	0.2	100.2
MeFOSE	2.000	1.964	-1.8	98.2
PFDoDS	0.194	0.192	-0.8	99.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.162	3.2	103.2
d7-MeFOSE	25.000	26.279	5.1	105.1
d9-EtFOSE	25.000	26.973	7.9	107.9
d5-EtFOSA	2.500	2.432	-2.7	97.3
NFDHA	0.400	0.394	-1.4	98.6
PFMBA	0.400	0.421	5.3	105.3
PFMPA	0.400	0.410	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.362	1.6	101.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12900.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\s6q198.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12900
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.463	9.3	109.3
13C2-6:2FTS	5.000	5.259	5.2	105.2
13C2-8:2FTS	5.000	5.594	11.9	111.9
13C2-PFDoDA	1.250	1.267	1.4	101.4
13C2-PFTeDA	1.250	1.275	2.0	102.0
13C3-PFBS	2.500	2.460	-1.6	98.4
13C3-PFHxS	2.500	2.740	9.6	109.6
13C4-PFBA	10.000	9.952	-0.5	99.5
13C4-PFHpA	2.500	2.563	2.5	102.5
13C5-PFHxA	2.500	2.622	4.9	104.9
13C5-PFPeA	5.000	5.039	0.8	100.8
13C6-PFDA	1.250	1.290	3.2	103.2
13C7-PFUnDA	1.250	1.304	4.3	104.3
13C8-FOSA	2.500	2.638	5.5	105.5
13C8-PFOA	2.500	2.468	-1.3	98.7
13C8-PFOS	2.500	2.492	-0.3	99.7
13C9-PFNA	1.250	1.295	3.6	103.6
4:2FTS	9.375	9.176	-2.1	97.9
6:2FTS	9.500	9.526	0.3	100.3
8:2FTS	9.600	9.051	-5.7	94.3
d3-MeFOSAA	5.000	5.016	0.3	100.3
EtFOSAA	2.500	2.228	-10.9	89.1
FOSA	2.500	2.312	-7.5	92.5
MeFOSAA	2.500	2.451	-2.0	98.0
PFBA	10.000	9.231	-7.7	92.3
PFBS	2.218	2.147	-3.2	96.8
PFDA	2.500	2.414	-3.4	96.6
PFDoDA	2.500	2.438	-2.5	97.5
PFDS	2.413	2.078	-13.9	86.1
PFHpA	2.500	2.179	-12.8	87.2
PFHpS	2.383	2.120	-11.0	89.0
PFHxA	2.500	2.317	-7.3	92.7
PFHxS	2.285	1.929	-15.6	84.4
PFNA	2.500	2.273	-9.1	90.9
PFNS	2.405	2.239	-6.9	93.1
PFOA	2.500	2.315	-7.4	92.6
PFOS	2.320	2.124	-8.5	91.5

Continuing Calibration Summary

Job Number: FC2228 **Sample:** S6Q198-CC196
Account: AECOMCOD AECOM, INC. **Lab FileID:** 6Q12900.D
Project: N6274223F0104 RH Fire Suppression System

PFPeA	5.000	4.681	-6.4	93.6
PFPeS	2.353	2.041	-13.3	86.7
PFTeDA	2.500	2.336	-6.6	93.4
PFTrDA	2.500	2.492	-0.3	99.7
PFUnDA	2.500	2.348	-6.1	93.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	9.127	-3.4	96.6
13C3-HFPO-DA	10.000	10.126	1.3	101.3
9Cl-PF3ONS	9.350	8.668	-7.3	92.7
ADONA	9.450	8.858	-6.3	93.7
HFPO-DA	10.000	9.856	-1.4	98.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.850	-5.0	95.0
5:3FTCA	62.400	55.991	-10.3	89.7
7:3FTCA	62.400	56.163	-10.0	90.0
d3-MeFOSA	2.500	2.313	-7.5	92.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.424	-3.0	97.0
EtFOSE	25.000	23.540	-5.8	94.2
MeFOSA	2.500	2.376	-4.9	95.1
MeFOSE	25.000	22.505	-10.0	90.0
PFDoDS	2.425	2.241	-7.6	92.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.195	3.9	103.9
d7-MeFOSE	25.000	25.096	0.4	100.4
d9-EtFOSE	25.000	24.739	-1.0	99.0
d5-EtFOSA	2.500	2.485	-0.6	99.4
NFDHA	5.000	4.436	-11.3	88.7
PFMBA	5.000	4.933	-1.3	98.7
PFMPA	5.000	4.698	-6.0	94.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.923	-11.8	88.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12911.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\s6q198.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12911
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.901	-2.0	98.0
13C2-6:2FTS	5.000	4.737	-5.3	94.7
13C2-8:2FTS	5.000	4.857	-2.9	97.1
13C2-PFDoDA	1.250	1.272	1.7	101.7
13C2-PFTeDA	1.250	1.303	4.3	104.3
13C3-PFBS	2.500	2.369	-5.2	94.8
13C3-PFHxS	2.500	2.285	-8.6	91.4
13C4-PFBA	10.000	10.123	1.2	101.2
13C4-PFHpA	2.500	2.538	1.5	101.5
13C5-PFHxA	2.500	2.603	4.1	104.1
13C5-PFPeA	5.000	5.191	3.8	103.8
13C6-PFDA	1.250	1.311	4.8	104.8
13C7-PFUnDA	1.250	1.318	5.4	105.4
13C8-FOSA	2.500	2.573	2.9	102.9
13C8-PFOA	2.500	2.420	-3.2	96.8
13C8-PFOS	2.500	2.404	-3.8	96.2
13C9-PFNA	1.250	1.304	4.4	104.4
4:2FTS	9.375	8.739	-6.8	93.2
6:2FTS	9.500	8.863	-6.7	93.3
8:2FTS	9.600	9.285	-3.3	96.7
d3-MeFOSAA	5.000	5.098	2.0	102.0
EtFOSAA	2.500	2.166	-13.4	86.6
FOSA	2.500	2.255	-9.8	90.2
MeFOSAA	2.500	2.324	-7.0	93.0
PFBA	10.000	9.165	-8.3	91.7
PFBS	2.218	1.946	-12.3	87.7
PFDA	2.500	2.409	-3.6	96.4
PFDoDA	2.500	2.432	-2.7	97.3
PFDS	2.413	2.330	-3.4	96.6
PFHpA	2.500	2.333	-6.7	93.3
PFHpS	2.383	2.478	4.0	104.0
PFHxA	2.500	2.284	-8.6	91.4
PFHxS	2.285	2.249	-1.6	98.4
PFNA	2.500	2.265	-9.4	90.6
PFNS	2.405	2.308	-4.0	96.0
PFOA	2.500	2.246	-10.2	89.8
PFOS	2.320	2.168	-6.5	93.5

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12911.D

PFPeA	5.000	4.584	-8.3	91.7
PFPeS	2.353	2.192	-6.8	93.2
PFTeDA	2.500	2.367	-5.3	94.7
PFTrDA	2.500	2.590	3.6	103.6
PFUnDA	2.500	2.266	-9.4	90.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	9.266	-2.0	98.0
13C3-HFPO-DA	10.000	10.374	3.7	103.7
9Cl-PF3ONS	9.350	8.606	-8.0	92.0
ADONA	9.450	9.171	-3.0	97.0
HFPO-DA	10.000	9.935	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.707	-6.2	93.8
5:3FTCA	62.400	56.897	-8.8	91.2
7:3FTCA	62.400	58.640	-6.0	94.0
d3-MeFOSA	2.500	2.415	-3.4	96.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.219	-11.2	88.8
EtFOSE	25.000	22.338	-10.6	89.4
MeFOSA	2.500	2.440	-2.4	97.6
MeFOSE	25.000	22.566	-9.7	90.3
PFDoDS	2.425	2.237	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.104	2.1	102.1
d7-MeFOSE	25.000	25.265	1.1	101.1
d9-EtFOSE	25.000	26.078	4.3	104.3
d5-EtFOSA	2.500	2.556	2.2	102.2
NFDHA	5.000	5.142	2.8	102.8
PFMBA	5.000	4.745	-5.1	94.9
PFMPA	5.000	4.554	-8.9	91.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.117	-7.5	92.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Sample: S6Q198-CC196
Lab FileID: 6Q12912.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\s6q198.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12912
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.664	13.3	113.3
13C2-6:2FTS	5.000	5.841	16.8	116.8
13C2-8:2FTS	5.000	5.342	6.8	106.8
13C2-PFDoDA	1.250	1.298	3.8	103.8
13C2-PFTeDA	1.250	1.253	0.3	100.3
13C3-PFBS	2.500	2.608	4.3	104.3
13C3-PFHxS	2.500	2.707	8.3	108.3
13C4-PFBA	10.000	10.086	0.9	100.9
13C4-PFHpA	2.500	2.452	-1.9	98.1
13C5-PFHxA	2.500	2.347	-6.1	93.9
13C5-PFPeA	5.000	4.831	-3.4	96.6
13C6-PFDA	1.250	1.311	4.9	104.9
13C7-PFUnDA	1.250	1.307	4.6	104.6
13C8-FOSA	2.500	2.520	0.8	100.8
13C8-PFOA	2.500	2.420	-3.2	96.8
13C8-PFOS	2.500	2.449	-2.0	98.0
13C9-PFNA	1.250	1.318	5.4	105.4
4:2FTS	0.750	0.809	7.9	107.9
6:2FTS	0.760	0.724	-4.7	95.3
8:2FTS	0.768	0.789	2.8	102.8
d3-MeFOSAA	5.000	4.845	-3.1	96.9
EtFOSAA	0.200	0.212	6.0	106.0
FOSA	0.200	0.225	12.4	112.4
MeFOSAA	0.200	0.206	3.2	103.2
PFBA	0.800	0.812	1.5	101.5
PFBS	0.177	0.186	4.9	104.9
PFDA	0.200	0.197	-1.7	98.3
PFDoDA	0.200	0.225	12.4	112.4
PFDS	0.193	0.199	3.1	103.1
PFHpA	0.200	0.208	3.9	103.9
PFHpS	0.191	0.233	21.9	121.9
PFHxA	0.200	0.233	16.7	116.7
PFHxS	0.183	0.151	-17.3	82.7
PFNA	0.200	0.200	0.1	100.1
PFNS	0.192	0.208	8.5	108.5
PFOA	0.200	0.209	4.5	104.5
PFOS	0.186	0.230	23.6	123.6

Continuing Calibration Summary

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196
Lab FileID: 6Q12912.D

PFPeA	0.400	0.412	3.1	103.1
PFPeS	0.188	0.170	-9.5	90.5
PFTeDA	0.200	0.226	12.8	112.8
PFTrDA	0.200	0.218	8.9	108.9
PFUnDA	0.200	0.198	-1.2	98.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	0.756	0.767	1.5	101.5
13C3-HFPO-DA	10.000	9.704	-3.0	97.0
9Cl-PF3ONS	0.748	0.775	3.6	103.6
ADONA	0.756	0.758	0.3	100.3
HFPO-DA	0.800	0.773	-3.4	96.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.090	9.2	109.2
5:3FTCA	4.992	5.079	1.7	101.7
7:3FTCA	4.992	5.289	6.0	106.0
d3-MeFOSA	2.500	2.459	-1.6	98.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.198	-1.1	98.9
EtFOSE	2.000	1.882	-5.9	94.1
MeFOSA	0.200	0.222	10.8	110.8
MeFOSE	2.000	2.140	7.0	107.0
PFDoDS	0.194	0.227	17.2	117.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.105	2.1	102.1
d7-MeFOSE	25.000	25.419	1.7	101.7
d9-EtFOSE	25.000	27.211	8.8	108.8
d5-EtFOSA	2.500	2.542	1.7	101.7
NFDHA	0.400	0.493	23.1	123.1
PFMBA	0.400	0.426	6.5	106.5
PFMPA	0.400	0.427	6.8	106.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.377	6.0	106.0

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196 **Method:** EPA DRAFT 1633 **Instrument ID:** GCMS6Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q196-RT	6Q12720.D	02/01/23 17:09	n/a	Retention Time Marker
S6Q196-RT	6Q12721.D	02/01/23 17:23	n/a	Retention Time Marker
S6Q196-IC196	6Q12722.D	02/01/23 17:37	n/a	Mass Calibration Verification
S6Q196-IC196	6Q12723.D	02/01/23 17:51	n/a	Initial cal 1
S6Q196-IC196	6Q12724.D	02/01/23 18:05	n/a	Initial cal 2
S6Q196-IC196	6Q12725.D	02/01/23 18:19	n/a	Initial cal 3
S6Q196-ICC196	6Q12726.D	02/01/23 18:33	n/a	Initial cal 4
S6Q196-IC196	6Q12727.D	02/01/23 18:47	n/a	Initial cal 5
S6Q196-IC196	6Q12728.D	02/01/23 19:01	n/a	Initial cal 6
S6Q196-IC196	6Q12729.D	02/01/23 19:15	n/a	Initial cal 7
S6Q196-IC196	6Q12730.D	02/01/23 19:29	n/a	Initial cal 8
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank
S6Q196-ICV196	6Q12732.D	02/01/23 19:57	n/a	Initial cal verification 4
S6Q196-ICV196	6Q12733.D	02/01/23 20:11	n/a	Initial cal verification 4
S6Q196-CC196	6Q12734.D	02/01/23 20:25	n/a	Continuing cal 4
S6Q196-CC196	6Q12735.D	02/01/23 20:39	n/a	Continuing cal 1.0LL
OP94938-BS	6Q12736.D	02/01/23 20:53	OP94938	Blank Spike
OP94938-LLBS	6Q12737.D	02/01/23 21:07	OP94938	Blank Spike
OP94938-MB	6Q12738.D	02/01/23 21:21	OP94938	Method Blank
ZZZZZZ	6Q12739.D	02/01/23 21:35	OP94938	(unrelated sample)
ZZZZZZ	6Q12740.D	02/01/23 21:49	OP94938	(unrelated sample)
ZZZZZZ	6Q12741.D	02/01/23 22:03	OP94938	(unrelated sample)
ZZZZZZ	6Q12742.D	02/01/23 22:17	OP94938	(unrelated sample)
ZZZZZZ	6Q12743.D	02/01/23 22:31	OP94938	(unrelated sample)
FC1643-12	6Q12744.D	02/01/23 22:45	OP94938	(used for QC only; not part of job FC2228)
OP94938-MS	6Q12745.D	02/01/23 22:59	OP94938	Matrix Spike
S6Q196-CC196	6Q12746.D	02/01/23 23:13	n/a	Continuing cal 4
S6Q196-ICCB	6Q12747.D	02/01/23 23:27	n/a	Continuing Calibration Blank
FC1643-13	6Q12748.D	02/01/23 23:41	OP94938	(used for QC only; not part of job FC2228)
OP94938-DUP	6Q12749.D	02/01/23 23:55	OP94938	Duplicate
ZZZZZZ	6Q12750.D	02/02/23 00:09	OP94938	(unrelated sample)
ZZZZZZ	6Q12751.D	02/02/23 00:22	OP94938	(unrelated sample)
ZZZZZZ	6Q12752.D	02/02/23 00:36	OP94938	(unrelated sample)
ZZZZZZ	6Q12753.D	02/02/23 00:50	OP94938	(unrelated sample)
ZZZZZZ	6Q12755.D	02/02/23 01:18	OP94914	(unrelated sample)
ZZZZZZ	6Q12756.D	02/02/23 01:32	OP94914	(unrelated sample)
ZZZZZZ	6Q12757.D	02/02/23 01:46	OP94914	(unrelated sample)
S6Q196-CC196	6Q12758.D	02/02/23 02:00	n/a	Continuing cal 4
S6Q196-ICCB	6Q12759.D	02/02/23 02:14	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12761.D	02/02/23 02:42	OP95176	(unrelated sample)
ZZZZZZ	6Q12762.D	02/02/23 02:56	OP95176	(unrelated sample)
ZZZZZZ	6Q12763.D	02/02/23 03:10	OP95176	(unrelated sample)
ZZZZZZ	6Q12764.D	02/02/23 03:24	OP95176	(unrelated sample)
ZZZZZZ	6Q12765.D	02/02/23 03:38	OP95176	(unrelated sample)
ZZZZZZ	6Q12766.D	02/02/23 03:52	OP94914	(unrelated sample)

Run Sequence Report

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196 **Method:** EPA DRAFT 1633 **Instrument ID:** GCMS6Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q12767.D	02/02/23 04:06	OP94914	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23 04:34	n/a	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23 04:48	n/a	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23 05:02	n/a	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23 05:16	OP94945	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23 05:30	OP94945	Blank Spike
S6Q196-RT	6Q12783.D	02/02/23 09:56	n/a	Retention Time Marker
S6Q196-RT	6Q12784.D	02/02/23 10:10	n/a	Retention Time Marker
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-CC196	6Q12787.D	02/02/23 10:52	n/a	Continuing cal 4
S6Q196-CC196	6Q12788.D	02/02/23 11:06	n/a	Continuing cal 1.0LL
OP94945-BS	6Q12789.D	02/02/23 11:20	OP94945	Blank Spike
S6Q196-ICCB	6Q12800.D	02/02/23 13:58	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12801.D	02/02/23 14:12	OP94945	(unrelated sample)
ZZZZZZ	6Q12802.D	02/02/23 14:46	OP94945	(unrelated sample)
ZZZZZZ	6Q12803.D	02/02/23 15:07	OP94945	(unrelated sample)
ZZZZZZ	6Q12804.D	02/02/23 15:20	OP94945	(unrelated sample)
FC1656-11	6Q12805.D	02/02/23 15:37	OP94945	(used for QC only; not part of job FC2228)
OP94945-MS	6Q12806.D	02/02/23 15:51	OP94945	Matrix Spike
OP94945-MSD	6Q12807.D	02/02/23 16:05	OP94945	Matrix Spike Duplicate
ZZZZZZ	6Q12808.D	02/02/23 16:19	OP94945	(unrelated sample)
ZZZZZZ	6Q12809.D	02/02/23 16:33	OP94945	(unrelated sample)
ZZZZZZ	6Q12810.D	02/02/23 16:47	OP94938	(unrelated sample)
S6Q196-CC196	6Q12811.D	02/02/23 17:01	n/a	Continuing cal 4
S6Q196-ICCB	6Q12812.D	02/02/23 17:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12813.D	02/02/23 17:29	OP94938	(unrelated sample)
ZZZZZZ	6Q12814.D	02/02/23 17:43	OP94938	(unrelated sample)
ZZZZZZ	6Q12815.D	02/02/23 17:57	OP94938	(unrelated sample)
ZZZZZZ	6Q12817.D	02/02/23 18:25	OP95176	(unrelated sample)
S6Q196-ECC196	6Q12818.D	02/02/23 18:39	n/a	Ending cal 4
S6Q196-ICCB	6Q12819.D	02/02/23 18:53	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q198 **Method:** EPA DRAFT 1633 **Instrument ID:** GCMS6Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q198-RT	6Q12884.D	02/03/23 10:02	n/a	Retention Time Marker
S6Q198-RT	6Q12885.D	02/03/23 10:16	n/a	Retention Time Marker
S6Q198-IBLK	6Q12887.D	02/03/23 10:44	n/a	Instrument Blank
S6Q198-IBLK	6Q12887.D	02/03/23 10:44	n/a	Instrument Blank
S6Q198-CC196	6Q12888.D	02/03/23 10:58	n/a	Continuing cal 4
S6Q198-CC196	6Q12889.D	02/03/23 11:12	n/a	Continuing cal 1.0LL
OP95216-BS	6Q12890.D	02/03/23 11:26	OP95216	Blank Spike
OP95216-LLBS	6Q12891.D	02/03/23 11:40	OP95216	Blank Spike
OP95216-MB	6Q12892.D	02/03/23 11:54	OP95216	Method Blank
ZZZZZZ	6Q12893.D	02/03/23 12:08	OP95216	(unrelated sample)
ZZZZZZ	6Q12894.D	02/03/23 12:21	OP95216	(unrelated sample)
FC2228-1	6Q12895.D	02/03/23 12:35	OP95216	AF-RHMW16-WGN01LF-2301W4
FC2228-2	6Q12896.D	02/03/23 12:49	OP95216	AF-RHMW12A-WGN01LF-2301W4
FC2228-3	6Q12897.D	02/03/23 13:03	OP95216	AF-RHMW12A-WGFD01LF-2301W4
FC2239-1	6Q12898.D	02/03/23 13:17	OP95216	(used for QC only; not part of job FC2228)
OP95216-MS	6Q12899.D	02/03/23 13:31	OP95216	Matrix Spike
S6Q198-CC196	6Q12900.D	02/03/23 13:45	n/a	Continuing cal 4
S6Q198-ICCB	6Q12901.D	02/03/23 13:59	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12902.D	02/03/23 14:13	OP95216	(unrelated sample)
ZZZZZZ	6Q12903.D	02/03/23 14:27	OP95216	(unrelated sample)
ZZZZZZ	6Q12904.D	02/03/23 14:41	OP95216	(unrelated sample)
ZZZZZZ	6Q12905.D	02/03/23 14:55	OP95216	(unrelated sample)
FC2270-2	6Q12906.D	02/03/23 15:09	OP95216	(used for QC only; not part of job FC2228)
OP95216-DUP	6Q12907.D	02/03/23 15:23	OP95216	Duplicate
ZZZZZZ	6Q12908.D	02/03/23 15:37	OP95216	(unrelated sample)
ZZZZZZ	6Q12909.D	02/03/23 15:51	OP95216	(unrelated sample)
ZZZZZZ	6Q12910.D	02/03/23 16:05	OP95216	(unrelated sample)
S6Q198-CC196	6Q12911.D	02/03/23 16:19	n/a	Continuing cal 4
S6Q198-CC196	6Q12912.D	02/03/23 16:33	n/a	Continuing cal 1.0LL
S6Q198-ICCB	6Q12913.D	02/03/23 16:47	n/a	Continuing Calibration Blank
OP95034-BS	6Q12914.D	02/03/23 17:01	OP95034	Blank Spike
OP95034-LLBS	6Q12915.D	02/03/23 17:15	OP95034	Blank Spike
OP95034-MB	6Q12916.D	02/03/23 17:29	OP95034	Method Blank
ZZZZZZ	6Q12917.D	02/03/23 17:43	OP95034	(unrelated sample)
JD58693-1B	6Q12918.D	02/03/23 17:57	OP95034	(used for QC only; not part of job FC2228)
OP95034-MS	6Q12919.D	02/03/23 18:11	OP95034	Matrix Spike
OP95034-MSD	6Q12920.D	02/03/23 18:25	OP95034	Matrix Spike Duplicate
ZZZZZZ	6Q12921.D	02/03/23 18:39	OP95034	(unrelated sample)
ZZZZZZ	6Q12922.D	02/03/23 18:53	OP95034	(unrelated sample)
ZZZZZZ	6Q12923.D	02/03/23 19:07	OP95034	(unrelated sample)
S6Q198-CC196	6Q12924.D	02/03/23 19:21	n/a	Continuing cal 4
S6Q198-ICCB	6Q12925.D	02/03/23 19:35	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12926.D	02/03/23 19:49	OP95034	(unrelated sample)
ZZZZZZ	6Q12927.D	02/03/23 20:03	OP95034	(unrelated sample)
ZZZZZZ	6Q12928.D	02/03/23 20:17	OP95034	(unrelated sample)
ZZZZZZ	6Q12929.D	02/03/23 20:31	OP95034	(unrelated sample)

Run Sequence Report

Job Number: FC2228
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q198 **Method:** EPA DRAFT 1633 **Instrument ID:** GCMS6Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q12930.D	02/03/23 20:45	OP95034	(unrelated sample)
ZZZZZZ	6Q12931.D	02/03/23 20:59	OP95034	(unrelated sample)
ZZZZZZ	6Q12932.D	02/03/23 21:13	OP95034	(unrelated sample)
ZZZZZZ	6Q12933.D	02/03/23 21:27	OP95034	(unrelated sample)
ZZZZZZ	6Q12934.D	02/03/23 21:41	OP95034	(unrelated sample)
ZZZZZZ	6Q12935.D	02/03/23 21:55	OP95034	(unrelated sample)
S6Q198-CC196	6Q12936.D	02/03/23 22:09	n/a	Continuing cal 4
S6Q198-ICCB	6Q12937.D	02/03/23 22:23	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12938.D	02/03/23 22:37	OP95034	(unrelated sample)
ZZZZZZ	6Q12939.D	02/03/23 22:51	OP95034	(unrelated sample)
ZZZZZZ	6Q12940.D	02/03/23 23:05	OP95034	(unrelated sample)
ZZZZZZ	6Q12941.D	02/03/23 23:19	OP95034	(unrelated sample)
OP95035-BS	6Q12942.D	02/03/23 23:33	OP95035	Blank Spike
OP95035-LLBS	6Q12943.D	02/03/23 23:47	OP95035	Blank Spike
OP95035-MB	6Q12944.D	02/04/23 00:01	OP95035	Method Blank
JD58693-19B	6Q12945.D	02/04/23 00:15	OP95035	(used for QC only; not part of job FC2228)
OP95035-MS	6Q12946.D	02/04/23 00:29	OP95035	Matrix Spike
OP95035-MSD	6Q12947.D	02/04/23 00:43	OP95035	Matrix Spike Duplicate
S6Q198-CC196	6Q12948.D	02/04/23 00:57	n/a	Continuing cal 4
S6Q198-ICCB	6Q12949.D	02/04/23 01:11	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12950.D	02/04/23 01:24	OP95035	(unrelated sample)
ZZZZZZ	6Q12951.D	02/04/23 01:38	OP95035	(unrelated sample)
ZZZZZZ	6Q12952.D	02/04/23 01:52	OP95035	(unrelated sample)
ZZZZZZ	6Q12953.D	02/04/23 02:06	OP95035	(unrelated sample)
ZZZZZZ	6Q12954.D	02/04/23 02:20	OP95035	(unrelated sample)
S6Q198-ECC196	6Q12955.D	02/04/23 02:34	n/a	Ending cal 4
S6Q198-ICCB	6Q12956.D	02/04/23 02:48	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12895.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 12:35:58 PM
Sample Name	:	FC2228-1
Vial	:	P4-A6
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	70210	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	36488	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33449	2.50	µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33491	2.50	µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	58985	2.50	µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	25418	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	17124	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19177	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	20660	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	10935	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16824	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12100	2.50	µg/L	0.000
M3-PFHxS	7.286	402.1 -> 79.9	8592	2.50	µg/L	0.013
M8-PFOS	8.345	507.1 -> 79.9	8150	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2277	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3007	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2846	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26533	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13600	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	20273	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	26471	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	18663	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7008	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6700	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9483	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	30023	5.00	µg/L	0.037
18O2-PFHxS	7.286	403.0 -> 83.9	5709	2.50	µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	64519	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23934	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	27936	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	28887	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2277	6.13	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.7%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3007	6.11	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2846	5.75	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	20660	1.13	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10935	1.04	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.2%		
13C3-PFBS	5.518	302.1 -> 79.9	12100	2.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-PFHxS	7.286	402.1 -> 79.9	8592	2.86	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C4-PFBA	3.013	216.8 -> 171.9	70210	10.54 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFHpA	6.515	367.1 -> 322.0	33491	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	33449	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.0%	
13C5-PFPeA	4.386	268.3 -> 223.0	36488	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
13C6-PFDA	8.170	519.1 -> 474.1	17124	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	19177	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C8-FOSA	9.567	506.1 -> 77.8	16824	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-PFOA	7.159	421.1 -> 376.0	58985	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C8-PFOS	8.345	507.1 -> 79.9	8150	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.689	472.1 -> 427.0	25418	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	26533	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13600	11.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	6700	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
d5-EtFOSAA	8.422	589.2 -> 419.0	20273	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	26471	24.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	18663	25.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	7008	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	

Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

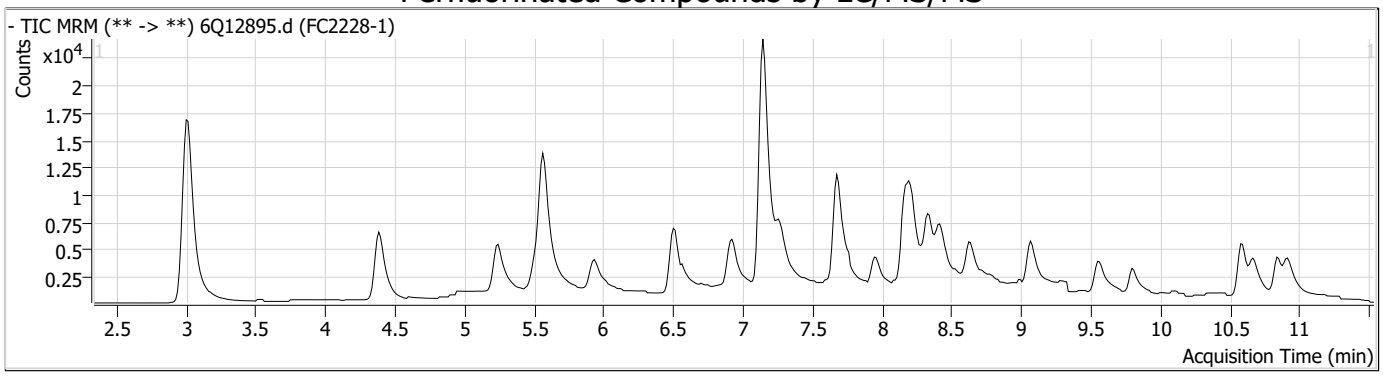
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

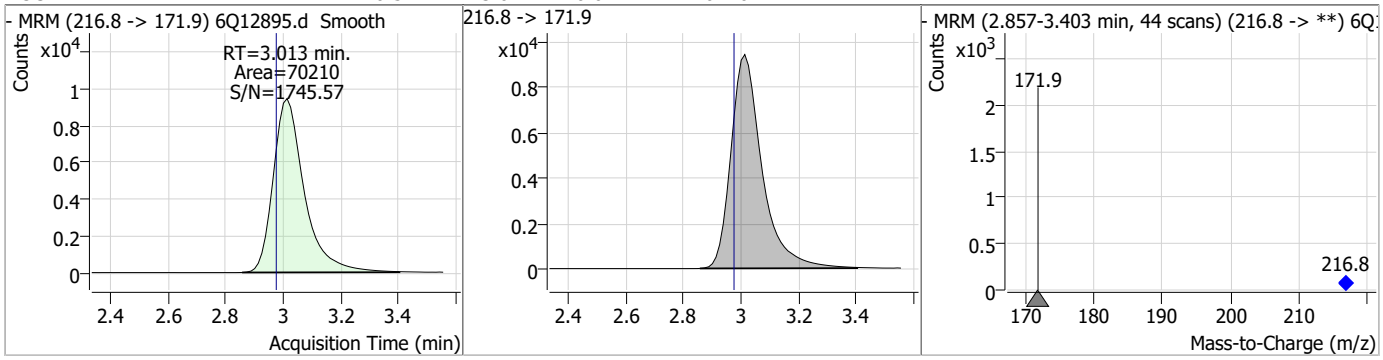
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

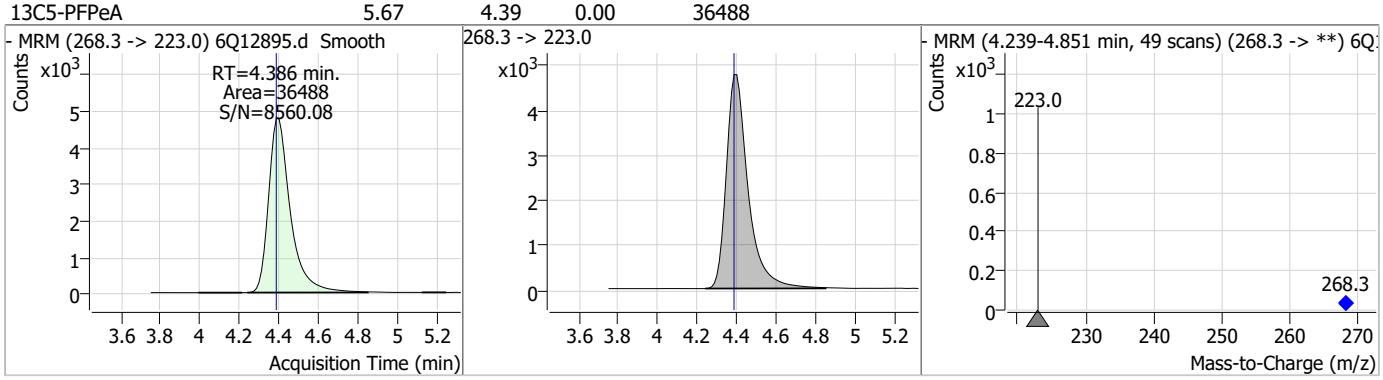
Perfluorinated Compounds by LC/MS/MS



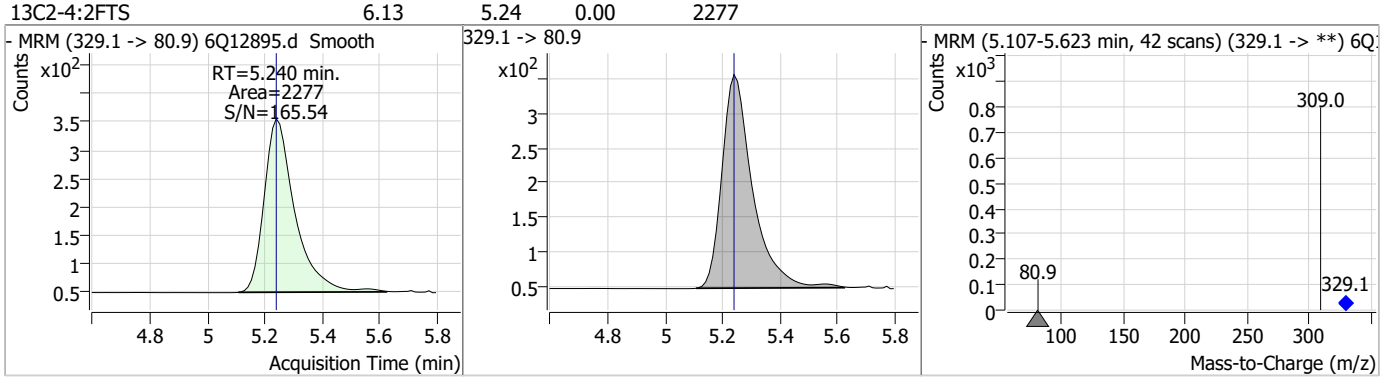
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.54	3.01	0.04	70210				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.67	4.39	0.00	36488				

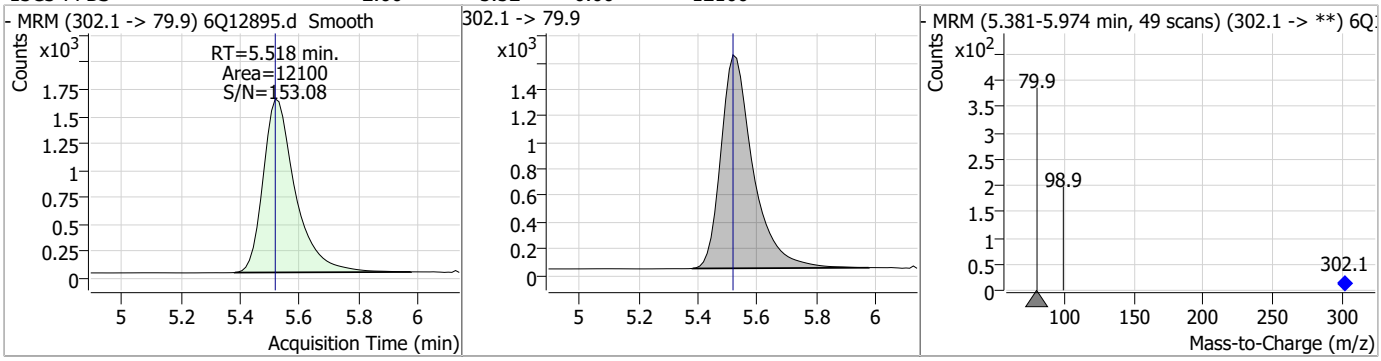


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.13	5.24	0.00	2277				

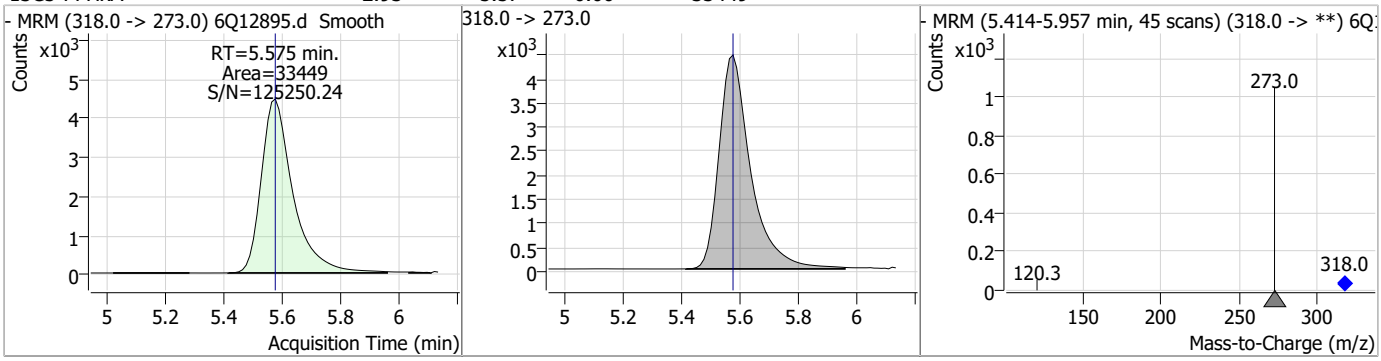


Perfluorinated Compounds by LC/MS/MS

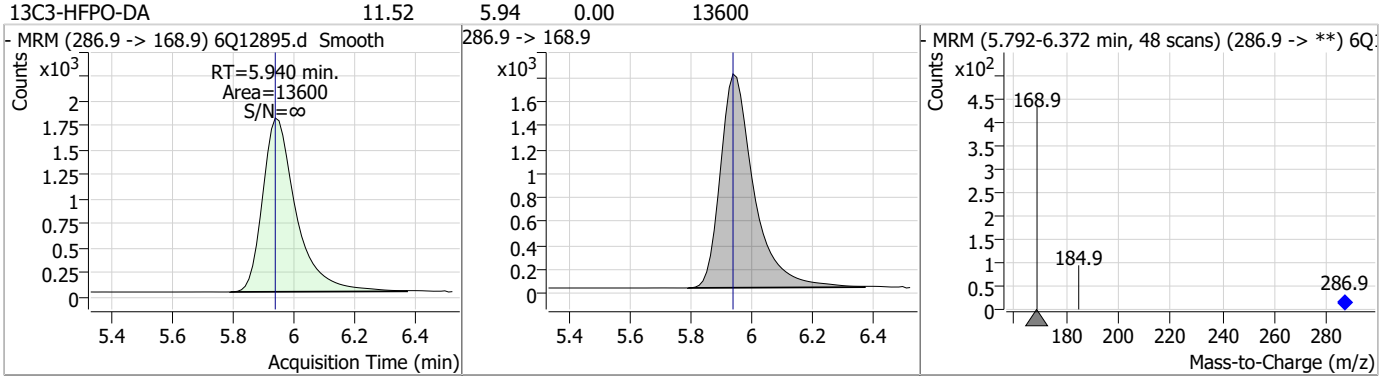
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.60	5.52	0.00	12100				



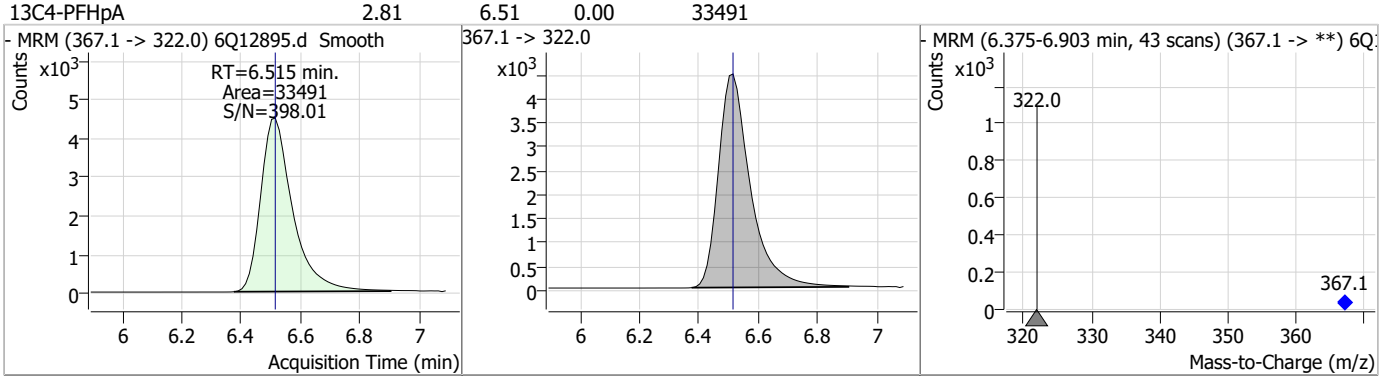
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.93	5.57	0.00	33449				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.52	5.94	0.00	13600				

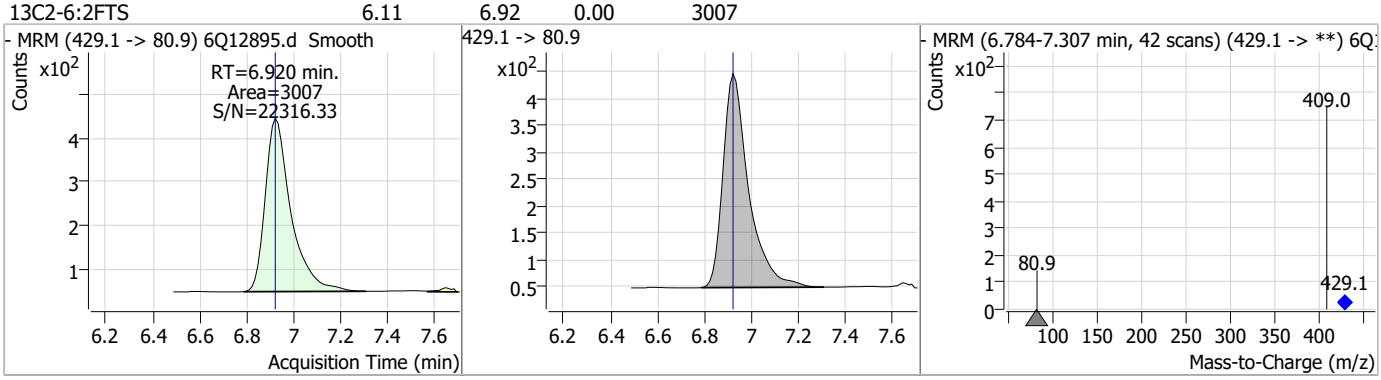


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.81	6.51	0.00	33491				

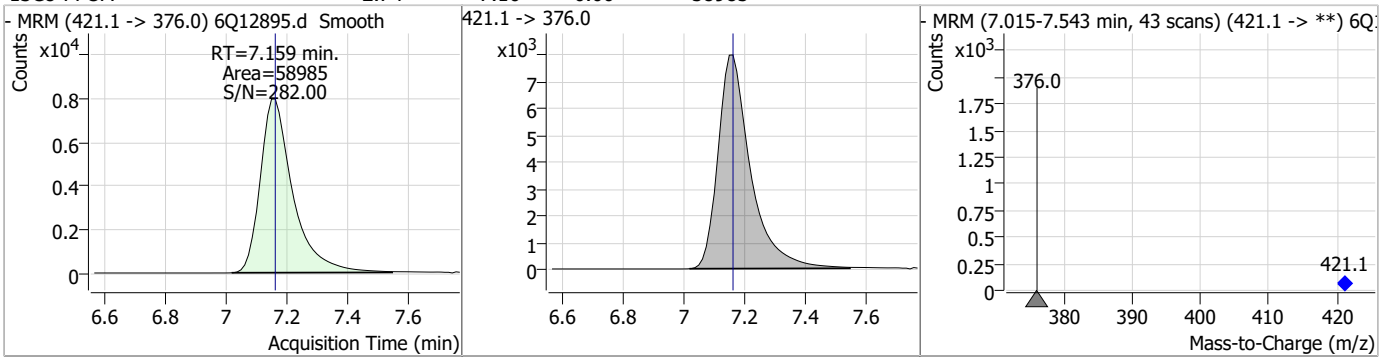


Perfluorinated Compounds by LC/MS/MS

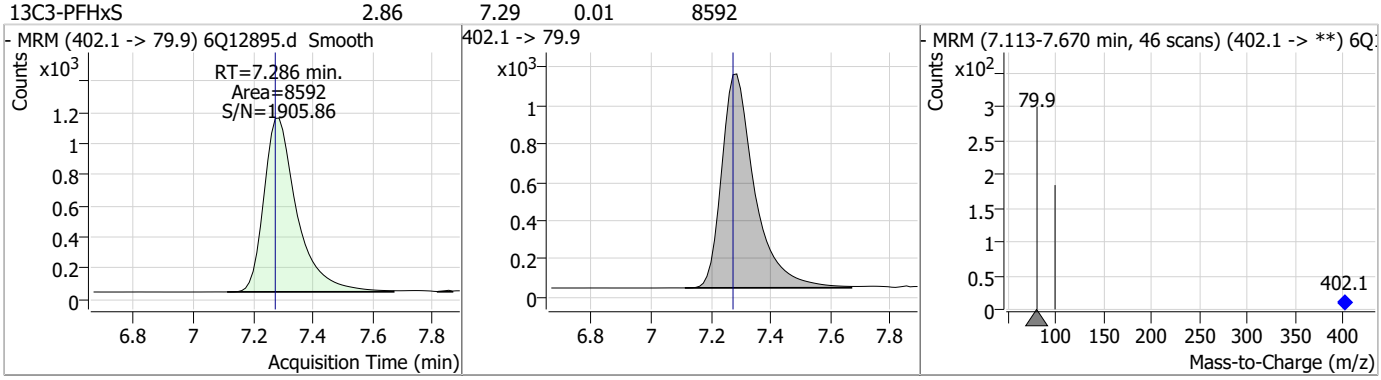
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.11	6.92	0.00	3007				



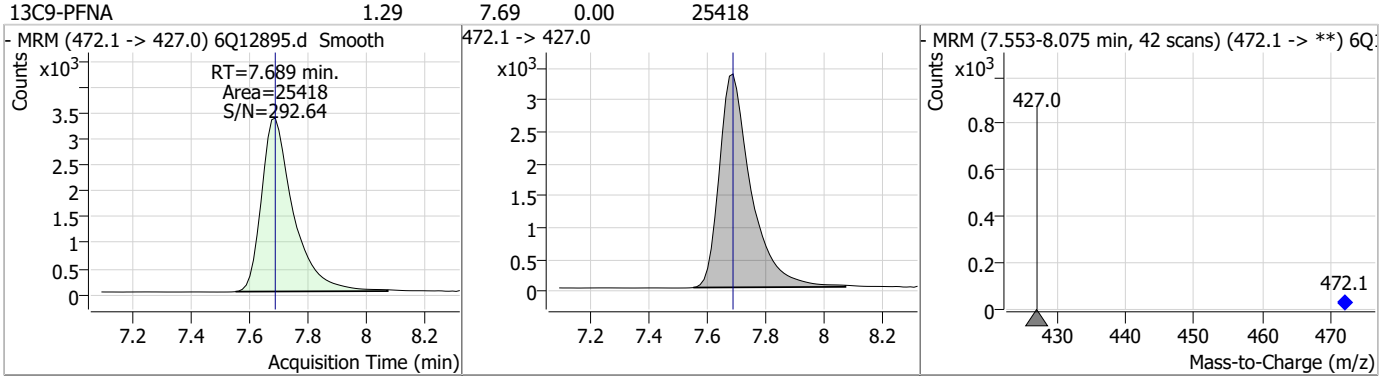
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.74	7.16	0.00	58985				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.86	7.29	0.01	8592				

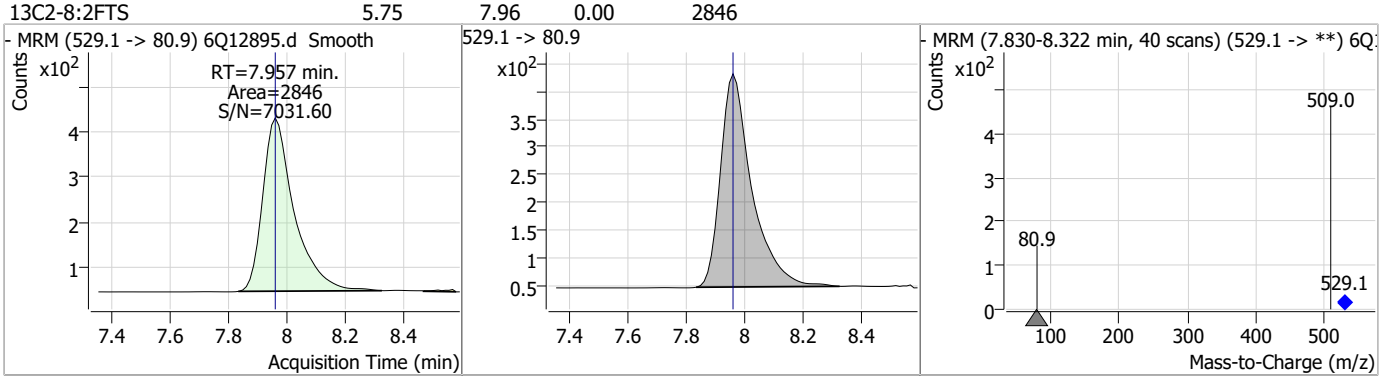


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.29	7.69	0.00	25418				

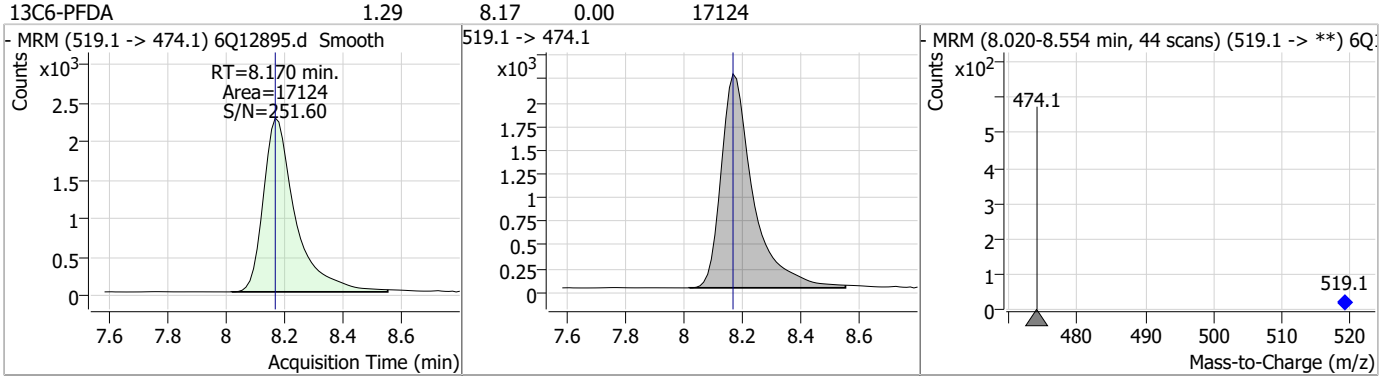


Perfluorinated Compounds by LC/MS/MS

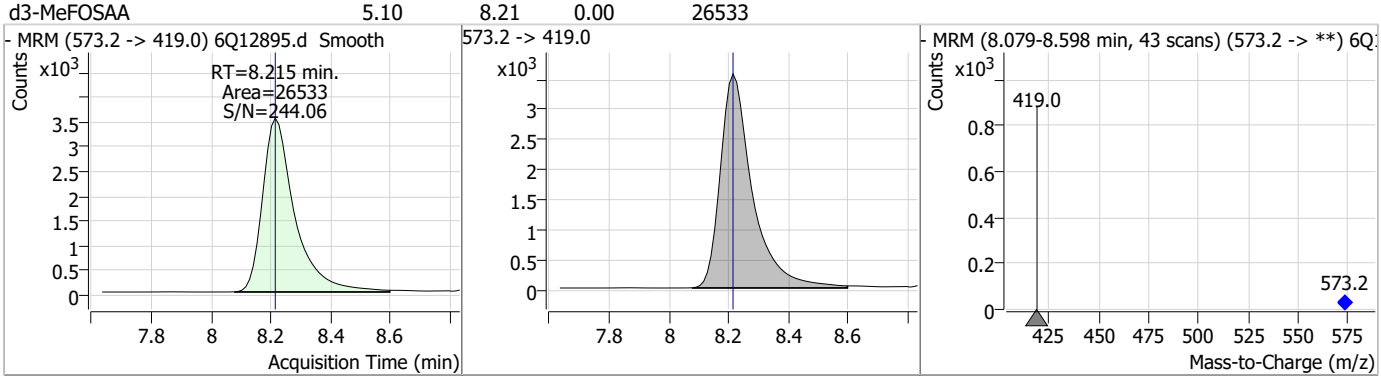
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.75	7.96	0.00	2846				



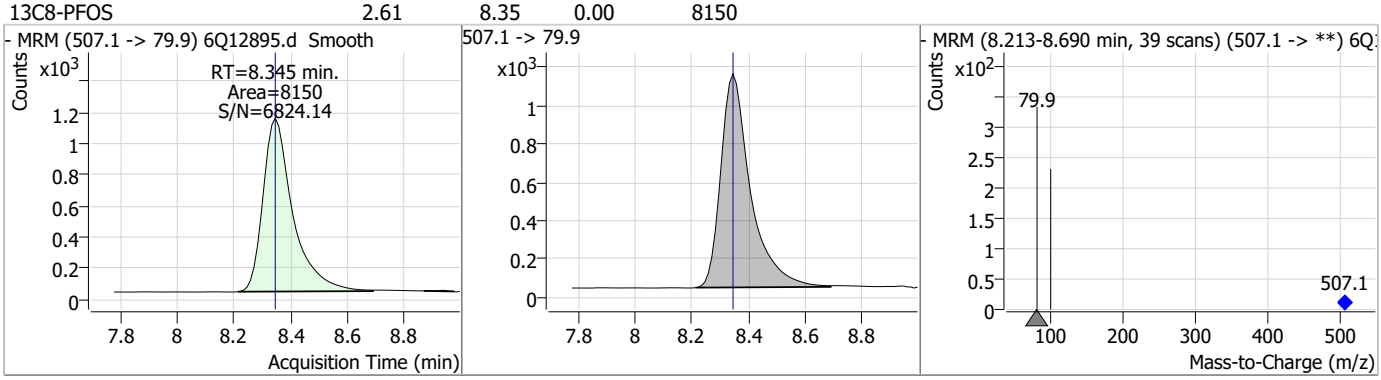
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.29	8.17	0.00	17124				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.10	8.21	0.00	26533				

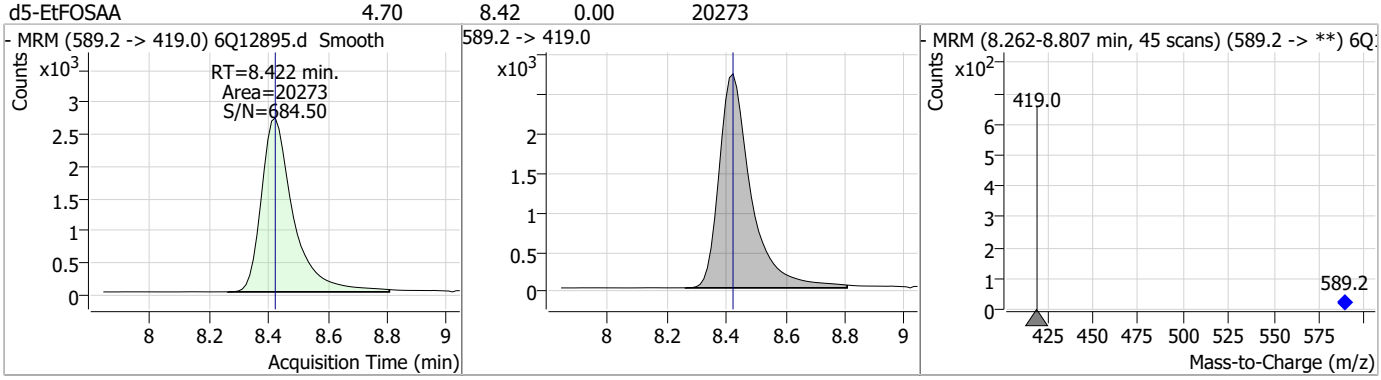


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.61	8.35	0.00	8150				

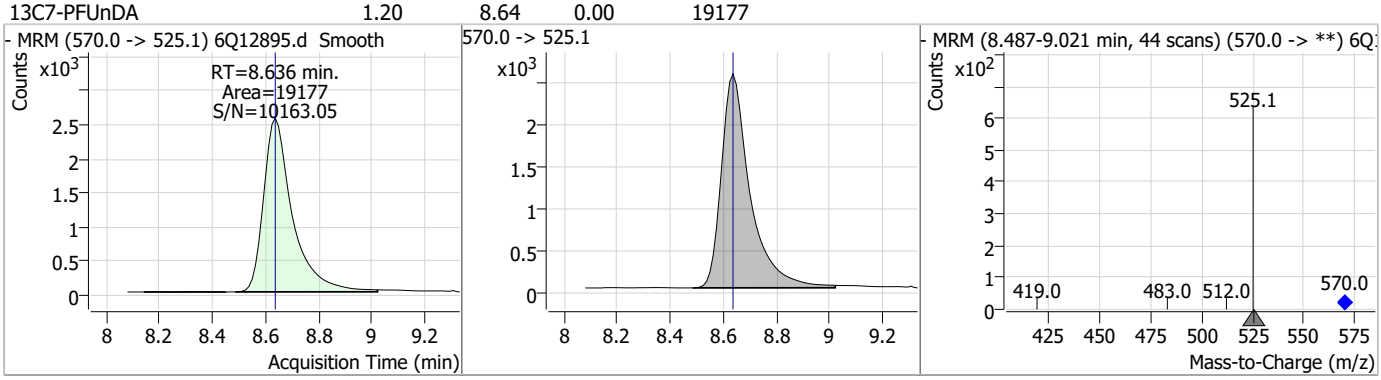


Perfluorinated Compounds by LC/MS/MS

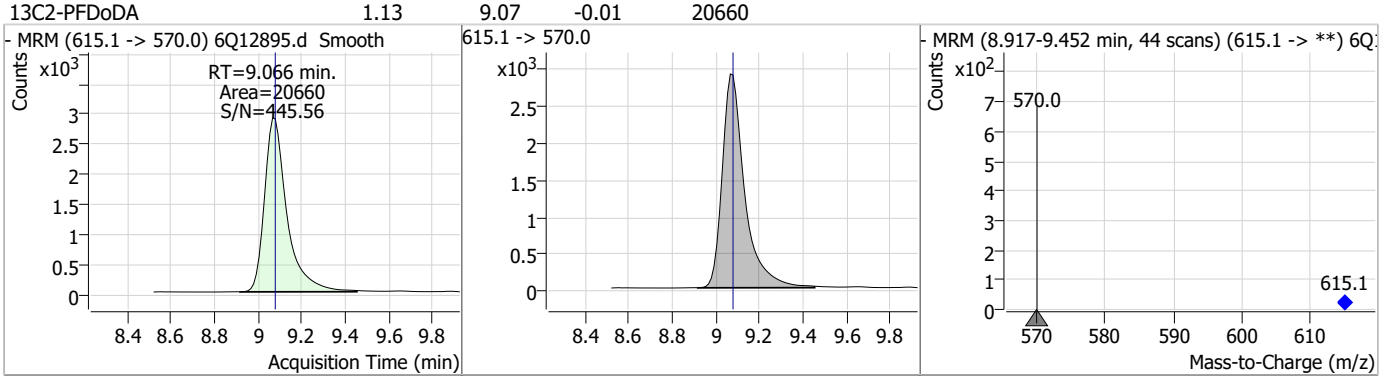
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.70	8.42	0.00	20273				



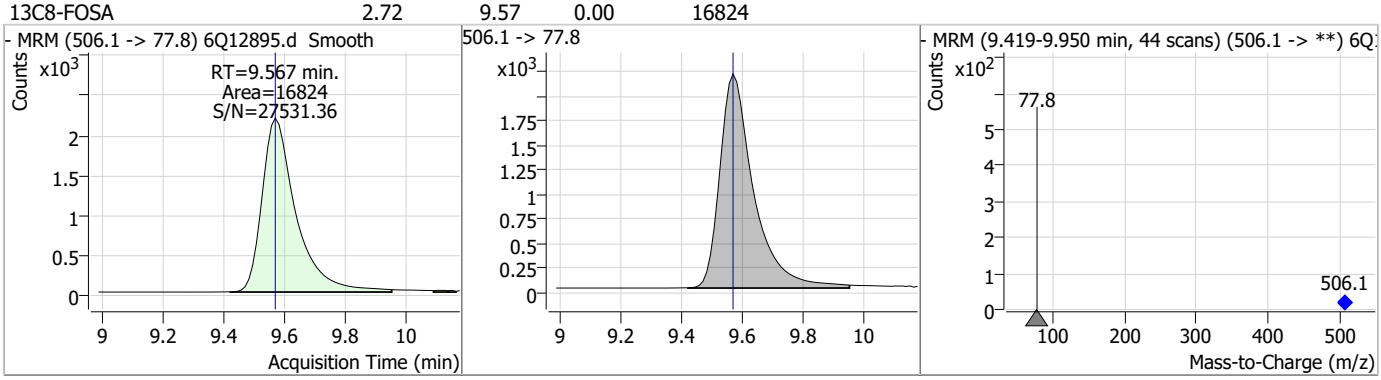
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.64	0.00	19177				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.13	9.07	-0.01	20660				

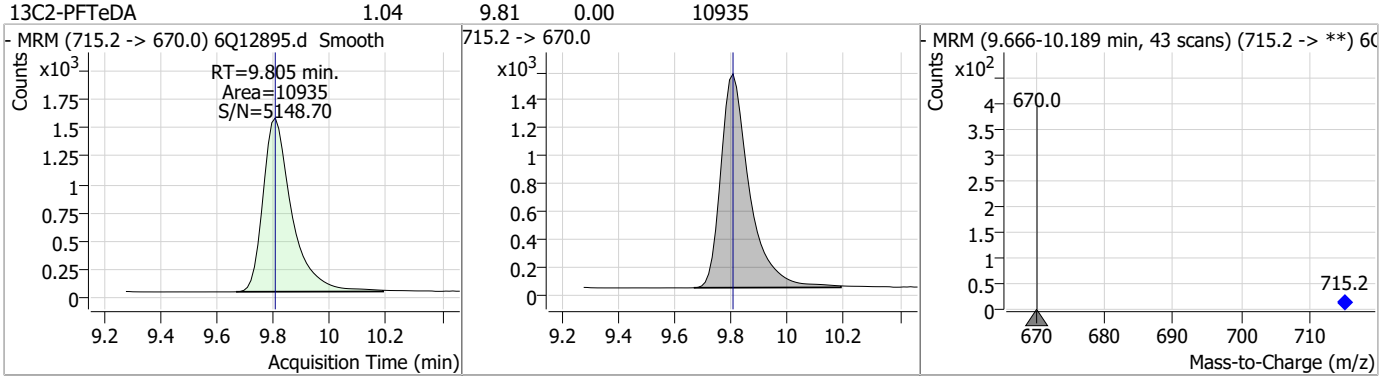


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.72	9.57	0.00	16824				

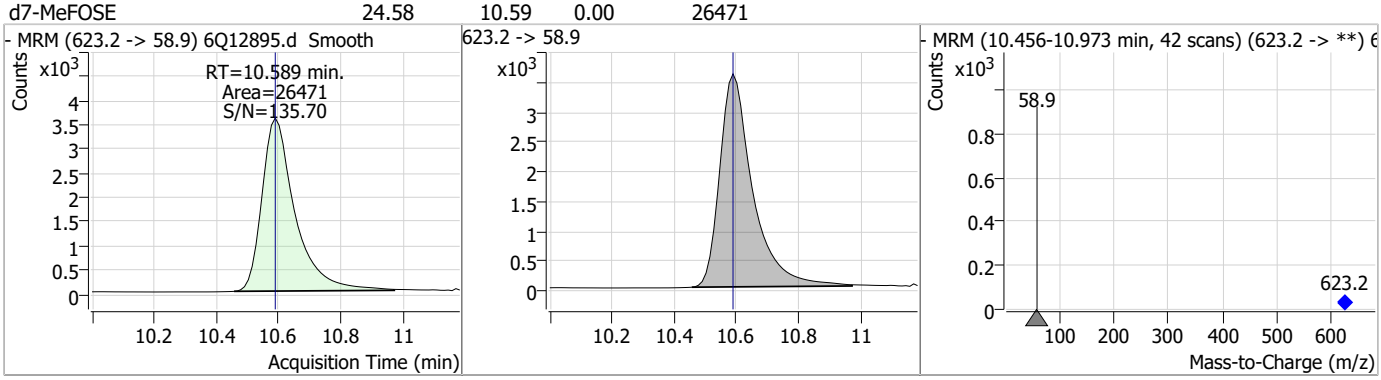


Perfluorinated Compounds by LC/MS/MS

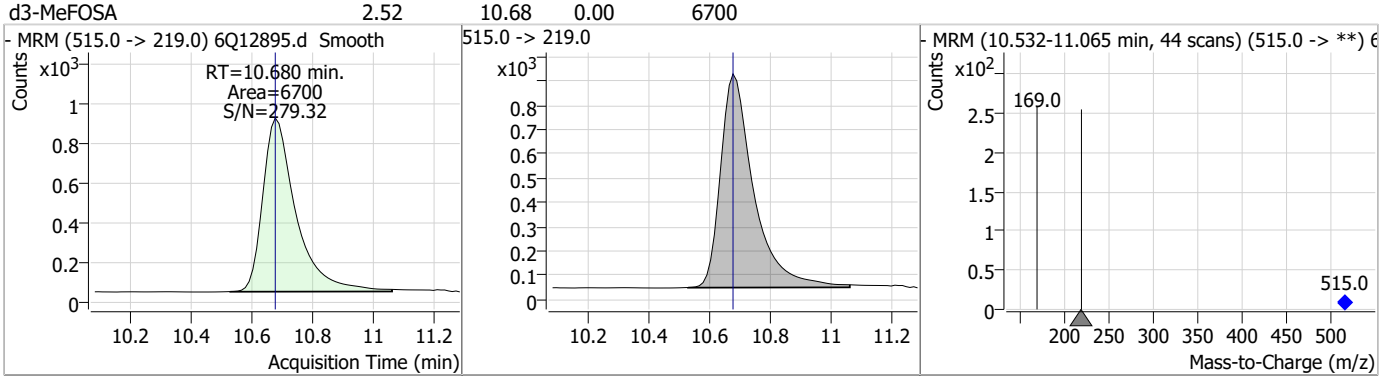
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.04	9.81	0.00	10935				



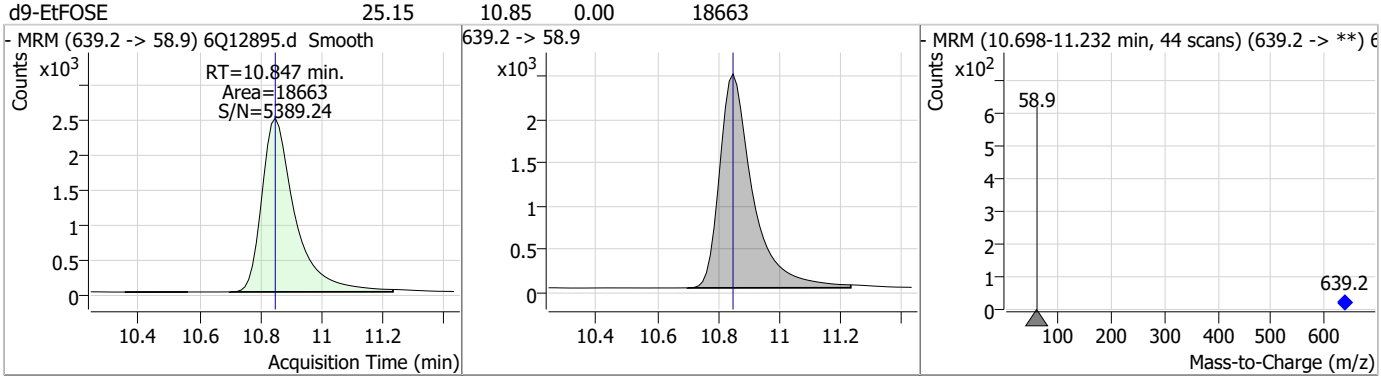
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.58	10.59	0.00	26471				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.68	0.00	6700				

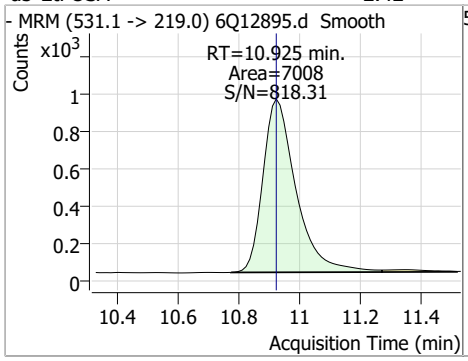


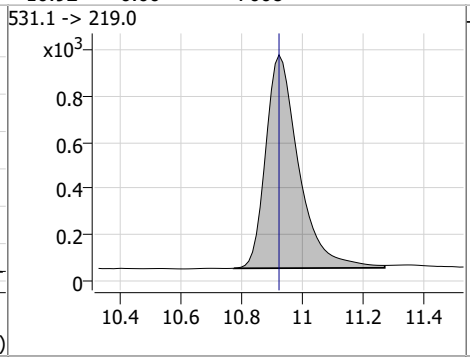
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.15	10.85	0.00	18663				

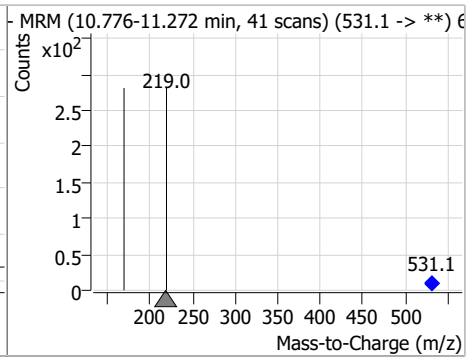


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	10.92	0.00	7008				







Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12896.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 12:49:56 PM
Sample Name	:	FC2228-2
Vial	:	P4-A7
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	29450	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	34648	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	31434	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	31771	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	57240	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24644	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	17221	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19329	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	20843	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	11357	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16010	2.50	µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	12178	2.50	µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	8397	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7746	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2265	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2774	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2771	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26884	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13491	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	20673	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	25945	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	18669	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7110	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6690	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9736	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	30366	5.00	µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5637	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	63987	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23236	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	26940	1.25	µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	28416	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2265	6.18	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2774	5.70	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2771	5.67	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C2-PFDoDA	9.078	615.1 -> 570.0	20843	1.18	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C2-PFTeDA	9.805	715.2 -> 670.0	11357	1.11	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.0%		
13C3-PFBS	5.530	302.1 -> 79.9	12178	2.65	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	8397	2.83	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C4-PFBA	3.013	216.8 -> 171.9	29450	4.37 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 43.7%	
13C4-PFHpA	6.502	367.1 -> 322.0	31771	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	31434	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C5-PFPeA	4.386	268.3 -> 223.0	34648	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C6-PFDA	8.170	519.1 -> 474.1	17221	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.636	570.0 -> 525.1	19329	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.567	506.1 -> 77.8	16010	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOA	7.146	421.1 -> 376.0	57240	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C8-PFOS	8.345	507.1 -> 79.9	7746	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C9-PFNA	7.689	472.1 -> 427.0	24644	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSAA	8.215	573.2 -> 419.0	26884	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13491	11.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	6690	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSAA	8.422	589.2 -> 419.0	20673	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	25945	23.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	10.847	639.2 -> 58.9	18669	24.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	7110	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					**QValue**
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.921	427.1 -> 407.0	1478	0.36 µg/L	97
		427.1 -> 80.9	294		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

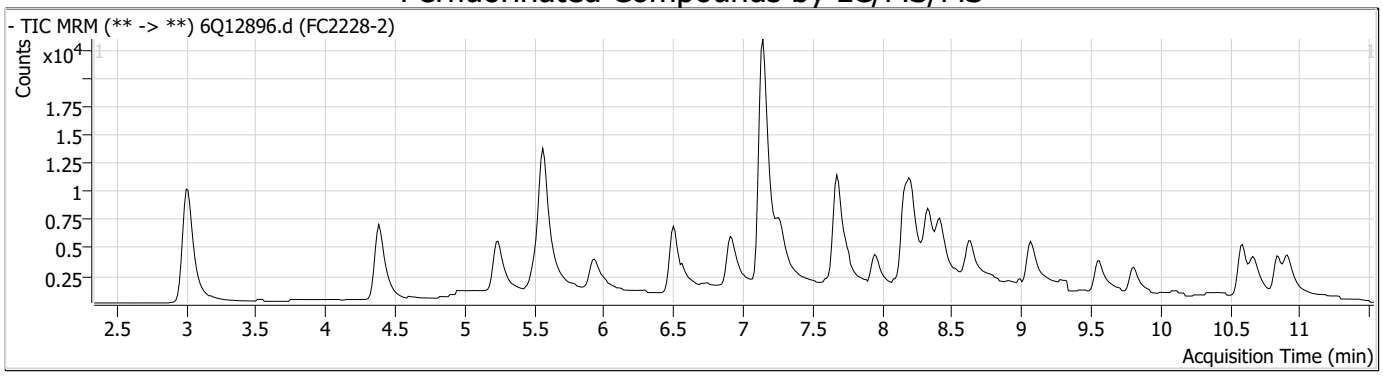
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	5.566	313.0 -> 269.0	1846	0.15 µg/L	97
		313.0 -> 118.9	59		
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	4.402	263.0 -> 219.0	4133	0.56 µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

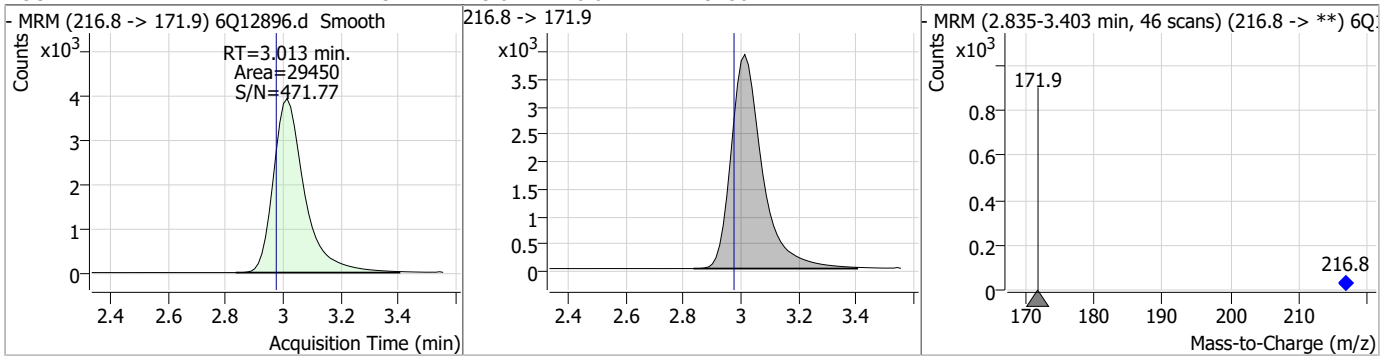
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

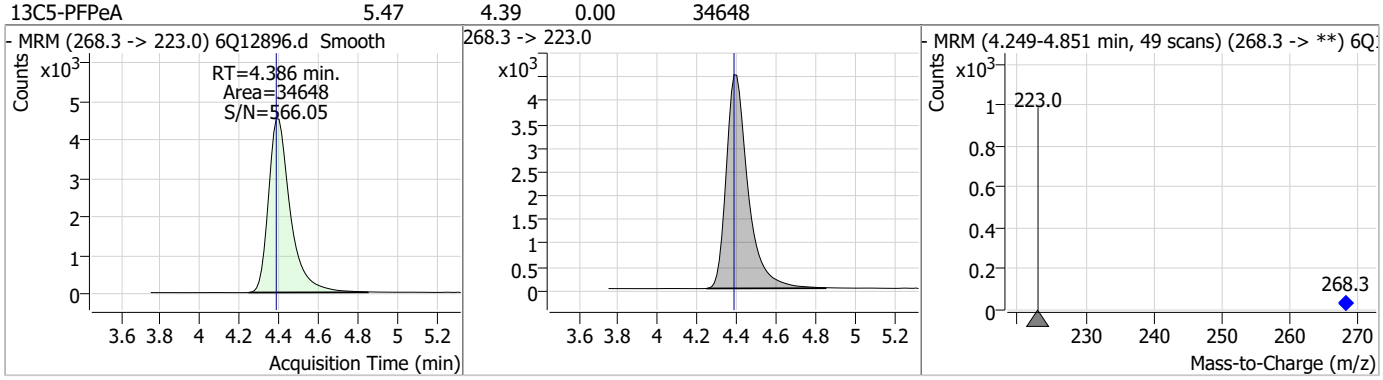
Perfluorinated Compounds by LC/MS/MS



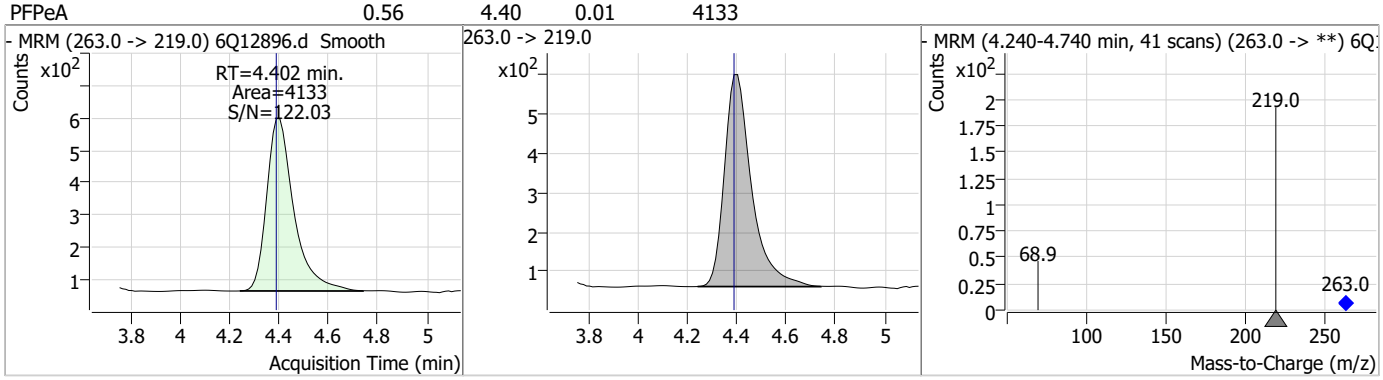
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	4.37	3.01	0.04	29450				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.47	4.39	0.00	34648				

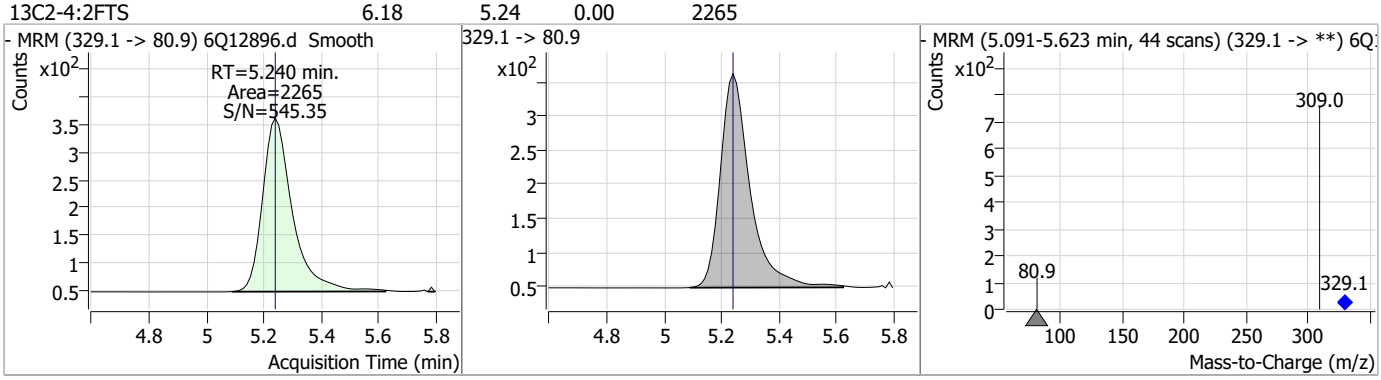


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.56	4.40	0.01	4133				

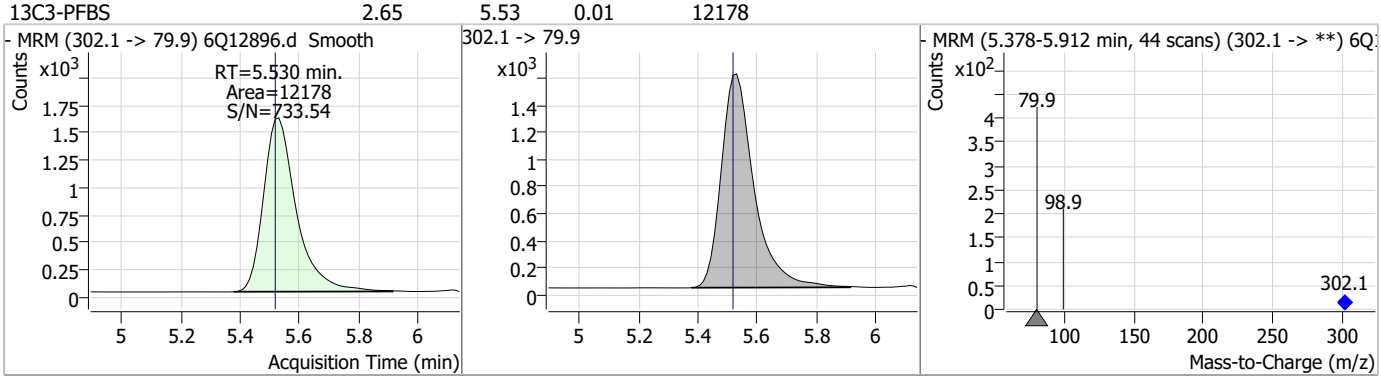


Perfluorinated Compounds by LC/MS/MS

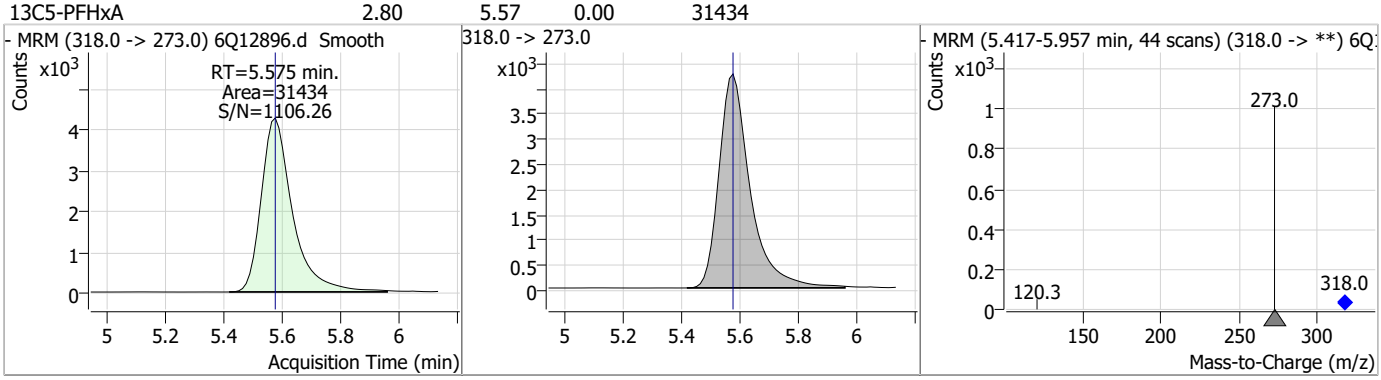
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.18	5.24	0.00	2265				



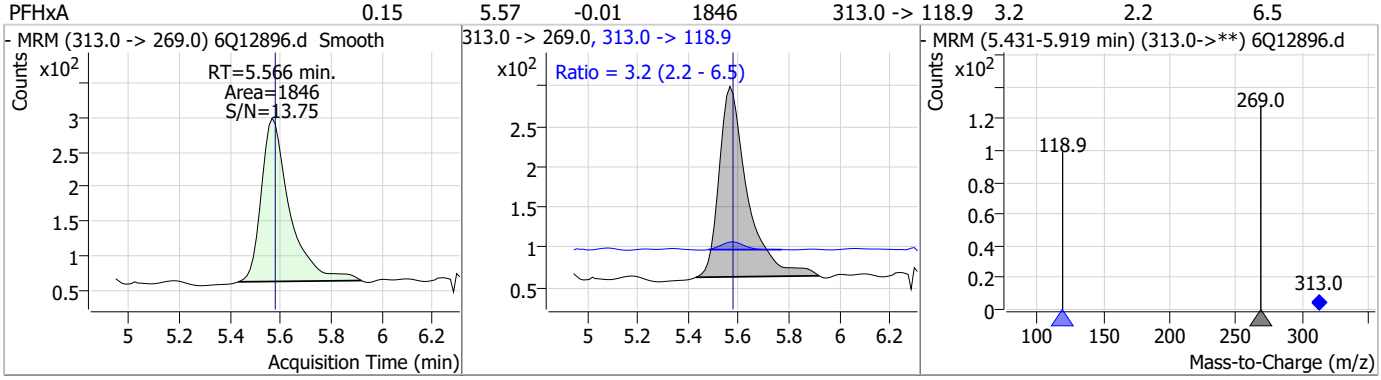
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.65	5.53	0.01	12178				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.80	5.57	0.00	31434				

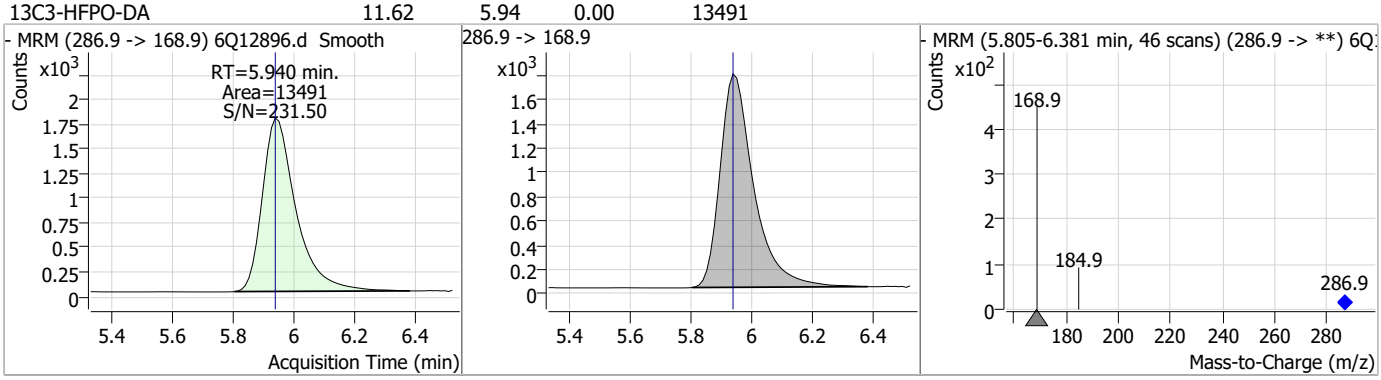


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.57	-0.01	1846	313.0 -> 118.9	3.2	2.2	6.5

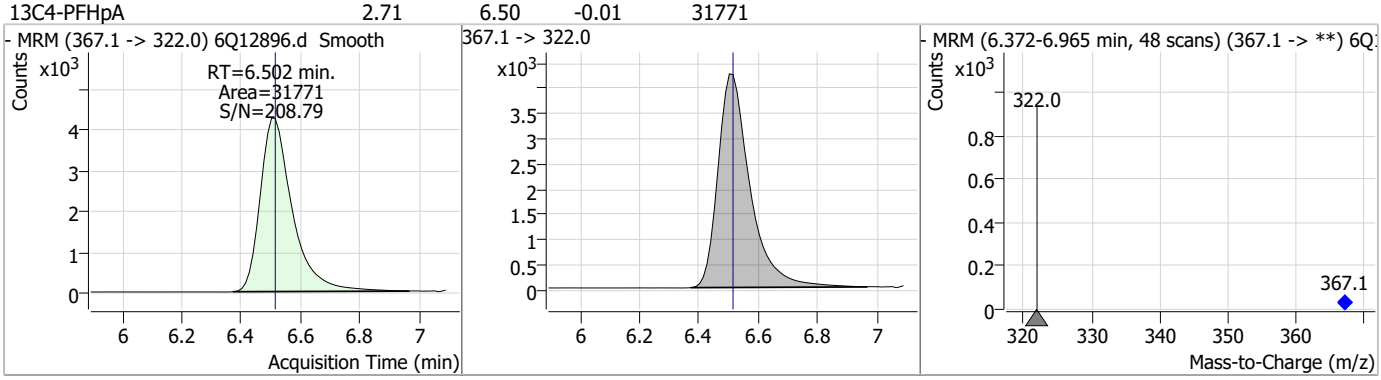


Perfluorinated Compounds by LC/MS/MS

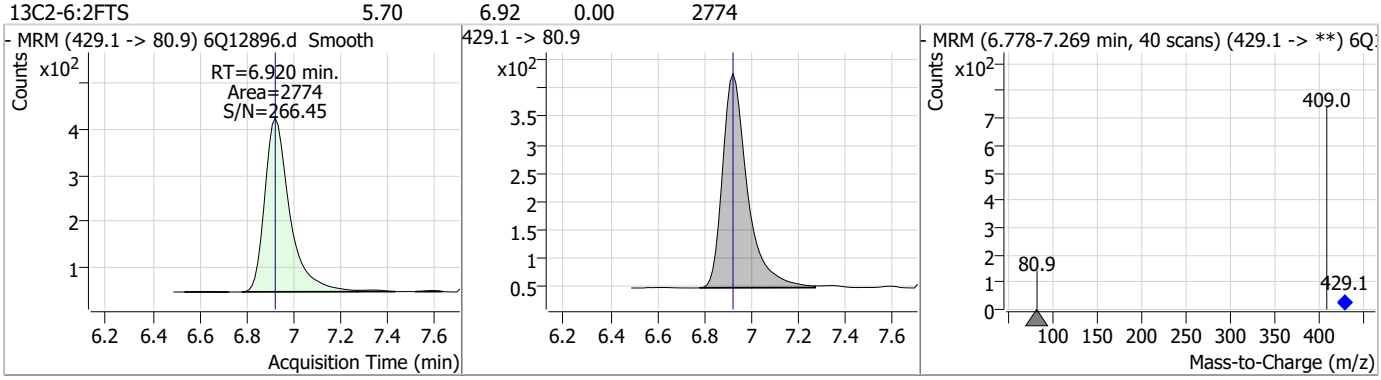
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.62	5.94	0.00	13491				



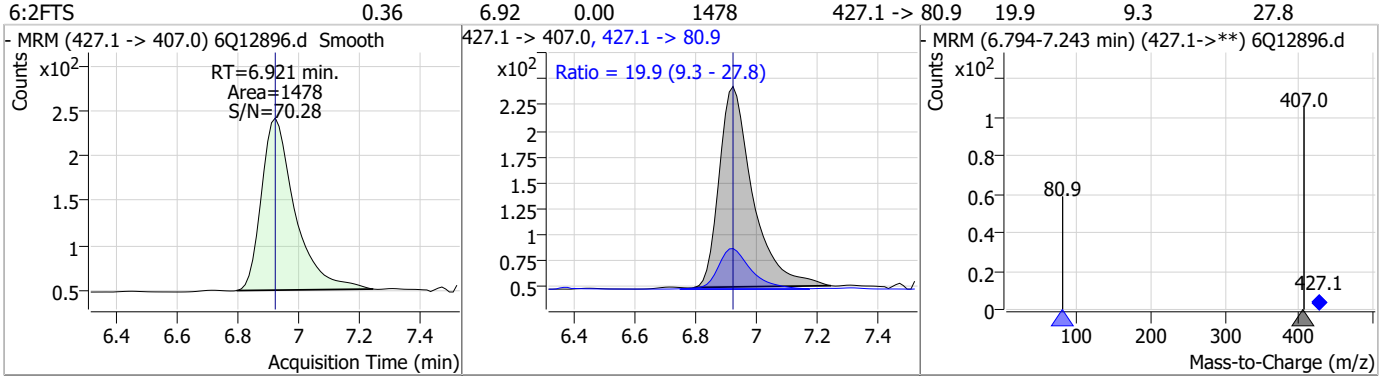
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.71	6.50	-0.01	31771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.70	6.92	0.00	2774				

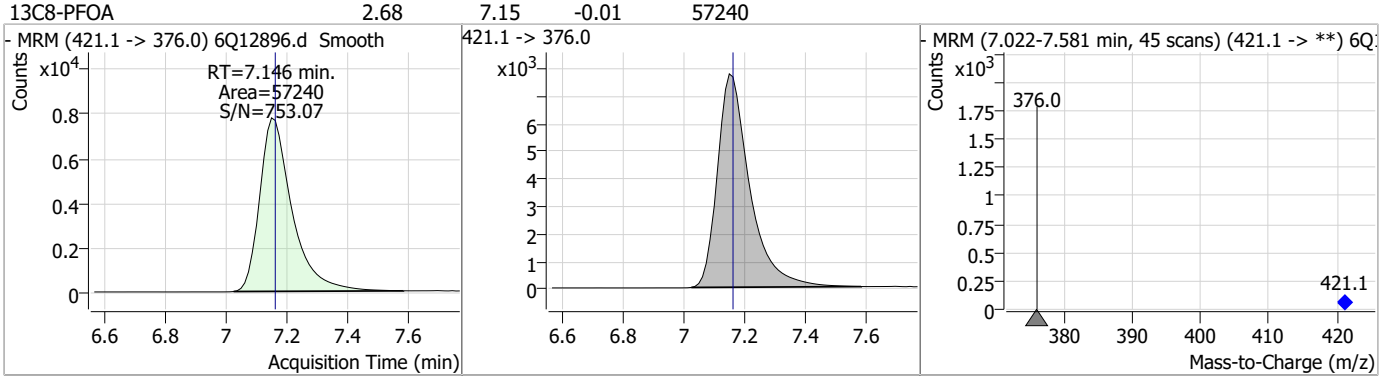


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.36	6.92	0.00	1478	427.1 -> 80.9	19.9	9.3	27.8

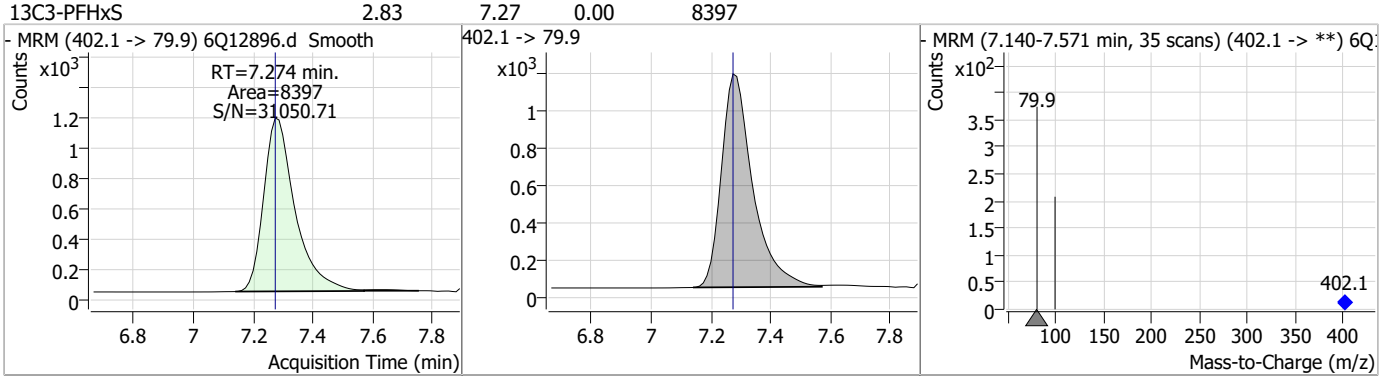


Perfluorinated Compounds by LC/MS/MS

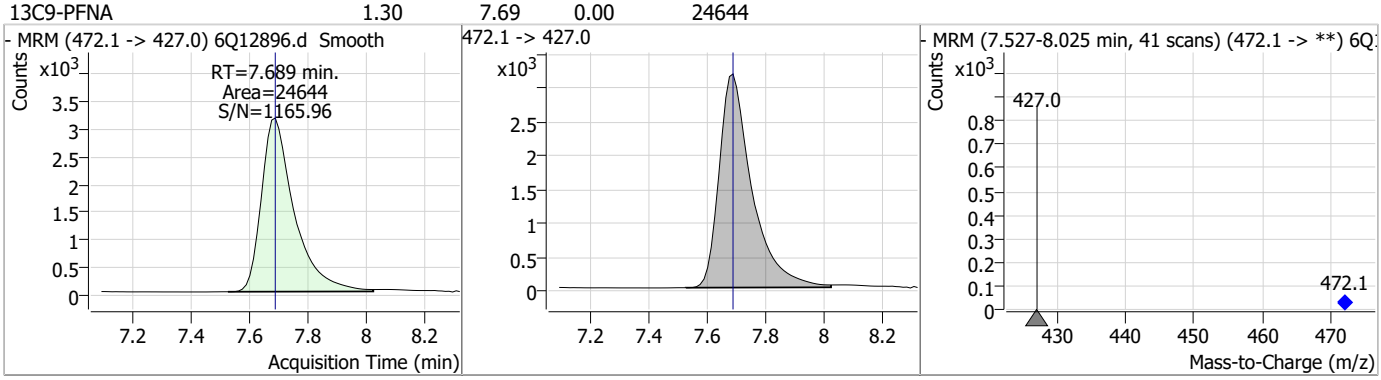
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.68	7.15	-0.01	57240				



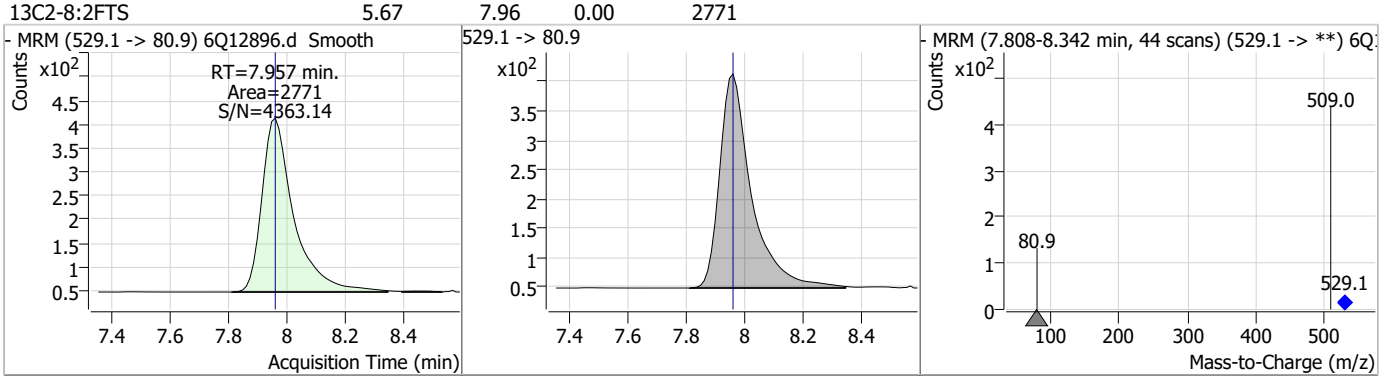
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.83	7.27	0.00	8397				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.69	0.00	24644				

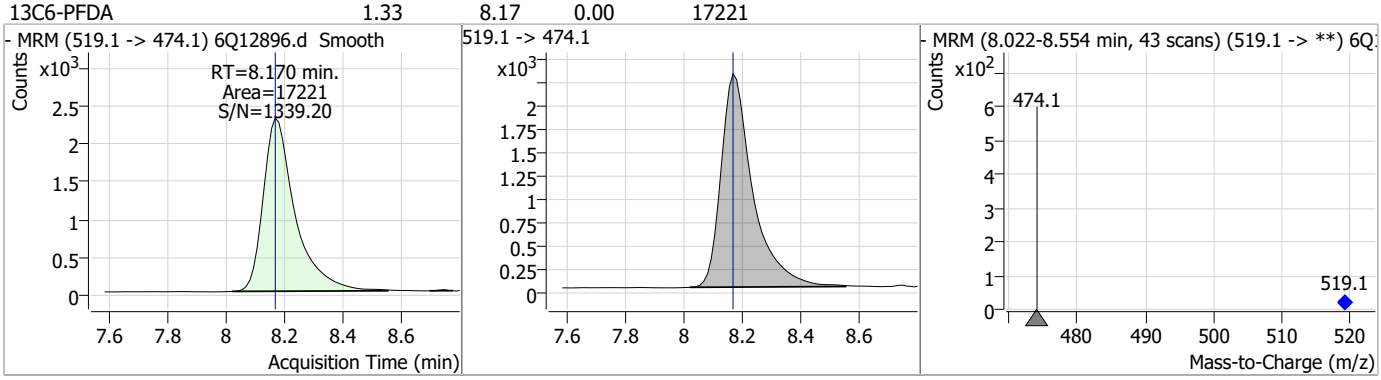


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.67	7.96	0.00	2771				

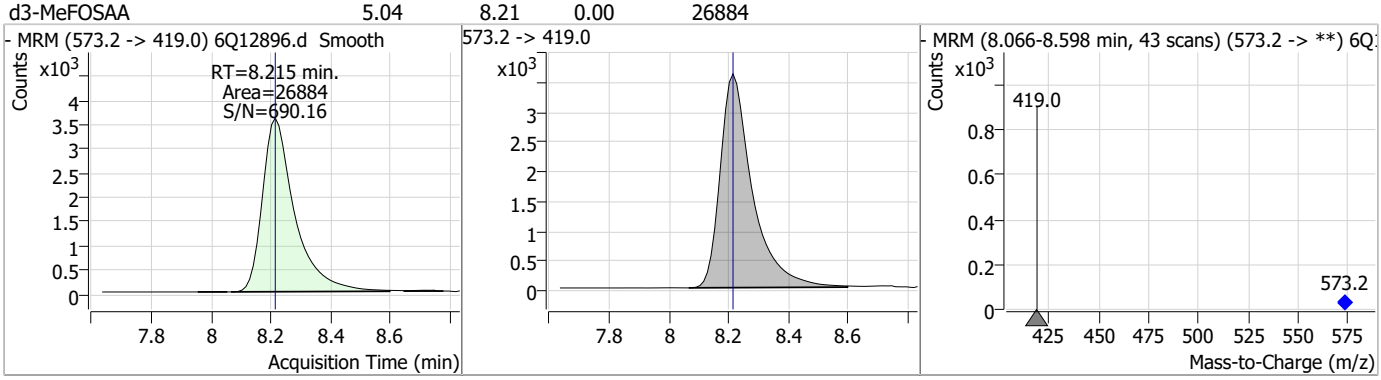


Perfluorinated Compounds by LC/MS/MS

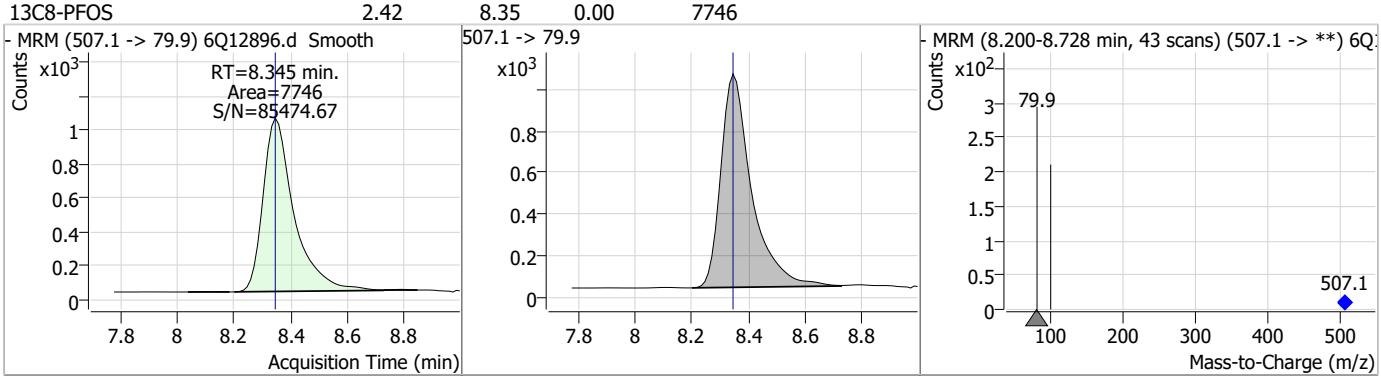
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.33	8.17	0.00	17221				



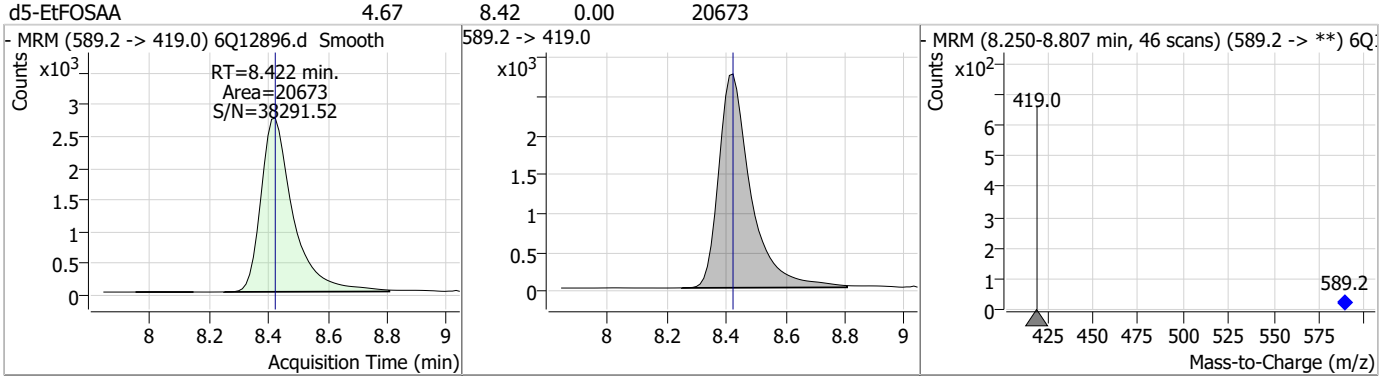
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.04	8.21	0.00	26884				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.42	8.35	0.00	7746				

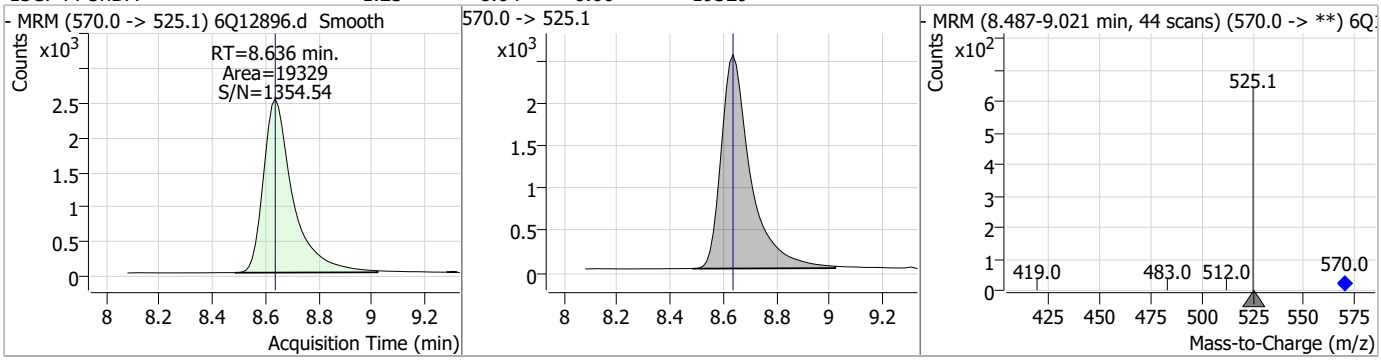


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.42	0.00	20673				

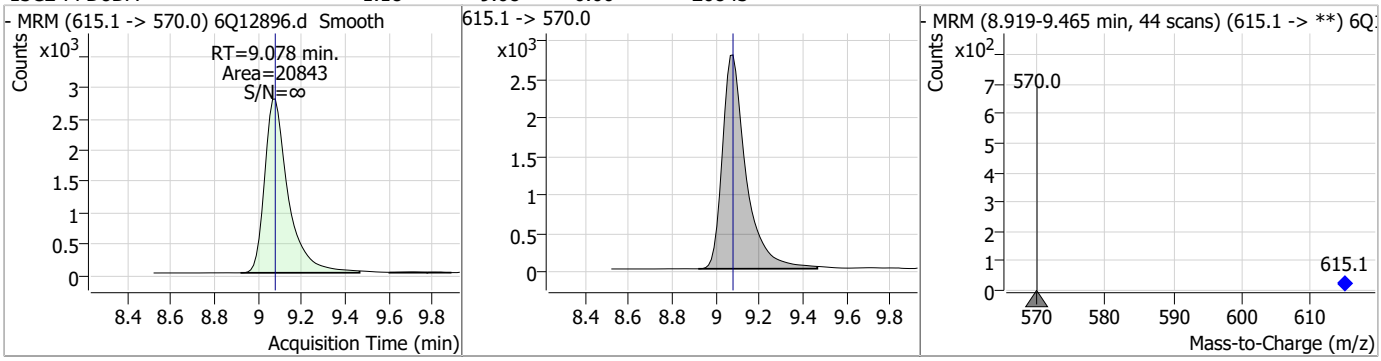


Perfluorinated Compounds by LC/MS/MS

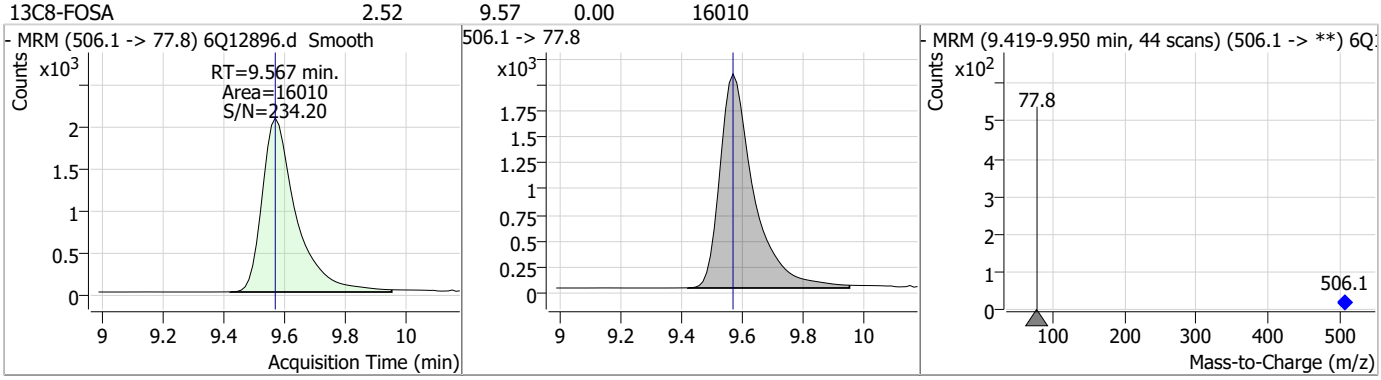
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.64	0.00	19329				



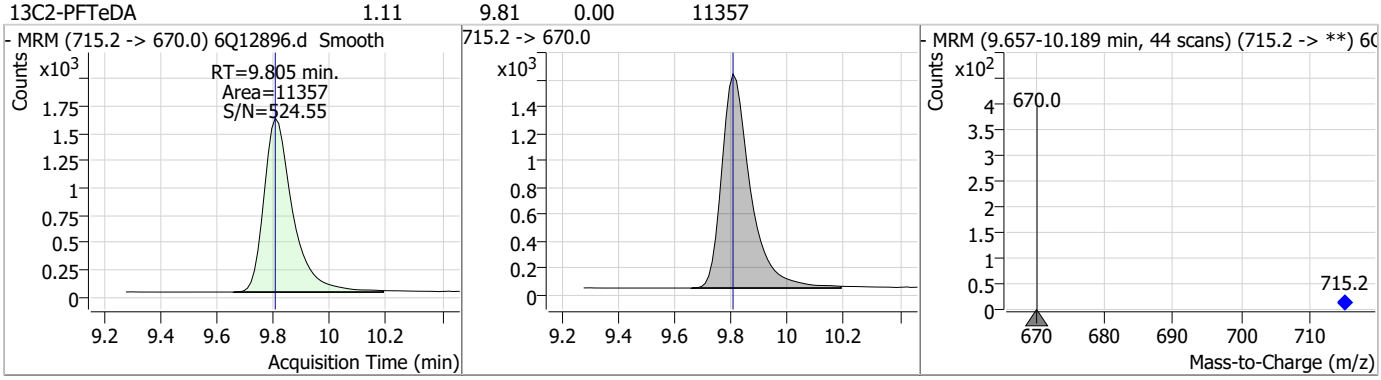
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.18	9.08	0.00	20843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.57	0.00	16010				

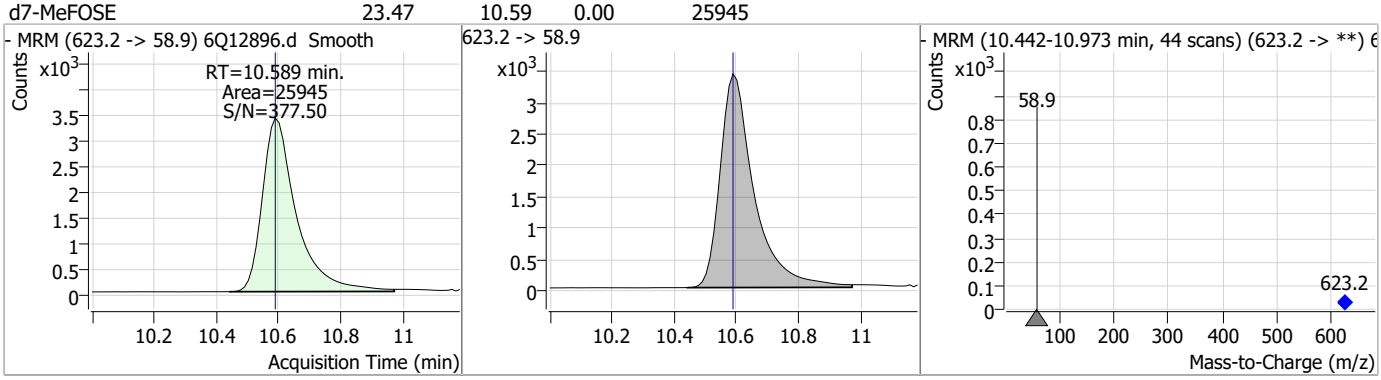


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.11	9.81	0.00	11357				

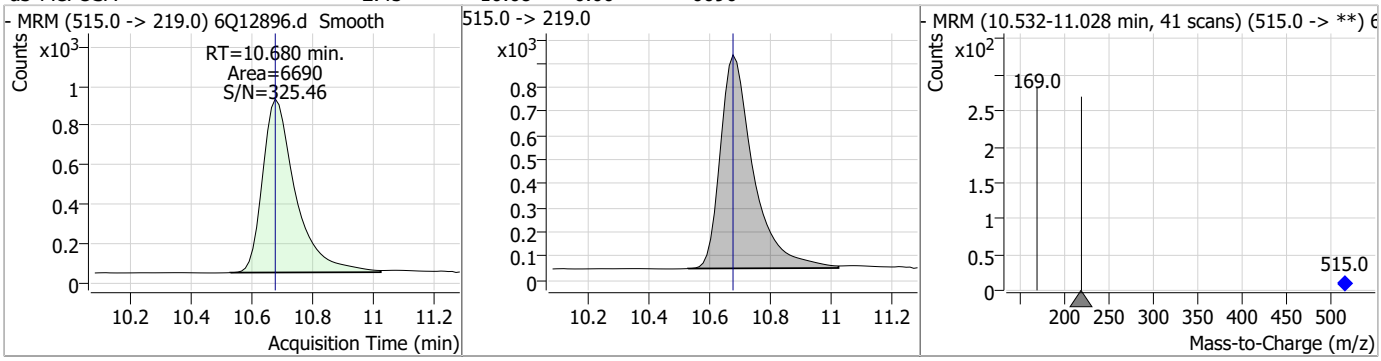


Perfluorinated Compounds by LC/MS/MS

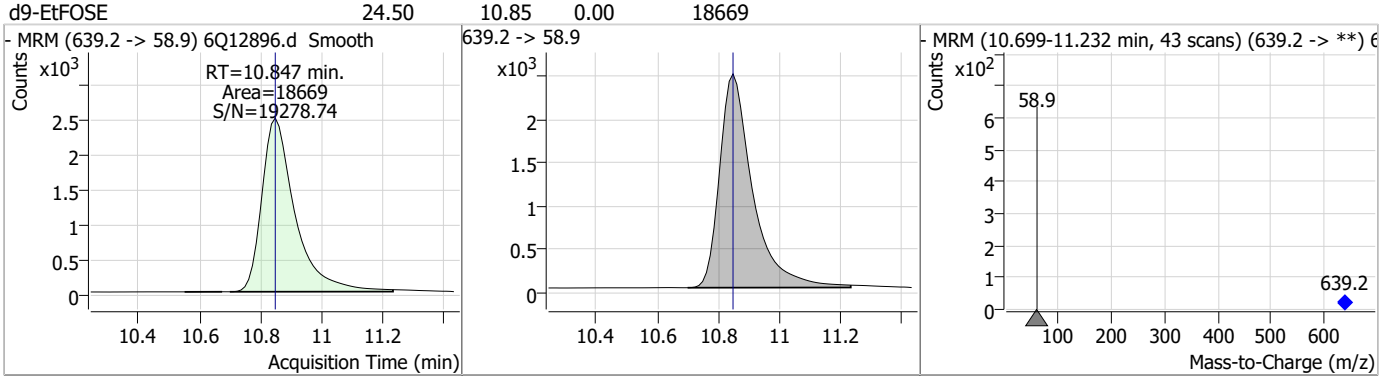
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.47	10.59	0.00	25945				



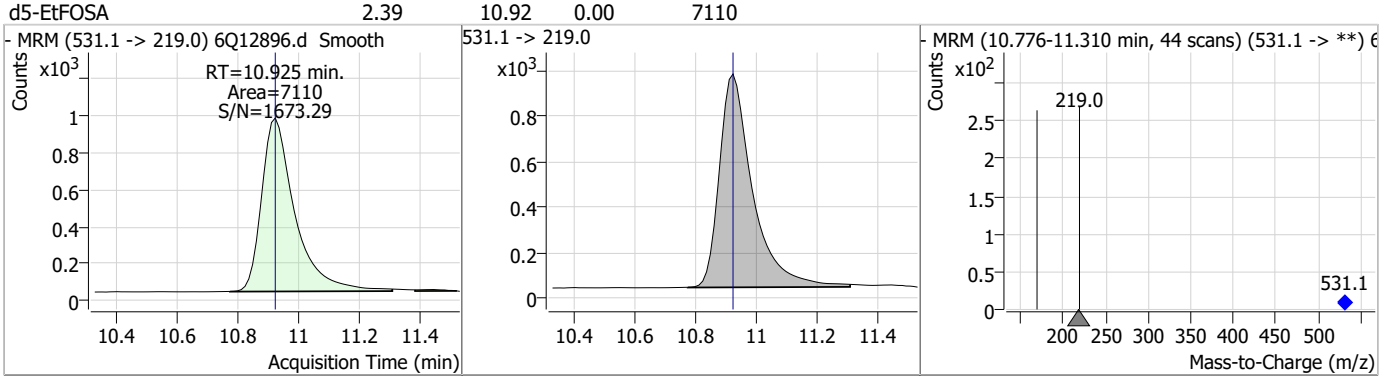
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.68	0.00	6690				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.50	10.85	0.00	18669				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.39	10.92	0.00	7110				



Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12897.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 1:03:57 PM
Sample Name	:	FC2228-3
Vial	:	P4-A8
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	26747	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	35252	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	30853	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	32606	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58318	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	23188	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	17523	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	18591	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	18269	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	9646	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16366	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11909	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7365	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7934	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2350	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2771	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2938	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	24692	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13427	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	19098	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	23635	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16515	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6704	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6076	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9400	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	30114	5.00	µg/L	0.037
18O2-PFHxS	7.286	403.0 -> 83.9	6230	2.50	µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	65050	2.50	µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	22134	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	27759	1.25	µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	28964	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2350	5.80	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2771	5.16	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2938	5.44	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%		
13C2-PFDoDA	9.078	615.1 -> 570.0	18269	1.08	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	9646	0.99	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.3%		
13C3-PFBS	5.518	302.1 -> 79.9	11909	2.35	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	7365	2.25	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C4-PFBA	3.013	216.8 -> 171.9	26747	4.00 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 40.0%	
13C4-PFHpA	6.502	367.1 -> 322.0	32606	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C5-PFHxA	5.563	318.0 -> 273.0	30853	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	35252	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C6-PFDA	8.170	519.1 -> 474.1	17523	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C7-PFUnDA	8.636	570.0 -> 525.1	18591	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.567	506.1 -> 77.8	16366	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOA	7.146	421.1 -> 376.0	58318	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-PFOS	8.345	507.1 -> 79.9	7934	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.689	472.1 -> 427.0	23188	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.0%	
d3-MeFOSAA	8.215	573.2 -> 419.0	24692	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13427	11.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6076	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
d5-EtFOSAA	8.422	589.2 -> 419.0	19098	4.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	23635	22.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	16515	22.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	6704	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
Target Compounds					**QValue**
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.921	427.1 -> 407.0	1460	0.36 µg/L	96
		427.1 -> 80.9	295		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

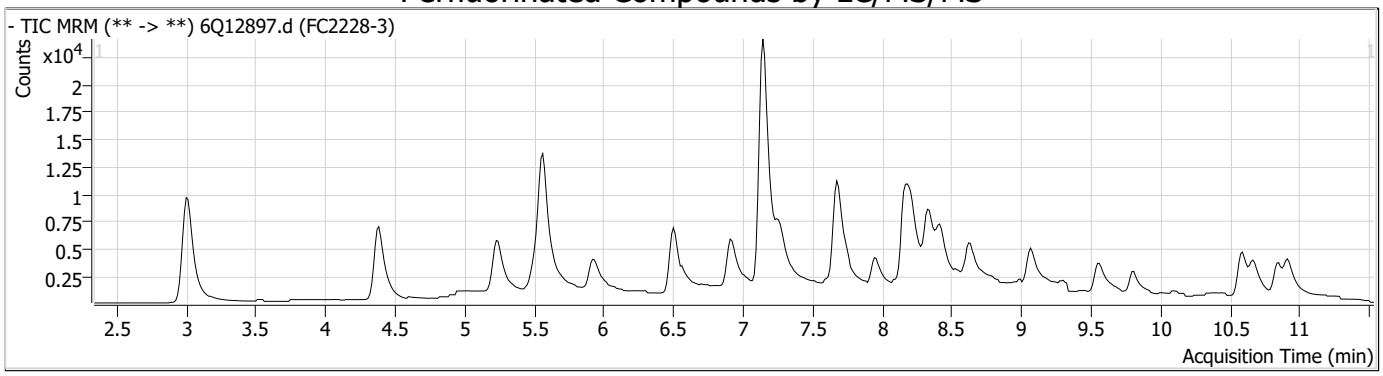
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8					
PFHpA	-	363.1 -> 319.0	-	N.D.			
		363.1 -> 169.0					
PFHpS	-	449.0 -> 79.9	-	N.D.			
		449.0 -> 98.9					
PFHxA	5.566	313.0 -> 269.0	1766	0.15	µg/L		96
		313.0 -> 118.9	102				
PFHxS	-	398.7 -> 79.9	-	N.D.			
		398.7 -> 98.9					
PFNA	-	463.0 -> 419.0	-	N.D.			
		463.0 -> 219.0					
PFNS	-	548.8 -> 79.9	-	N.D.			
		548.8 -> 98.9					
PFOA	-	413.0 -> 369.0	-	N.D.			
		413.0 -> 169.0					
PFOS	8.347	498.9 -> 79.9	1138	0.31	µg/L	m	71
		498.9 -> 98.8	687				
PFPeA	4.388	263.0 -> 219.0	3999	0.54	µg/L		100
PFPeS	-	349.1 -> 79.9	-	N.D.			
		349.1 -> 98.9					
PFTeDA	-	713.1 -> 669.0	-	N.D.			
		713.1 -> 168.9					
PFTrDA	-	663.0 -> 619.0	-	N.D.			
		663.0 -> 168.9					
PFUnDA	-	563.1 -> 519.0	-	N.D.			
		563.1 -> 269.1					
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.			
		632.9 -> 452.9					
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.			
		532.8 -> 353.0					
ADONA	-	376.9 -> 250.9	-	N.D.			
		376.9 -> 84.8					
HFPO-DA	-	284.9 -> 168.9	-	N.D.			
		284.9 -> 184.9					
3:3FTCA	-	241.0 -> 177.0	-	N.D.			
		241.0 -> 117.0					
5:3FTCA	-	341.0 -> 237.1	-	N.D.			
		341.0 -> 217.0					
7:3FTCA	-	441.0 -> 316.9	-	N.D.			
		441.0 -> 336.9					
EtFOSA	-	526.0 -> 219.0	-	N.D.			
		526.0 -> 169.0					
EtFOSE	-	630.0 -> 58.9	-	N.D.			
MeFOSA	-	511.9 -> 219.0	-	N.D.			
		511.9 -> 169.0					
MeFOSE	-	616.1 -> 58.9	-	N.D.			
PFDoDS	-	699.1 -> 79.9	-	N.D.			
		699.1 -> 98.8					
NFDHA	-	295.0 -> 201.0	-	N.D.			
		295.0 -> 84.9					
PFMBA	-	279.0 -> 85.1	-	N.D.			
PFMPA	-	229.0 -> 84.9	-	N.D.			
PFEESA	-	314.8 -> 134.9	-	N.D.			
		314.8 -> 82.9					

= Qualifier out of range, m = manually integrated, + = Area summed

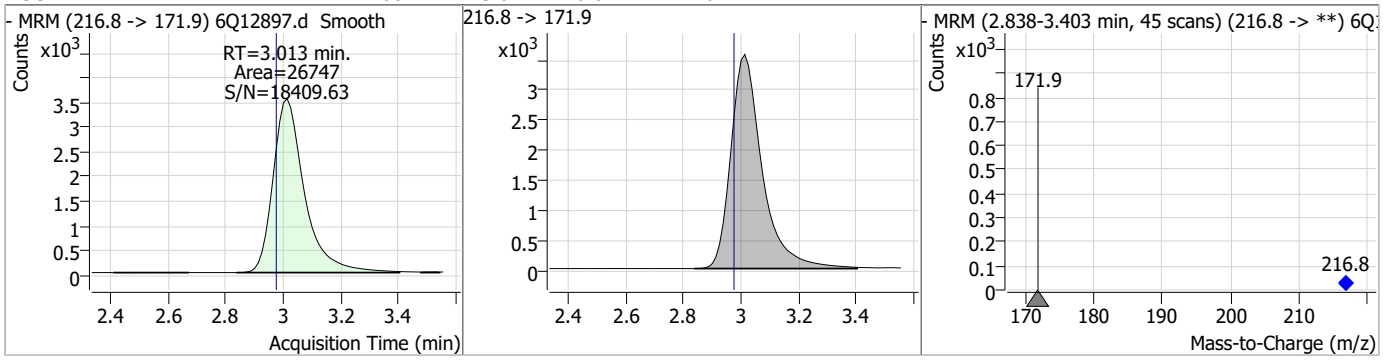
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

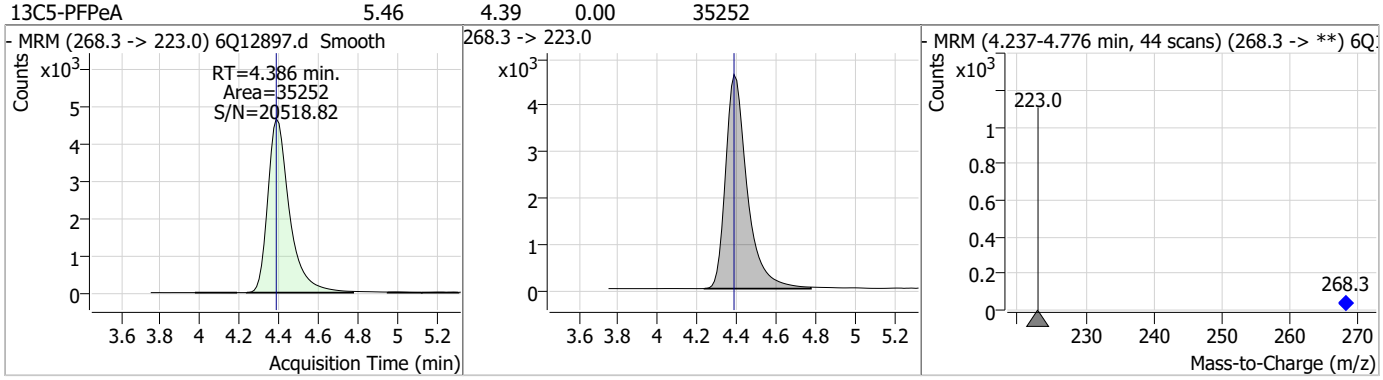
Perfluorinated Compounds by LC/MS/MS



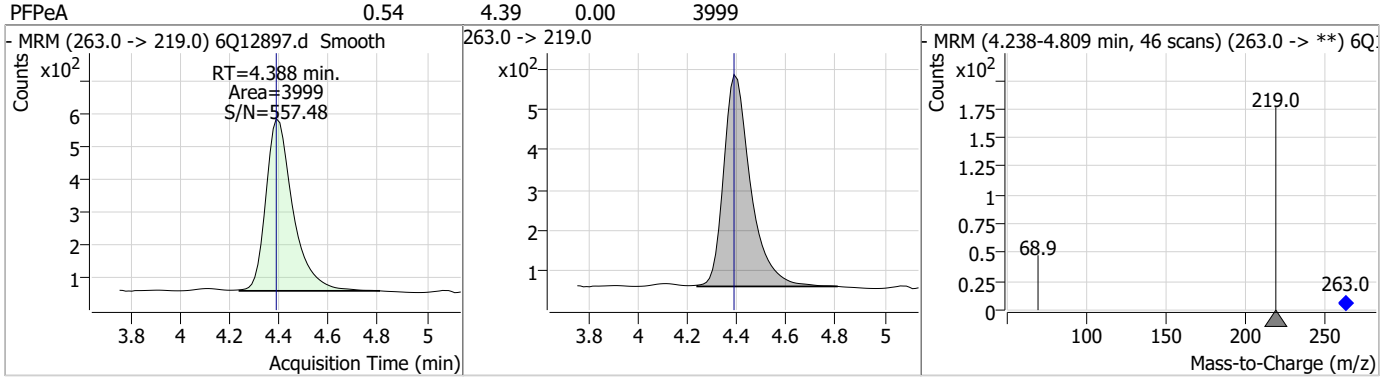
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	4.00	3.01	0.04	26747				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.46	4.39	0.00	35252				

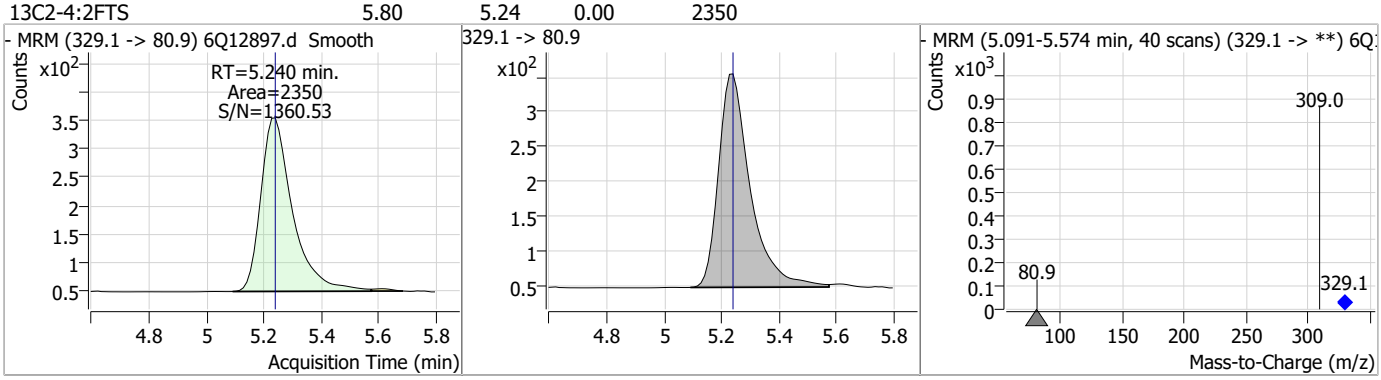


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.54	4.39	0.00	3999				

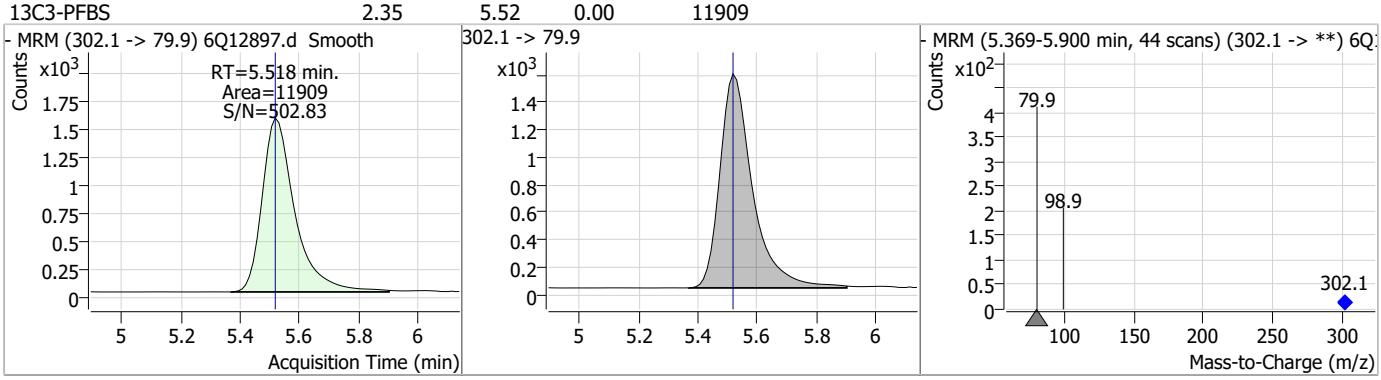


Perfluorinated Compounds by LC/MS/MS

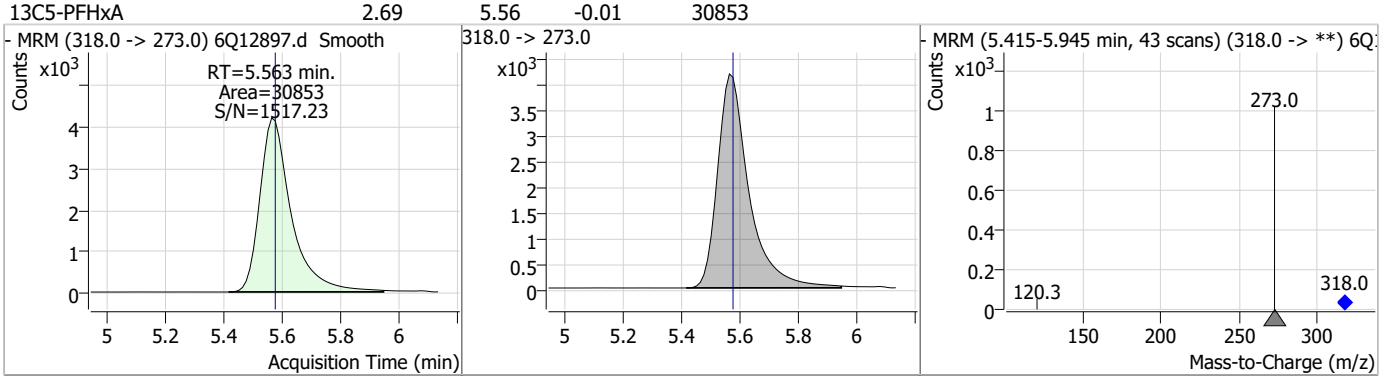
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.80	5.24	0.00	2350				



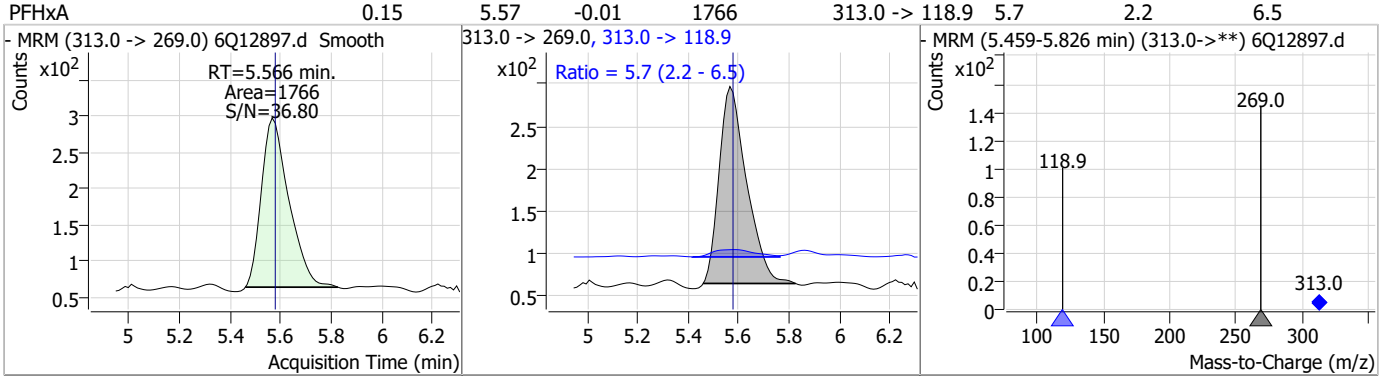
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.35	5.52	0.00	11909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.69	5.56	-0.01	30853				

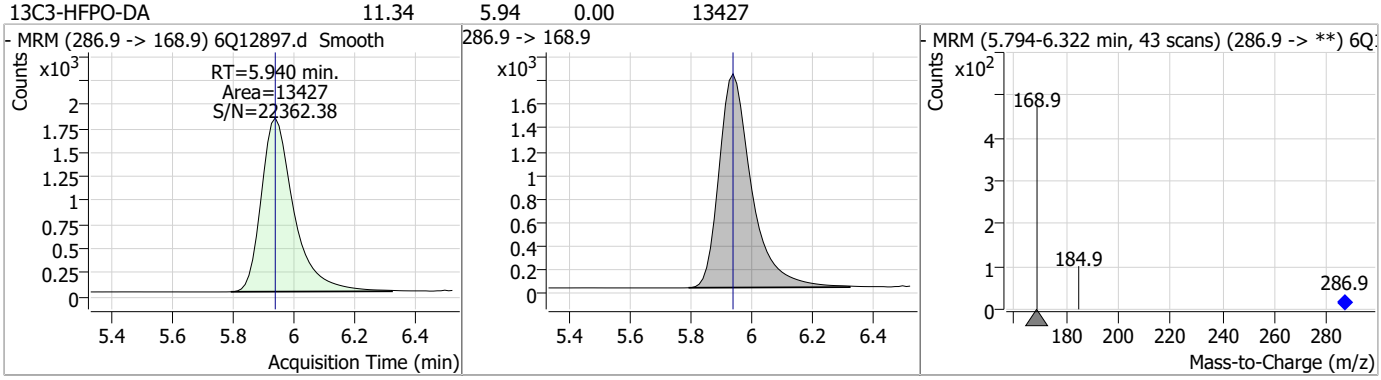


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.57	-0.01	1766	313.0 -> 118.9	5.7	2.2	6.5

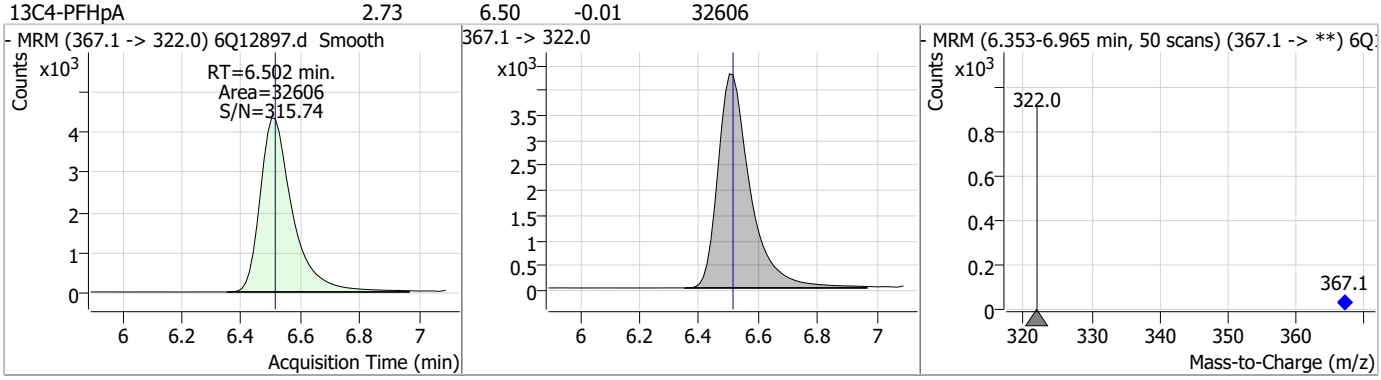


Perfluorinated Compounds by LC/MS/MS

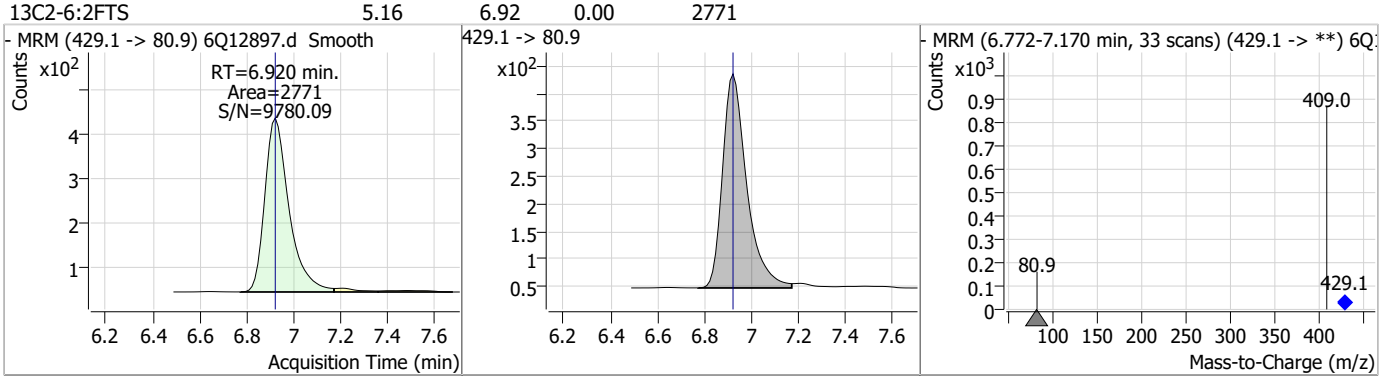
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.34	5.94	0.00	13427				



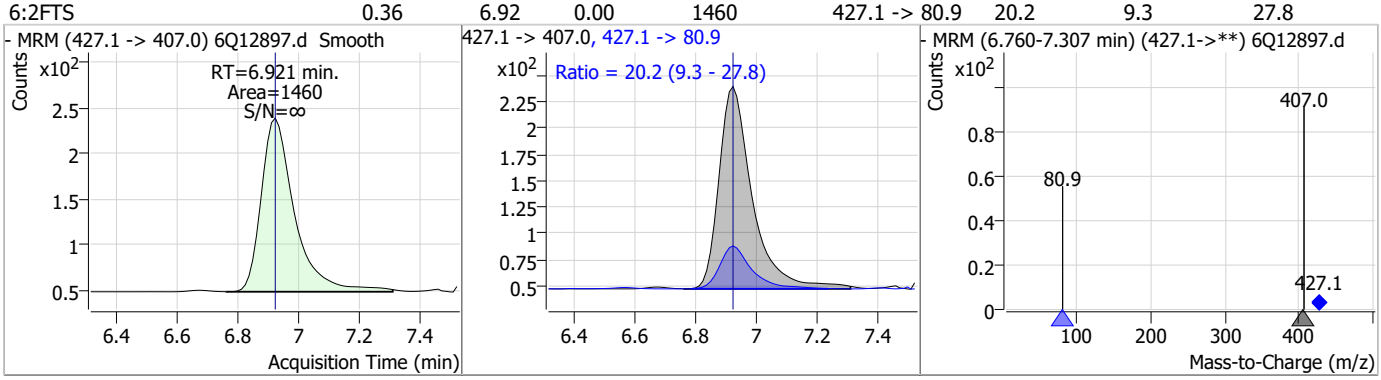
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.73	6.50	-0.01	32606				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.16	6.92	0.00	2771				

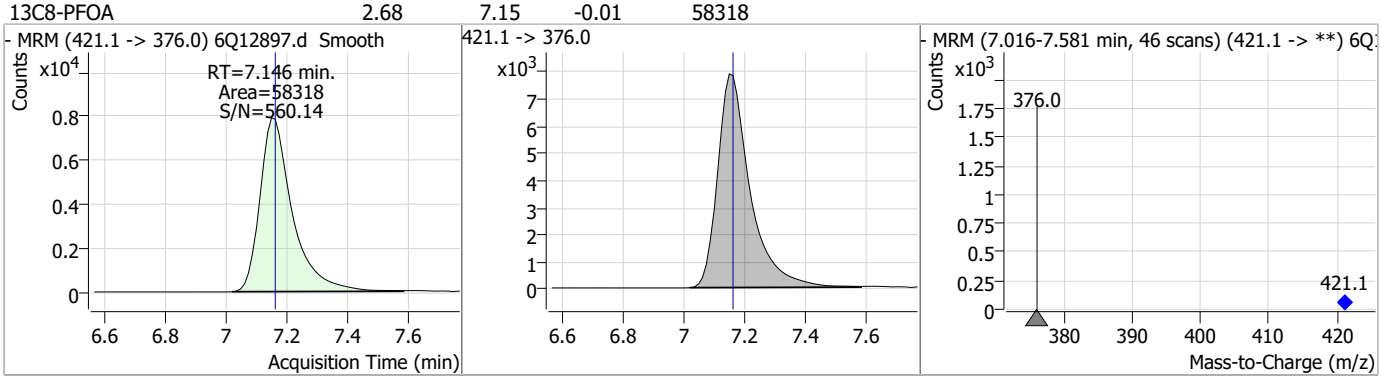


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.36	6.92	0.00	1460	427.1 -> 80.9	20.2	9.3	27.8

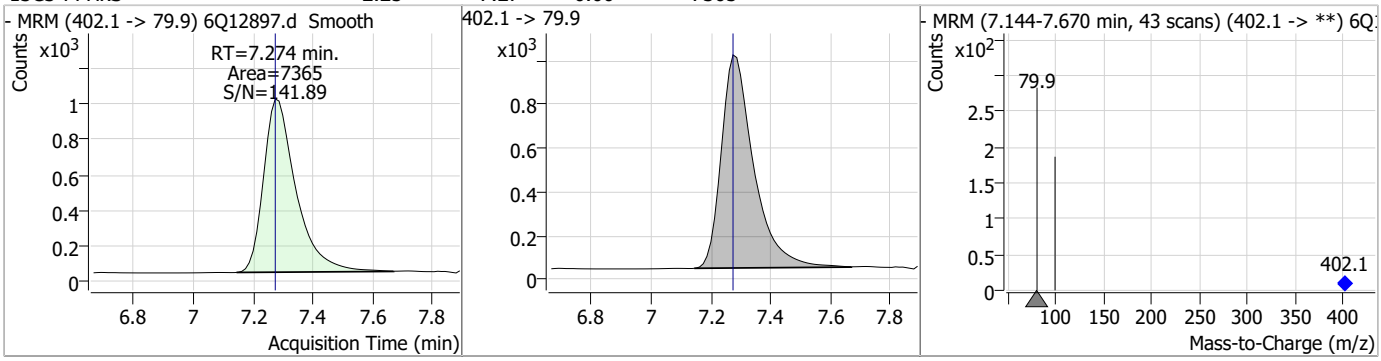


Perfluorinated Compounds by LC/MS/MS

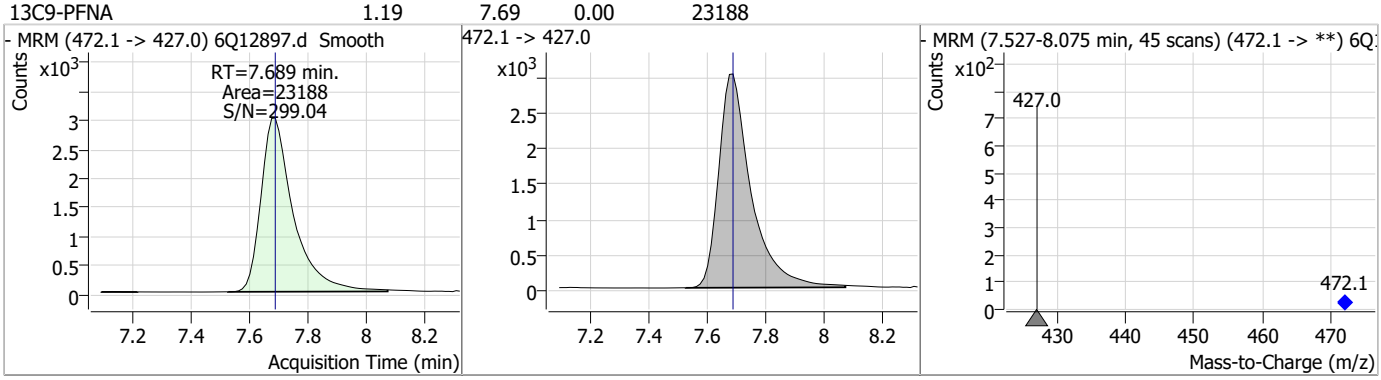
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.68	7.15	-0.01	58318				



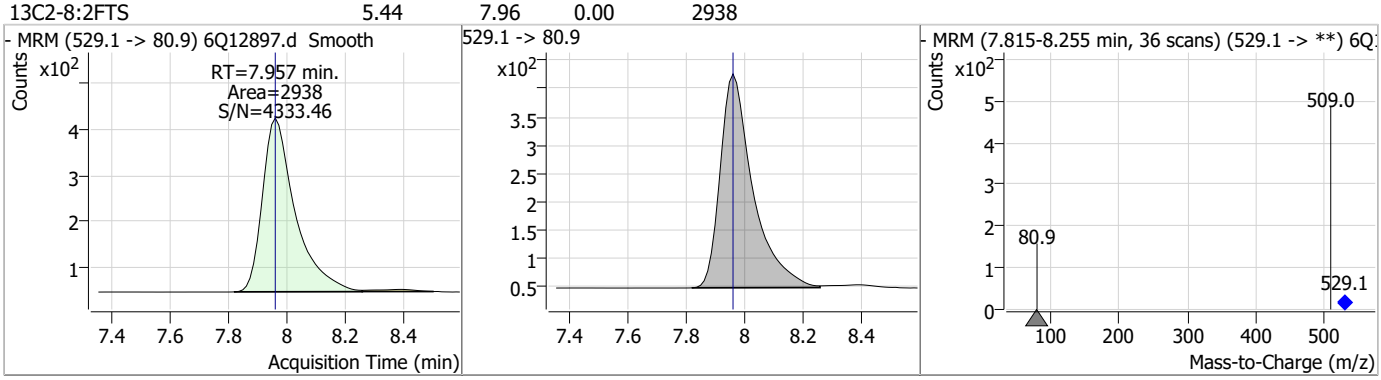
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.25	7.27	0.00	7365				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.19	7.69	0.00	23188				

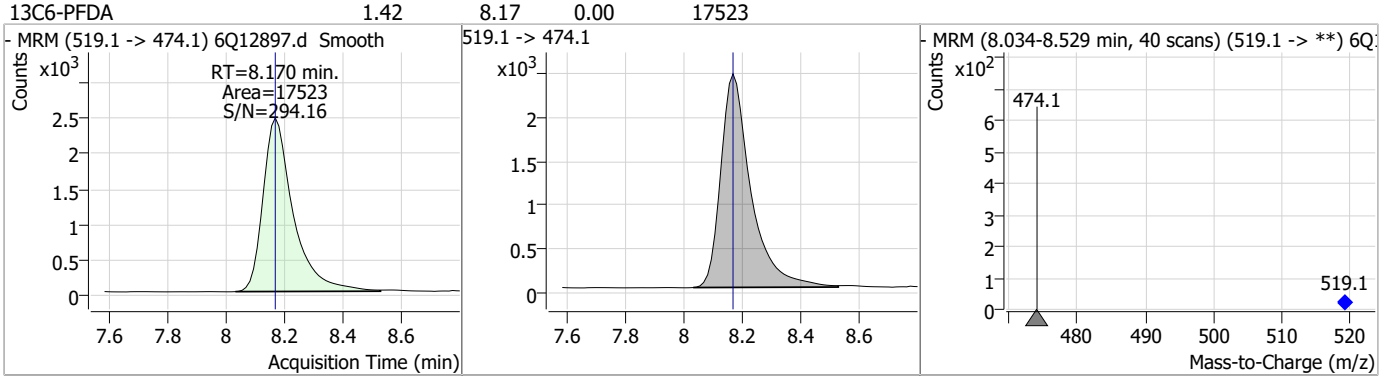


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.44	7.96	0.00	2938				

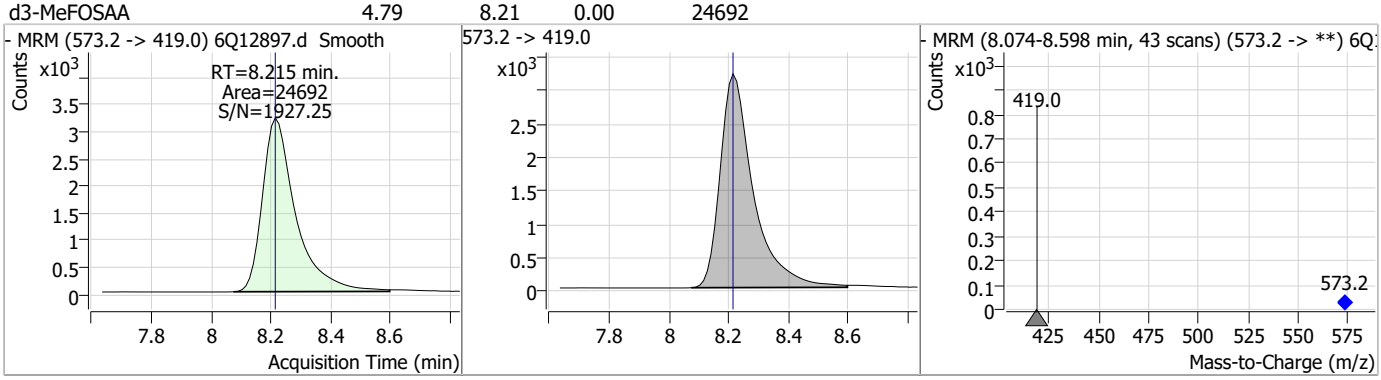


Perfluorinated Compounds by LC/MS/MS

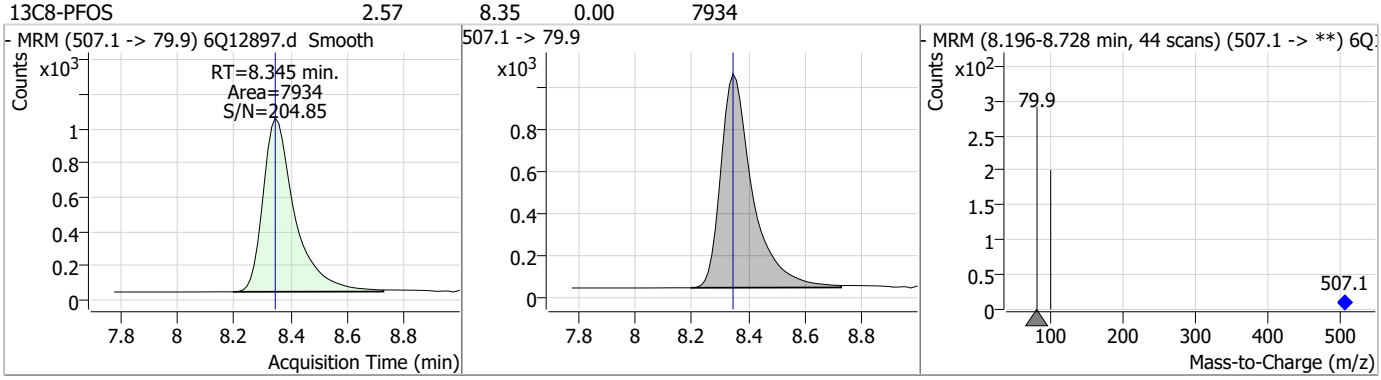
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.42	8.17	0.00	17523				



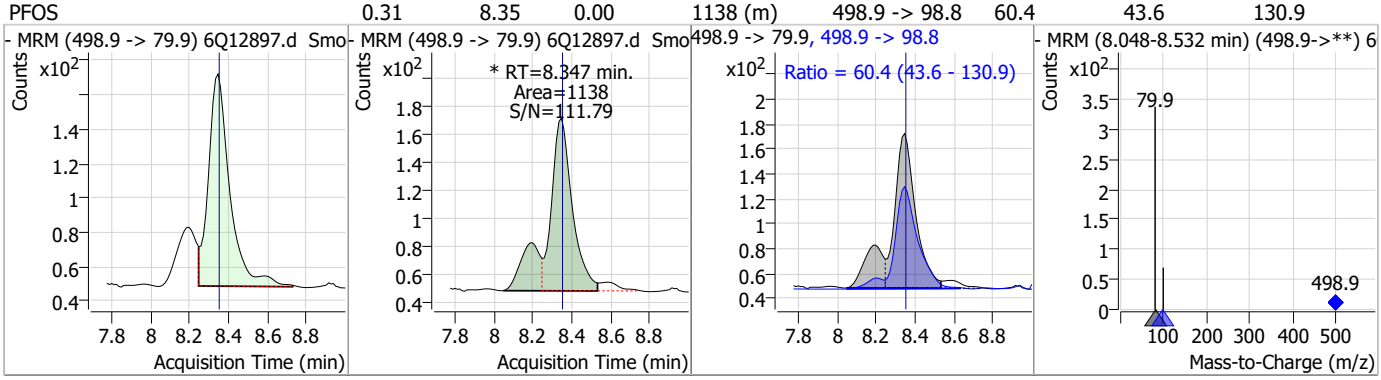
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.79	8.21	0.00	24692				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.35	0.00	7934				

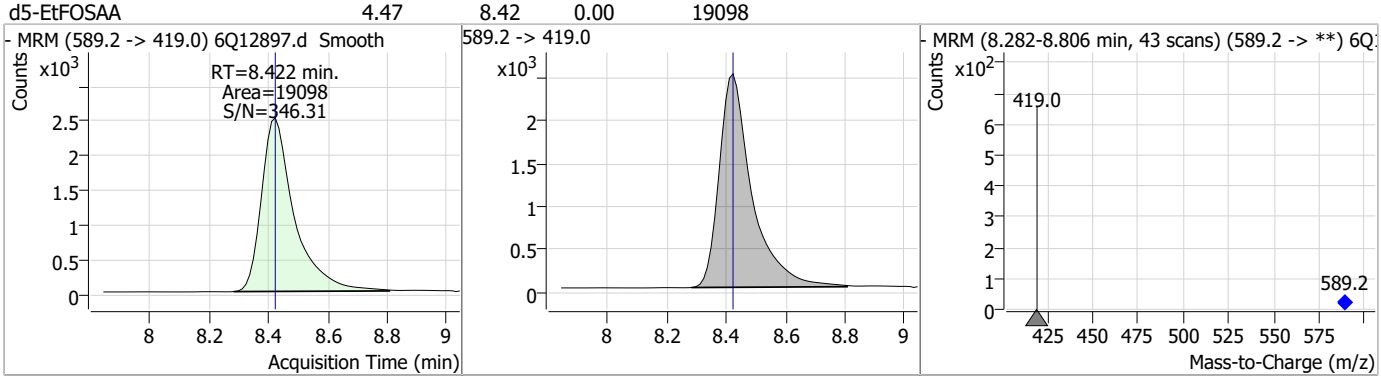


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.31	8.35	0.00	1138 (m)	498.9 -> 98.8	60.4	43.6	130.9

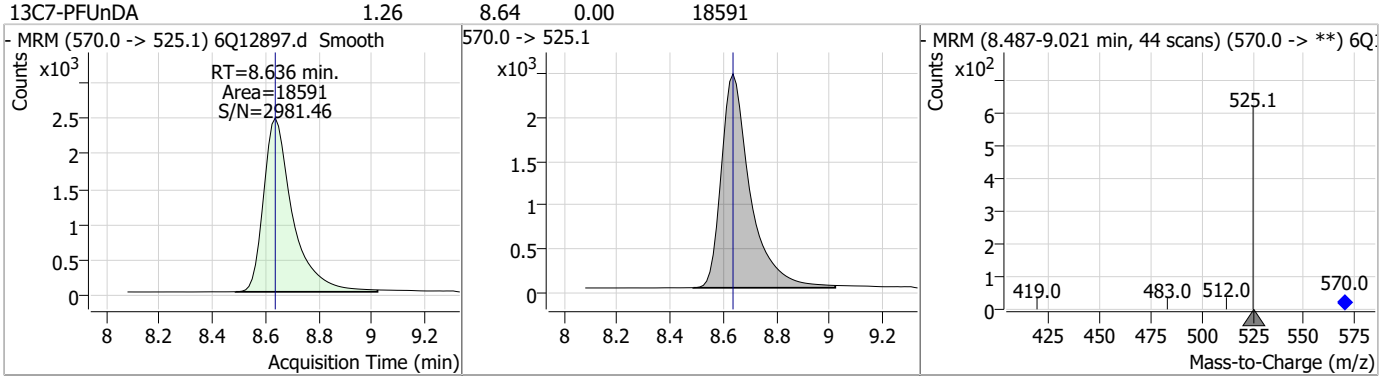


Perfluorinated Compounds by LC/MS/MS

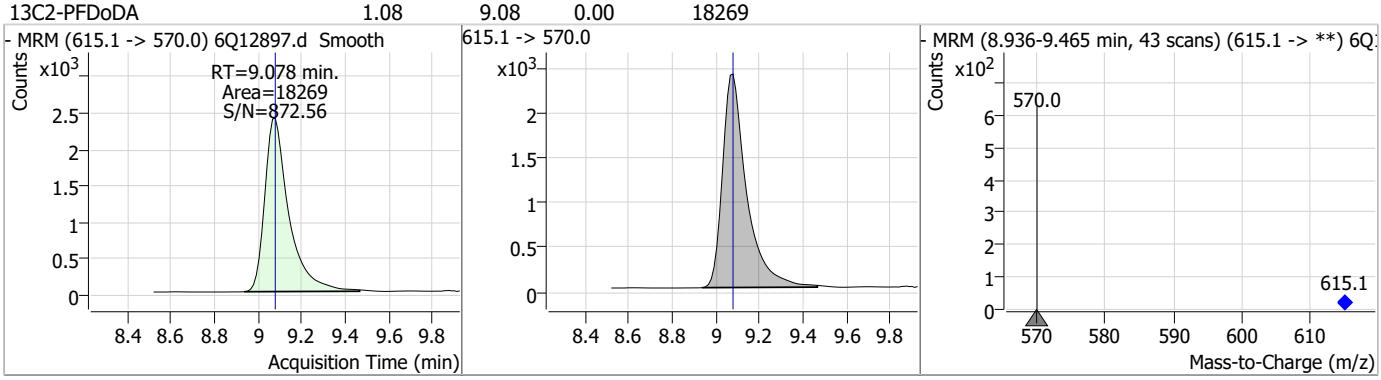
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.47	8.42	0.00	19098				



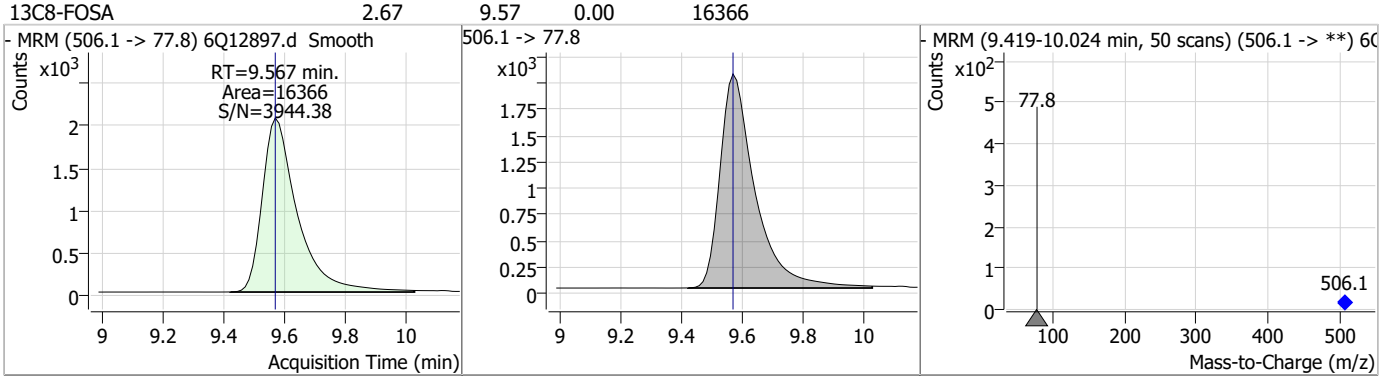
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.64	0.00	18591				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.08	9.08	0.00	18269				

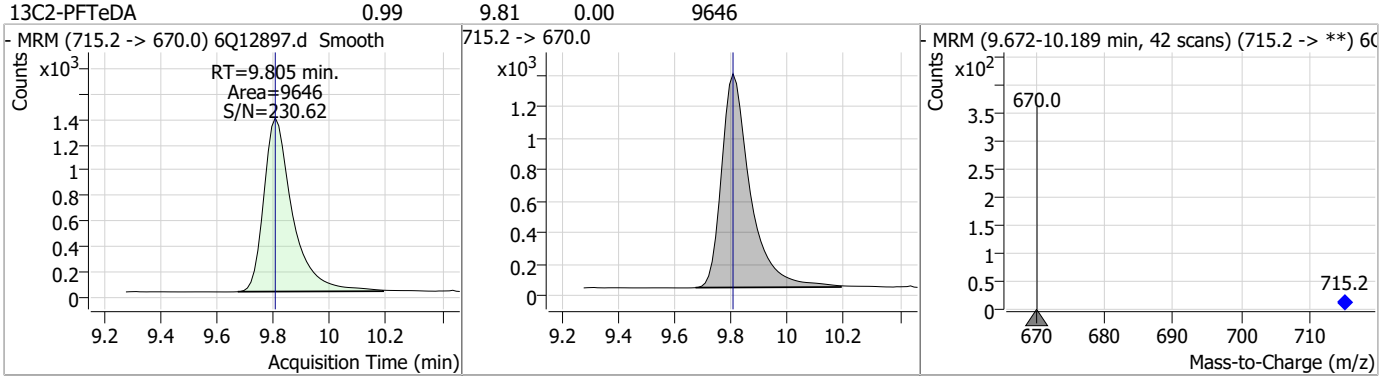


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.57	0.00	16366				

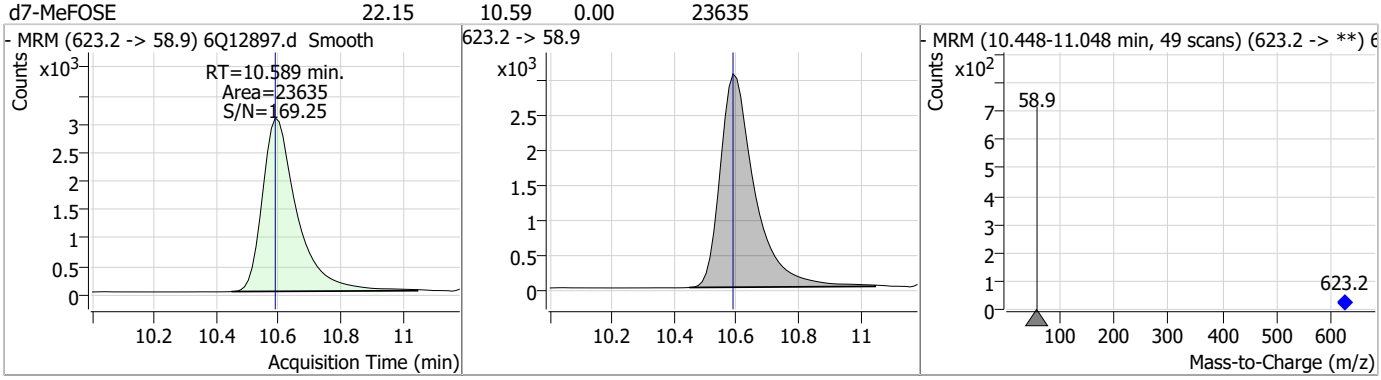


Perfluorinated Compounds by LC/MS/MS

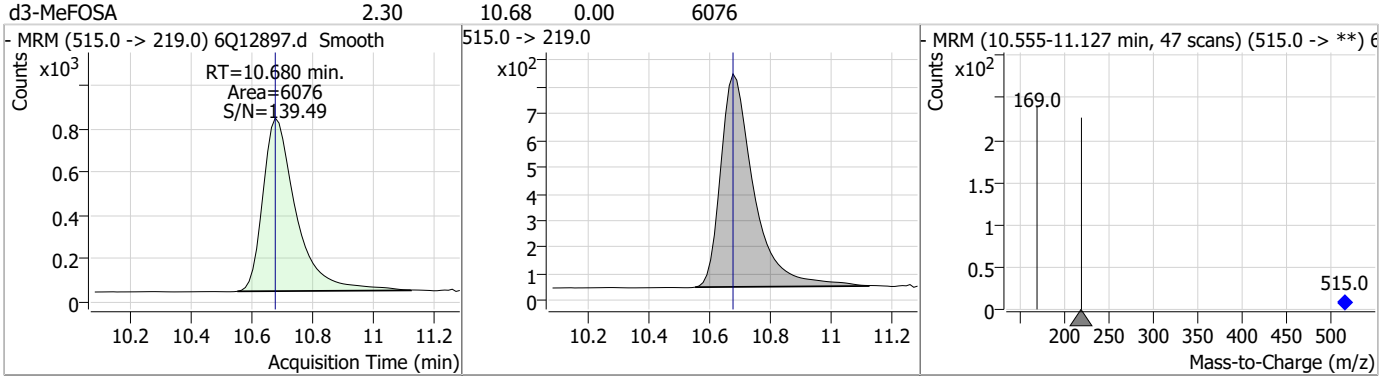
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.99	9.81	0.00	9646				



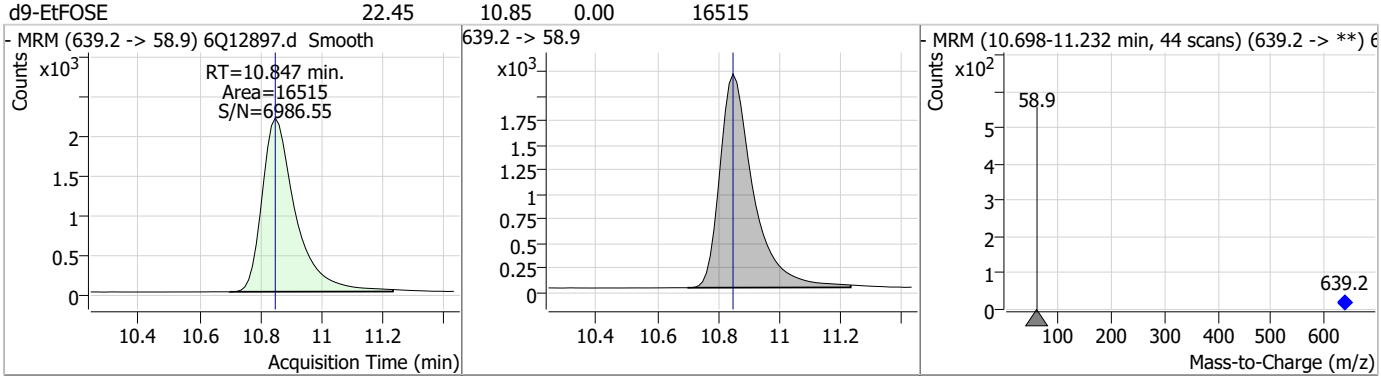
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.15	10.59	0.00	23635				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	10.68	0.00	6076				

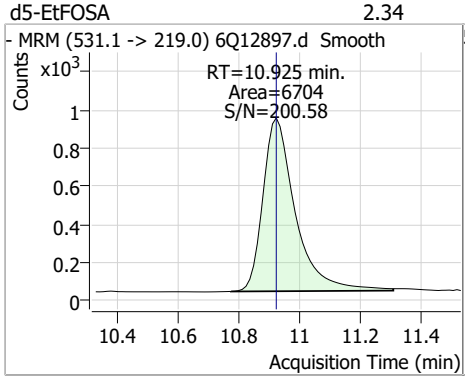


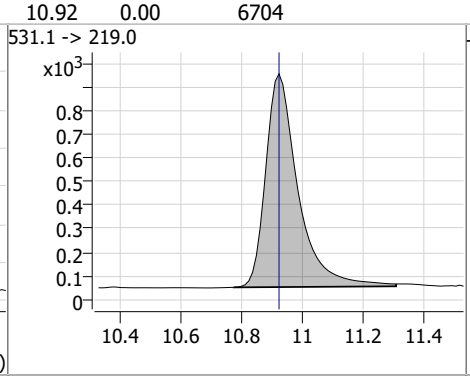
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.45	10.85	0.00	16515				

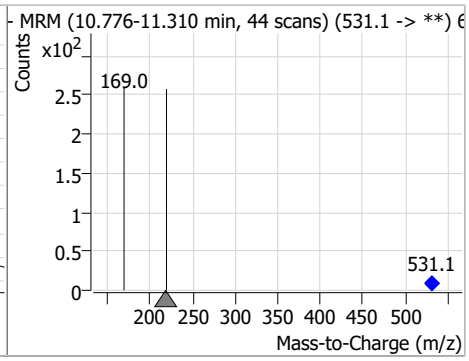


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.34	10.92	0.00	6704				







7.1.3

7

Manual Integration Approval Summary

Sample Number:	FC2228-3	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12897.D	**Analyst approved:**	02/06/23 11:17 Martha Valls
Injection Time:	02/03/23 13:03	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12892.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 11:54:03 AM
Sample Name	:	op95216-mb
Vial	:	P4-A3
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	67986	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	33849	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	29794	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	31162	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58088	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25312	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	16254	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19279	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	18499	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	10253	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	14695	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11634	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7798	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7507	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2163	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2976	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2939	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	22926	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	12345	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	18672	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	24597	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17975	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6060	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5449	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9809	2.50	µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	30247	5.00	µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6310	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	66517	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	20773	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26845	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	28140	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2163	5.27	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2976	5.47	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2939	5.37	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C2-PFDoDA	9.078	615.1 -> 570.0	18499	1.17	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10253	1.12	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.8%		
13C3-PFBS	5.518	302.1 -> 79.9	11634	2.26	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C3-PFHxS	7.274	402.1 -> 79.9	7798	2.35	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C4-PFBA	3.013	216.8 -> 171.9	67986	10.13 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.502	367.1 -> 322.0	31162	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C5-PFHxA	5.563	318.0 -> 273.0	29794	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFPeA	4.386	268.3 -> 223.0	33849	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C6-PFDA	8.170	519.1 -> 474.1	16254	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C7-PFUnDA	8.636	570.0 -> 525.1	19279	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C8-FOSA	9.567	506.1 -> 77.8	14695	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-PFOA	7.146	421.1 -> 376.0	58088	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOS	8.345	507.1 -> 79.9	7507	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C9-PFNA	7.677	472.1 -> 427.0	25312	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
d3-MeFOSAA	8.215	573.2 -> 419.0	22926	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	12345	10.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	5449	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.2%	
d5-EtFOSAA	8.410	589.2 -> 419.0	18672	4.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	24597	22.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	17975	23.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	6060	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	

Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

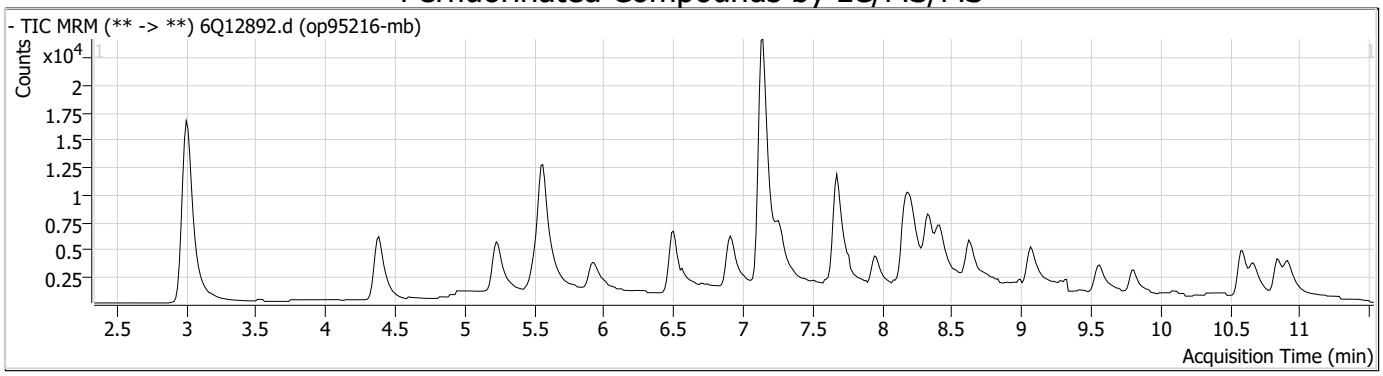
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

 # = Qualifier out of range, m = manually integrated, + = Area summed

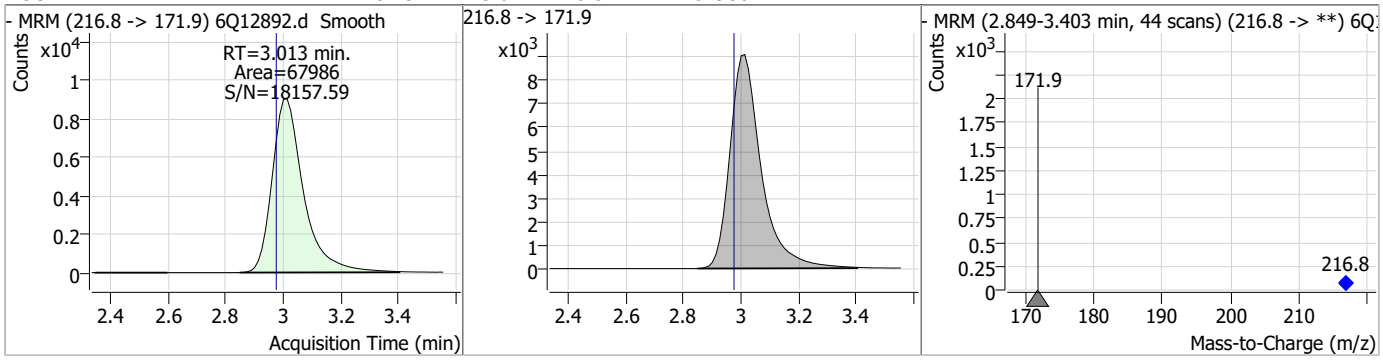
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

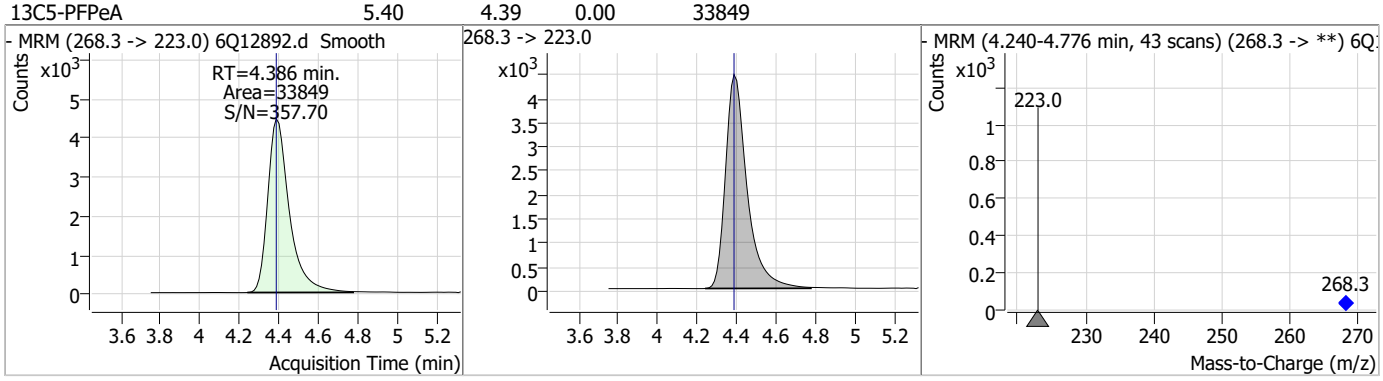
Perfluorinated Compounds by LC/MS/MS



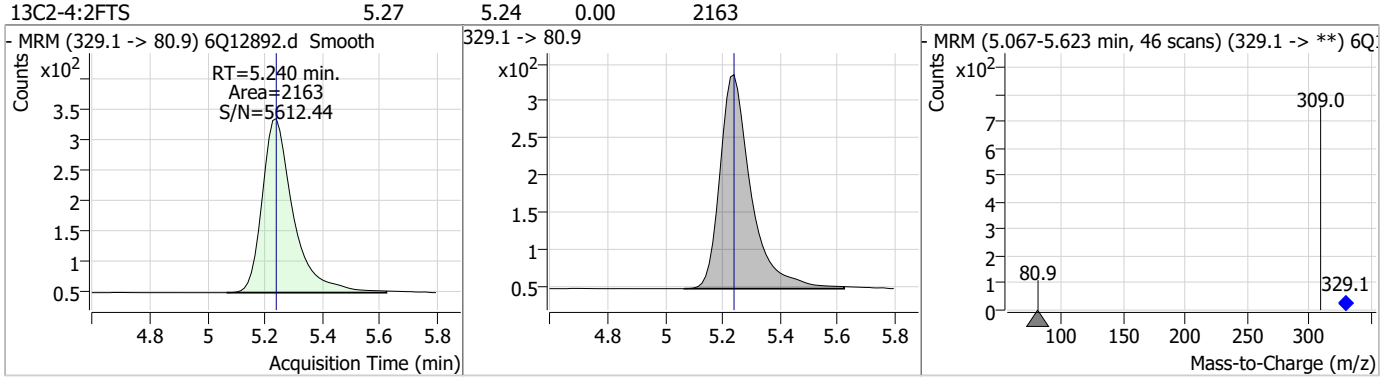
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.13	3.01	0.04	67986				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.40	4.39	0.00	33849				

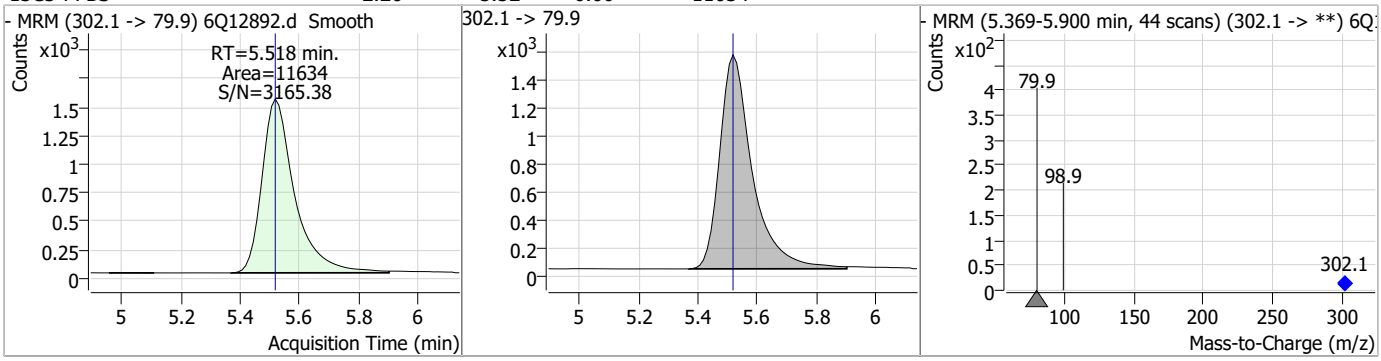


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.27	5.24	0.00	2163				

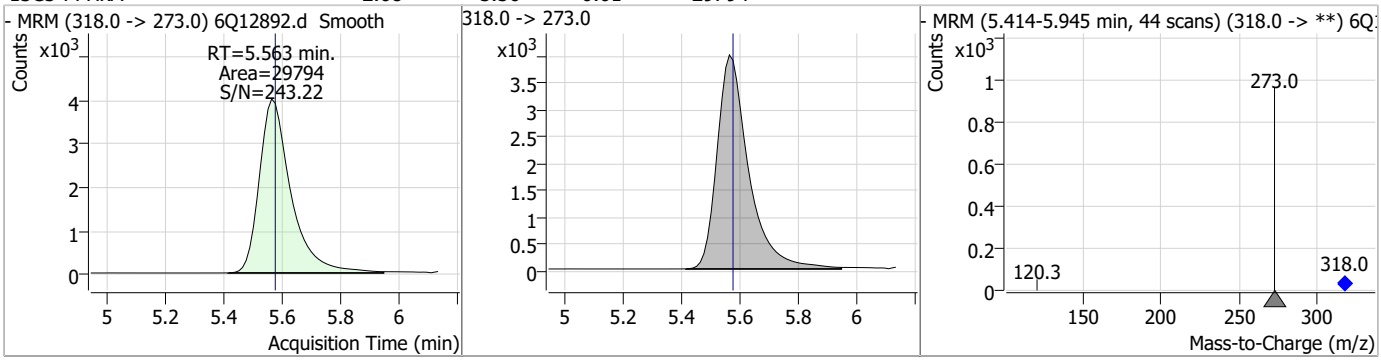


Perfluorinated Compounds by LC/MS/MS

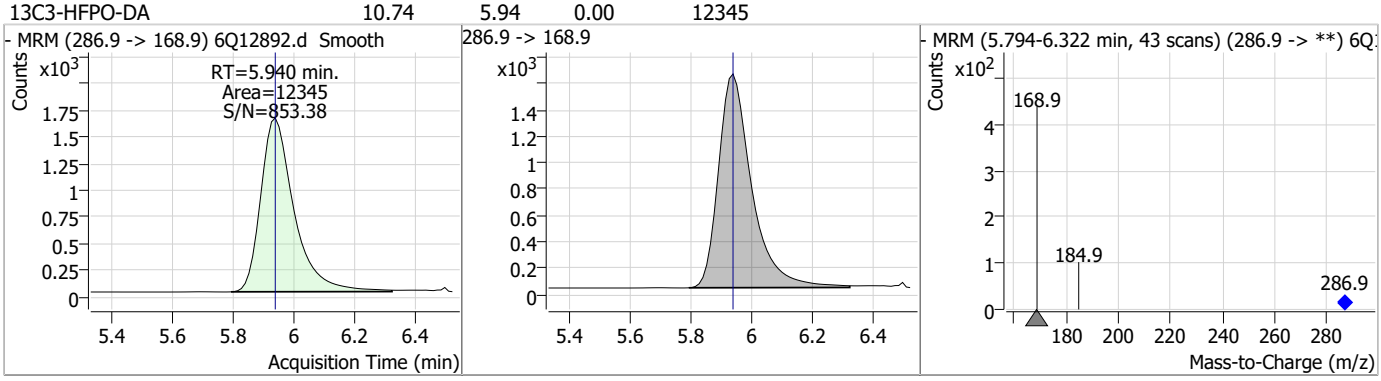
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.26	5.52	0.00	11634				



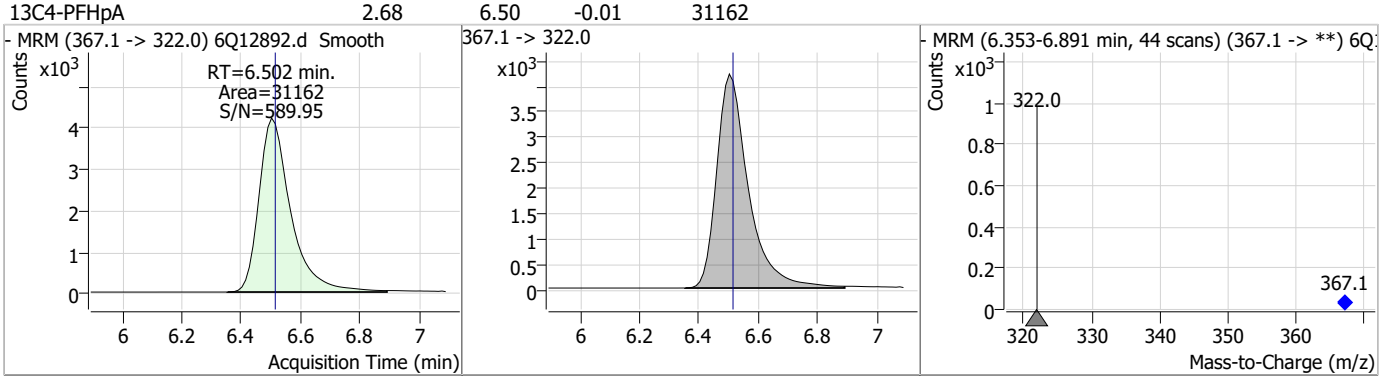
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.56	-0.01	29794				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.74	5.94	0.00	12345				

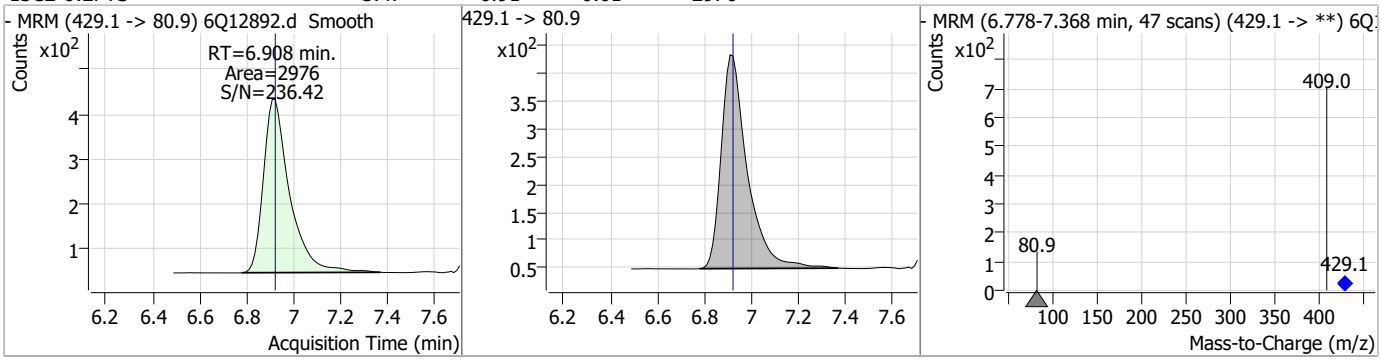


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.68	6.50	-0.01	31162				

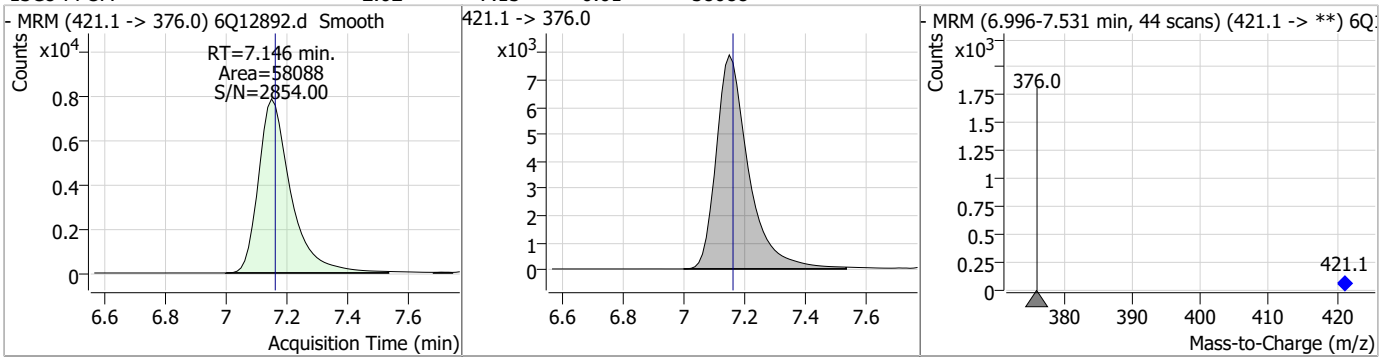


Perfluorinated Compounds by LC/MS/MS

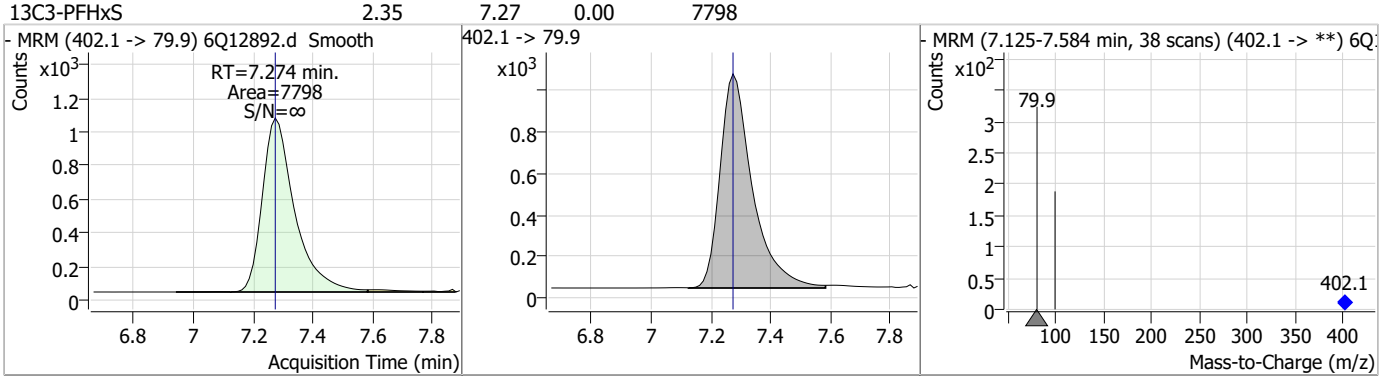
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.47	6.91	-0.01	2976				



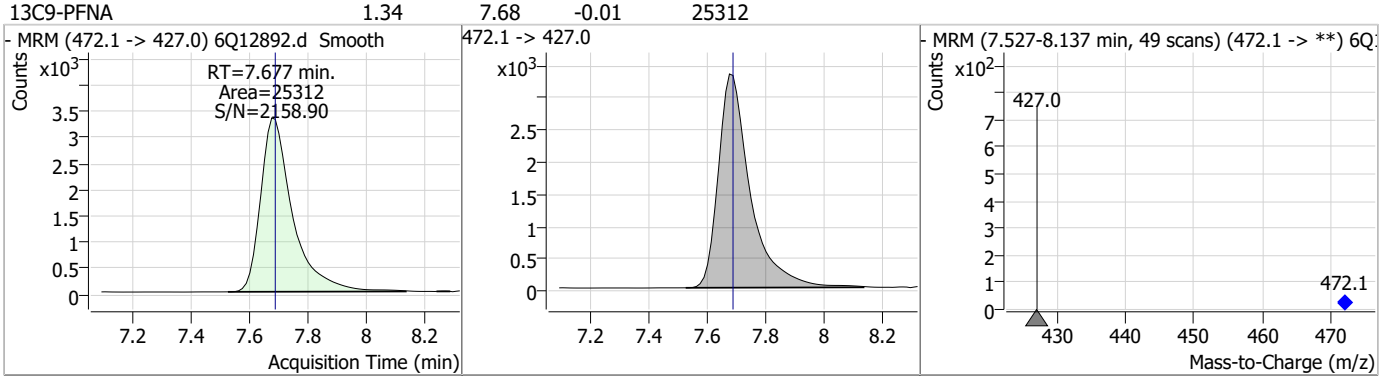
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.62	7.15	-0.01	58088				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.35	7.27	0.00	7798				

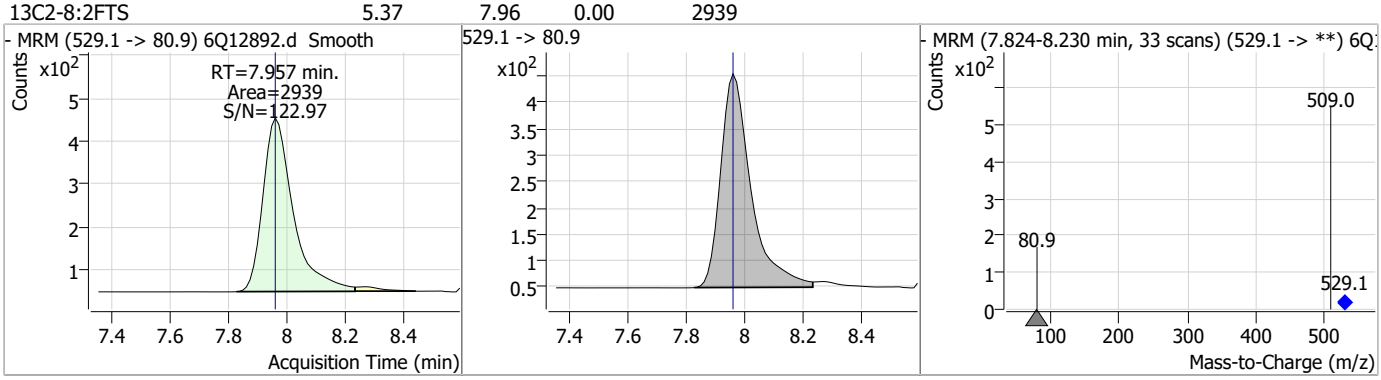


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.34	7.68	-0.01	25312				

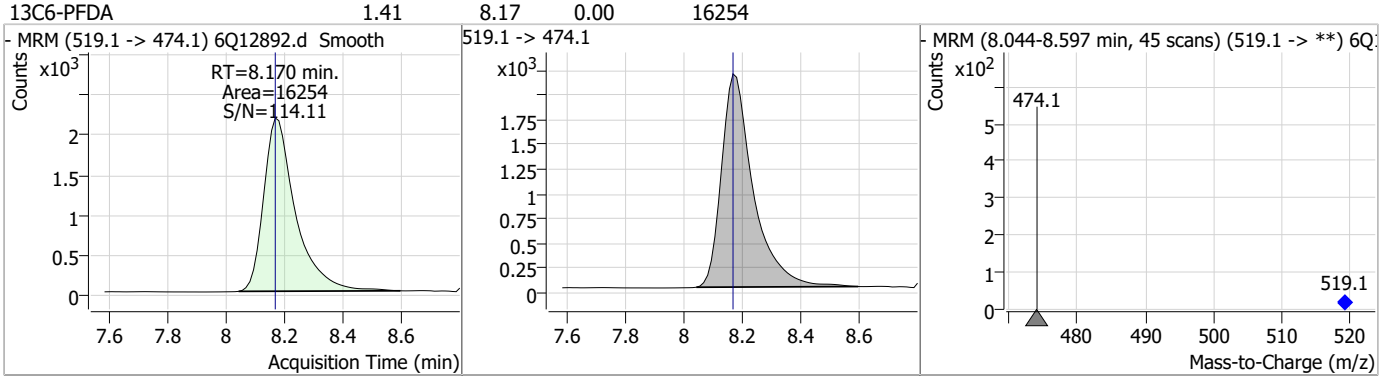


Perfluorinated Compounds by LC/MS/MS

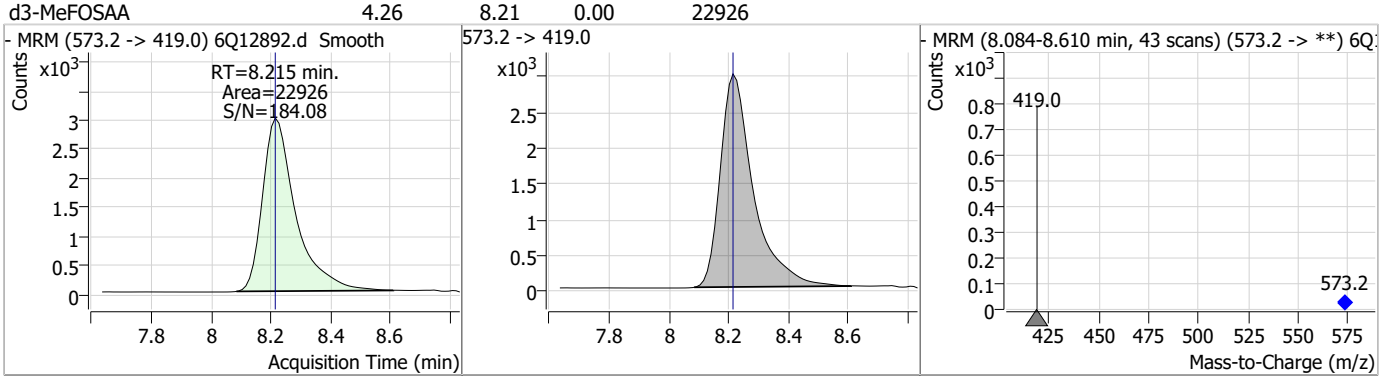
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.37	7.96	0.00	2939				



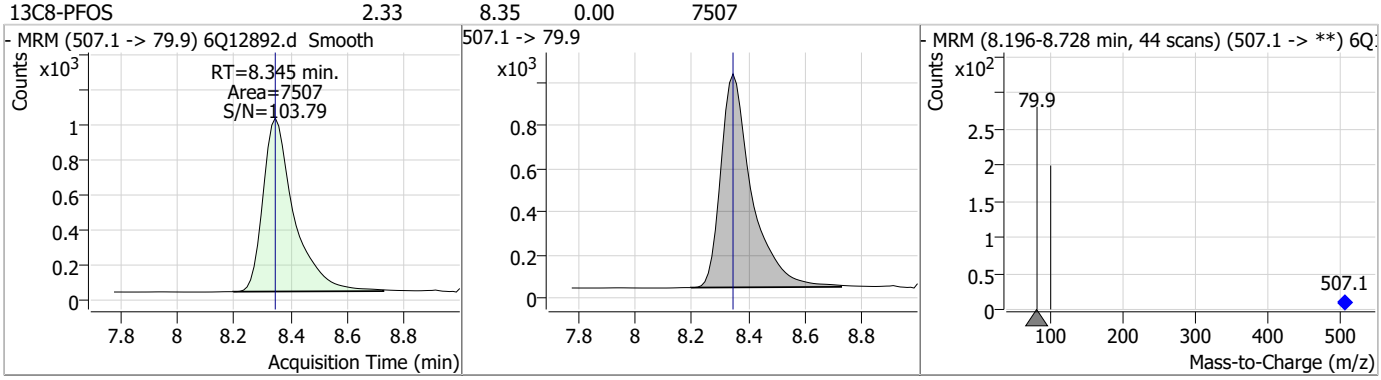
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.41	8.17	0.00	16254				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.26	8.21	0.00	22926				

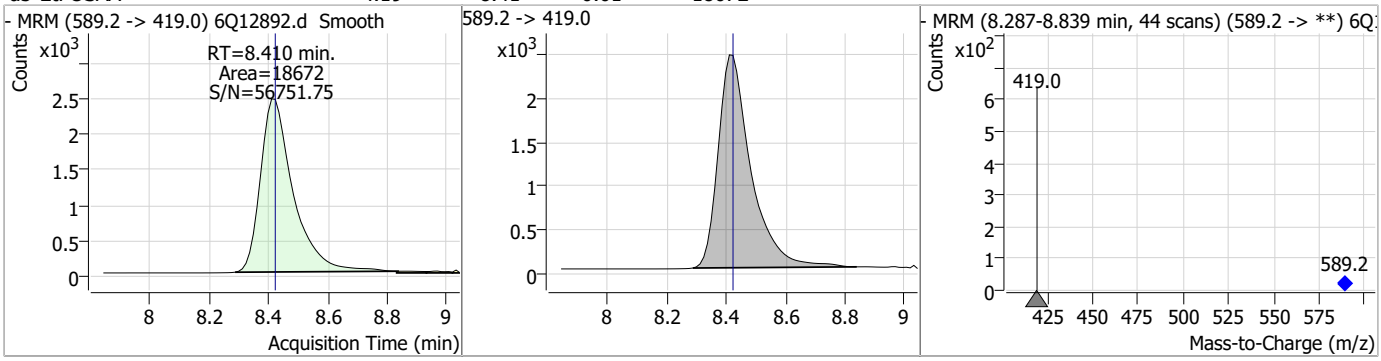


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.33	8.35	0.00	7507				

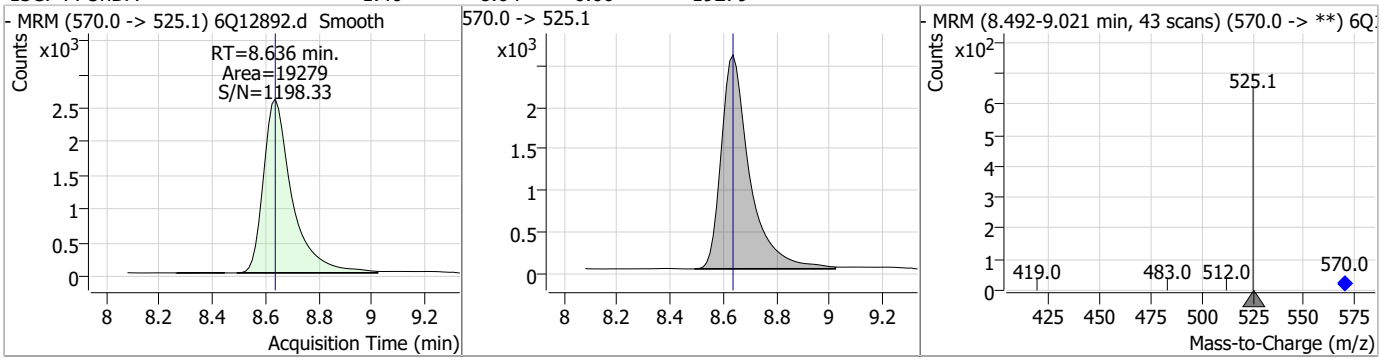


Perfluorinated Compounds by LC/MS/MS

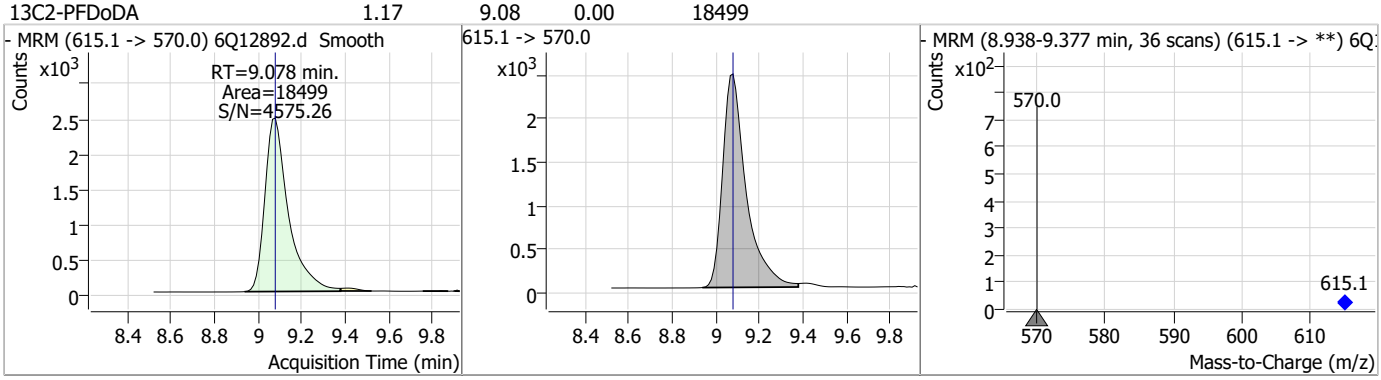
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.19	8.41	-0.01	18672				



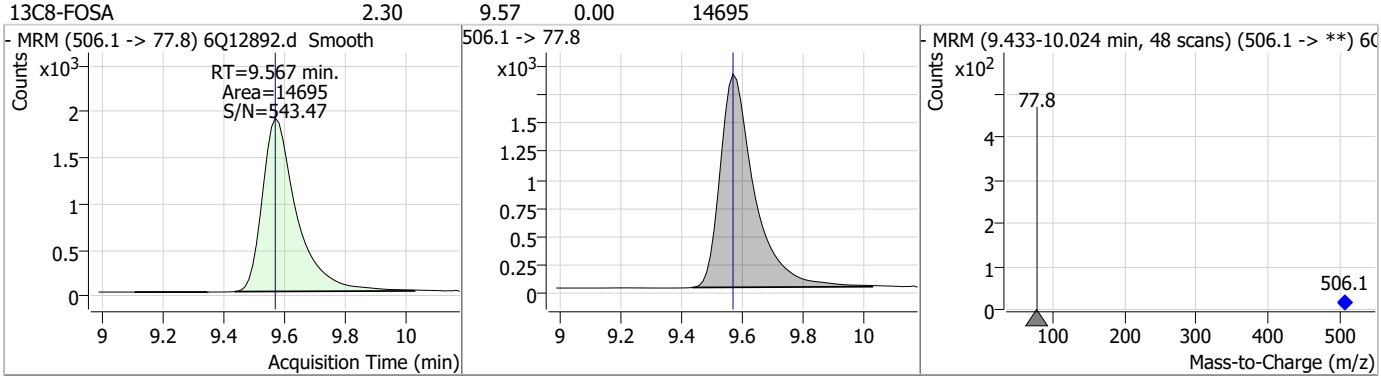
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.40	8.64	0.00	19279				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.17	9.08	0.00	18499				

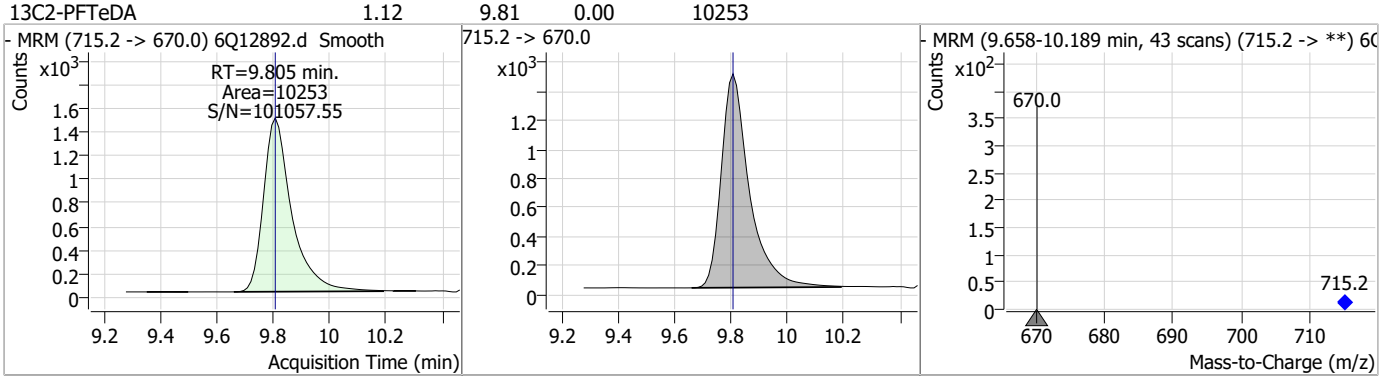


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.30	9.57	0.00	14695				

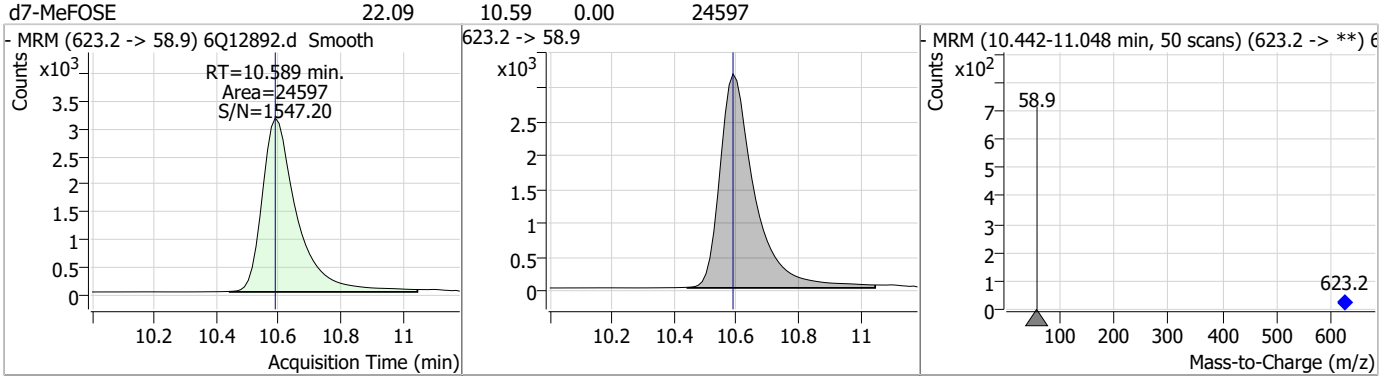


Perfluorinated Compounds by LC/MS/MS

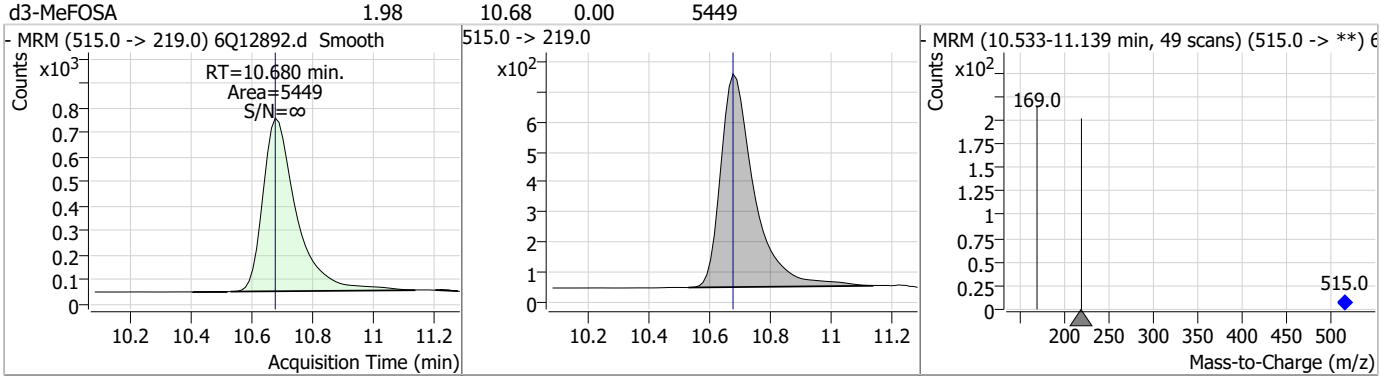
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	9.81	0.00	10253				



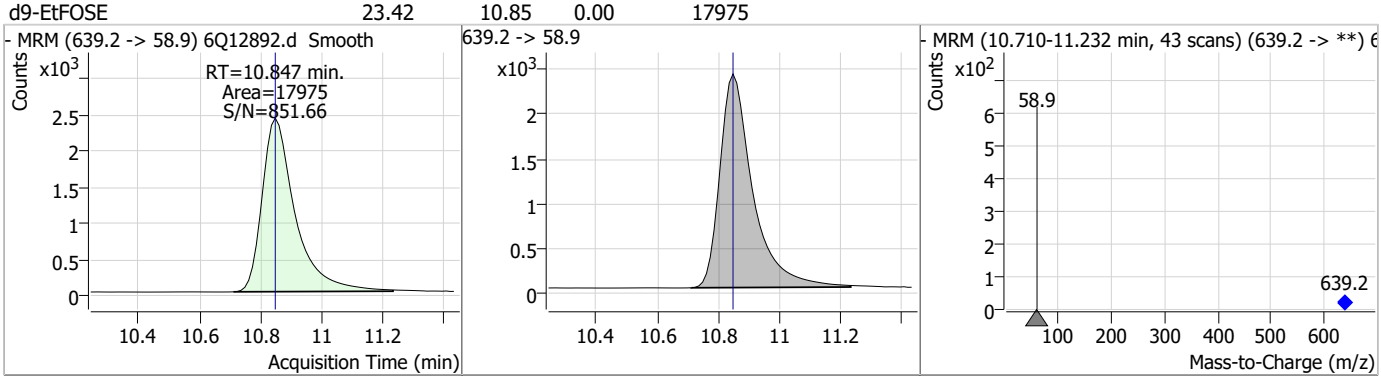
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.09	10.59	0.00	24597				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.98	10.68	0.00	5449				

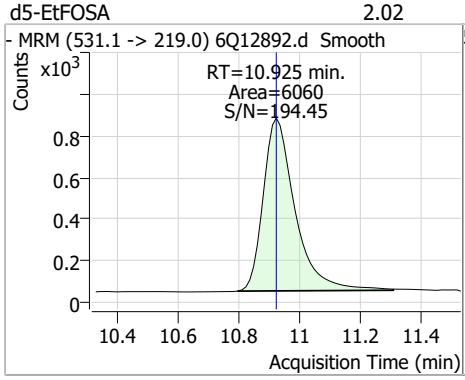


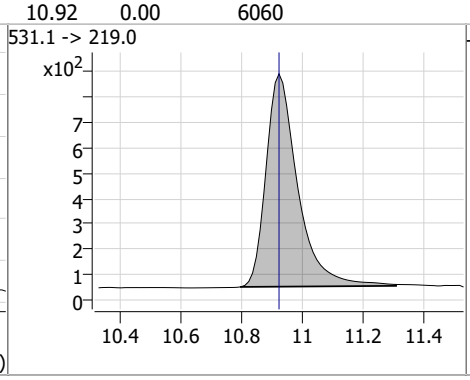
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.42	10.85	0.00	17975				

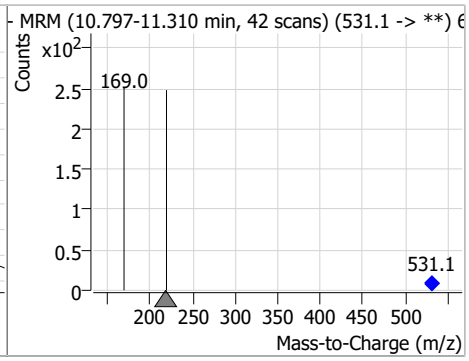


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.02	10.92	0.00	6060				







7.2.1

7

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12887.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 10:44:09 AM
Sample Name	:	IBLK
Vial	:	P1-A1
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	72098	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	36277	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	31991	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	32622	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	59464	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25932	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18870	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21459	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	22845	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14231	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17107	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13060	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8419	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7940	2.50	µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2274	5.00	µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3027	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3016	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27038	5.00	µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	12730	10.00	µg/L	-0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	22801	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29326	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20453	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7372	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6725	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9801	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32564	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6113	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	75925	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	24229	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	29077	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	31926	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.227	329.1 -> 80.9	2274	5.72	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3027	5.74	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3016	5.69	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.9%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22845	1.24	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14231	1.34	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C3-PFBS	5.518	302.1 -> 79.9	13060	2.62	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8419	2.62	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.975	216.8 -> 171.9	72098	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.502	367.1 -> 322.0	32622	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFHxA	5.563	318.0 -> 273.0	31991	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	36277	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C6-PFDA	8.170	519.1 -> 474.1	18870	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C7-PFUnDA	8.636	570.0 -> 525.1	21459	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.567	506.1 -> 77.8	17107	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C8-PFOA	7.146	421.1 -> 376.0	59464	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C8-PFOS	8.345	507.1 -> 79.9	7940	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C9-PFNA	7.677	472.1 -> 427.0	25932	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27038	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	12730	9.76 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	6725	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22801	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	29326	26.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	20453	26.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	7372	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	

Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

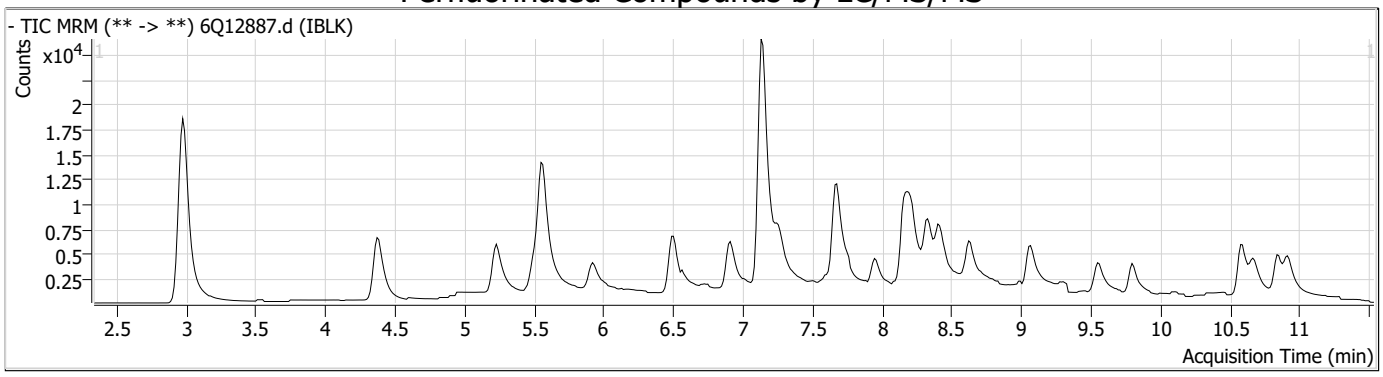
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	10.889	526.0 -> 219.0	880	0.25 µg/L		96
		526.0 -> 169.0	824			
EtFOSE	10.848	630.0 -> 58.9	1346	1.54 µg/L	m	100
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	10.578	616.1 -> 58.9	1002	0.86 µg/L	m	100
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

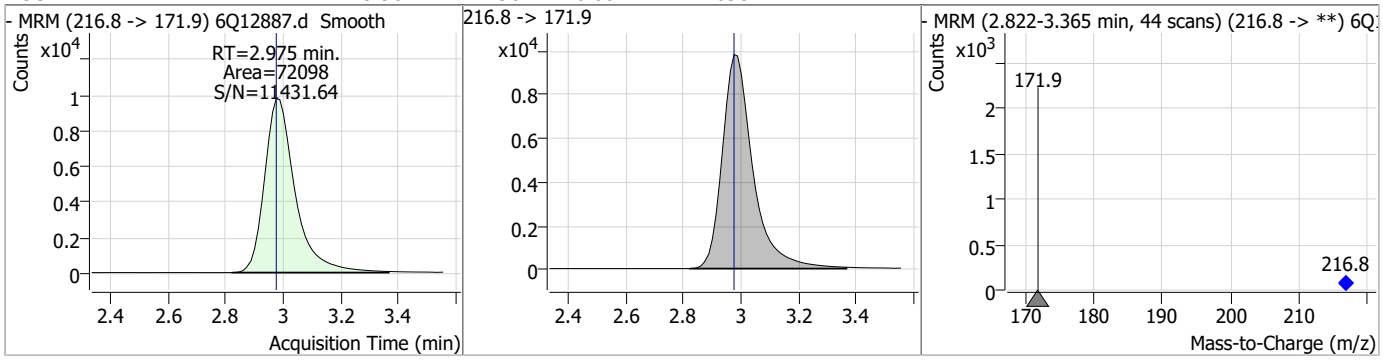
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

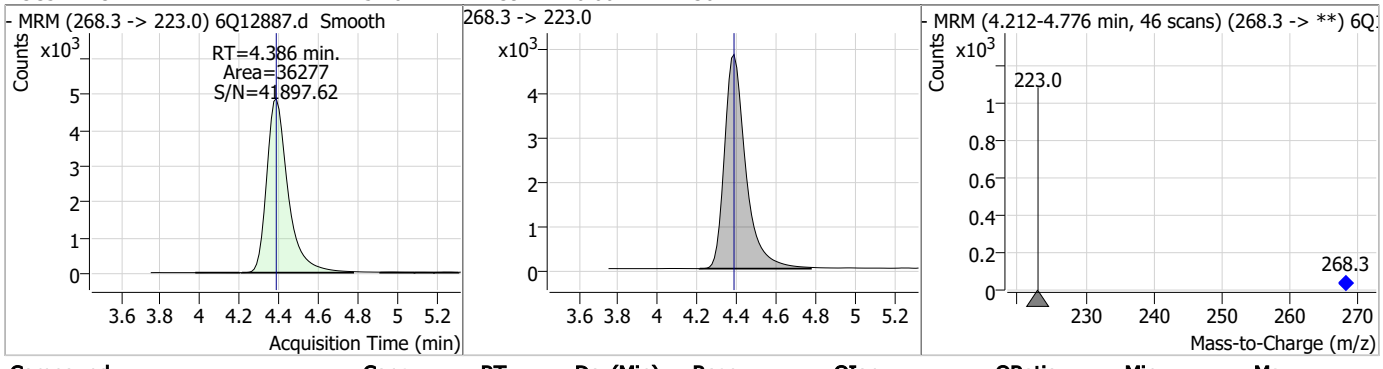
Perfluorinated Compounds by LC/MS/MS



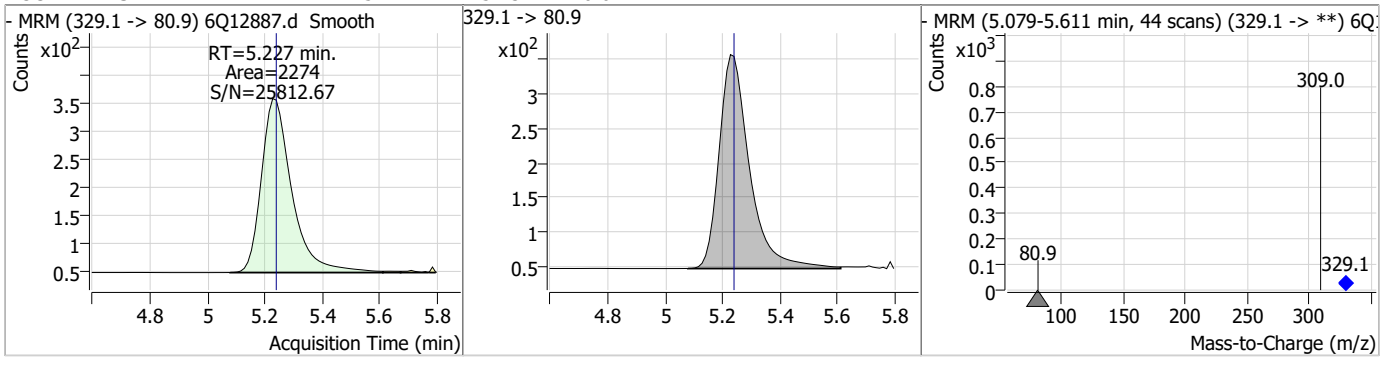
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.98	2.98	0.00	72098				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.10	4.39	0.00	36277				

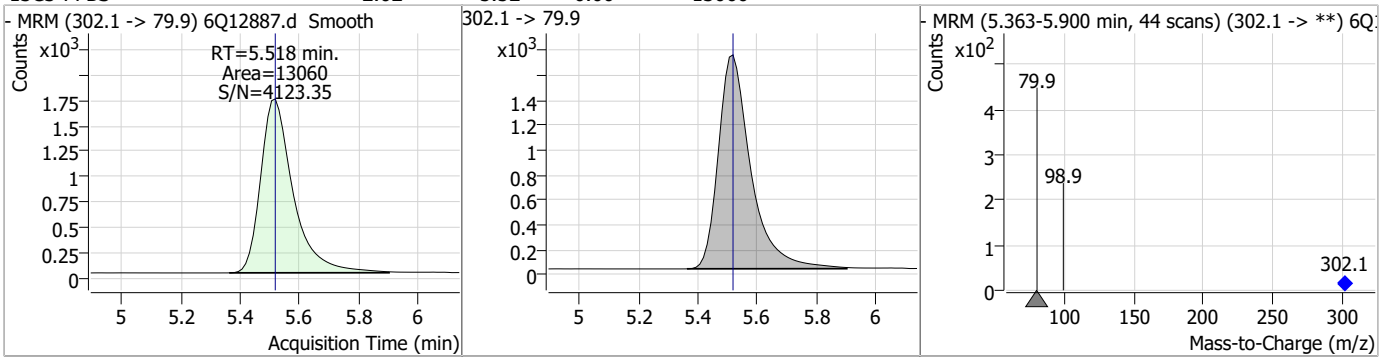


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.72	5.23	-0.01	2274				

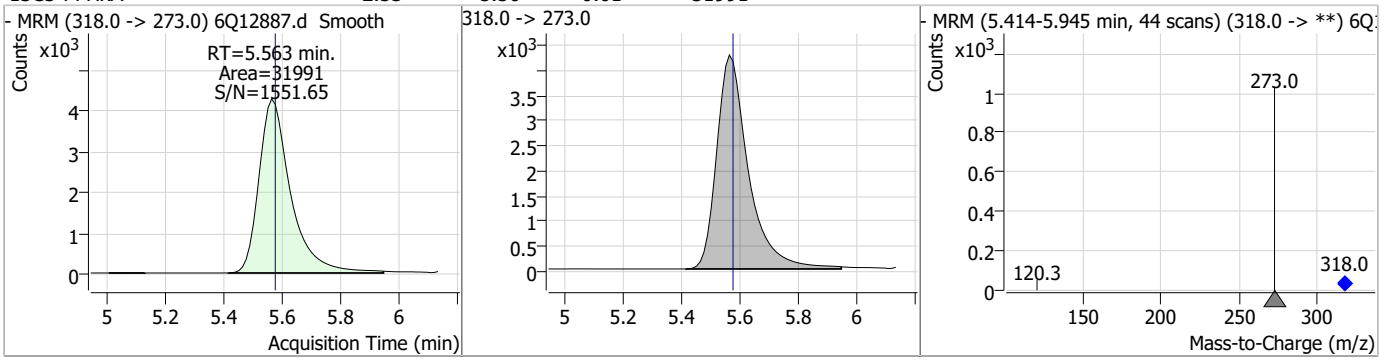


Perfluorinated Compounds by LC/MS/MS

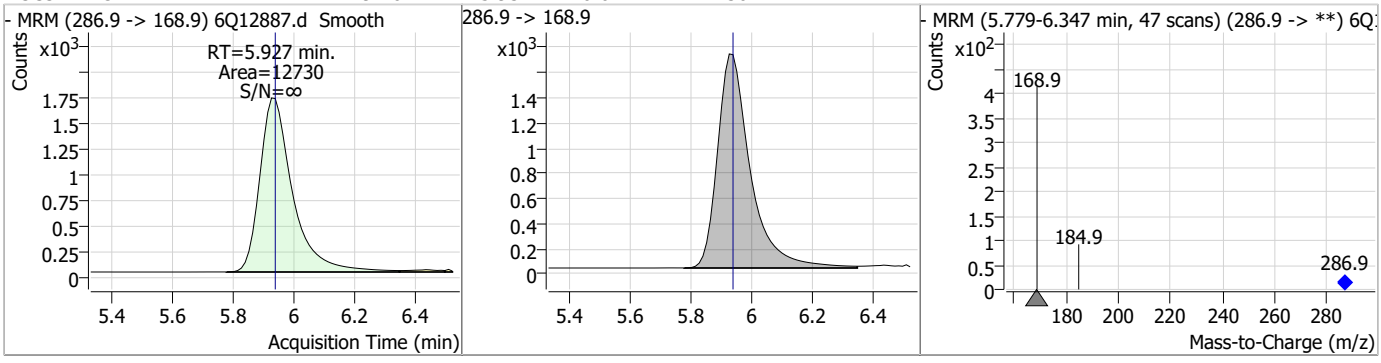
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.62	5.52	0.00	13060				



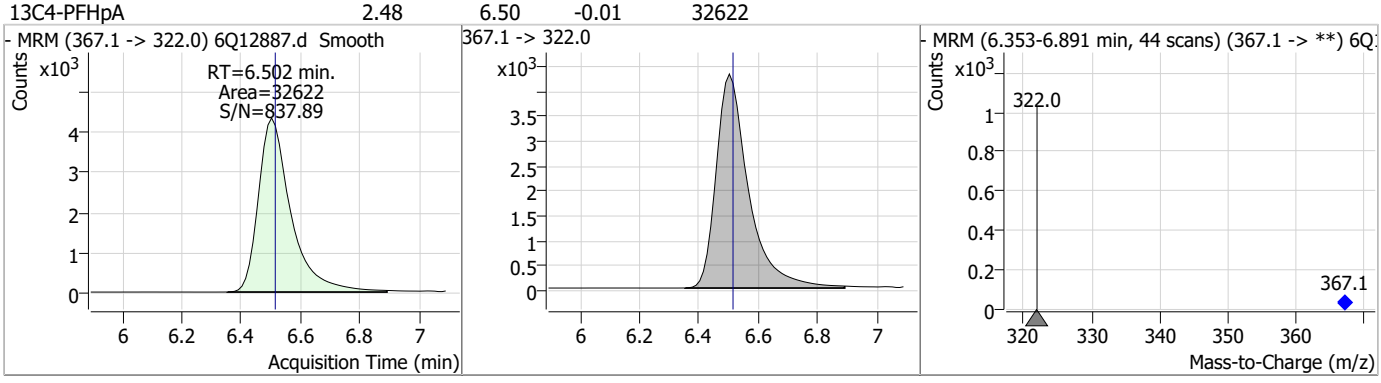
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.56	-0.01	31991				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.76	5.93	-0.01	12730				

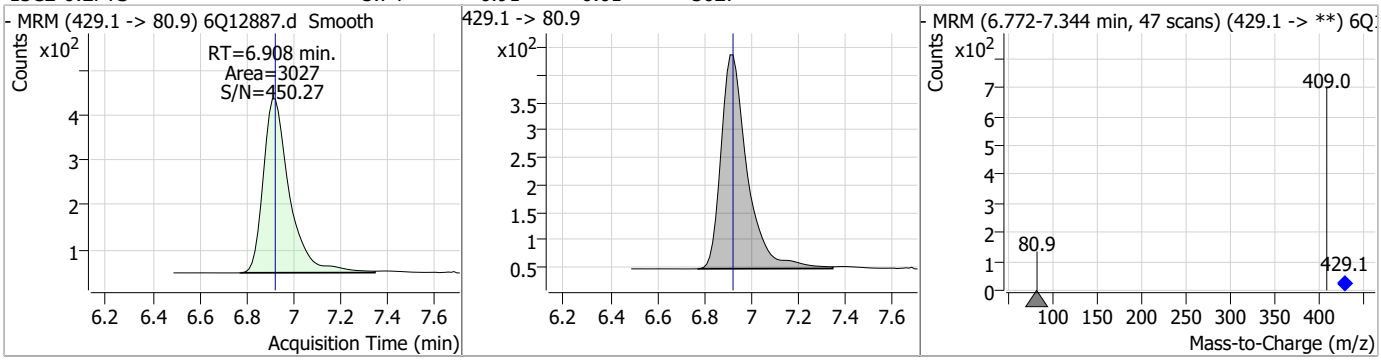


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.50	-0.01	32622				

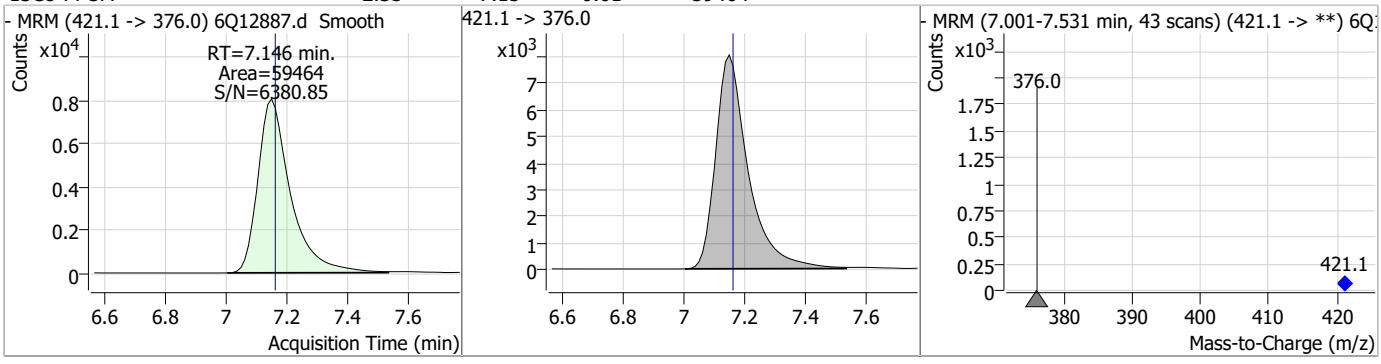


Perfluorinated Compounds by LC/MS/MS

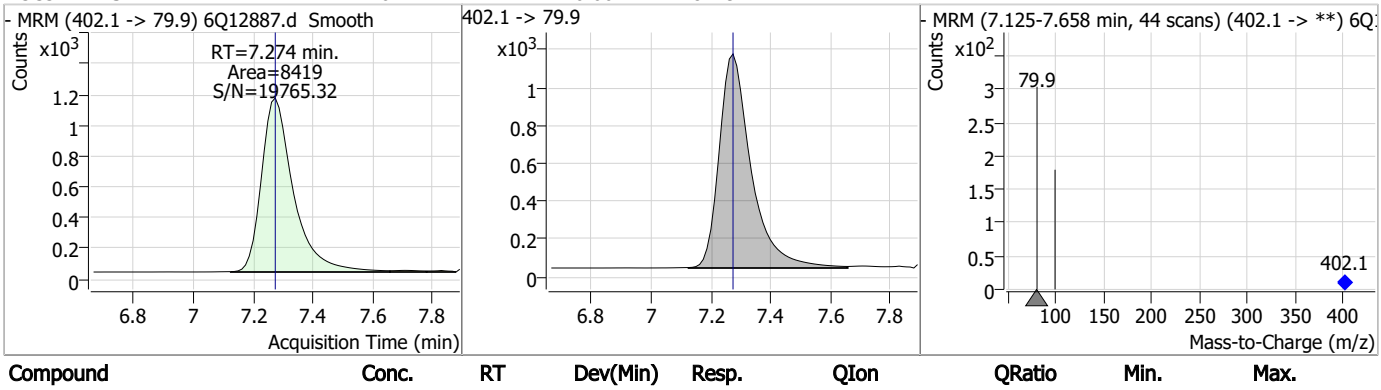
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.74	6.91	-0.01	3027				



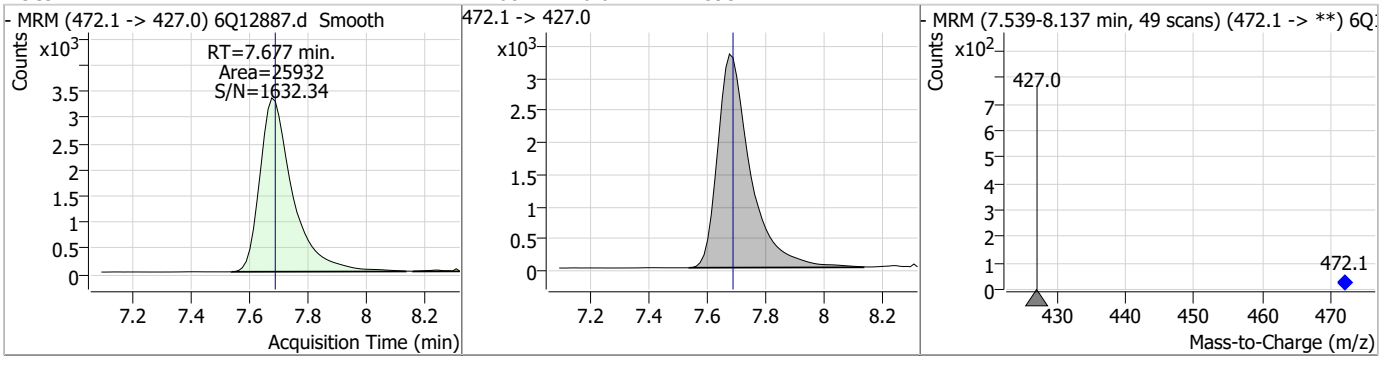
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.35	7.15	-0.01	59464				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.62	7.27	0.00	8419				

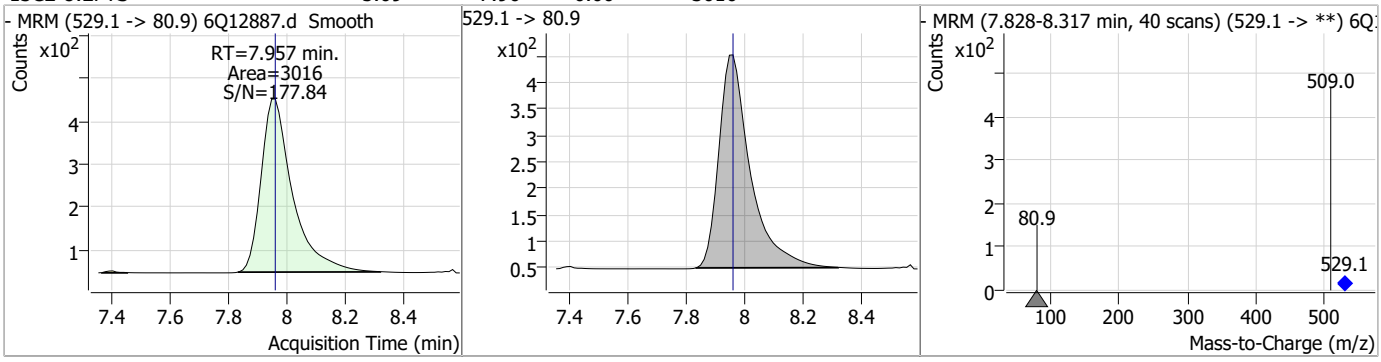


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.27	7.68	-0.01	25932				

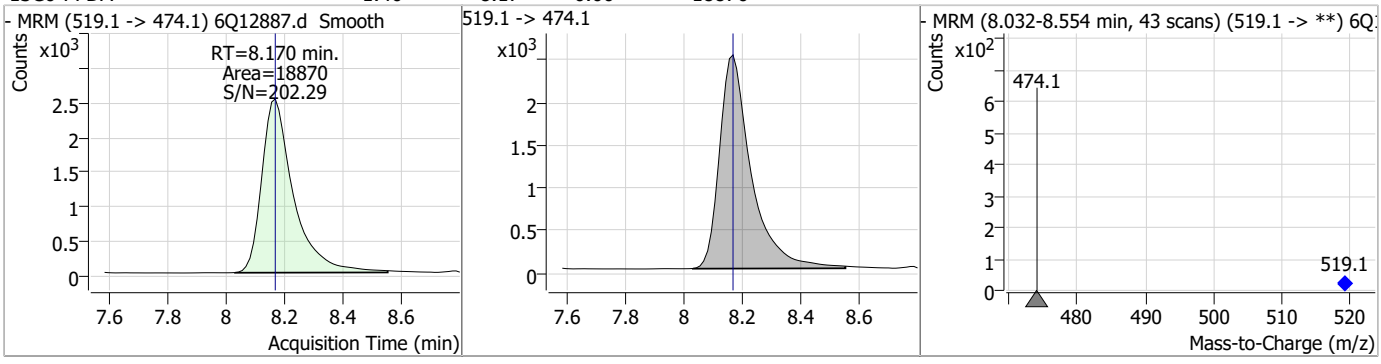


Perfluorinated Compounds by LC/MS/MS

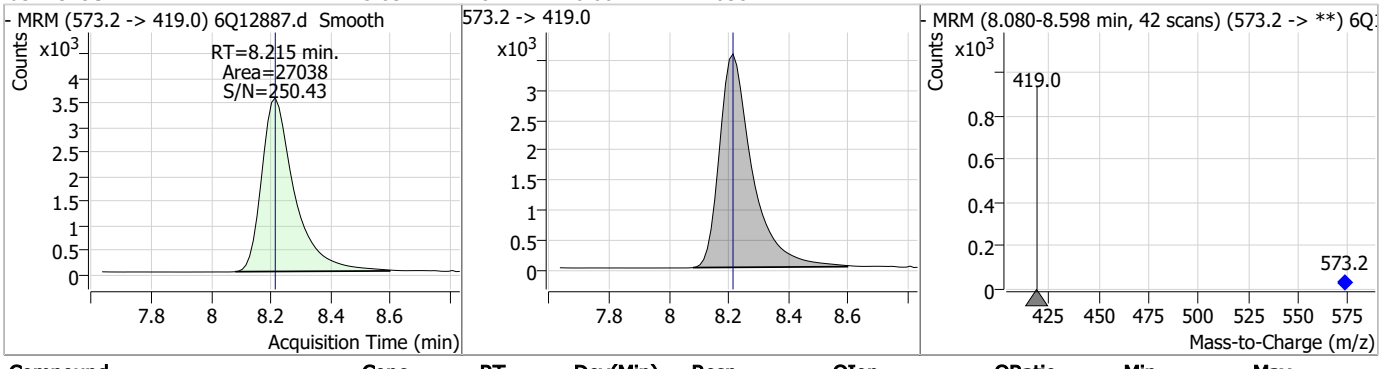
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.69	7.96	0.00	3016				



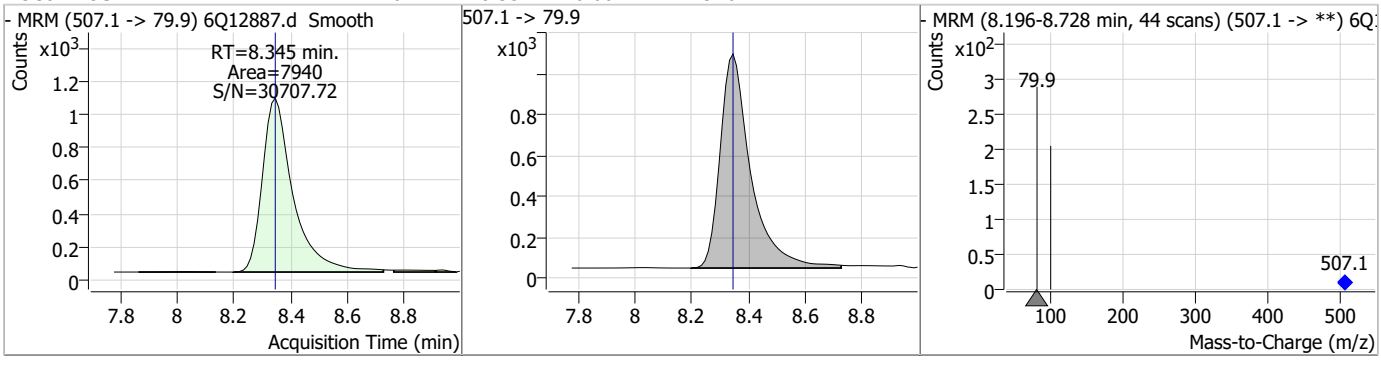
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.40	8.17	0.00	18870				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.03	8.21	0.00	27038				

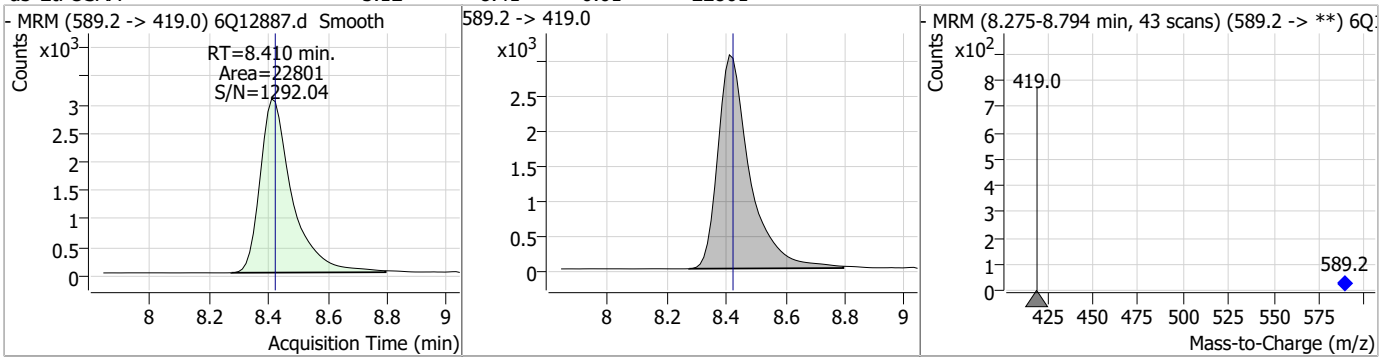


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.46	8.35	0.00	7940				

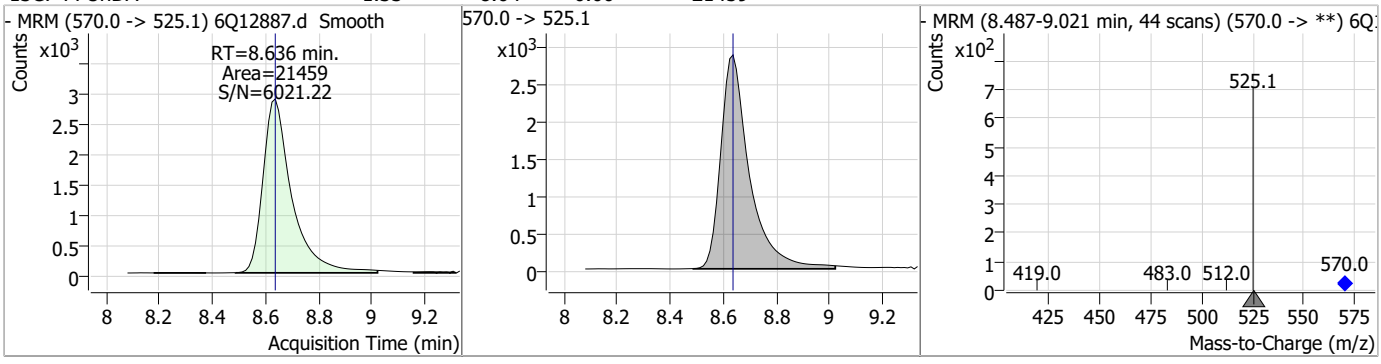


Perfluorinated Compounds by LC/MS/MS

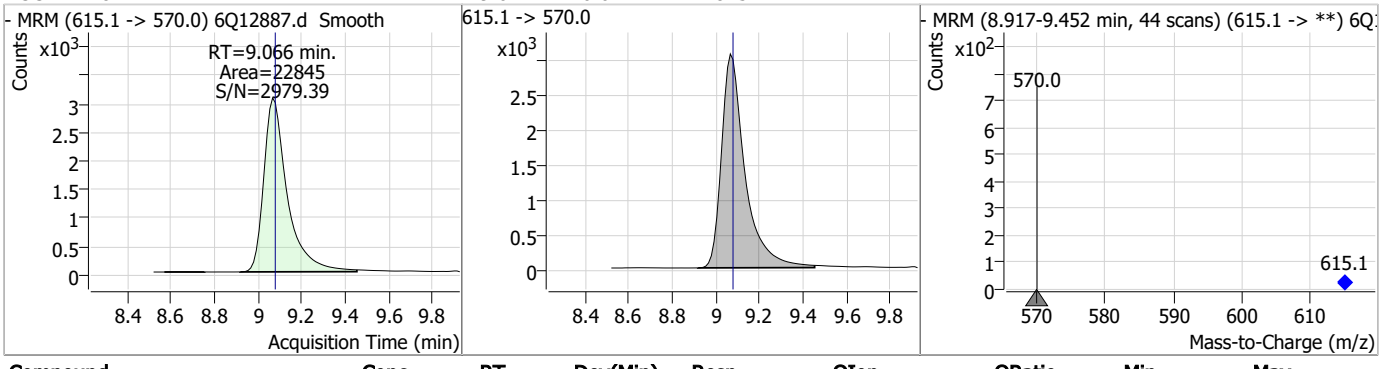
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.12	8.41	-0.01	22801				



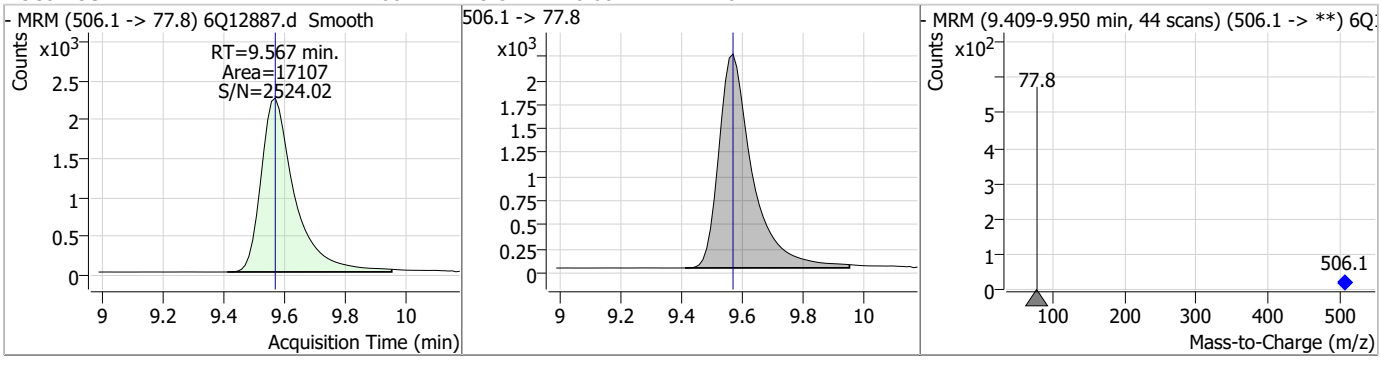
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.64	0.00	21459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.24	9.07	-0.01	22845				

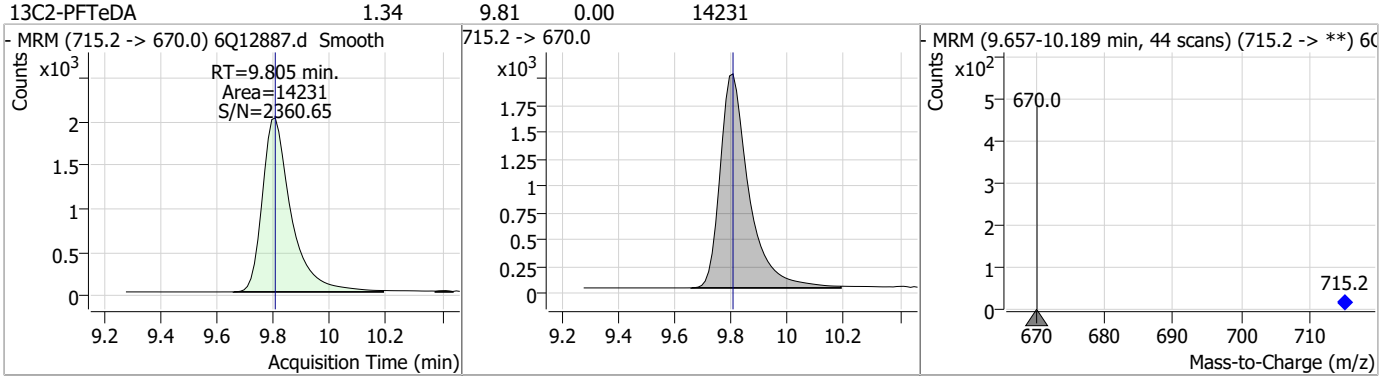


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.68	9.57	0.00	17107				

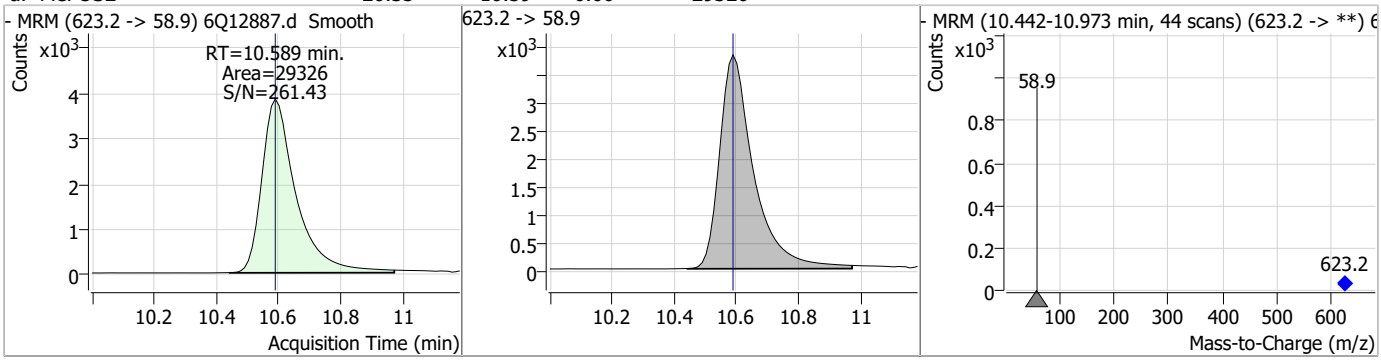


Perfluorinated Compounds by LC/MS/MS

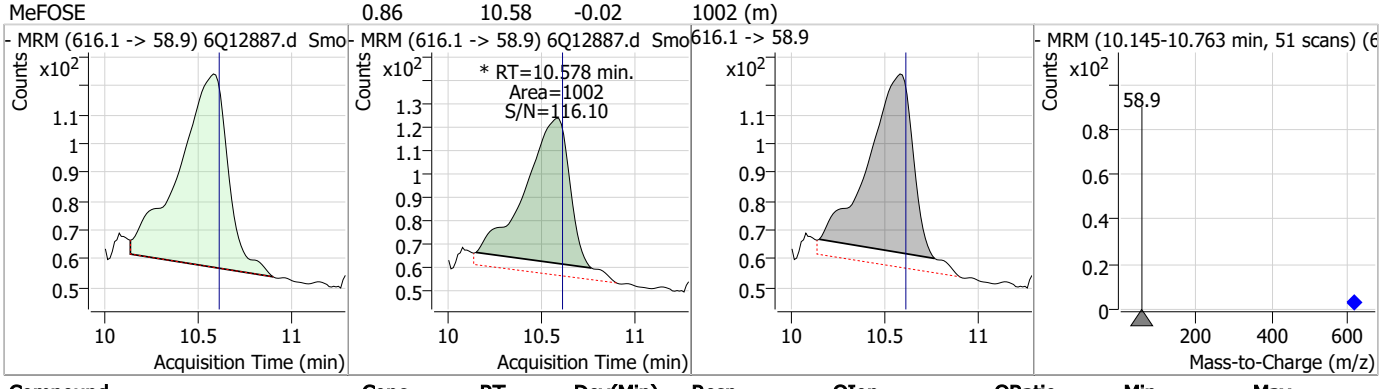
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.34	9.81	0.00	14231				



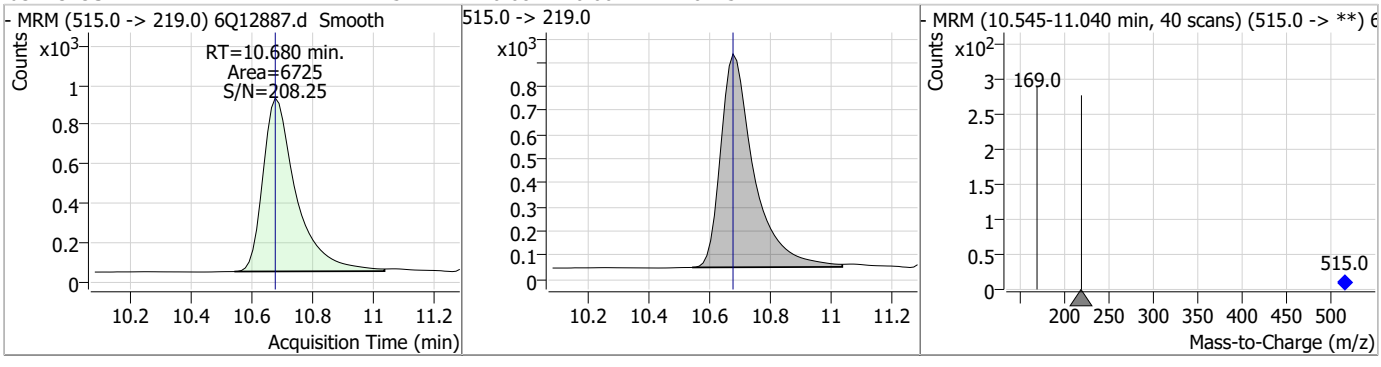
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.35	10.59	0.00	29326				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.86	10.58	-0.02	1002 (m)				

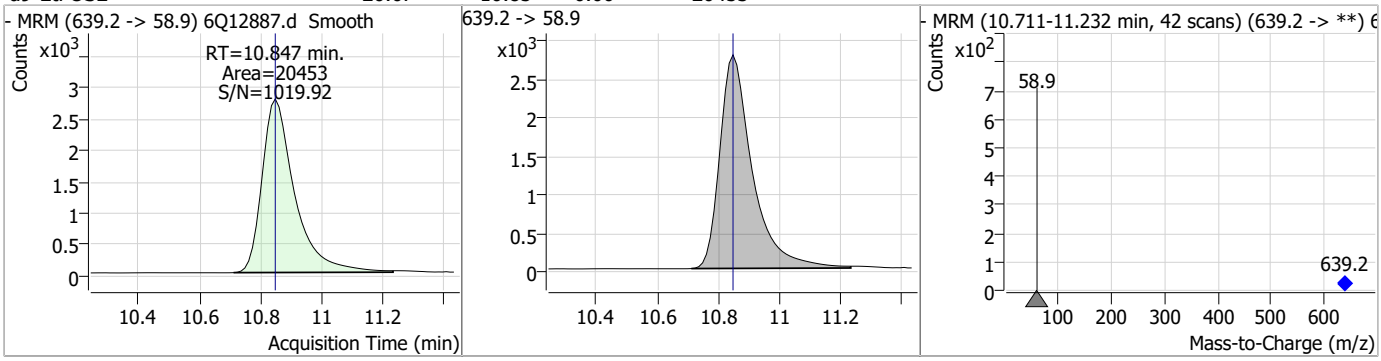


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.68	0.00	6725				

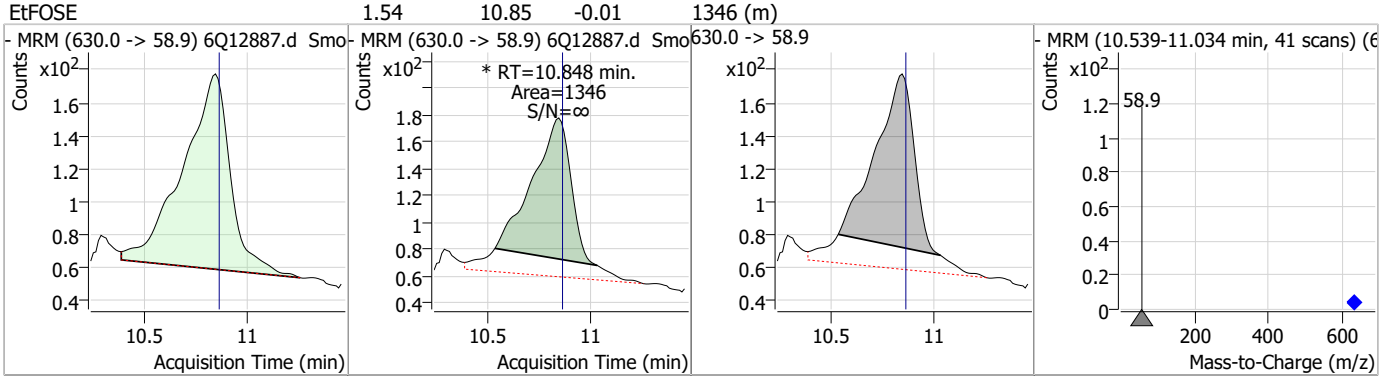


Perfluorinated Compounds by LC/MS/MS

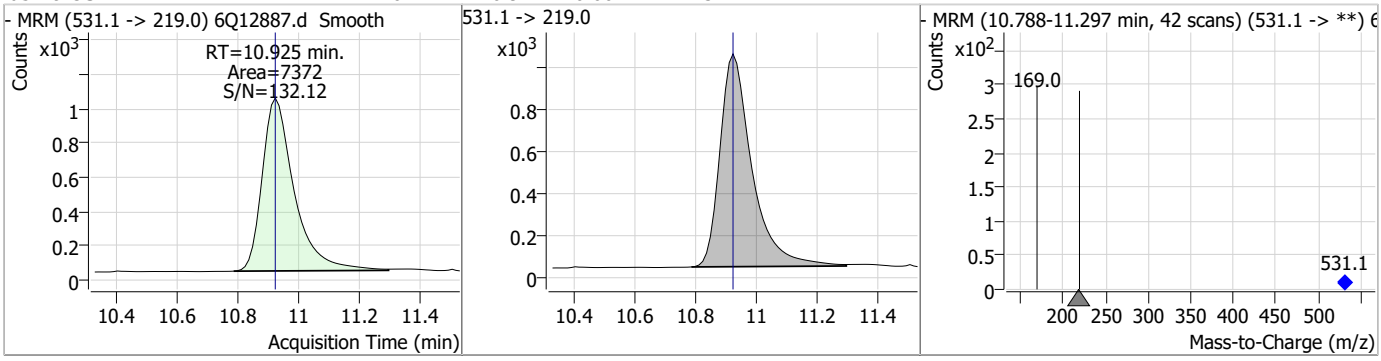
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.67	10.85	0.00	20453				



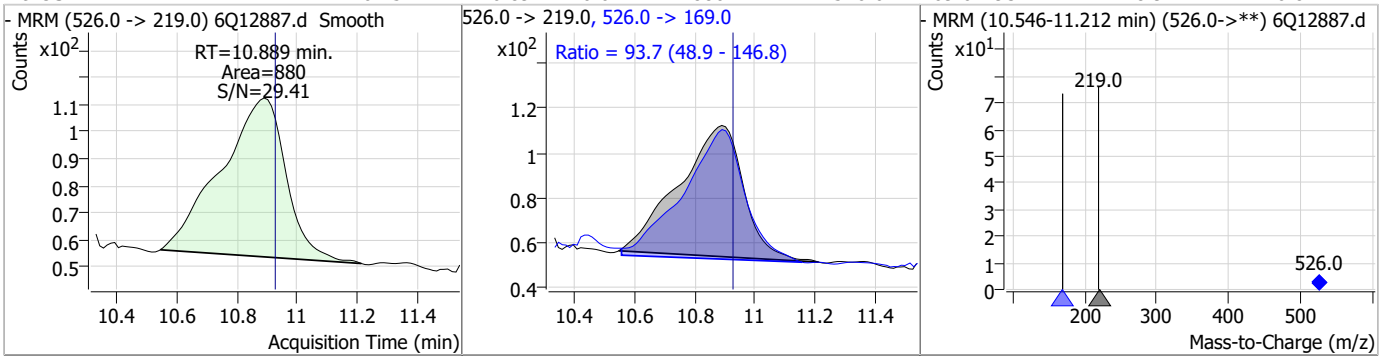
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.54	10.85	-0.01	1346 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.92	0.00	7372				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.25	10.89	-0.04	880	526.0 -> 169.0	93.7	48.9	146.8



Manual Integration Approval Summary

Sample Number:	S6Q198-IBLK	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12887.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 10:44	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
MeFOSE	24448-09-7		10.58	Split peak
EtFOSE	1691-99-2		10.85	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12901.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 1:59:52 PM
Sample Name	:	iccb
Vial	:	P1-A1
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94938,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	73488	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	36923	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	30448	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	35859	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	63227	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24967	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18417	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20719	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	23722	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14415	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17447	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13076	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7827	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8513	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2418	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2813	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2751	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27663	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13730	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	24042	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	29704	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20893	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7652	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6890	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9829	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	33648	5.00	µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	6785	2.50	µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	74311	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	25270	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	30830	1.25	µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	33372	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2418	5.48	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2813	4.81	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2751	4.68	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C2-PFDoDA	9.066	615.1 -> 570.0	23722	1.23	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14415	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C3-PFBS	5.518	302.1 -> 79.9	13076	2.37	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	7827	2.19	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C4-PFBA	2.975	216.8 -> 171.9	73488	9.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.502	367.1 -> 322.0	35859	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.575	318.0 -> 273.0	30448	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C5-PFPeA	4.386	268.3 -> 223.0	36923	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.170	519.1 -> 474.1	18417	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20719	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-FOSA	9.567	506.1 -> 77.8	17447	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C8-PFOA	7.146	421.1 -> 376.0	63227	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.345	507.1 -> 79.9	8513	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.689	472.1 -> 427.0	24967	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.1%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27663	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13730	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	6890	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
d5-EtFOSAA	8.422	589.2 -> 419.0	24042	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	29704	26.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	20893	27.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	7652	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	

Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

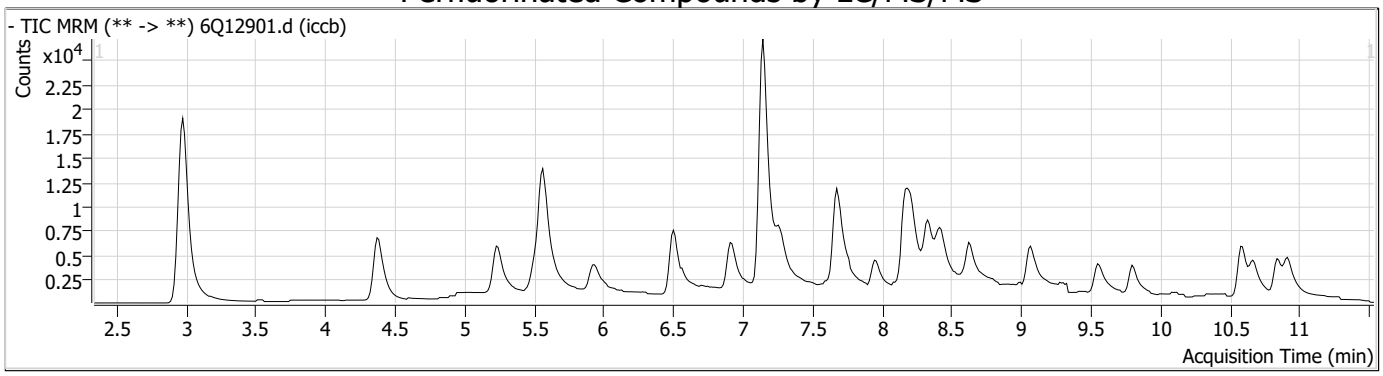
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

 # = Qualifier out of range, m = manually integrated, + = Area summed

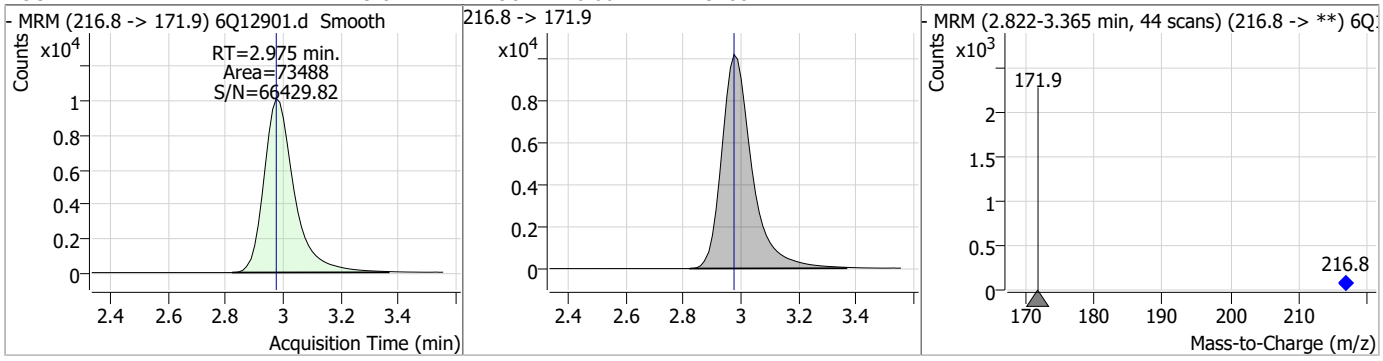
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

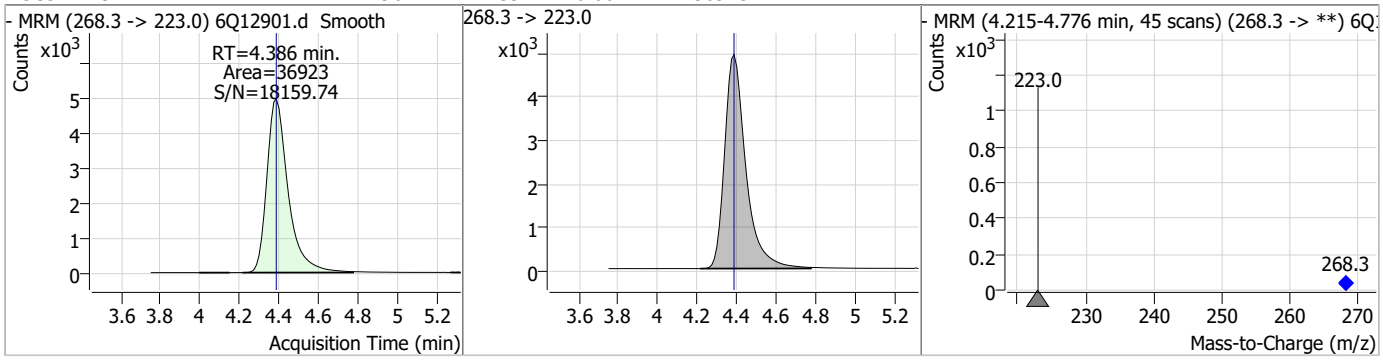
Perfluorinated Compounds by LC/MS/MS



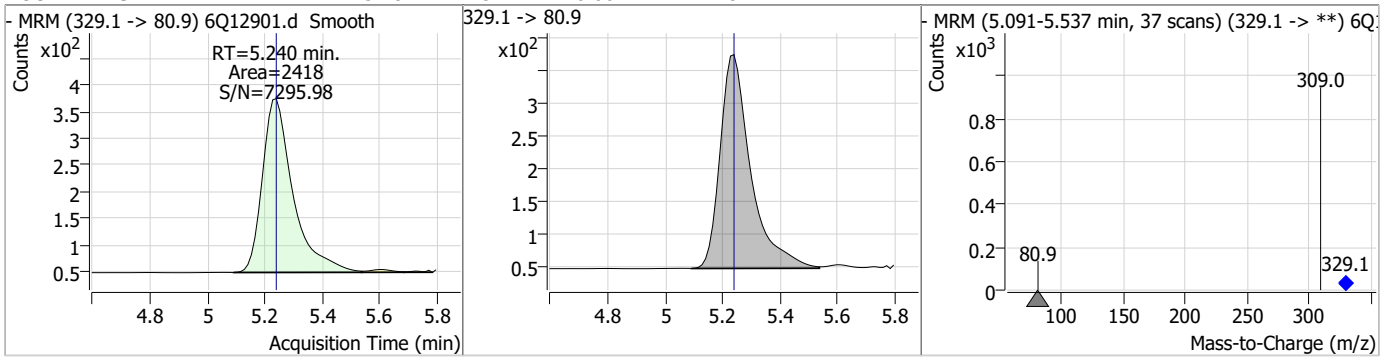
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.84	2.98	0.00	73488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.96	4.39	0.00	36923				

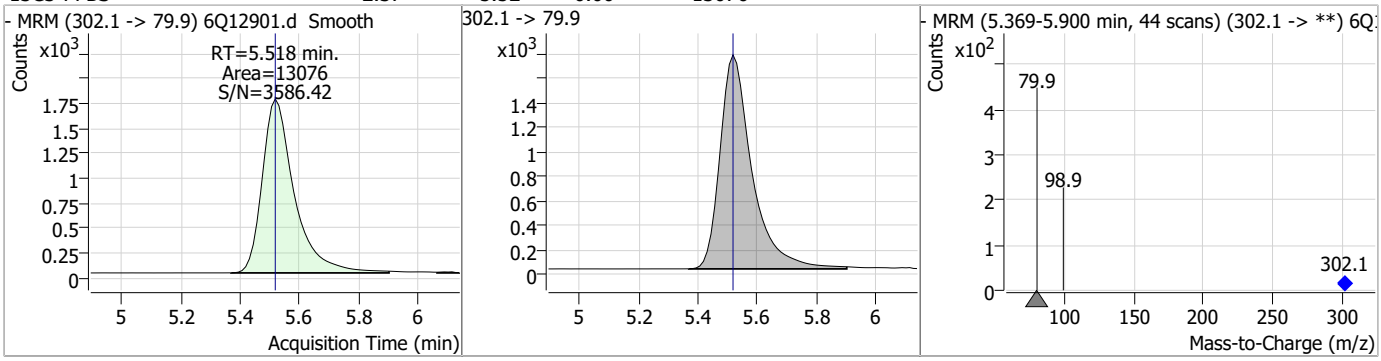


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.48	5.24	0.00	2418				

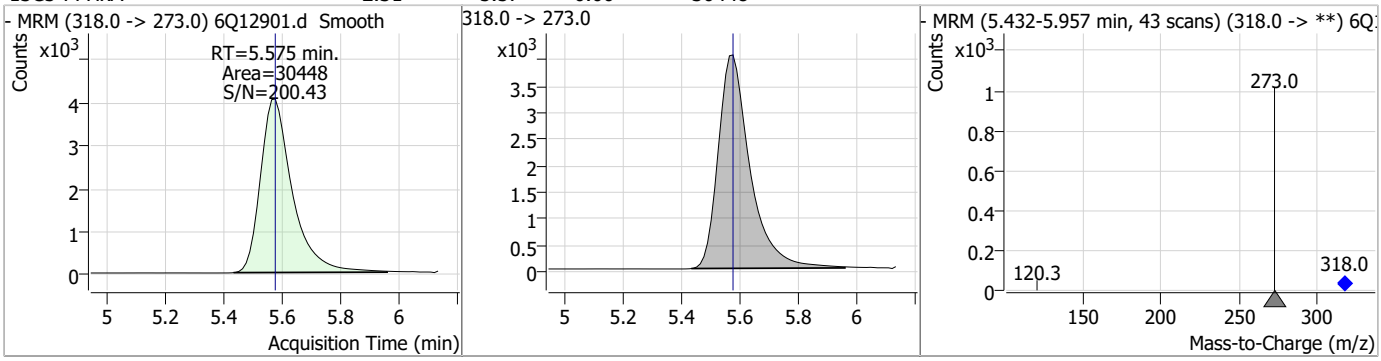


Perfluorinated Compounds by LC/MS/MS

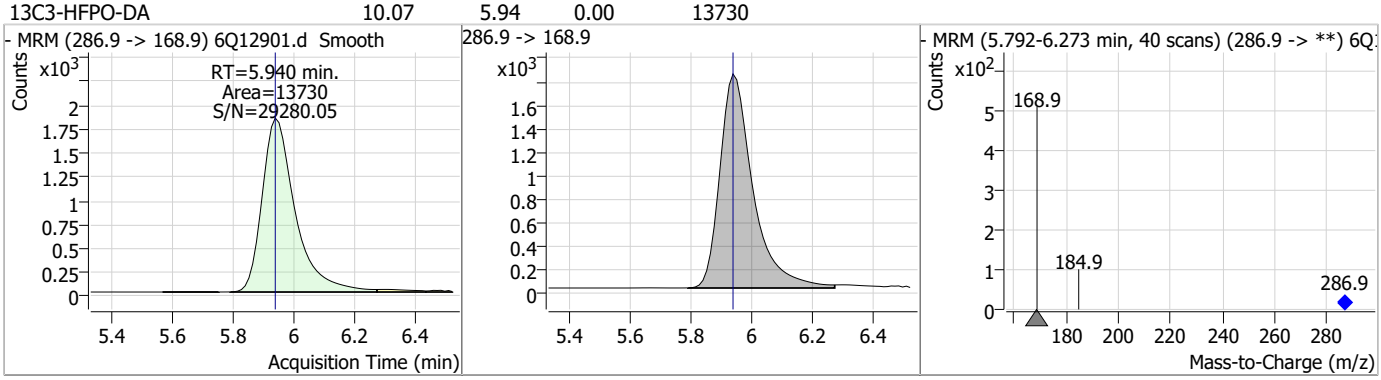
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.37	5.52	0.00	13076				



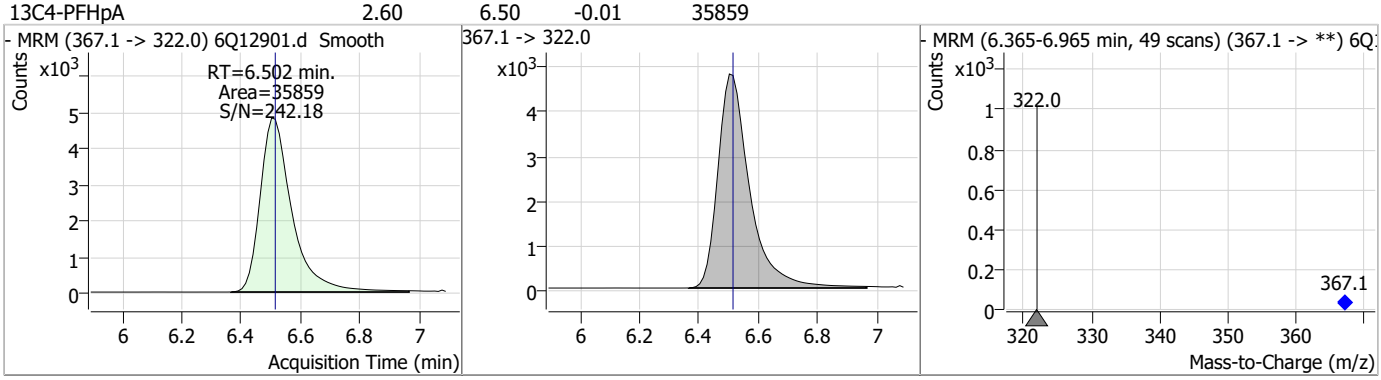
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.31	5.57	0.00	30448				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	5.94	0.00	13730				

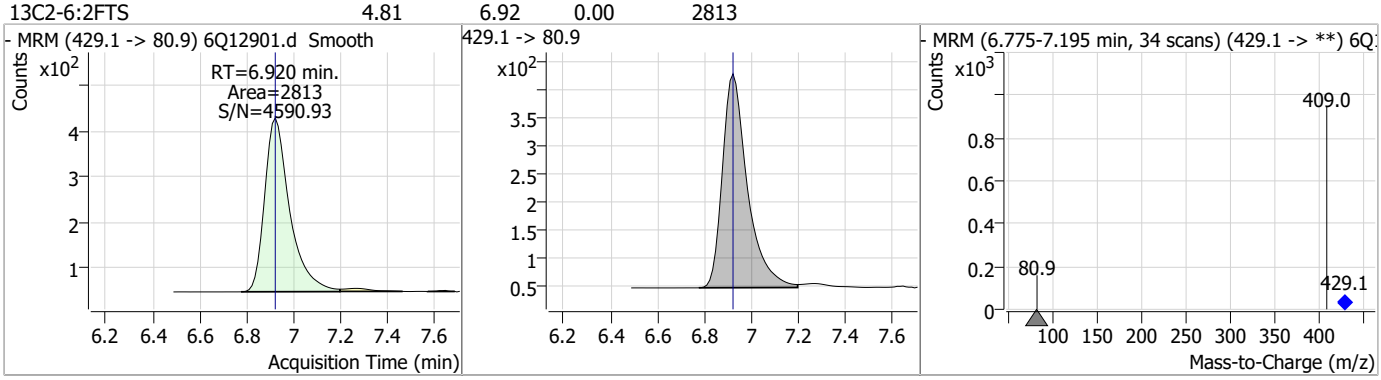


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.50	-0.01	35859				

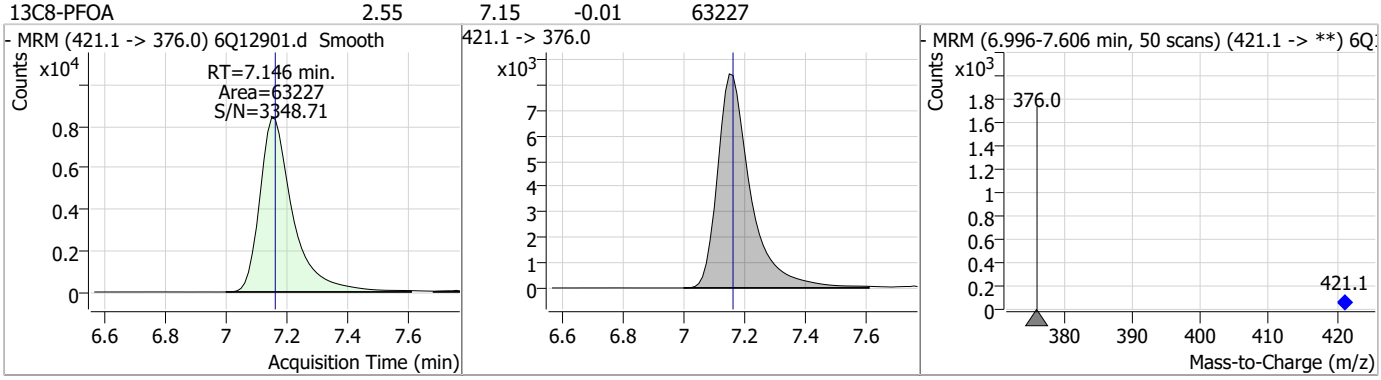


Perfluorinated Compounds by LC/MS/MS

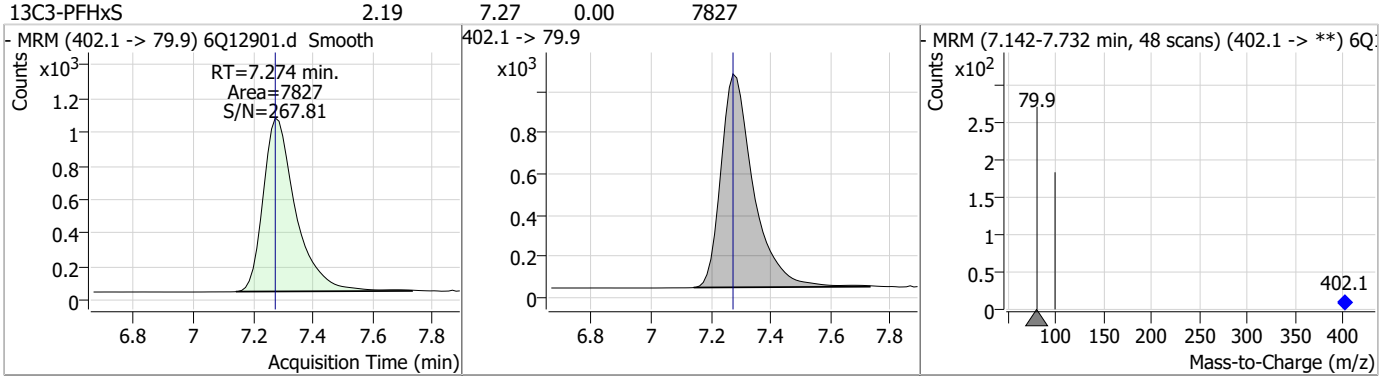
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.81	6.92	0.00	2813				



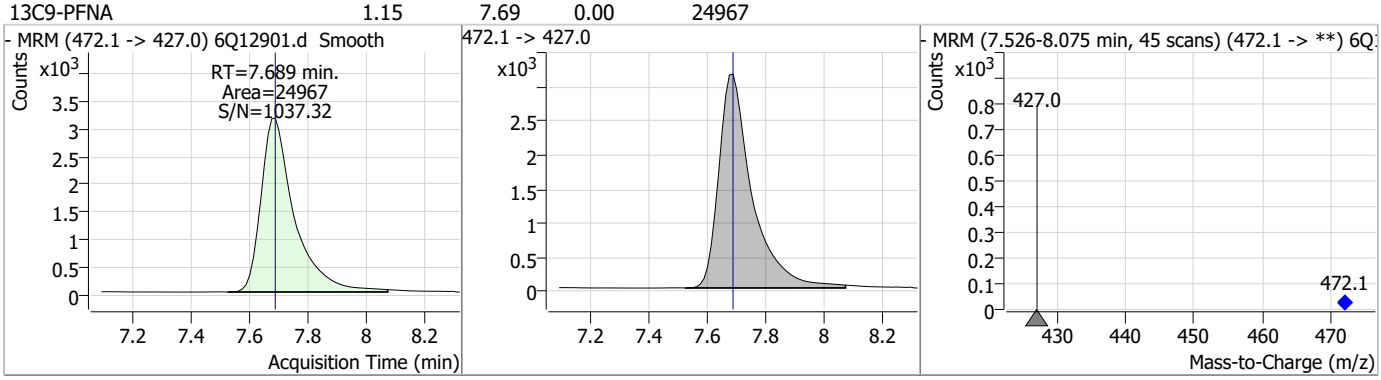
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.55	7.15	-0.01	63227				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.19	7.27	0.00	7827				

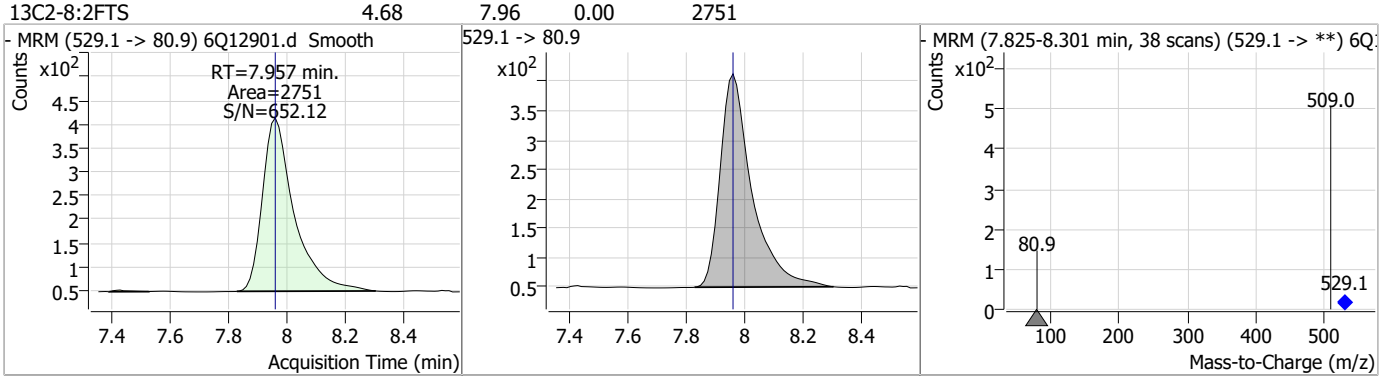


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.15	7.69	0.00	24967				

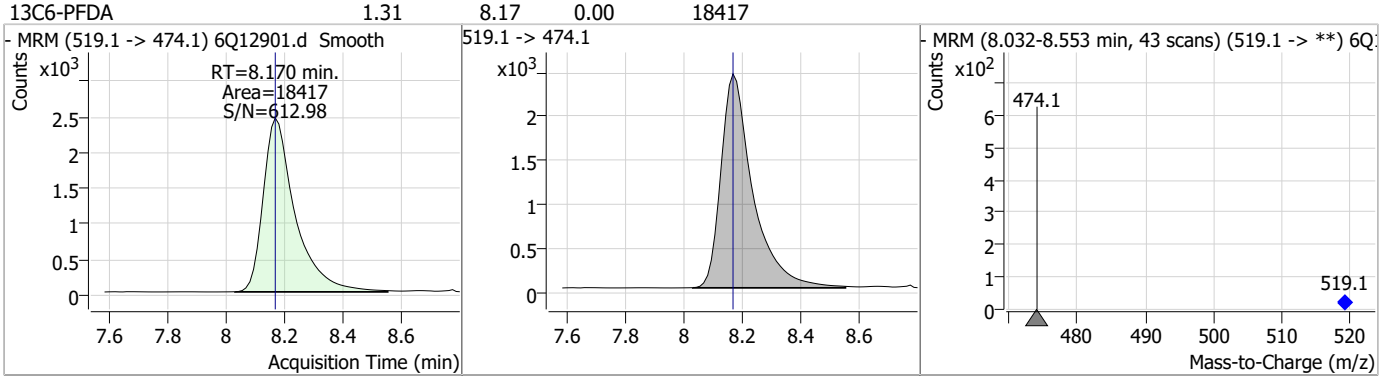


Perfluorinated Compounds by LC/MS/MS

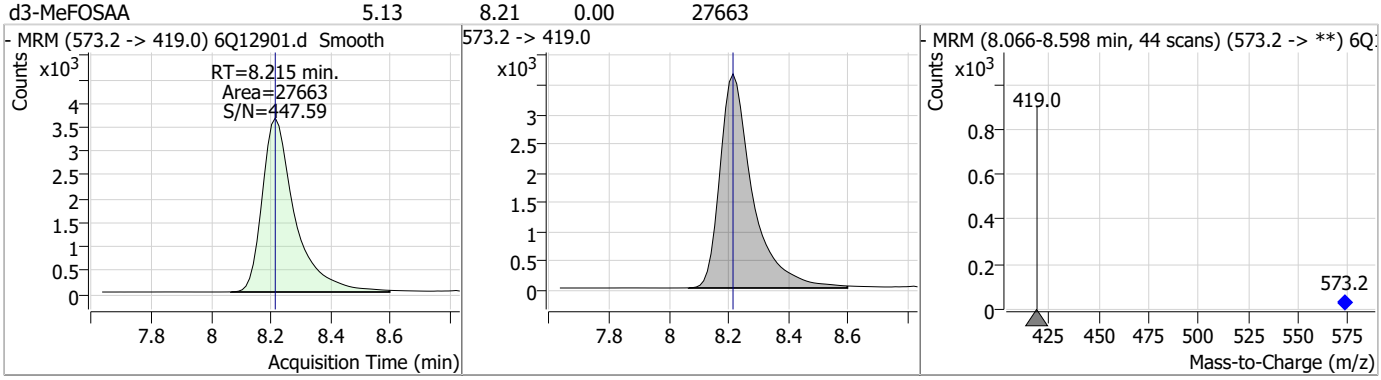
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.68	7.96	0.00	2751				



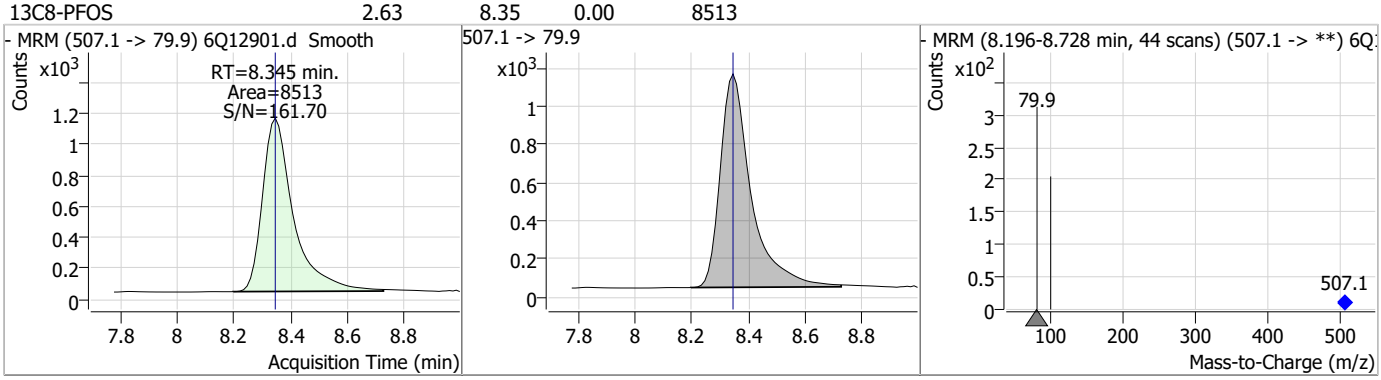
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.31	8.17	0.00	18417				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.13	8.21	0.00	27663				

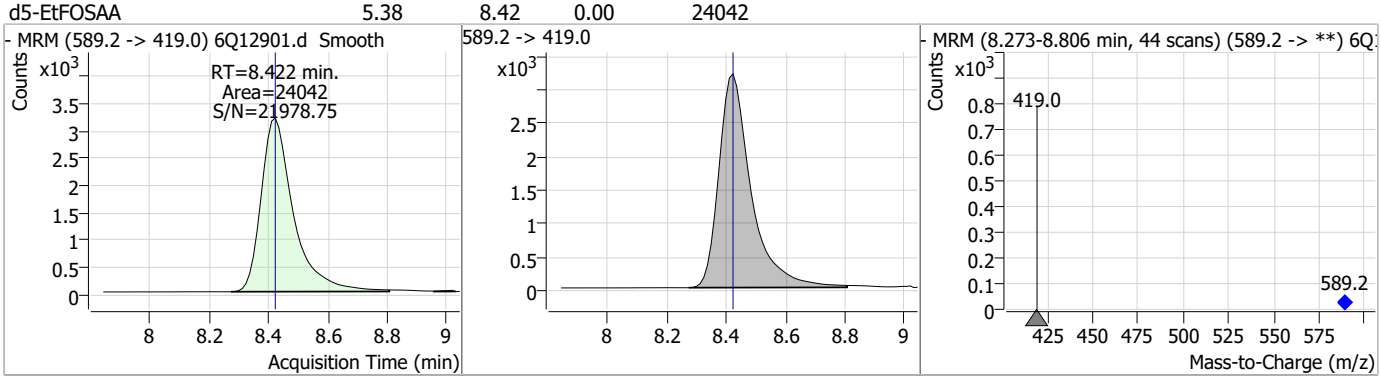


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.63	8.35	0.00	8513				

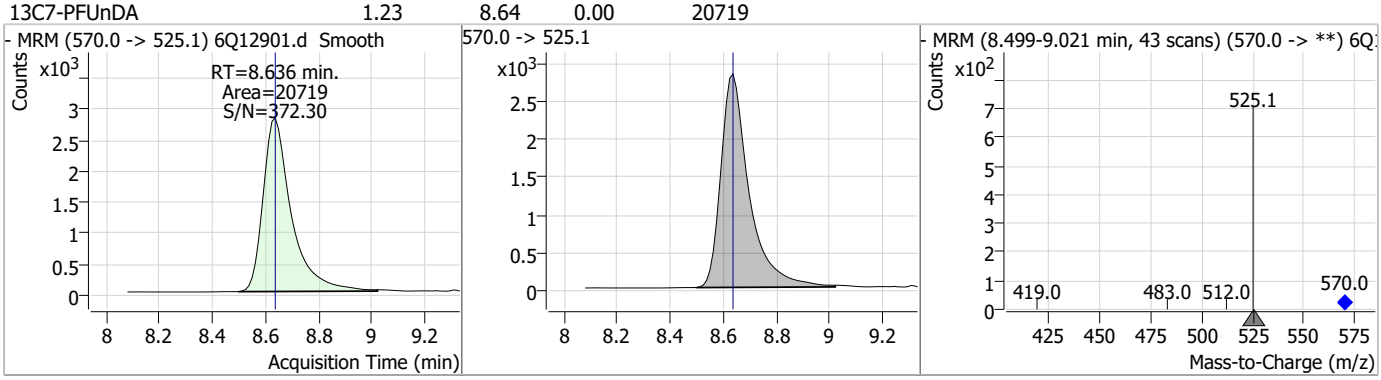


Perfluorinated Compounds by LC/MS/MS

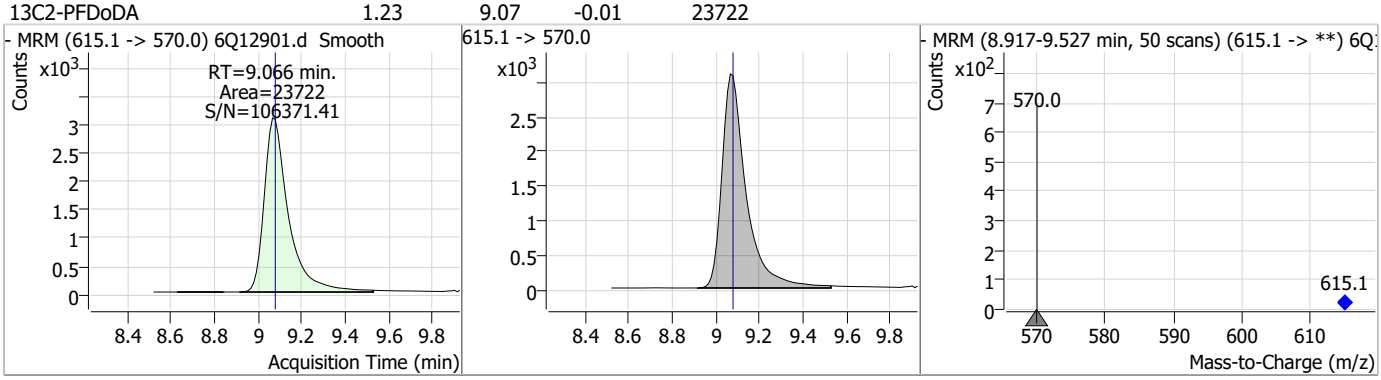
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.42	0.00	24042				



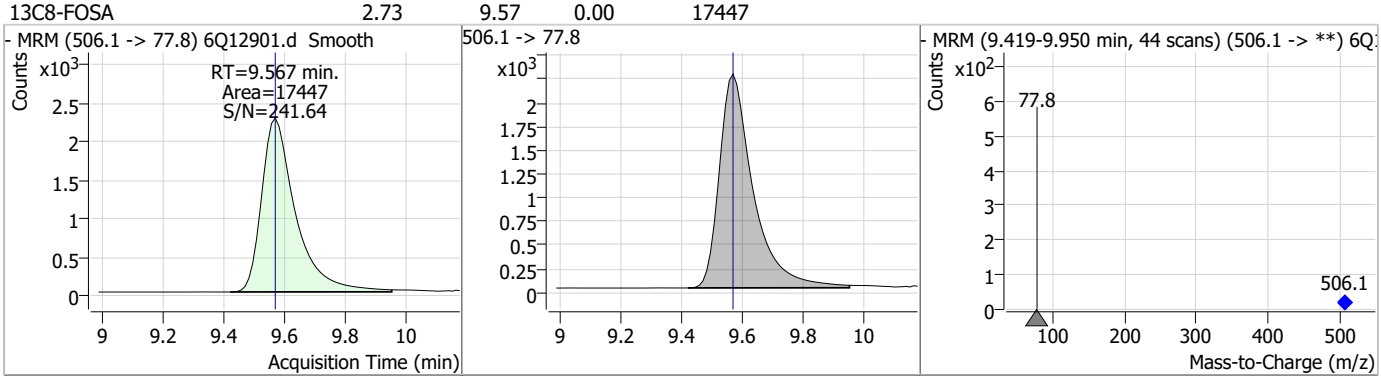
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	0.00	20719				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	9.07	-0.01	23722				

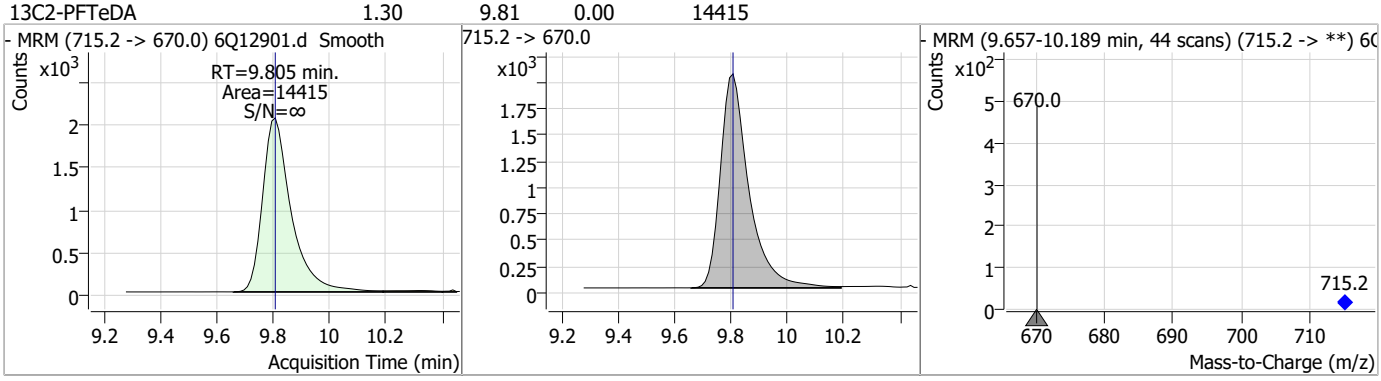


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.73	9.57	0.00	17447				

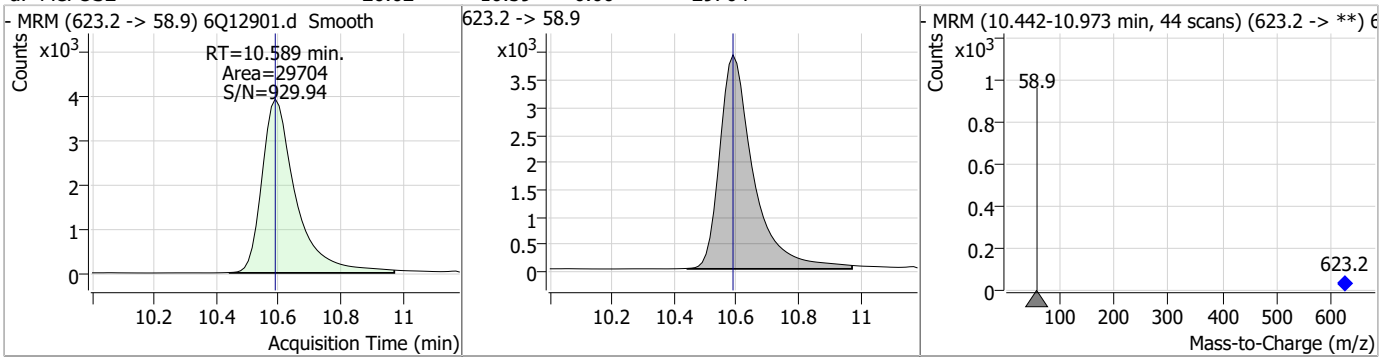


Perfluorinated Compounds by LC/MS/MS

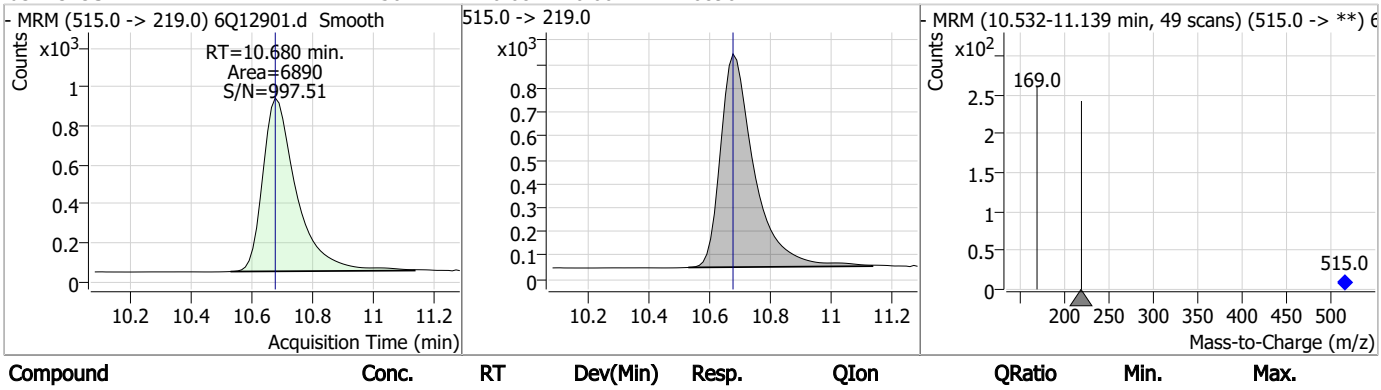
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.81	0.00	14415				



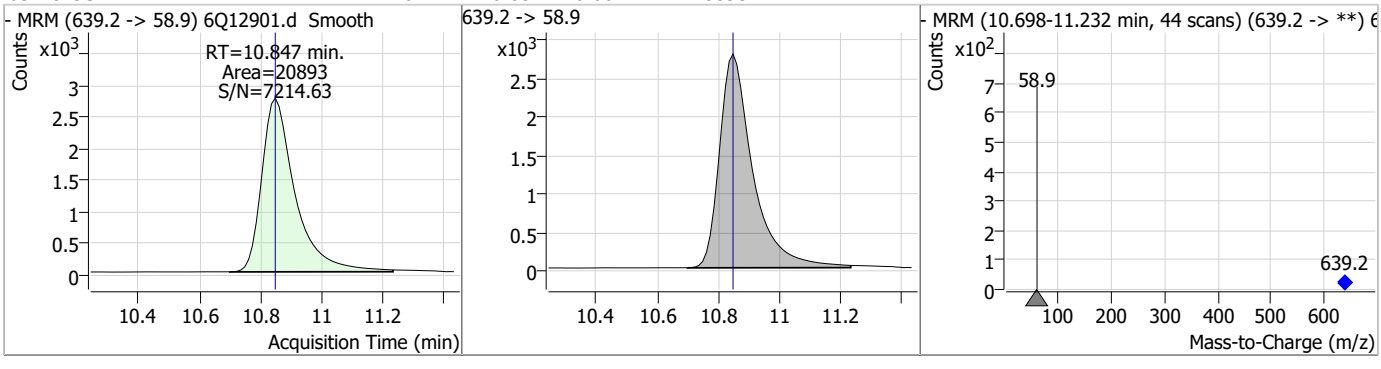
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.62	10.59	0.00	29704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	10.68	0.00	6890				

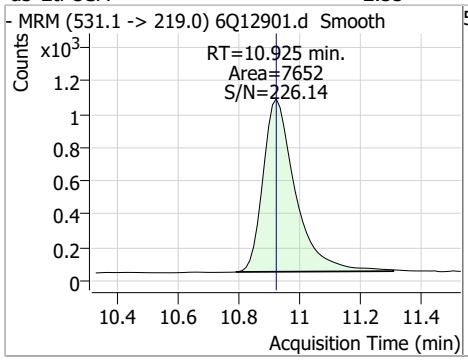


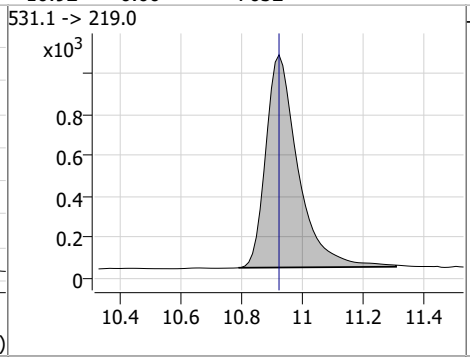
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.16	10.85	0.00	20893				

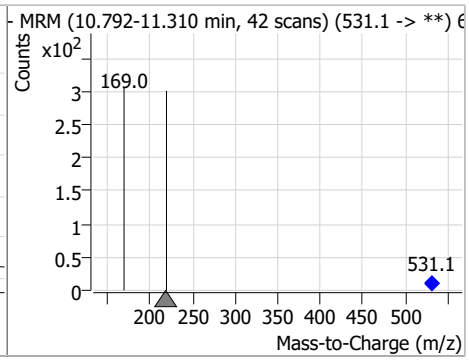


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	10.92	0.00	7652				







7.2.3

7

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12890.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 11:26:06 AM
Sample Name	:	op95216-bs
Vial	:	P4-A1
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	15252	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	35547	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	32857	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	32593	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	59390	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	26785	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18212	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20538	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	22345	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	12818	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17064	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12945	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8434	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8055	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2219	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3086	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2942	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27762	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13905	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	22985	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	26319	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19723	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7305	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6688	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	8521	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29575	5.00	µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5827	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	62572	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	22396	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26495	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	29232	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2219	5.85	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3086	6.14	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2942	5.83	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.5%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22345	1.31	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C2-PFTeDA	9.805	715.2 -> 670.0	12818	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C3-PFBS	5.518	302.1 -> 79.9	12945	2.73	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	8434	2.75	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C4-PFBA	3.013	216.8 -> 171.9	15252	2.32 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 23.2%	
13C4-PFHpA	6.502	367.1 -> 322.0	32593	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C5-PFHxA	5.563	318.0 -> 273.0	32857	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C5-PFPeA	4.386	268.3 -> 223.0	35547	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C6-PFDA	8.170	519.1 -> 474.1	18212	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20538	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C8-FOSA	9.567	506.1 -> 77.8	17064	3.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.0%	
13C8-PFOA	7.146	421.1 -> 376.0	59390	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C8-PFOS	8.345	507.1 -> 79.9	8055	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C9-PFNA	7.677	472.1 -> 427.0	26785	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.9%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27762	5.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13905	11.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6688	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22985	5.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	26319	27.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d9-EtFOSE	10.847	639.2 -> 58.9	19723	29.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 118.3%	
d5-EtFOSA	10.925	531.1 -> 219.0	7305	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
Target Compounds					**QValue**
4:2FTS	5.240	327.1 -> 307.0	44475	8.94 µg/L	98
		327.1 -> 80.9	10197		
6:2FTS	6.908	427.1 -> 407.0	41311	9.14 µg/L	97
		427.1 -> 80.9	8243		
8:2FTS	7.958	527.1 -> 507.0	22168	9.70 µg/L	94
		527.1 -> 80.8	6016		
EtFOSAA	8.424	584.2 -> 419.1	8145	2.21 µg/L	88
		584.2 -> 526.0	4546		
FOSA	9.557	498.1 -> 77.9	15470	2.27 µg/L	99
		498.1 -> 478.0	619		
MeFOSAA	8.216	570.1 -> 419.0	12322	2.42 µg/L	93
		570.1 -> 483.0	2160		
PFBA	3.007	212.8 -> 168.9	3276	9.62 µg/L	100
PFBS	5.518	298.7 -> 79.9	10220	2.06 µg/L	95
		298.7 -> 98.8	4820		
PFDA	8.170	512.9 -> 469.0	49860	2.41 µg/L	96
		512.9 -> 219.0	6691		
PFDoDA	9.067	613.1 -> 569.0	39667	2.42 µg/L	98
		613.1 -> 319.0	4586		
PFDS	9.241	599.0 -> 79.9	6033	2.21 µg/L	100

Perfluorinated Compounds by LC/MS/MS

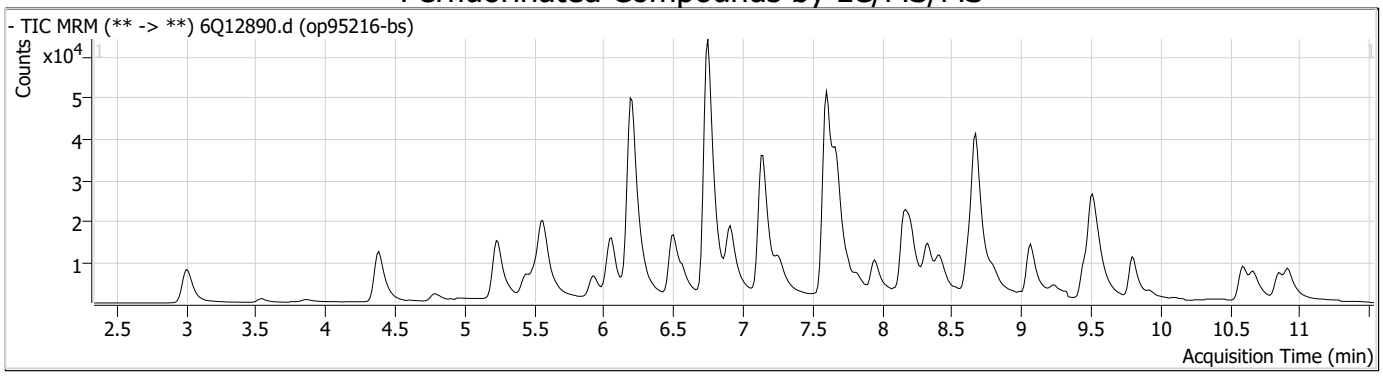
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3041				
PFHpA	6.503	363.1 -> 319.0	46160	2.39	µg/L		98
		363.1 -> 169.0	6206				
PFHpS	7.841	449.0 -> 79.9	8285	2.42	µg/L		97
		449.0 -> 98.9	4761				
PFHxA	5.566	313.0 -> 269.0	29726	2.31	µg/L		98
		313.0 -> 118.9	1071				
PFHxS	7.275	398.7 -> 79.9	8199	2.16	µg/L	m	91
		398.7 -> 98.9	4653				
PFNA	7.677	463.0 -> 419.0	40395	2.24	µg/L		97
		463.0 -> 219.0	8223				
PFNS	8.811	548.8 -> 79.9	7924	2.21	µg/L		94
		548.8 -> 98.9	4807				
PFOA	7.148	413.0 -> 369.0	61128	2.34	µg/L		100
		413.0 -> 169.0	8394				
PFOS	8.347	498.9 -> 79.9	8151	2.21	µg/L	m	75
		498.9 -> 98.8	5263				
PFPeA	4.388	263.0 -> 219.0	36548	4.87	µg/L		100
PFPeS	6.581	349.1 -> 79.9	9990	2.27	µg/L		96
		349.1 -> 98.9	5405				
PFTeDA	9.806	713.1 -> 669.0	34038	2.46	µg/L		99
		713.1 -> 168.9	2193				
PFTrDA	9.462	663.0 -> 619.0	38792	2.48	µg/L		98
		663.0 -> 168.9	2794				
PFUnDA	8.637	563.1 -> 519.0	39246	2.45	µg/L		98
		563.1 -> 269.1	5717				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	85627	8.58	µg/L		96
		632.9 -> 452.9	27942				
9Cl-PF3ONS	8.688	530.8 -> 351.0	144966	8.59	µg/L		98
		532.8 -> 353.0	45571				
ADONA	6.753	376.9 -> 250.9	283159	9.39	µg/L		97
		376.9 -> 84.8	58397				
HFPO-DA	5.940	284.9 -> 168.9	12575	9.67	µg/L		96
		284.9 -> 184.9	1476				
3:3FTCA	3.878	241.0 -> 177.0	2862	7.76	µg/L		94
		241.0 -> 117.0	347				
5:3FTCA	6.206	341.0 -> 237.1	149700	55.55	µg/L		96
		341.0 -> 217.0	136147				
7:3FTCA	7.605	441.0 -> 316.9	99112	56.27	µg/L		91
		441.0 -> 336.9	194451				
EtFOSA	10.927	526.0 -> 219.0	7283	2.09	µg/L		94
		526.0 -> 169.0	7532				
EtFOSE	10.860	630.0 -> 58.9	17957	21.27	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	6267	2.17	µg/L		99
		511.9 -> 169.0	6384				
MeFOSE	10.602	616.1 -> 58.9	25067	23.88	µg/L		100
PFDoDS	9.933	699.1 -> 79.9	3533	2.16	µg/L		95
		699.1 -> 98.8	2210				
NFDHA	5.457	295.0 -> 201.0	3683	4.83	µg/L		94
		295.0 -> 84.9	1747				
PFMBA	4.800	279.0 -> 85.1	10718	5.08	µg/L		100
PFMPA	3.553	229.0 -> 84.9	4521	2.26	µg/L		100
PFEESA	6.059	314.8 -> 134.9	75220	4.05	µg/L		100
		314.8 -> 82.9	1740				

= Qualifier out of range, m = manually integrated, + = Area summed

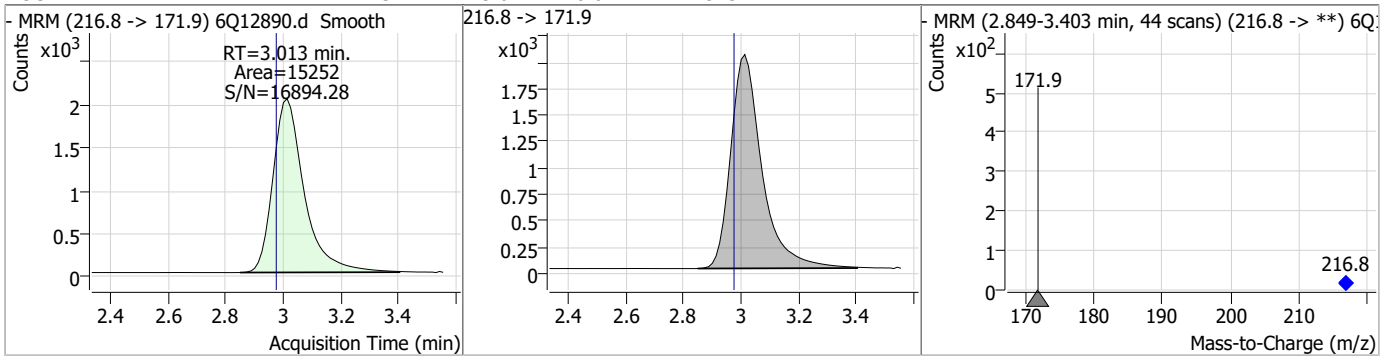
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

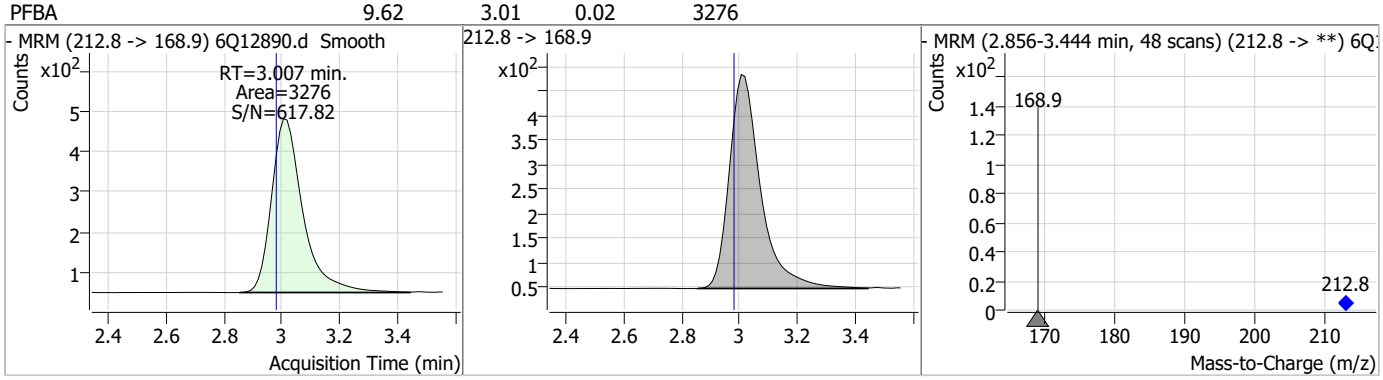
Perfluorinated Compounds by LC/MS/MS



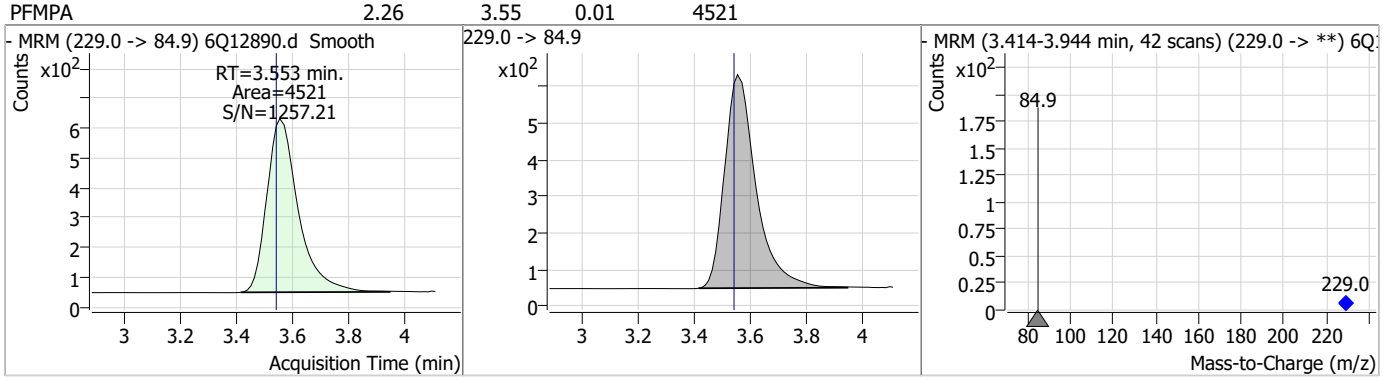
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	2.32	3.01	0.04	15252				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.62	3.01	0.02	3276				

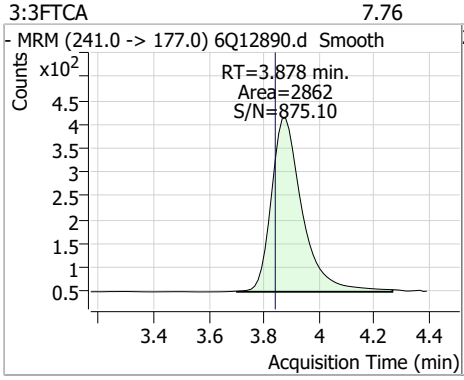


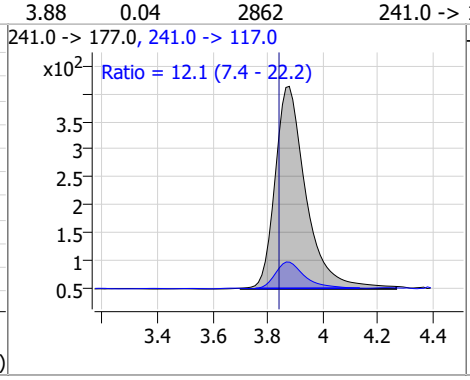
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.26	3.55	0.01	4521				

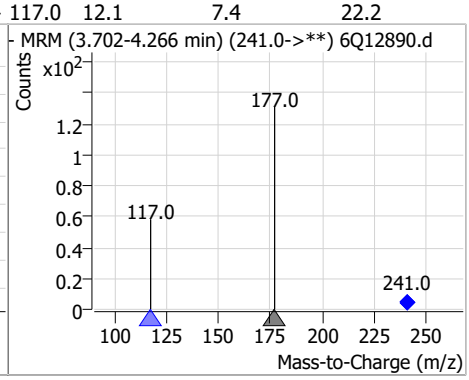


Perfluorinated Compounds by LC/MS/MS

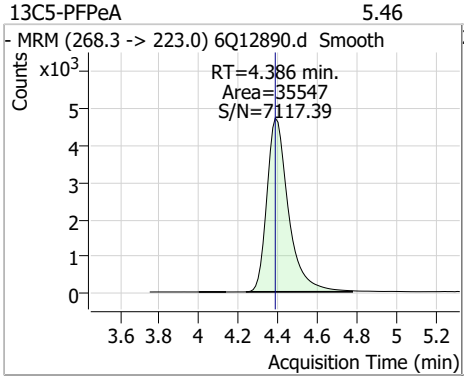
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	7.76	3.88	0.04	2862	241.0 -> 117.0	12.1	7.4	22.2

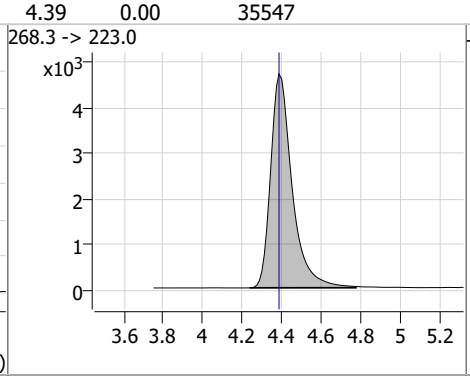


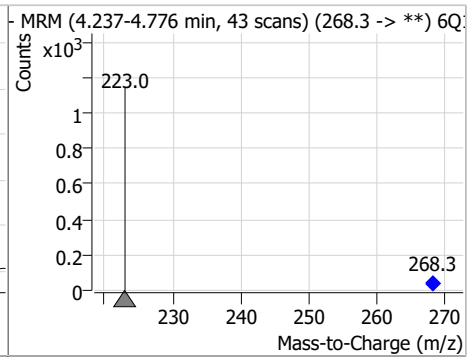




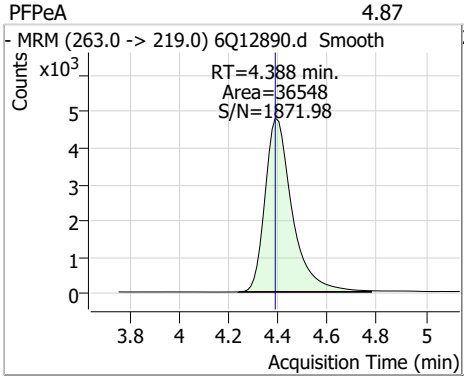
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.46	4.39	0.00	35547				

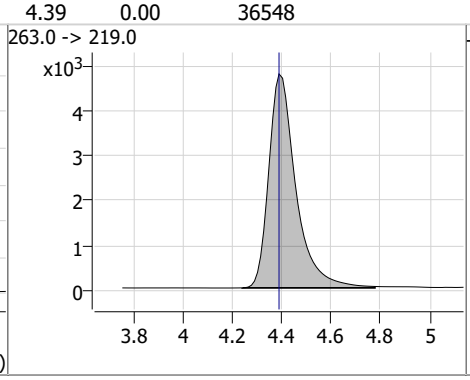


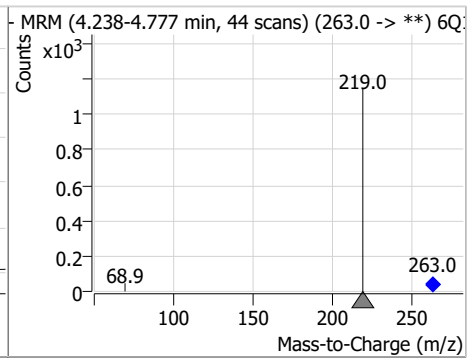




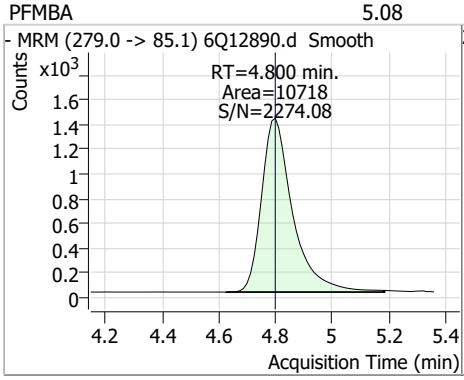
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.87	4.39	0.00	36548				

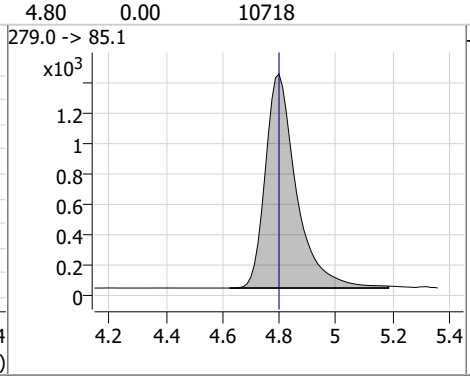


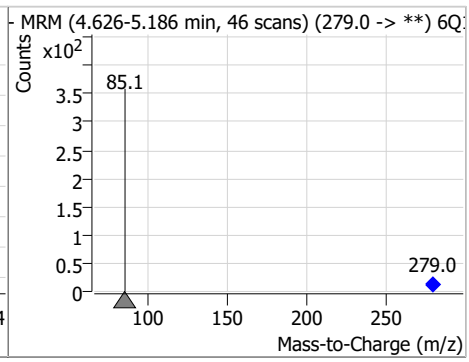




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.08	4.80	0.00	10718				

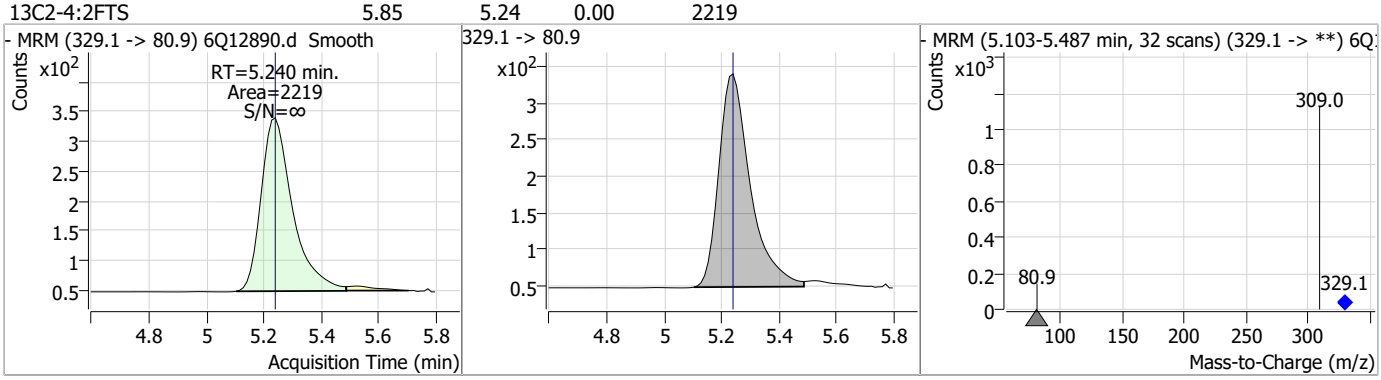




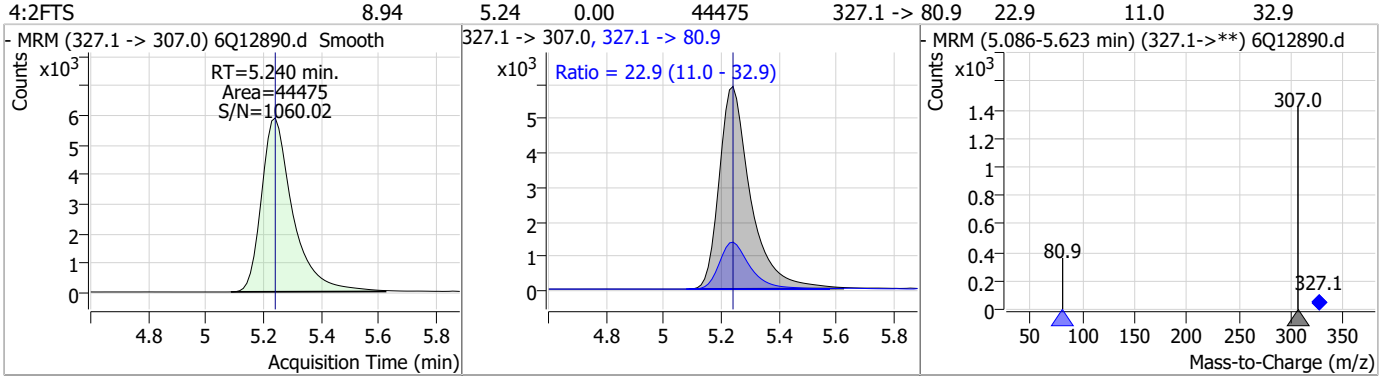


Perfluorinated Compounds by LC/MS/MS

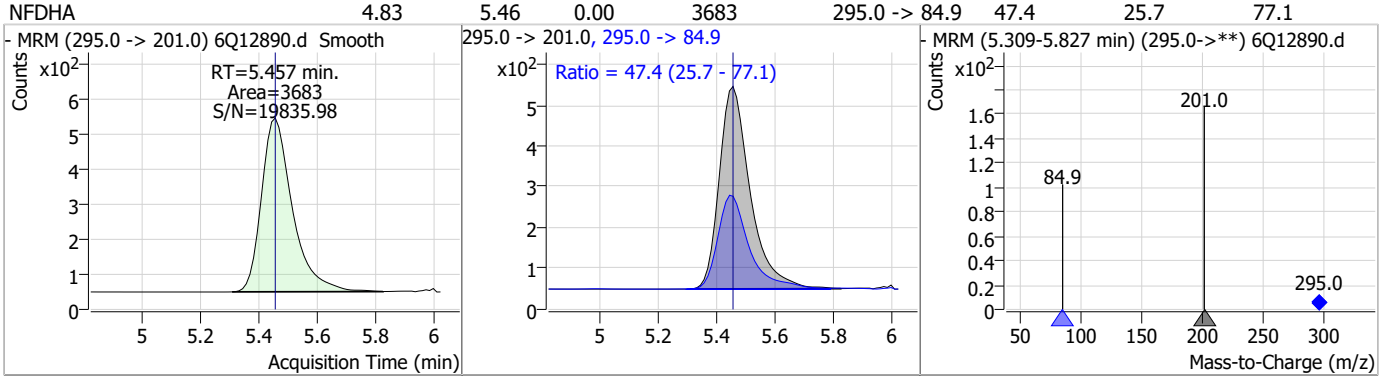
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.85	5.24	0.00	2219				



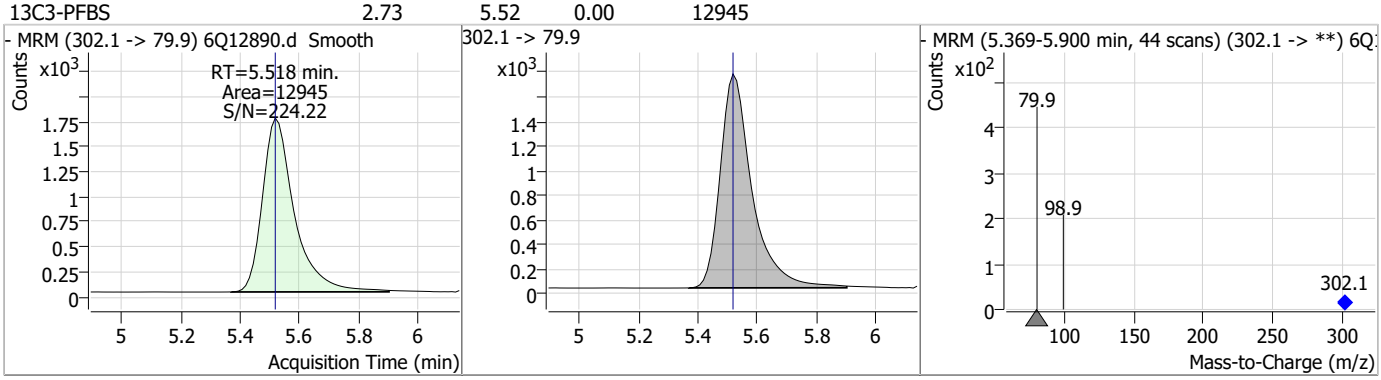
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	8.94	5.24	0.00	44475	327.1 -> 80.9	22.9	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.83	5.46	0.00	3683	295.0 -> 84.9	47.4	25.7	77.1

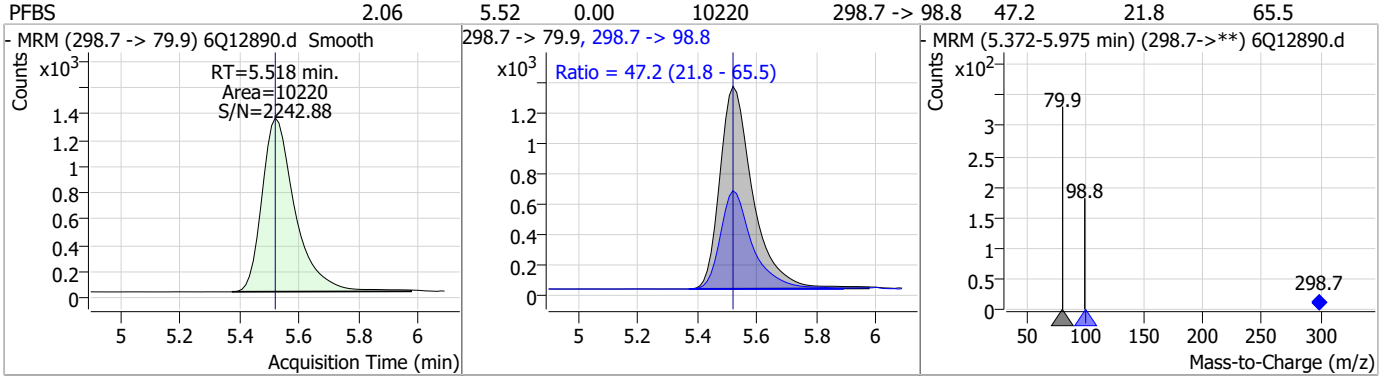


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.73	5.52	0.00	12945				

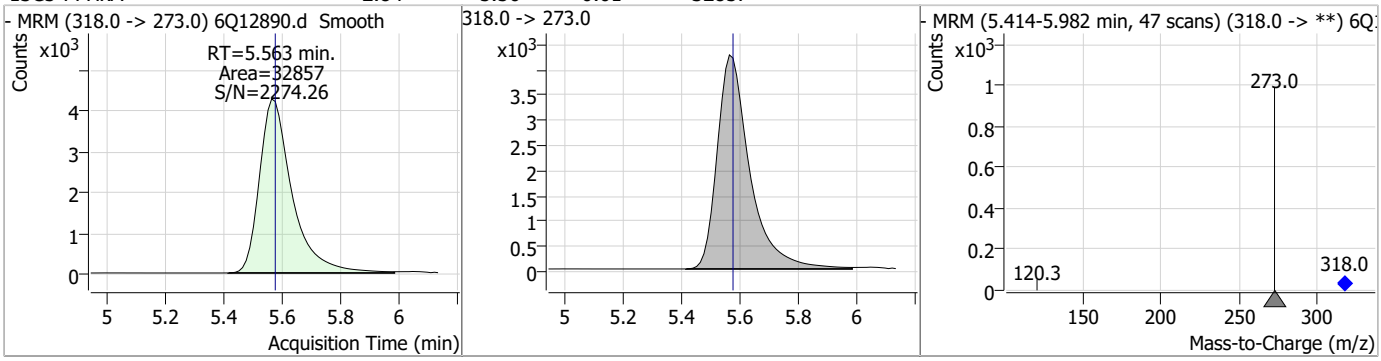


Perfluorinated Compounds by LC/MS/MS

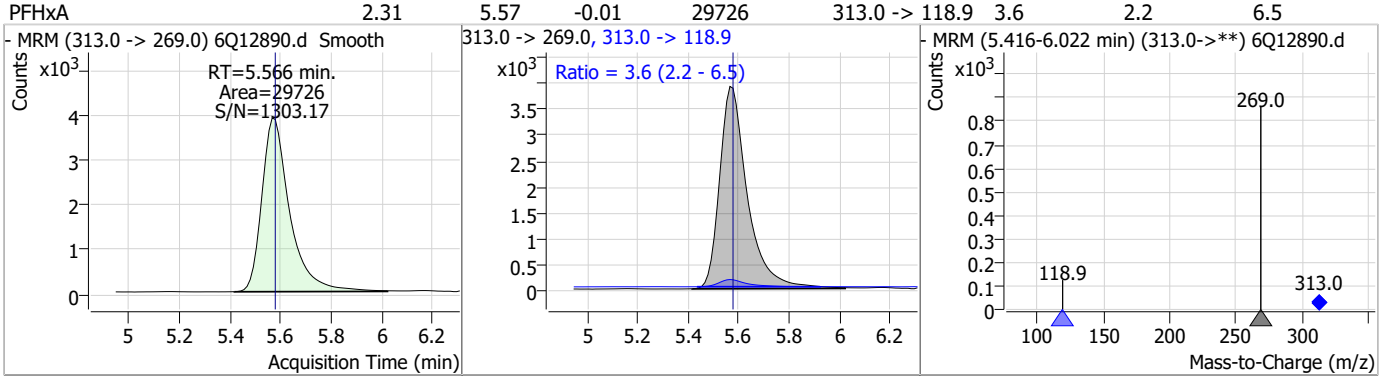
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.06	5.52	0.00	10220	298.7 -> 98.8	47.2	21.8	65.5



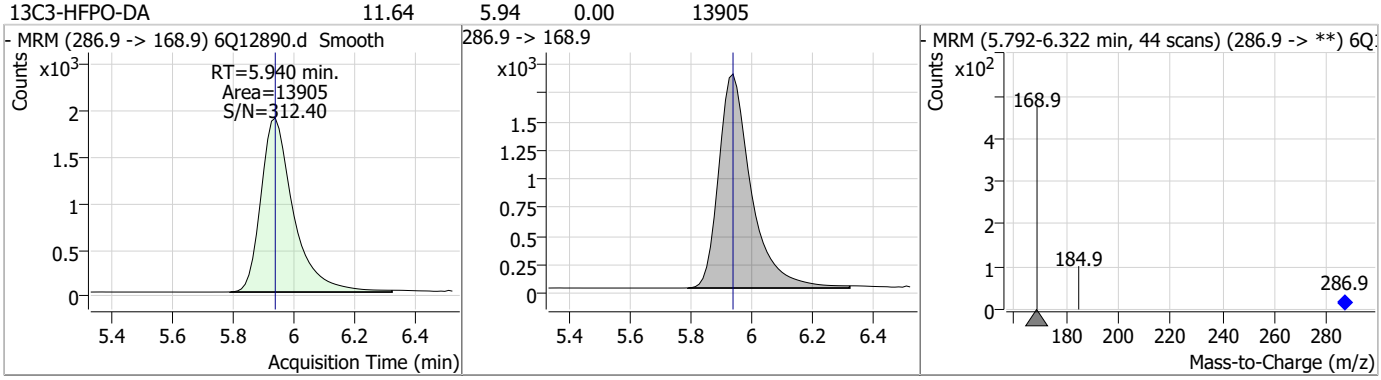
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.84	5.56	-0.01	32857				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.31	5.57	-0.01	29726	313.0 -> 118.9	3.6	2.2	6.5

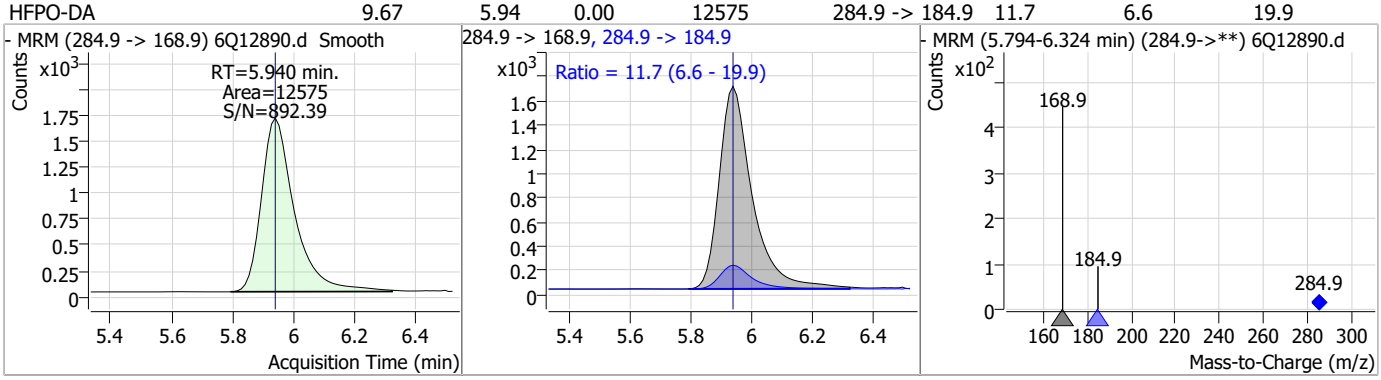


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.64	5.94	0.00	13905				

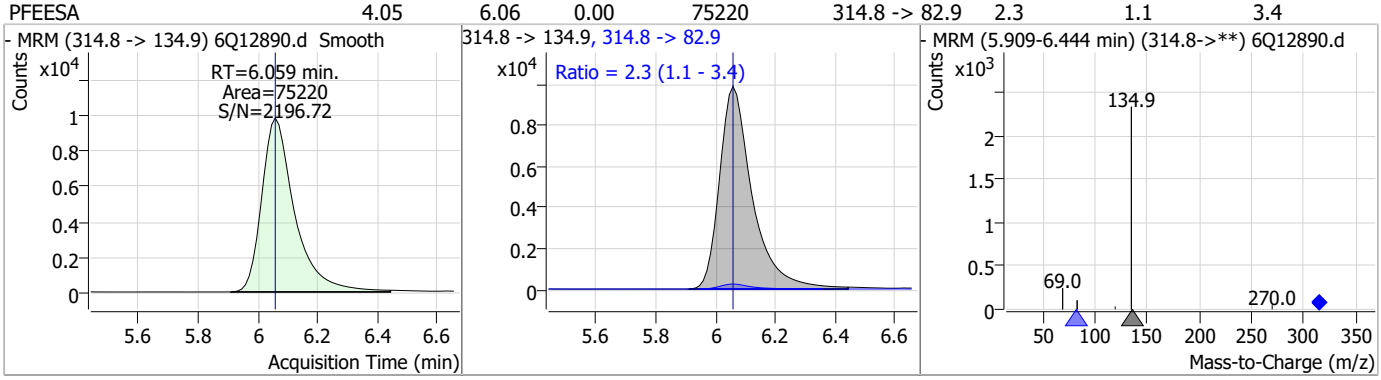


Perfluorinated Compounds by LC/MS/MS

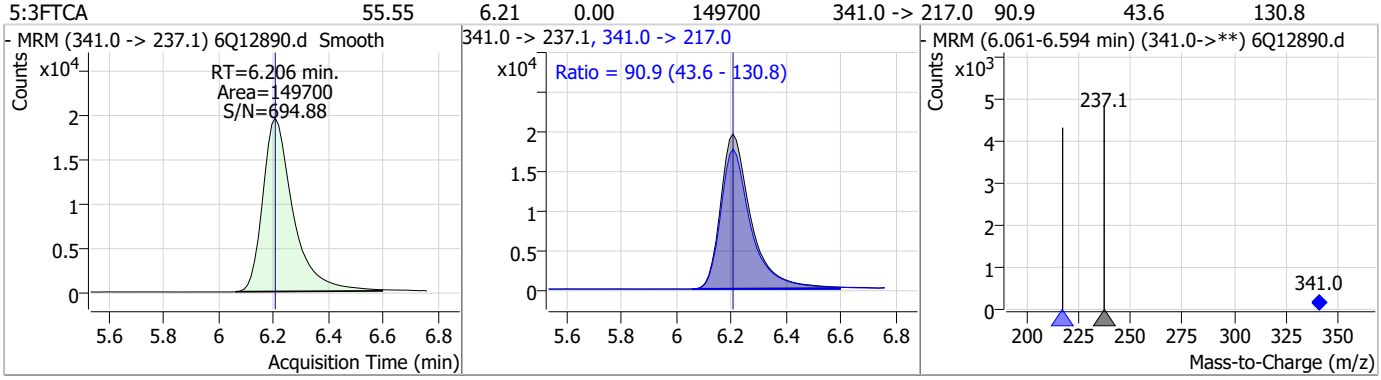
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.67	5.94	0.00	12575	284.9 -> 184.9	11.7	6.6	19.9



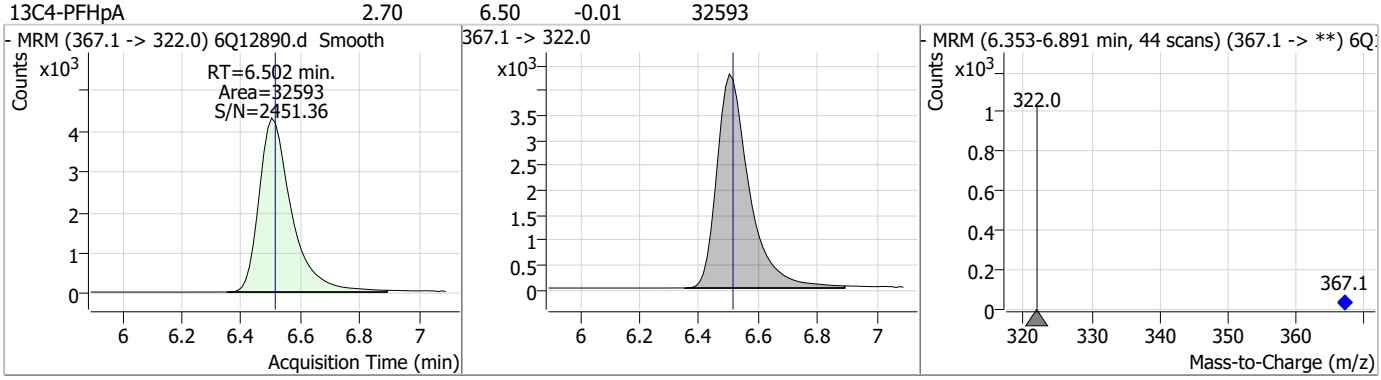
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.05	6.06	0.00	75220	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.55	6.21	0.00	149700	341.0 -> 217.0	90.9	43.6	130.8

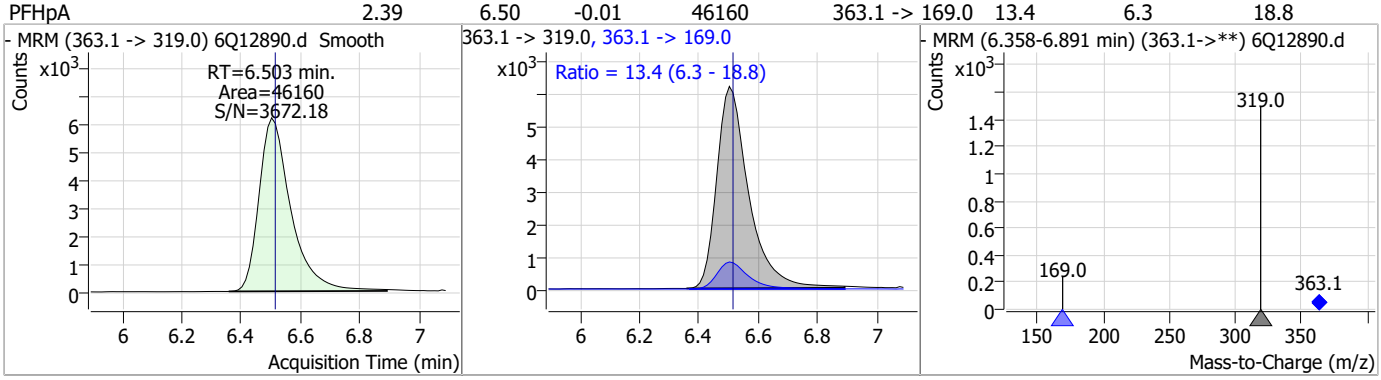


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.70	6.50	-0.01	32593				

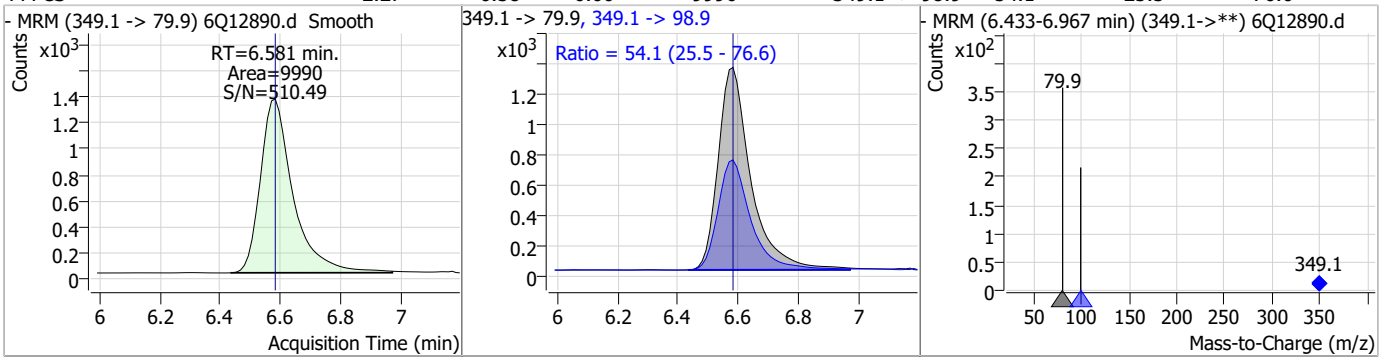


Perfluorinated Compounds by LC/MS/MS

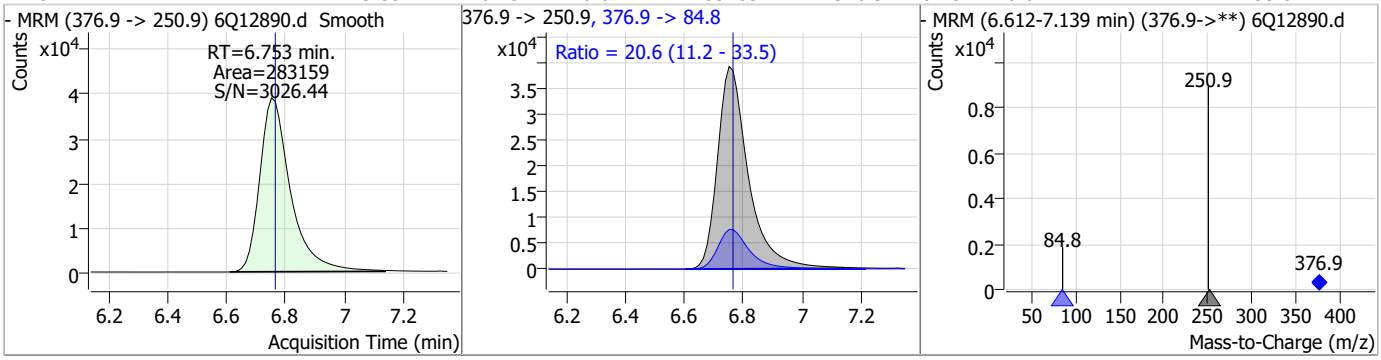
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.39	6.50	-0.01	46160	363.1 -> 169.0	13.4	6.3	18.8



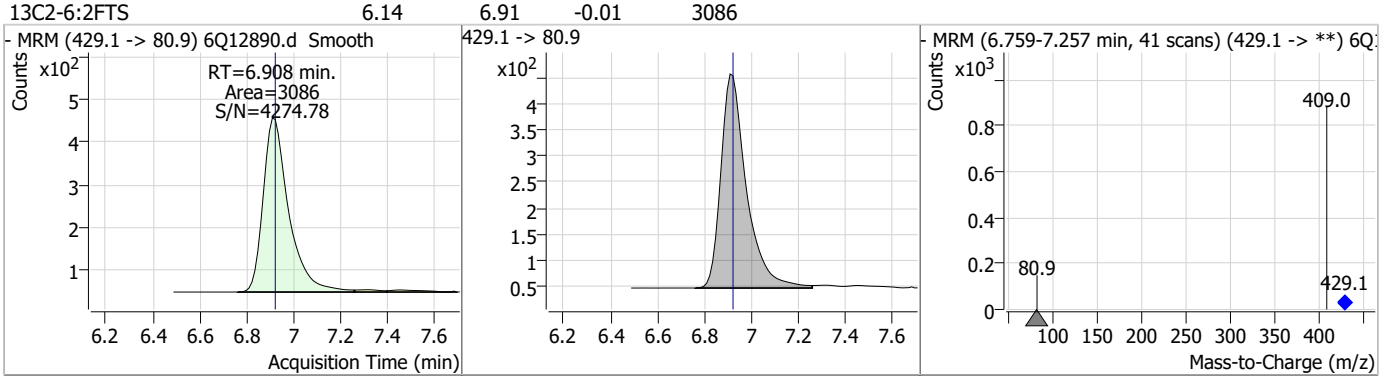
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.27	6.58	0.00	9990	349.1 -> 98.9	54.1	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.39	6.75	-0.01	283159	376.9 -> 84.8	20.6	11.2	33.5

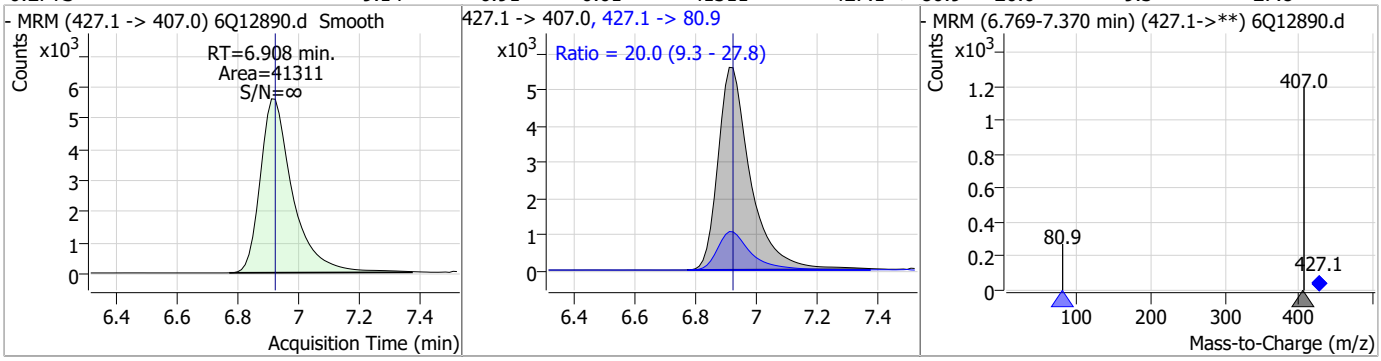


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.14	6.91	-0.01	3086				

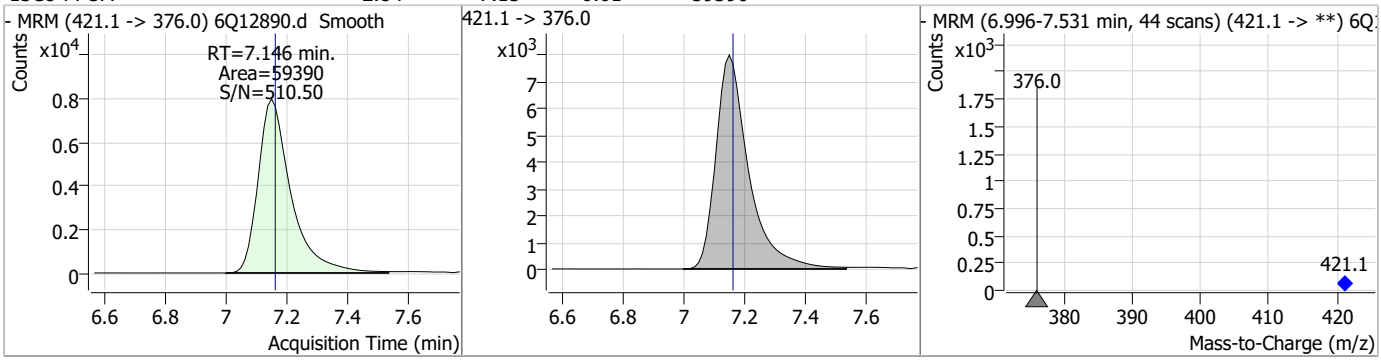


Perfluorinated Compounds by LC/MS/MS

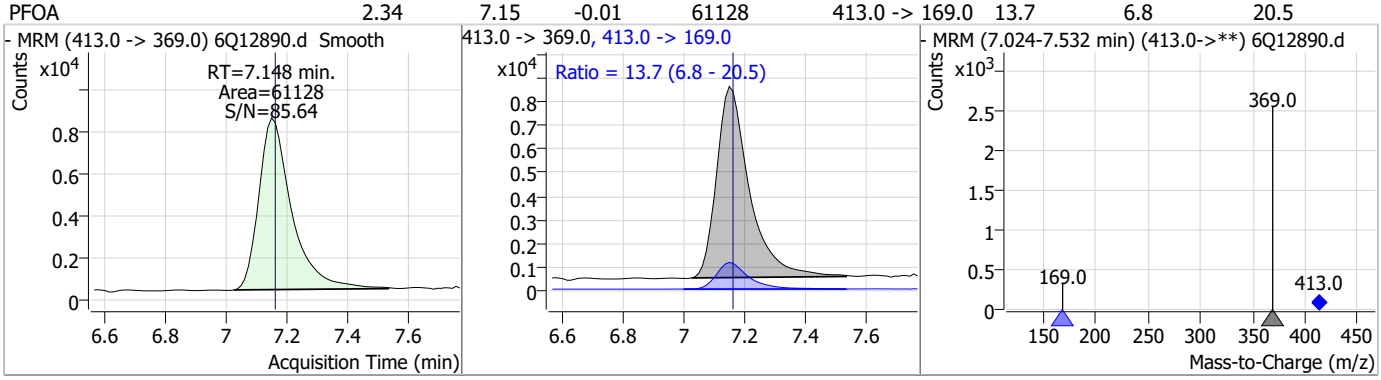
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.14	6.91	-0.01	41311	427.1 -> 80.9	20.0	9.3	27.8



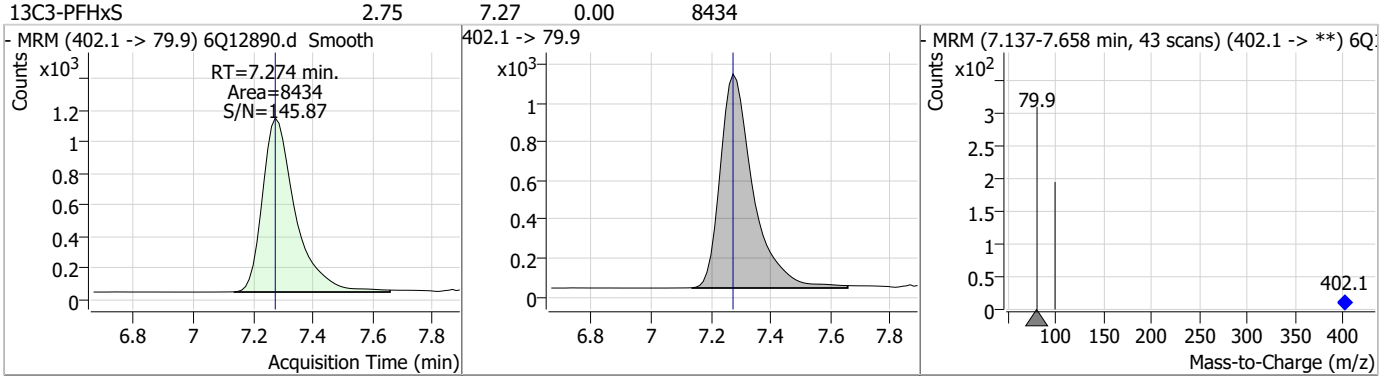
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.84	7.15	-0.01	59390				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.34	7.15	-0.01	61128	413.0 -> 169.0	13.7	6.8	20.5

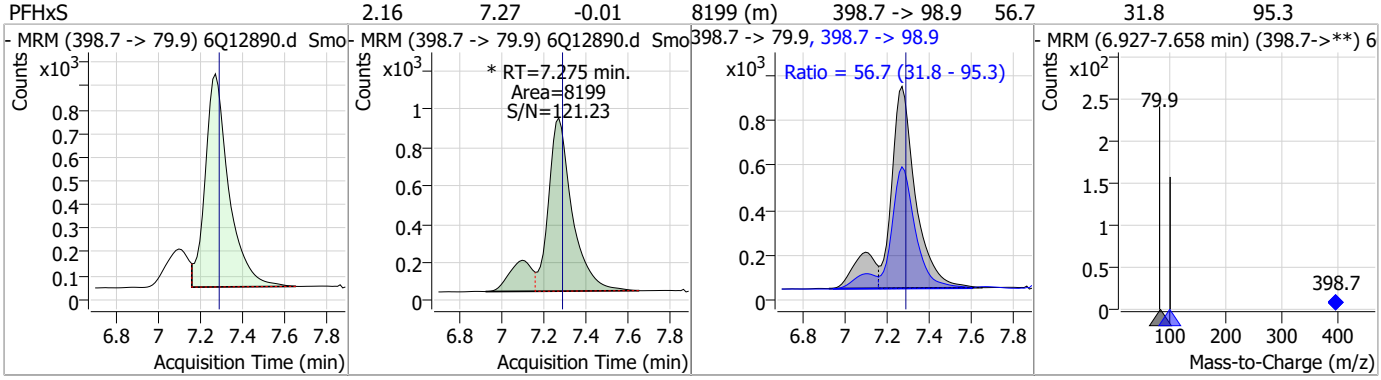


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.75	7.27	0.00	8434				

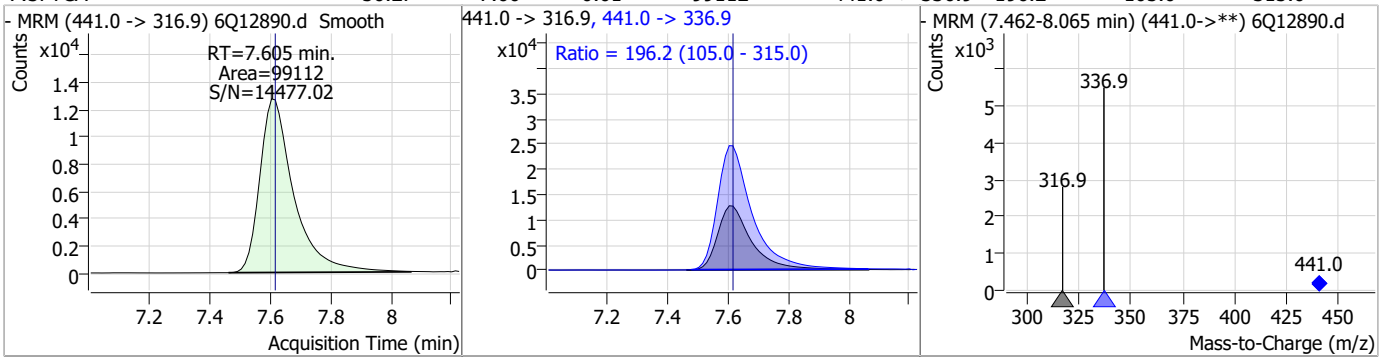


Perfluorinated Compounds by LC/MS/MS

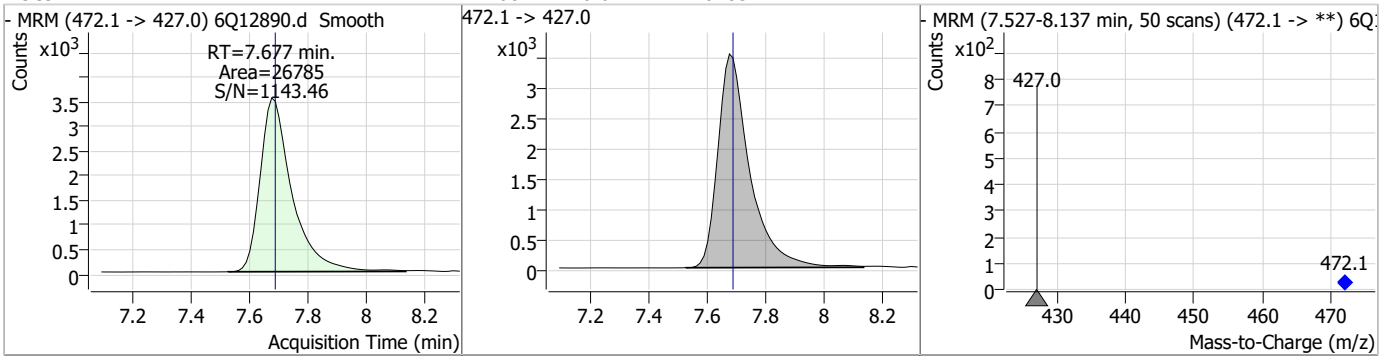
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.16	7.27	-0.01	8199 (m)	398.7 -> 98.9	56.7	31.8	95.3



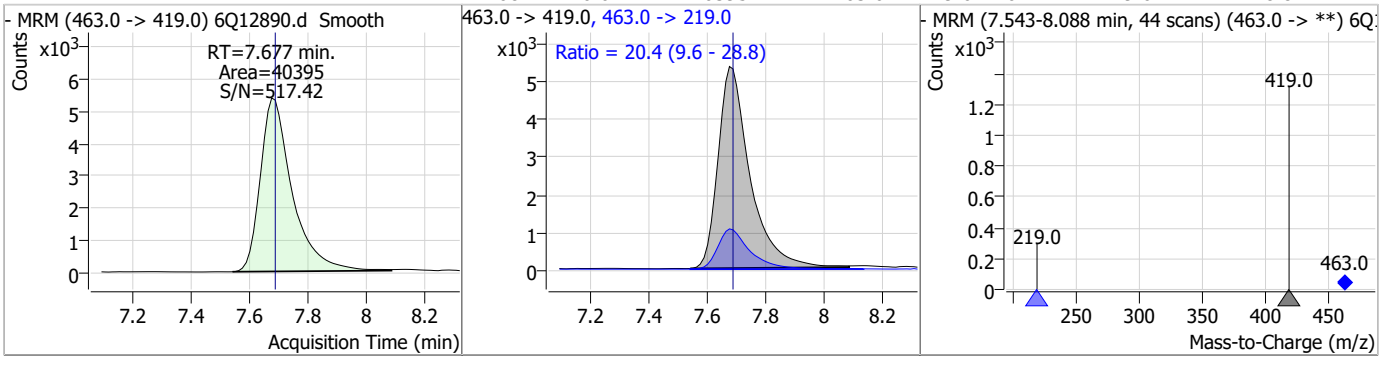
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	56.27	7.60	-0.01	99112	441.0 -> 336.9	196.2	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.44	7.68	-0.01	26785				

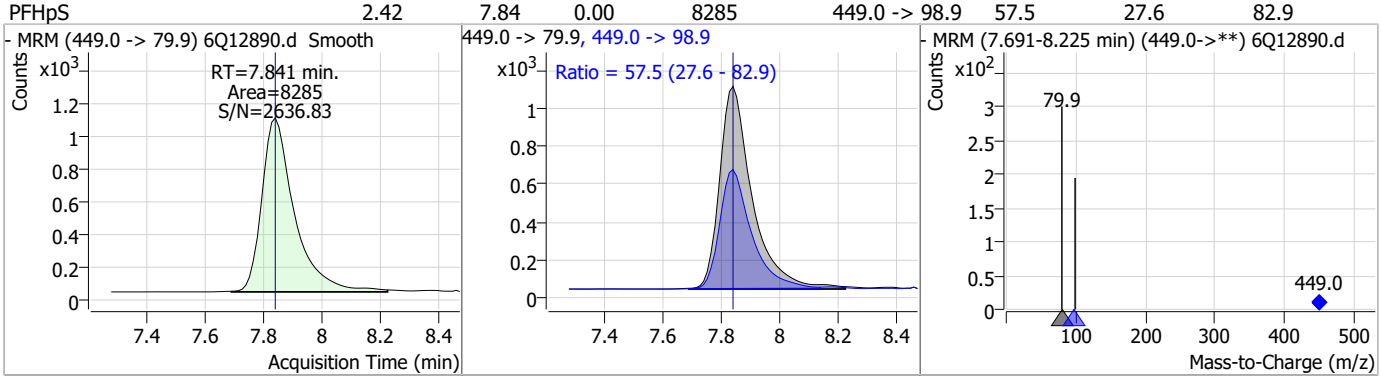


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.24	7.68	-0.01	40395	463.0 -> 219.0	20.4	9.6	28.8

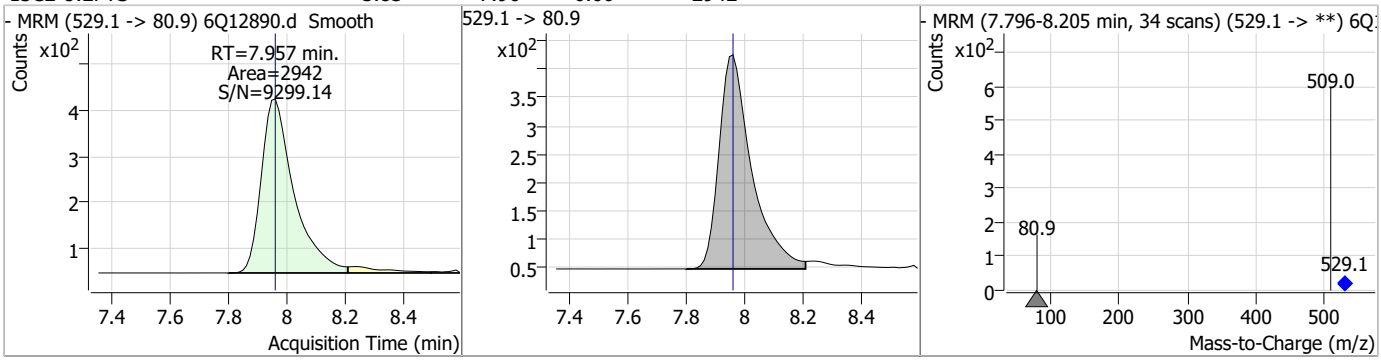


Perfluorinated Compounds by LC/MS/MS

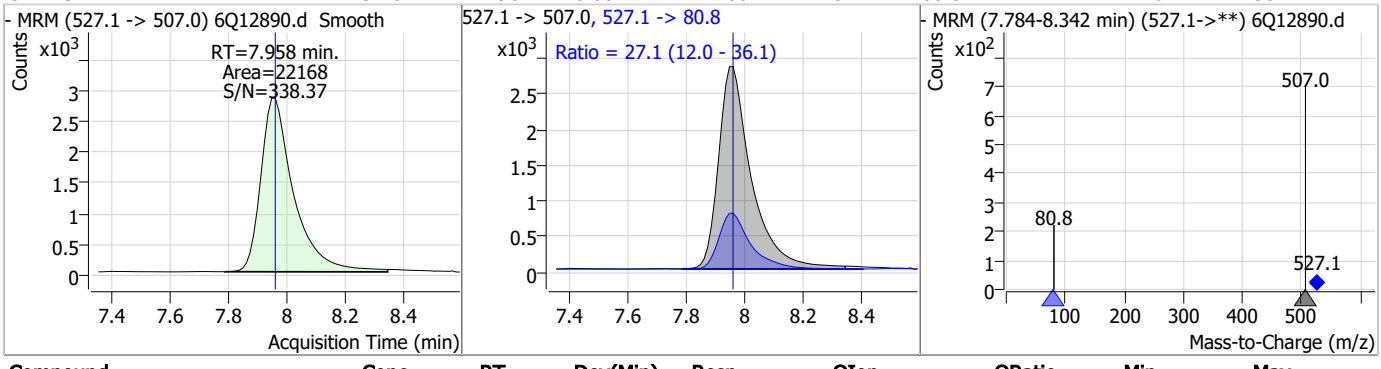
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.42	7.84	0.00	8285	449.0 -> 98.9	57.5	27.6	82.9



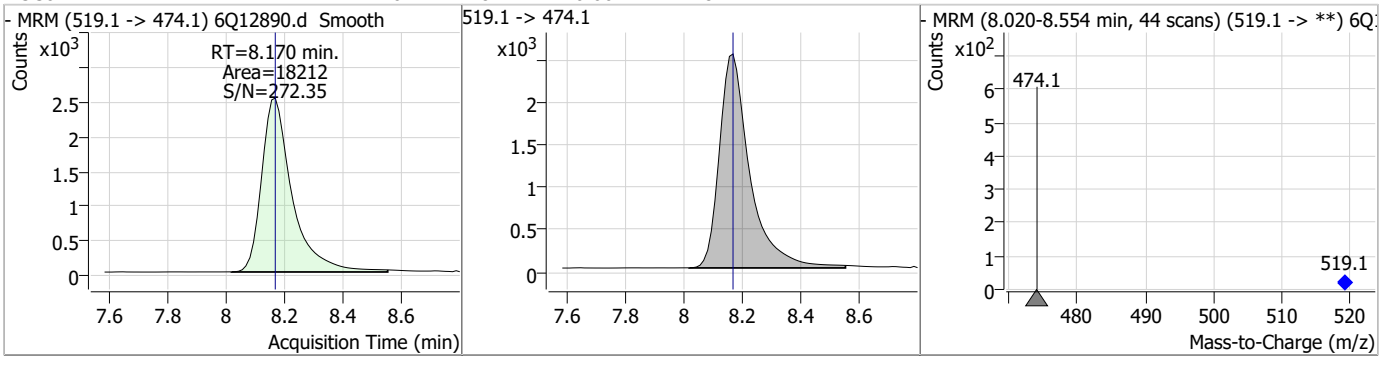
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.83	7.96	0.00	2942				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.70	7.96	0.00	22168	527.1 -> 80.8	27.1	12.0	36.1

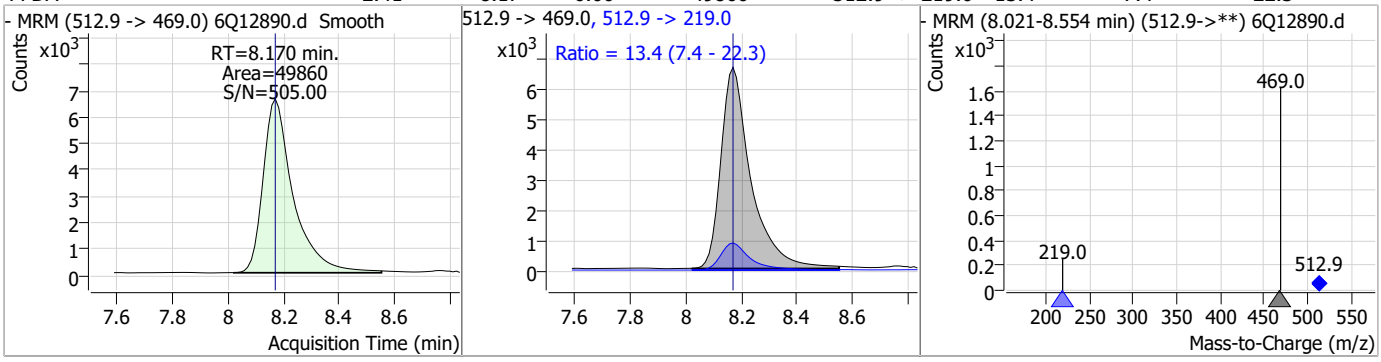


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.46	8.17	0.00	18212				

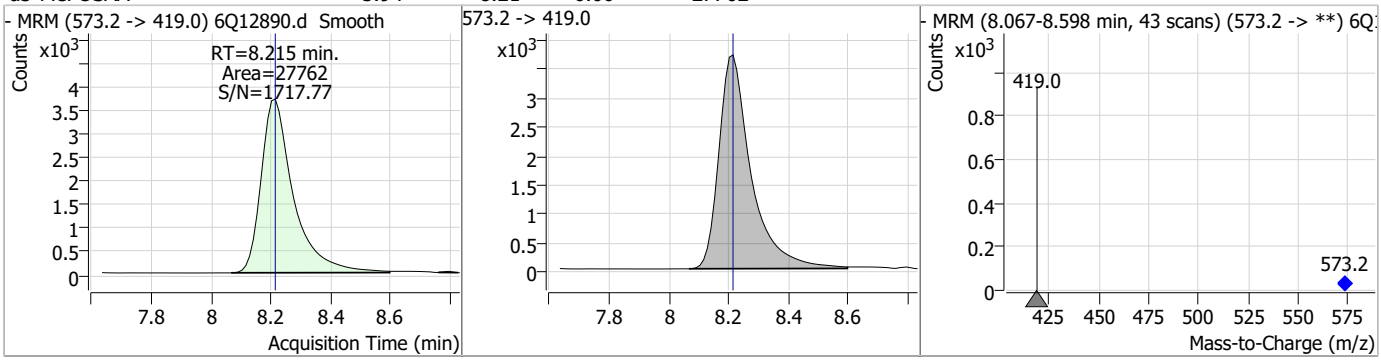


Perfluorinated Compounds by LC/MS/MS

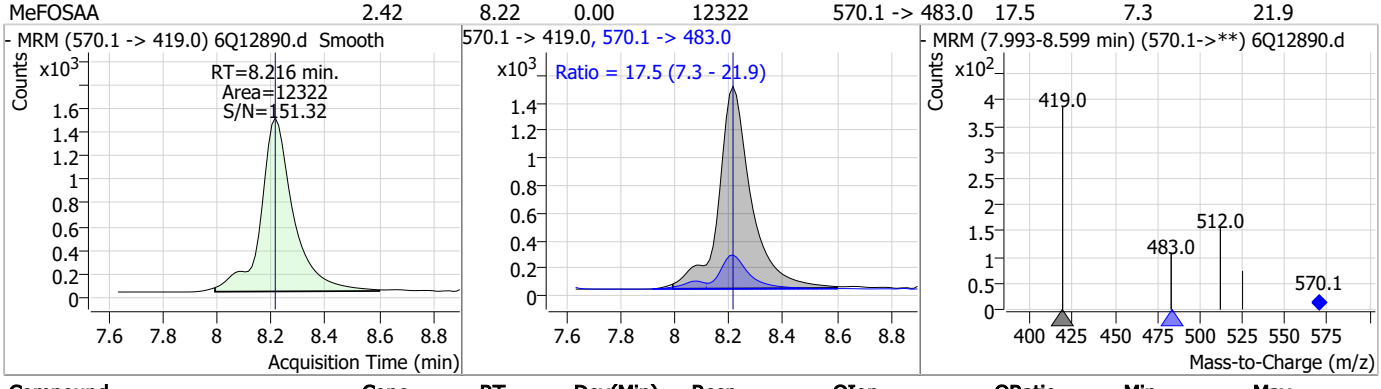
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.41	8.17	0.00	49860	512.9 -> 219.0	13.4	7.4	22.3



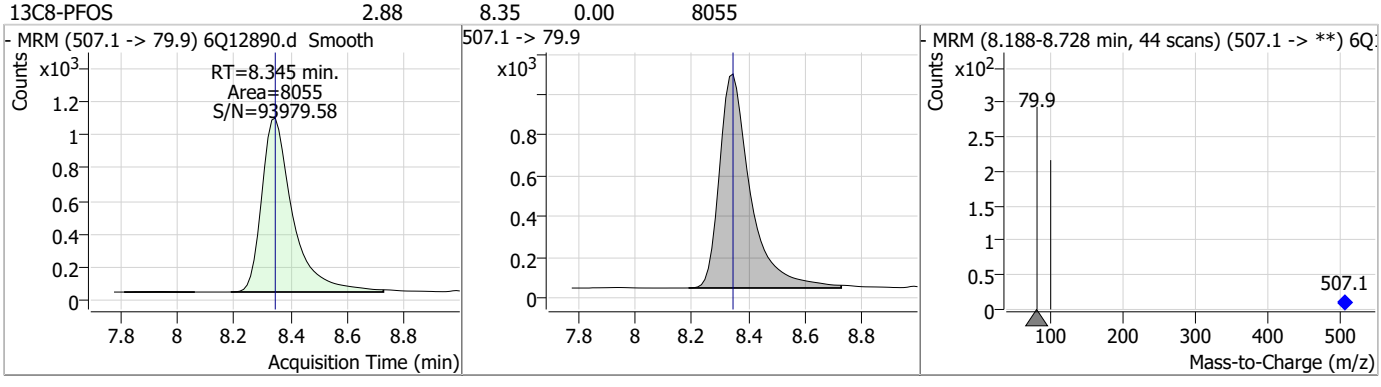
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.94	8.21	0.00	27762				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.42	8.22	0.00	12322	570.1 -> 483.0	17.5	7.3	21.9

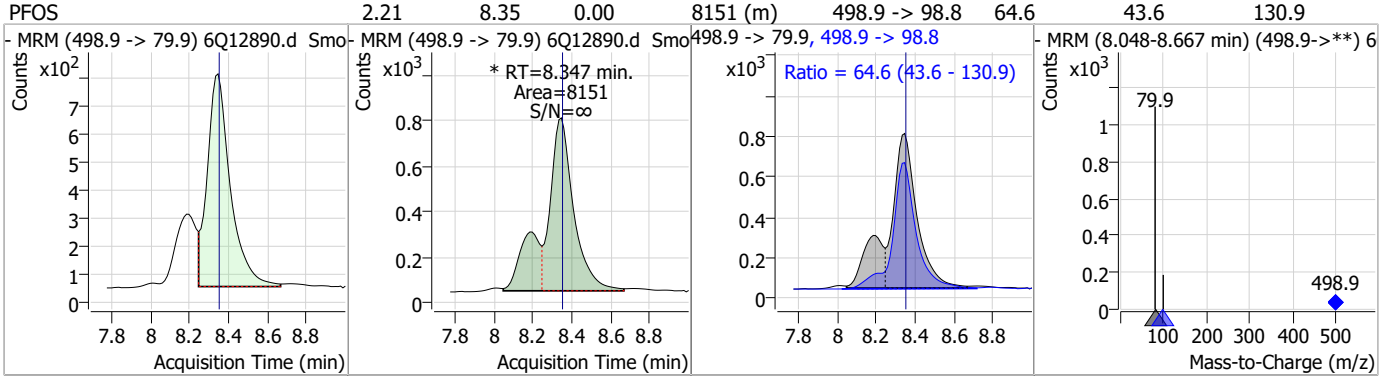


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.88	8.35	0.00	8055				

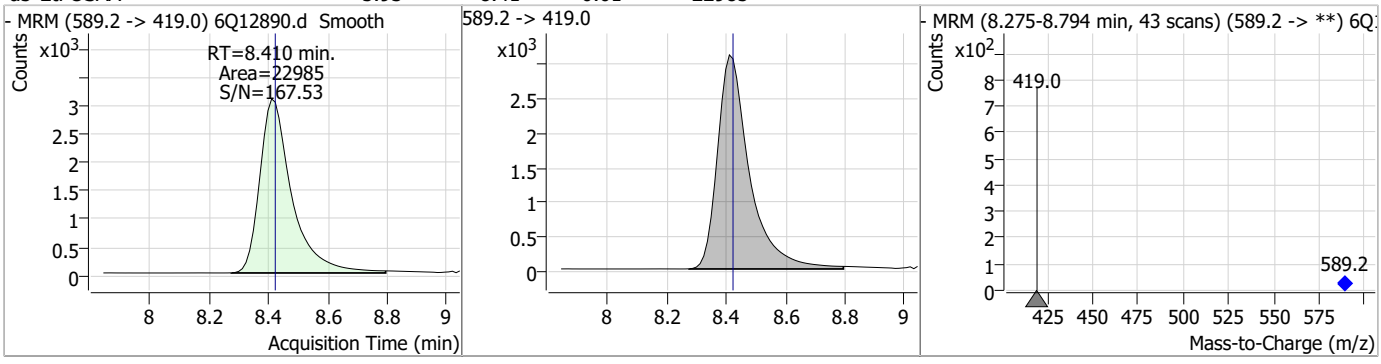


Perfluorinated Compounds by LC/MS/MS

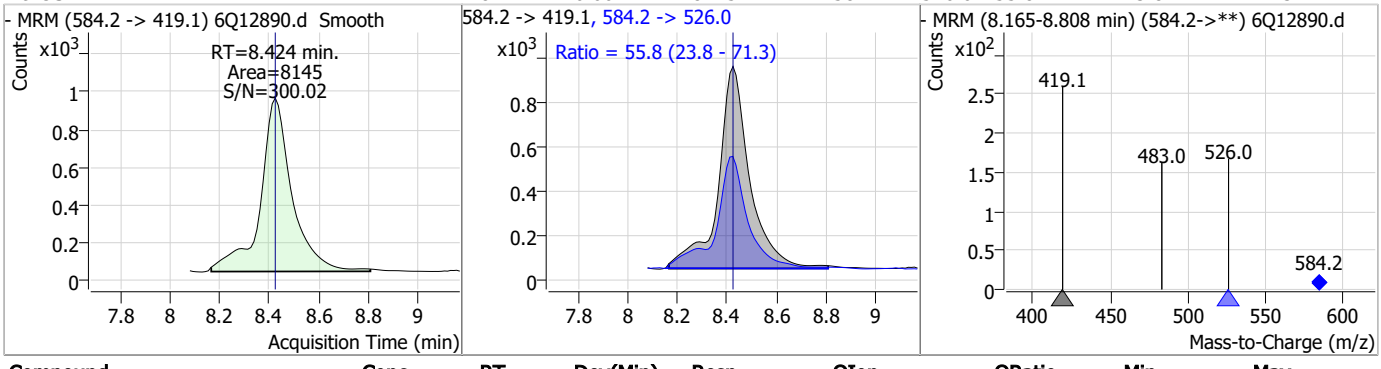
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.21	8.35	0.00	8151 (m)	498.9 -> 98.8	64.6	43.6	130.9



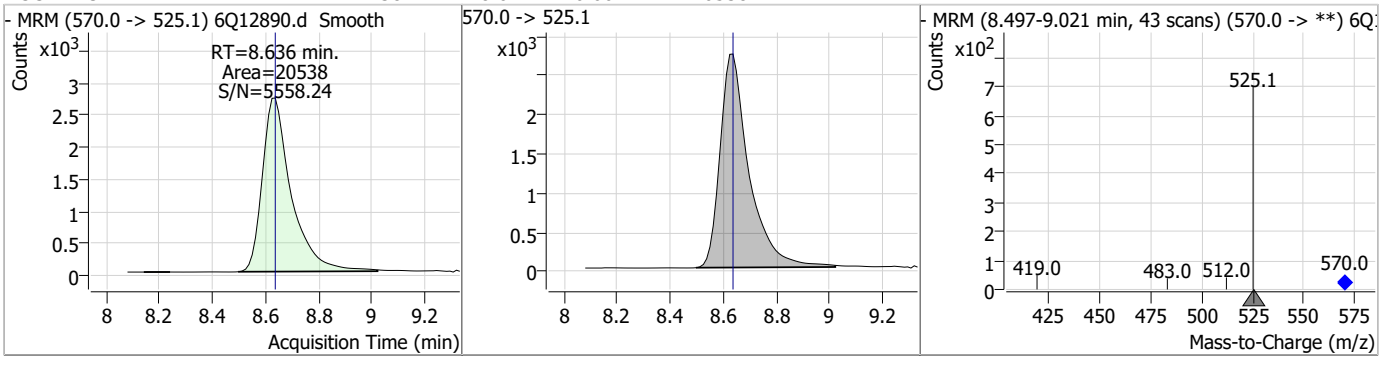
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.93	8.41	-0.01	22985				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.21	8.42	0.00	8145	584.2 -> 526.0	55.8	23.8	71.3

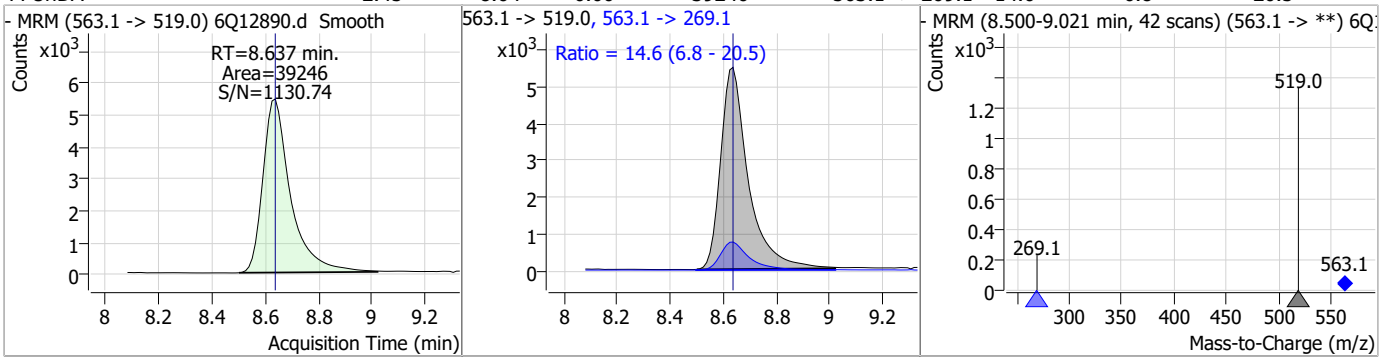


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.38	8.64	0.00	20538				

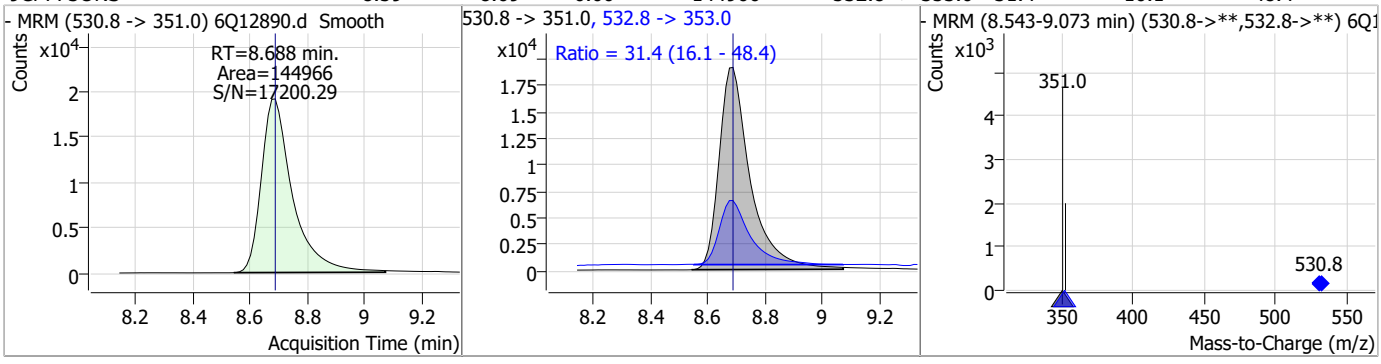


Perfluorinated Compounds by LC/MS/MS

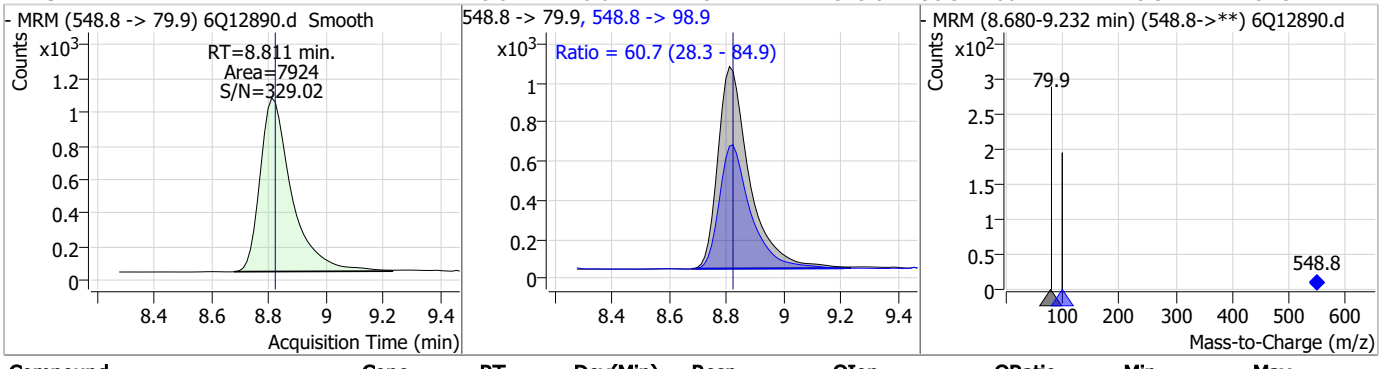
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.45	8.64	0.00	39246	563.1 -> 269.1	14.6	6.8	20.5



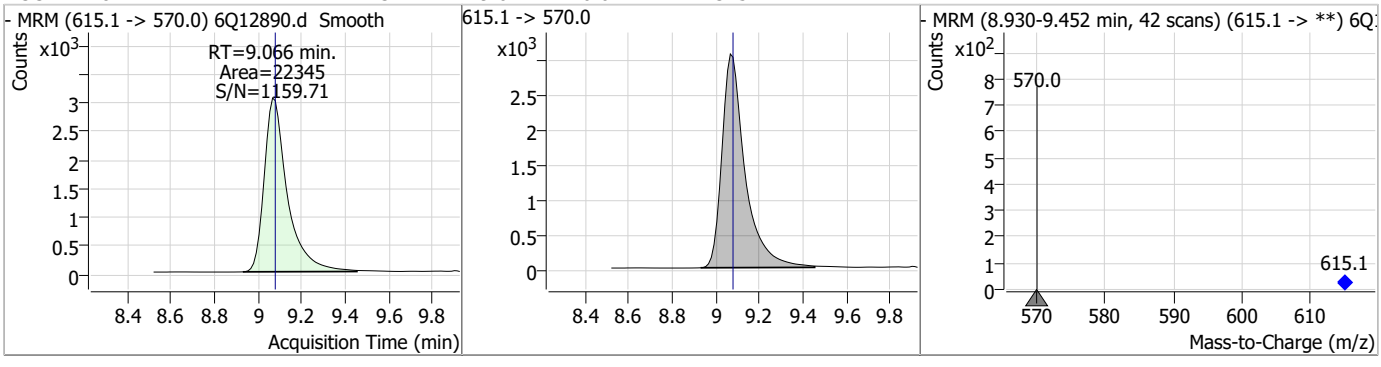
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.59	8.69	0.00	144966	532.8 -> 353.0	31.4	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.21	8.81	-0.01	7924	548.8 -> 98.9	60.7	28.3	84.9

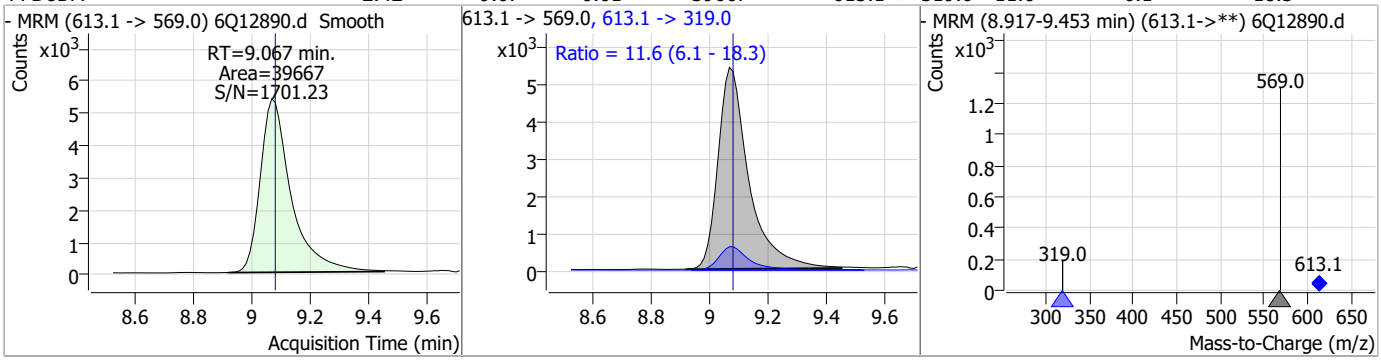


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.31	9.07	-0.01	22345				

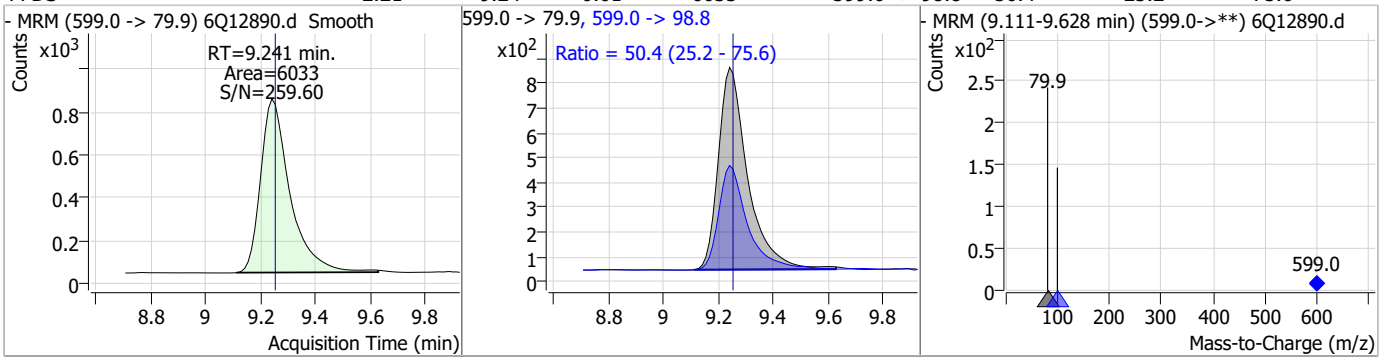


Perfluorinated Compounds by LC/MS/MS

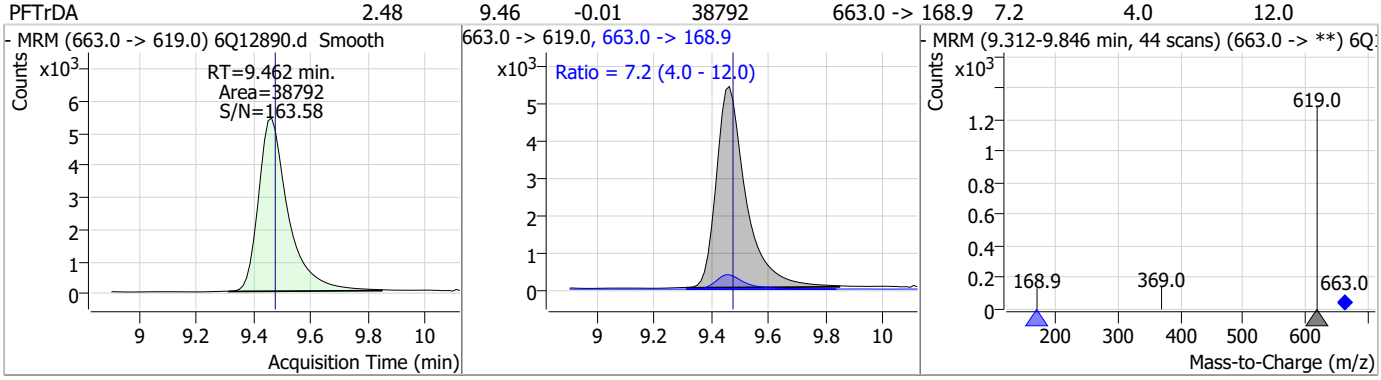
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.42	9.07	-0.01	39667	613.1 -> 319.0	11.6	6.1	18.3



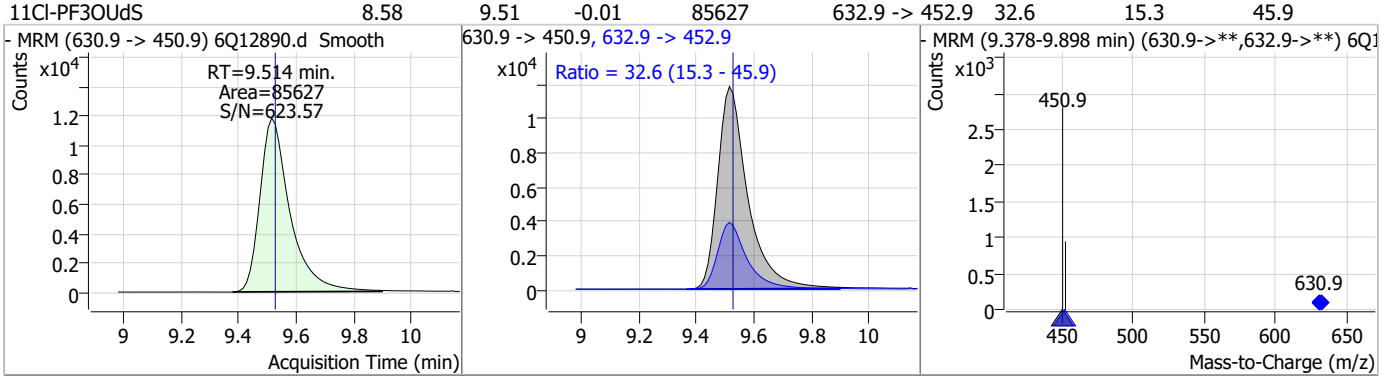
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.21	9.24	-0.01	6033	599.0 -> 98.8	50.4	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.48	9.46	-0.01	38792	663.0 -> 168.9	7.2	4.0	12.0

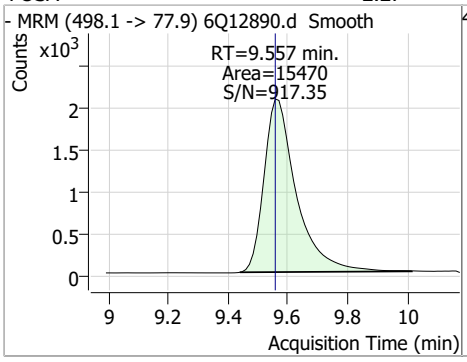


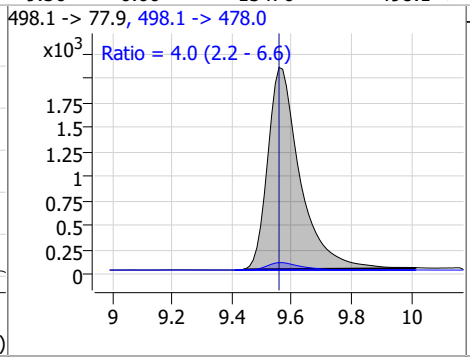
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.58	9.51	-0.01	85627	632.9 -> 452.9	32.6	15.3	45.9

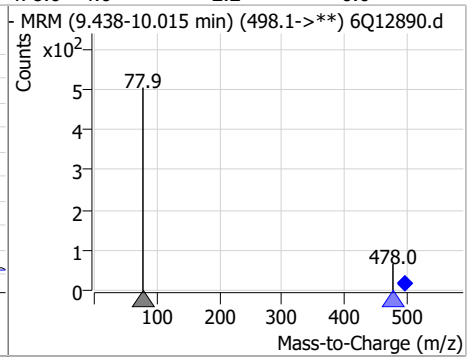


Perfluorinated Compounds by LC/MS/MS

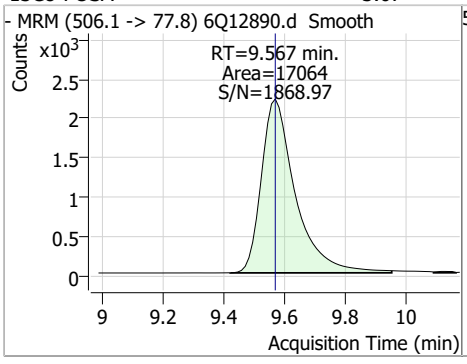
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.27	9.56	0.00	15470	498.1 -> 478.0	4.0	2.2	6.6

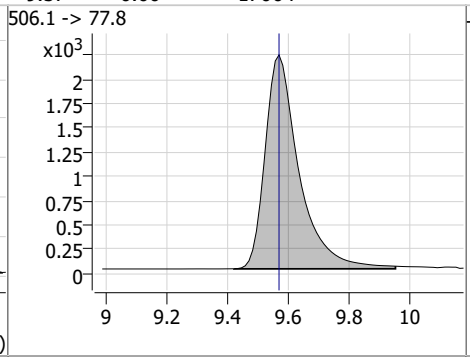


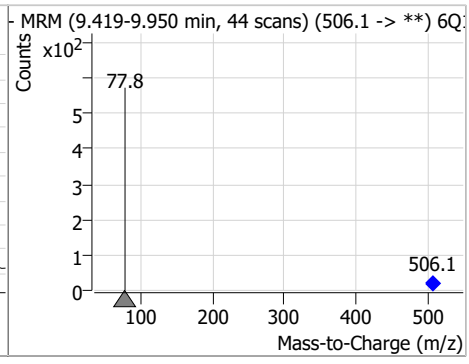




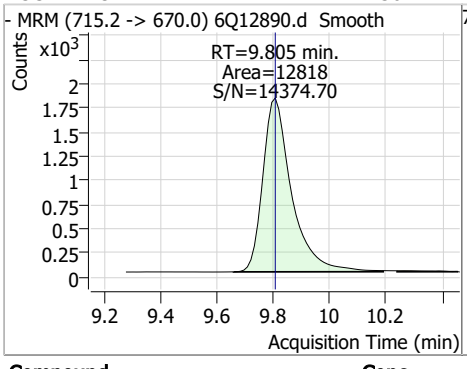
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.07	9.57	0.00	17064				

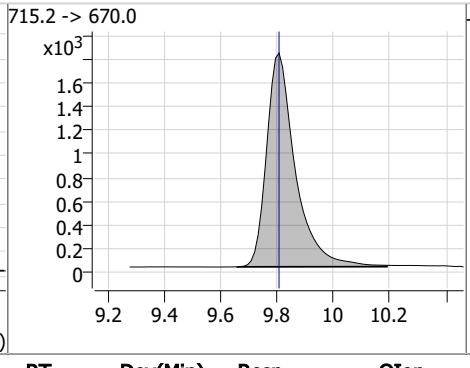


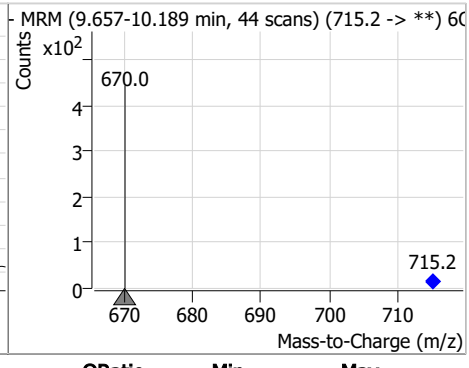




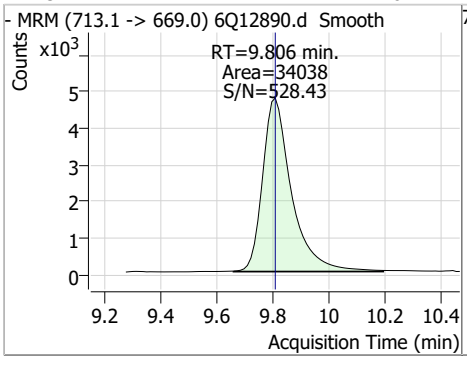
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.81	0.00	12818				

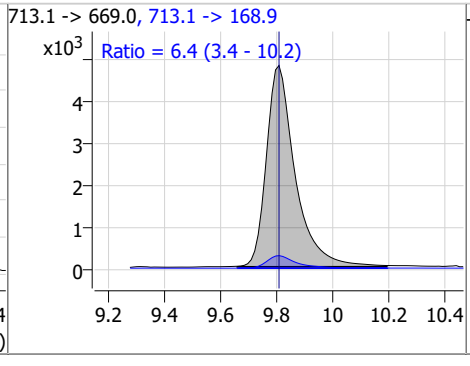


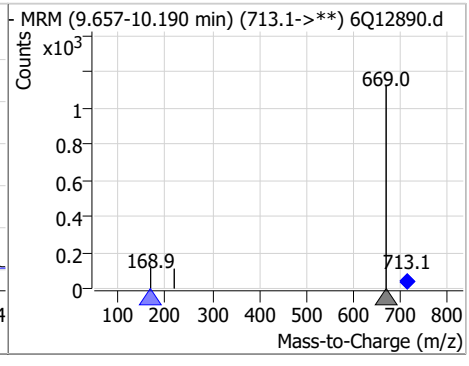




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.46	9.81	0.00	34038	713.1 -> 168.9	6.4	3.4	10.2

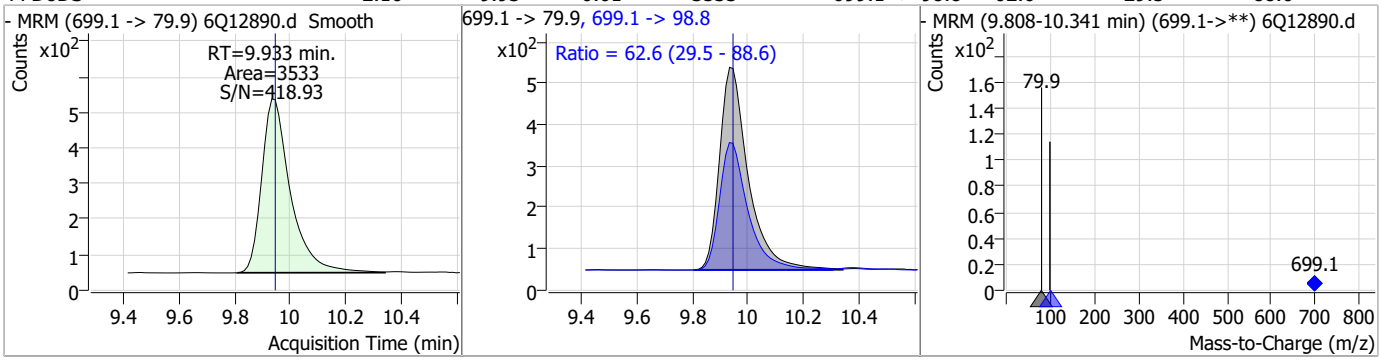




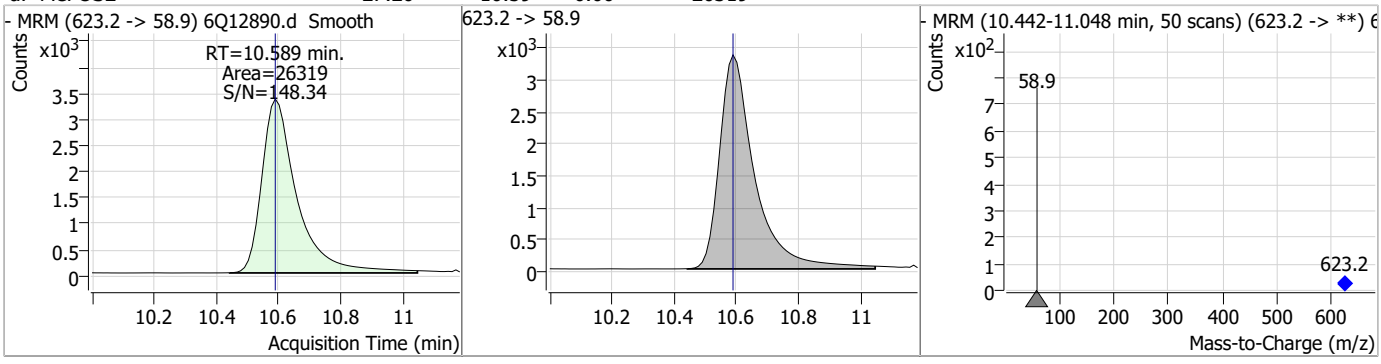


Perfluorinated Compounds by LC/MS/MS

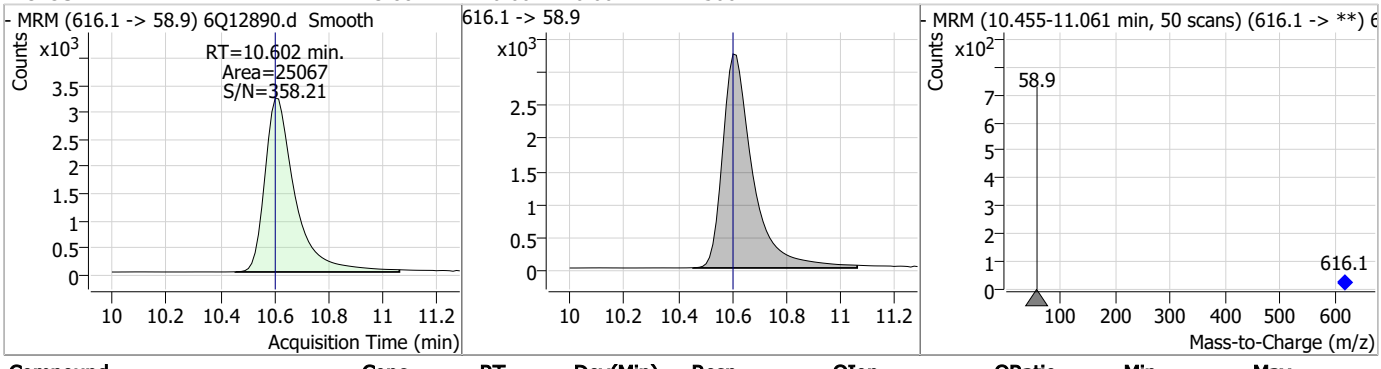
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.16	9.93	-0.01	3533	699.1 -> 98.8	62.6	29.5	88.6



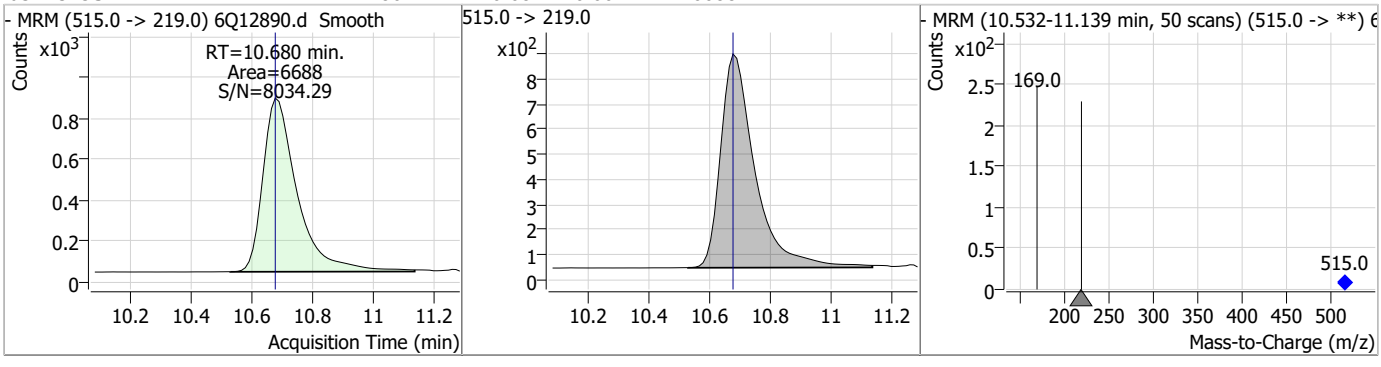
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.20	10.59	0.00	26319				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.88	10.60	0.00	25067				

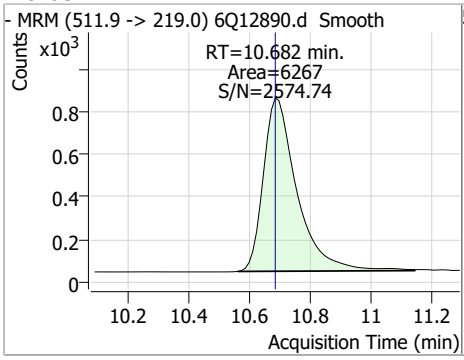


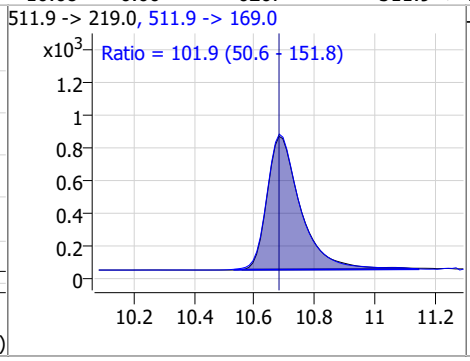
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.80	10.68	0.00	6688				

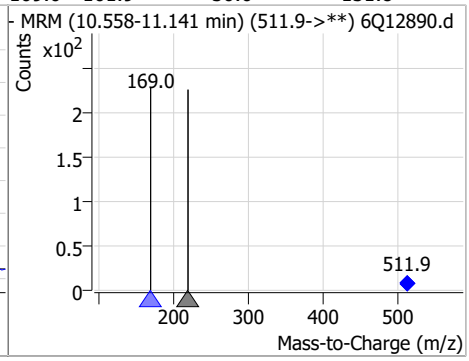


Perfluorinated Compounds by LC/MS/MS

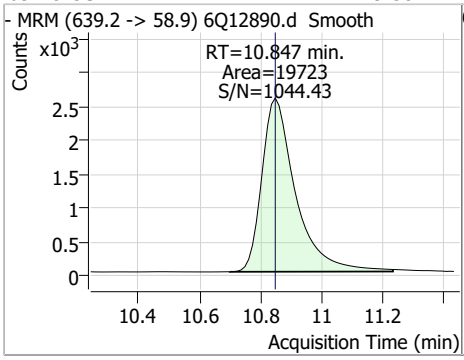
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.17	10.68	0.00	6267	511.9 -> 169.0	101.9	50.6	151.8

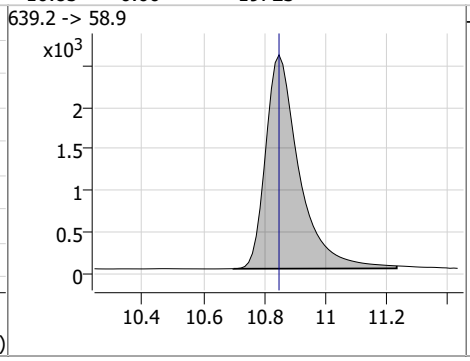


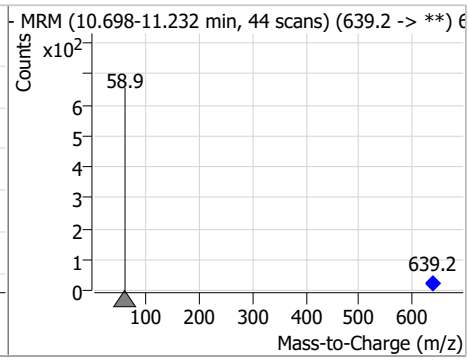




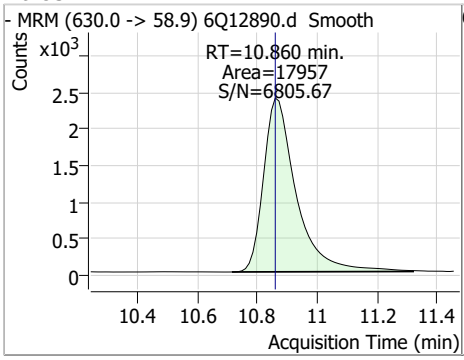
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	29.58	10.85	0.00	19723				

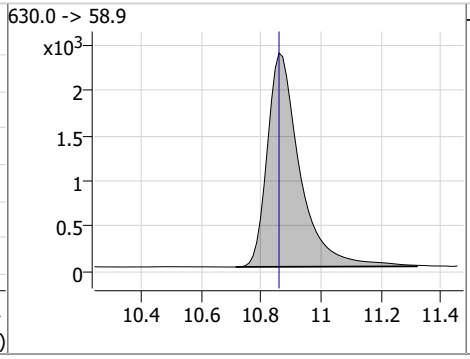


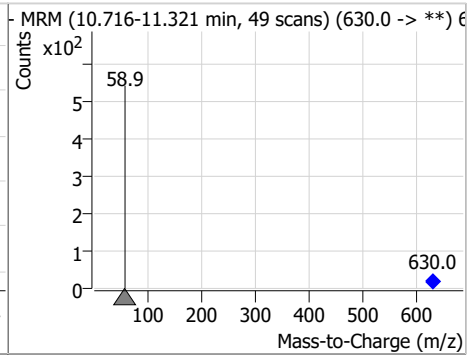




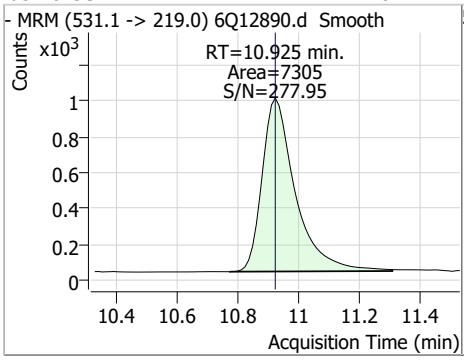
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	21.27	10.86	0.00	17957				

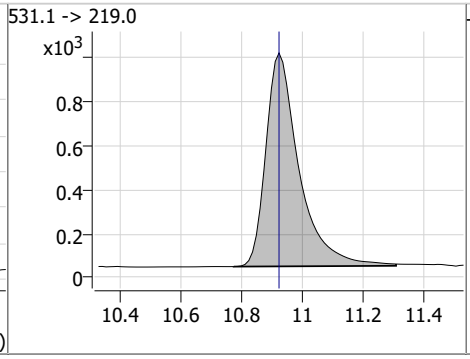


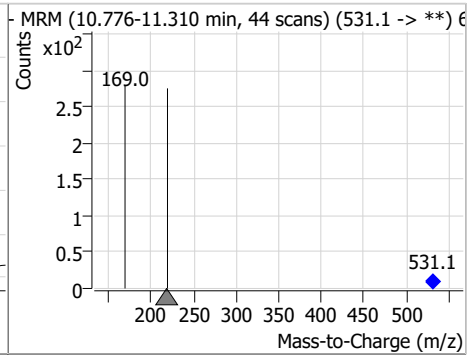




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.81	10.92	0.00	7305				

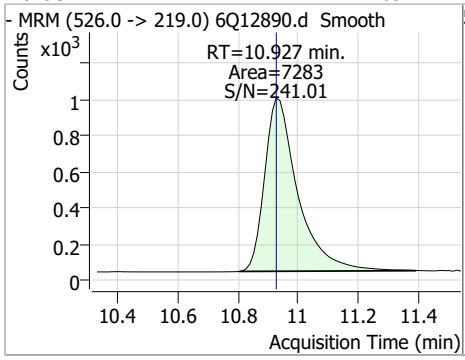


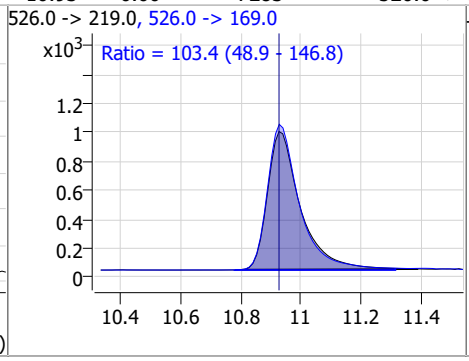


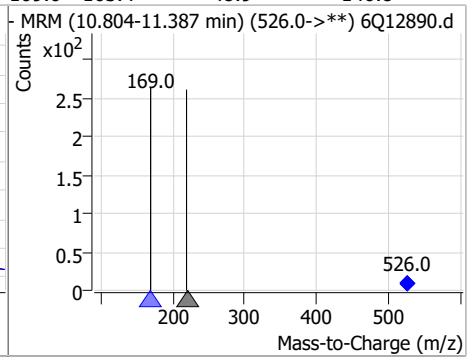


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.09	10.93	0.00	7283	526.0 -> 169.0	103.4	48.9	146.8







Manual Integration Approval Summary

Sample Number:	OP95216-BS	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12890.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 11:26	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12891.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 11:40:05 AM
Sample Name	:	op95216-llbs:3
Vial	:	P4-A2
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	69289	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	34251	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	30289	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	31874	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	53456	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24064	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	16389	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	18901	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	21072	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	9753	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	14990	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11627	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8151	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7893	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2265	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2765	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3007	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26754	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13163	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	20478	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	23236	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16830	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5749	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5415	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9113	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29513	5.00	µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5637	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	64619	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	22147	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	26767	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	28510	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2265	6.18	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2765	5.69	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3007	6.16	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	21072	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	9753	1.00	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.2%		
13C3-PFBS	5.518	302.1 -> 79.9	11627	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	8151	2.75	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%		
13C4-PFBA	3.013	216.8 -> 171.9	69289	10.58 µg/L		0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	31874	2.71 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%		
13C5-PFHxA	5.575	318.0 -> 273.0	30289	2.68 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%		
13C5-PFPeA	4.386	268.3 -> 223.0	34251	5.39 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
13C6-PFDA	8.170	519.1 -> 474.1	16389	1.33 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%		
13C7-PFUnDA	8.636	570.0 -> 525.1	18901	1.28 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-FOSA	9.567	506.1 -> 77.8	14990	2.53 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-PFOA	7.146	421.1 -> 376.0	53456	2.48 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C8-PFOS	8.345	507.1 -> 79.9	7893	2.63 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C9-PFNA	7.689	472.1 -> 427.0	24064	1.28 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%		
d3-MeFOSAA	8.215	573.2 -> 419.0	26754	5.36 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13163	11.30 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.0%		
d3-MeFOSA	10.680	515.0 -> 219.0	5415	2.12 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%		
d5-EtFOSAA	8.422	589.2 -> 419.0	20478	4.94 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	23236	22.45 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.8%		
d9-EtFOSE	10.847	639.2 -> 58.9	16830	23.60 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
d5-EtFOSA	10.925	531.1 -> 219.0	5749	2.07 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	19158	3.77 µg/L		100
		327.1 -> 80.9	4228			
6:2FTS	6.921	427.1 -> 407.0	15704	3.88 µg/L		97
		427.1 -> 80.9	3110			
8:2FTS	7.958	527.1 -> 507.0	8348	3.58 µg/L		93
		527.1 -> 80.8	2293			
EtFOSAA	8.424	584.2 -> 419.1	2857	0.87 µg/L	m	76
		584.2 -> 526.0	1825			
FOSA	9.570	498.1 -> 77.9	6318	1.06 µg/L		98
		498.1 -> 478.0	235			
MeFOSAA	8.216	570.1 -> 419.0	4890	1.00 µg/L		97
		570.1 -> 483.0	768			
PFBA	3.007	212.8 -> 168.9	6128	3.96 µg/L		100
PFBS	5.518	298.7 -> 79.9	4012	0.90 µg/L		93
		298.7 -> 98.8	1941			
PFDA	8.170	512.9 -> 469.0	19650	1.05 µg/L		98
		512.9 -> 219.0	2787			
PFDoDA	9.067	613.1 -> 569.0	15948	1.03 µg/L		97
		613.1 -> 319.0	1783			
PFDS	9.241	599.0 -> 79.9	2197	0.82 µg/L		86

Perfluorinated Compounds by LC/MS/MS

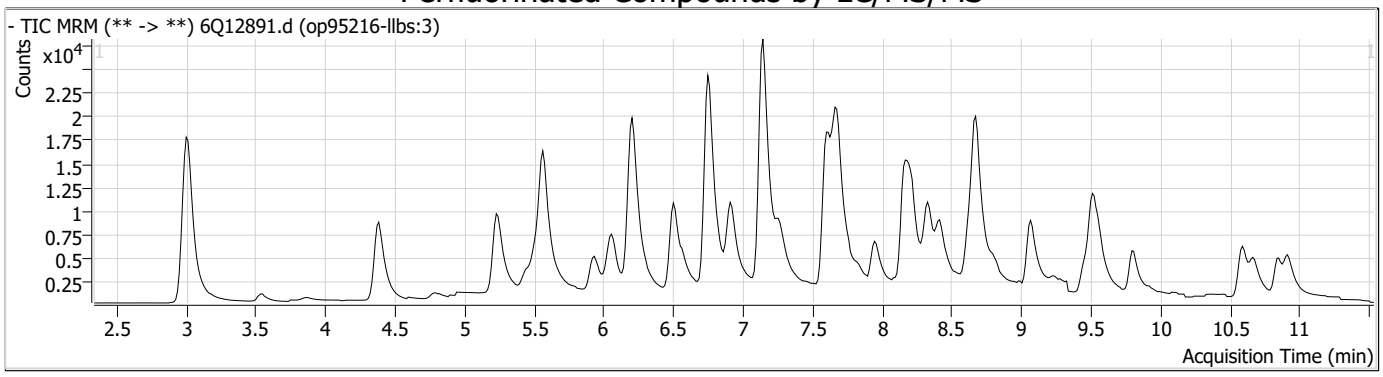
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	1323				
PFHpA	6.515	363.1 -> 319.0	18074	0.96	µg/L		94
		363.1 -> 169.0	2676				
PFHpS	7.841	449.0 -> 79.9	3359	1.00	µg/L		94
		449.0 -> 98.9	2009				
PFHxA	5.578	313.0 -> 269.0	12334	1.04	µg/L		98
		313.0 -> 118.9	469				
PFHxS	7.275	398.7 -> 79.9	3472	0.95	µg/L	m	84
		398.7 -> 98.9	1788				
PFNA	7.677	463.0 -> 419.0	16644	1.03	µg/L		97
		463.0 -> 219.0	3007				
PFNS	8.811	548.8 -> 79.9	3447	0.98	µg/L		99
		548.8 -> 98.9	1988				
PFOA	7.148	413.0 -> 369.0	25144	1.07	µg/L		99
		413.0 -> 169.0	3338				
PFOS	8.347	498.9 -> 79.9	3421	0.94	µg/L	m	71
		498.9 -> 98.8	2058				
PFPeA	4.388	263.0 -> 219.0	14795	2.05	µg/L		100
PFPeS	6.581	349.1 -> 79.9	3887	0.91	µg/L		97
		349.1 -> 98.9	2064				
PFTeDA	9.806	713.1 -> 669.0	11792	1.12	µg/L		98
		713.1 -> 168.9	876				
PFTrDA	9.462	663.0 -> 619.0	14424	0.98	µg/L		97
		663.0 -> 168.9	1295				
PFUnDA	8.637	563.1 -> 519.0	15607	1.06	µg/L		99
		563.1 -> 269.1	2189				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	34368	3.64	µg/L		100
		632.9 -> 452.9	10558				
9Cl-PF3ONS	8.688	530.8 -> 351.0	62193	3.89	µg/L		92
		532.8 -> 353.0	17310				
ADONA	6.766	376.9 -> 250.9	102746	3.60	µg/L		97
		376.9 -> 84.8	24563				
HFPO-DA	5.940	284.9 -> 168.9	5222	4.24	µg/L		92
		284.9 -> 184.9	529				
3:3FTCA	3.878	241.0 -> 177.0	1496	4.21	µg/L		98
		241.0 -> 117.0	206				
5:3FTCA	6.206	341.0 -> 237.1	57878	23.30	µg/L		94
		341.0 -> 217.0	53601				
7:3FTCA	7.617	441.0 -> 316.9	38618	23.78	µg/L		81
		441.0 -> 336.9	69874				
EtFOSA	10.927	526.0 -> 219.0	2514	0.92	µg/L		96
		526.0 -> 169.0	2550				
EtFOSE	10.860	630.0 -> 58.9	6324	8.78	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	2272	0.97	µg/L		94
		511.9 -> 169.0	2157				
MeFOSE	10.615	616.1 -> 58.9	8473	9.14	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	1303	0.81	µg/L		100
		699.1 -> 98.8	772				
NFDHA	5.457	295.0 -> 201.0	1539	2.19	µg/L		100
		295.0 -> 84.9	795				
PFMBA	4.800	279.0 -> 85.1	3972	1.95	µg/L		100
PFMPA	3.553	229.0 -> 84.9	3978	2.06	µg/L		100
PFEESA	6.059	314.8 -> 134.9	30066	1.76	µg/L		100
		314.8 -> 82.9	691				

= Qualifier out of range, m = manually integrated, + = Area summed

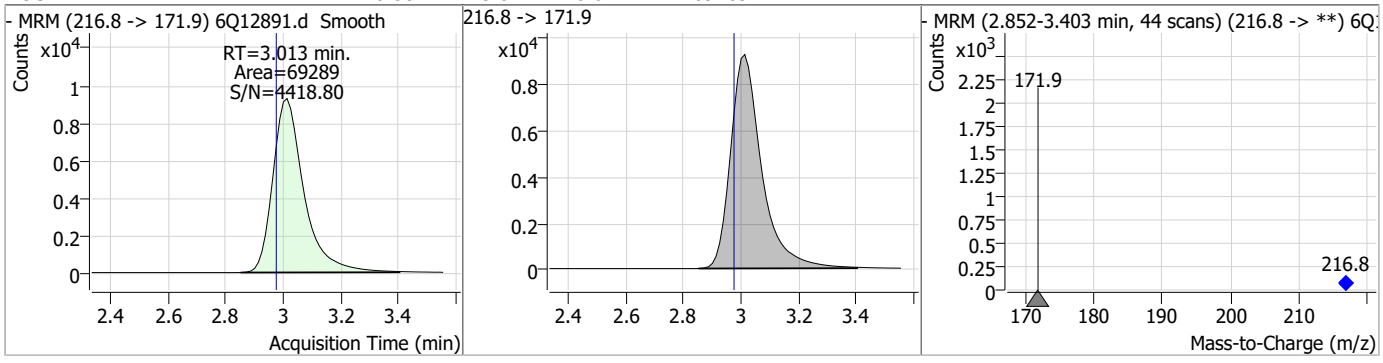
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

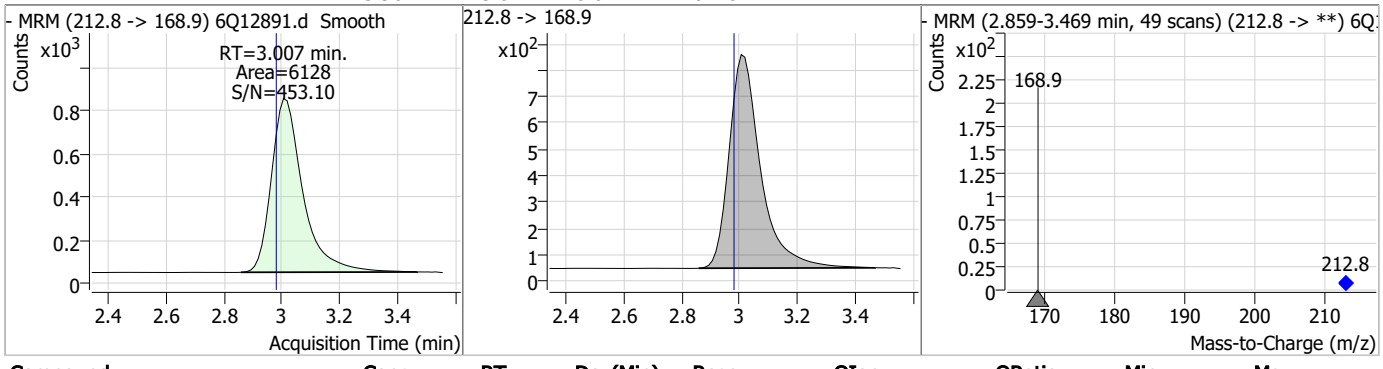
Perfluorinated Compounds by LC/MS/MS



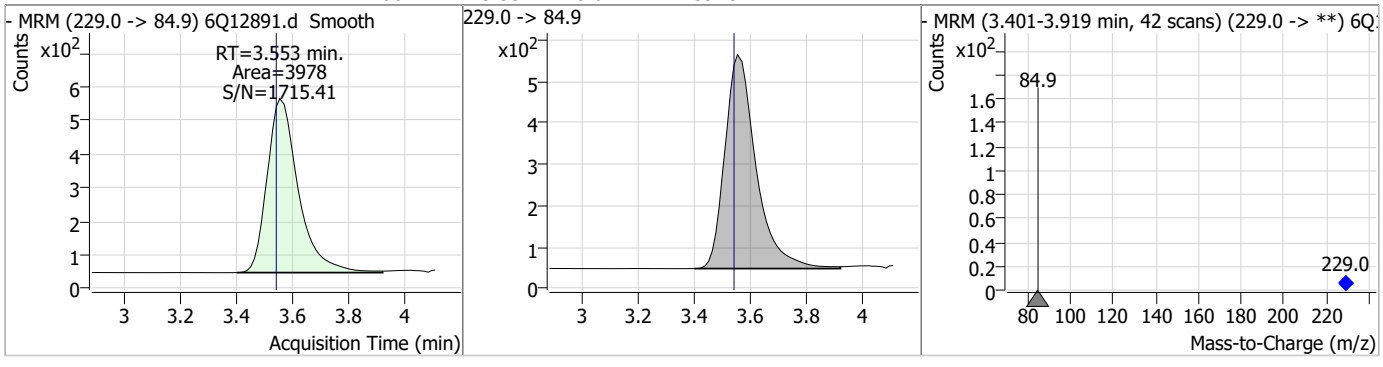
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.58	3.01	0.04	69289				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	3.96	3.01	0.02	6128				

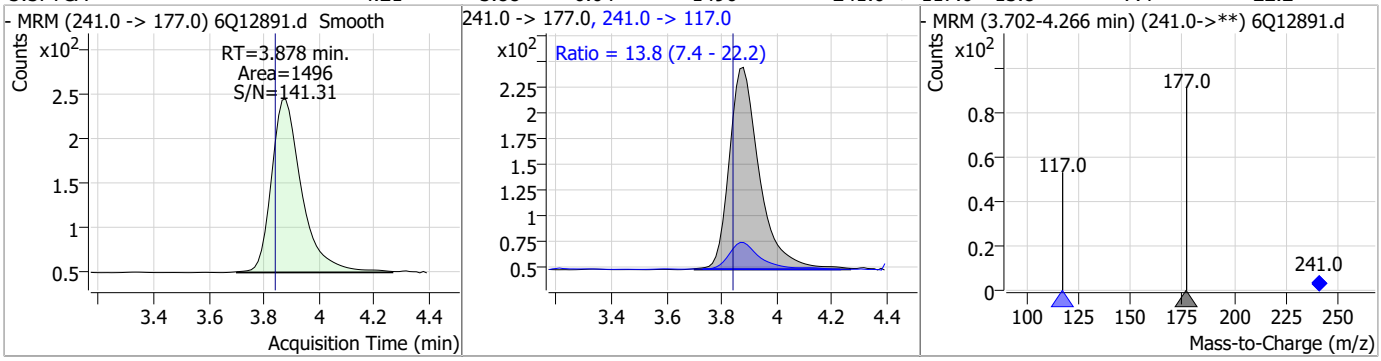


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.06	3.55	0.01	3978				

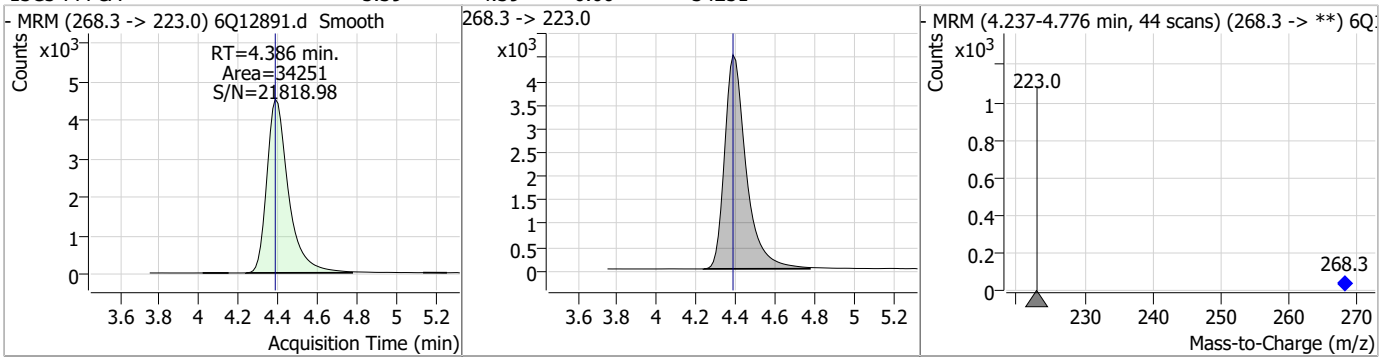


Perfluorinated Compounds by LC/MS/MS

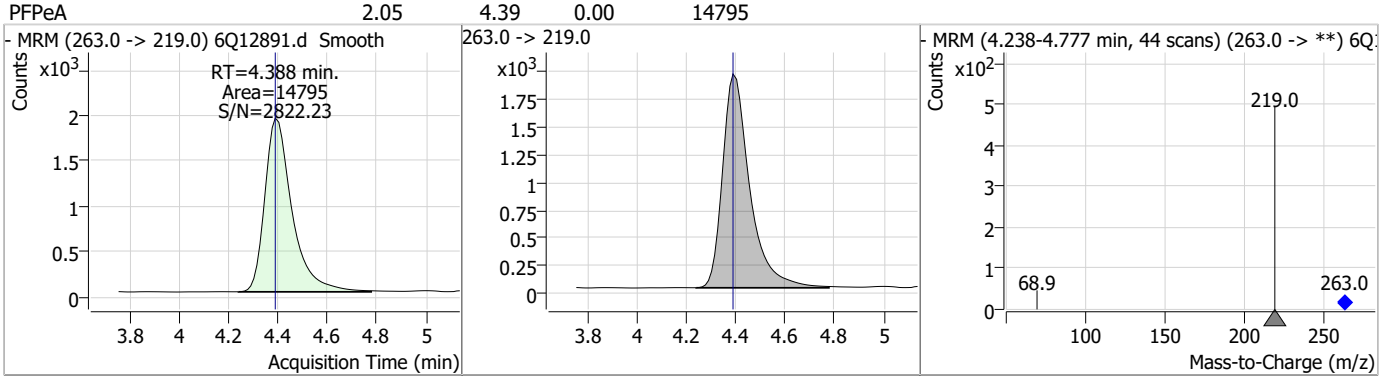
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	4.21	3.88	0.04	1496	241.0 -> 117.0	13.8	7.4	22.2



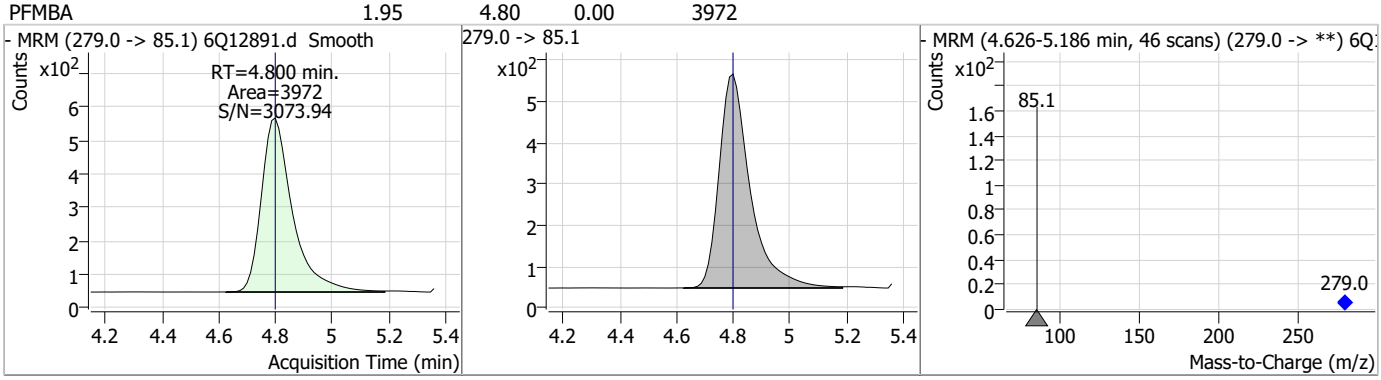
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.39	4.39	0.00	34251				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.05	4.39	0.00	14795				

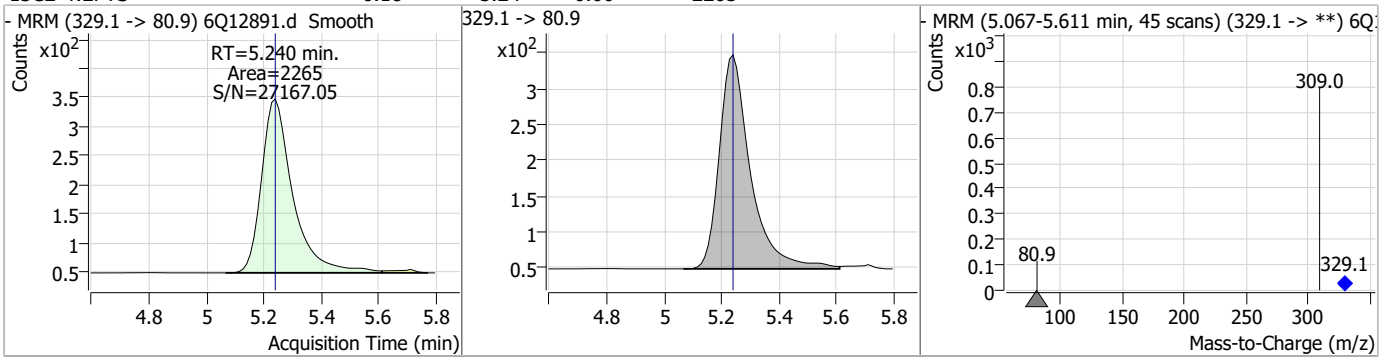


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.95	4.80	0.00	3972				

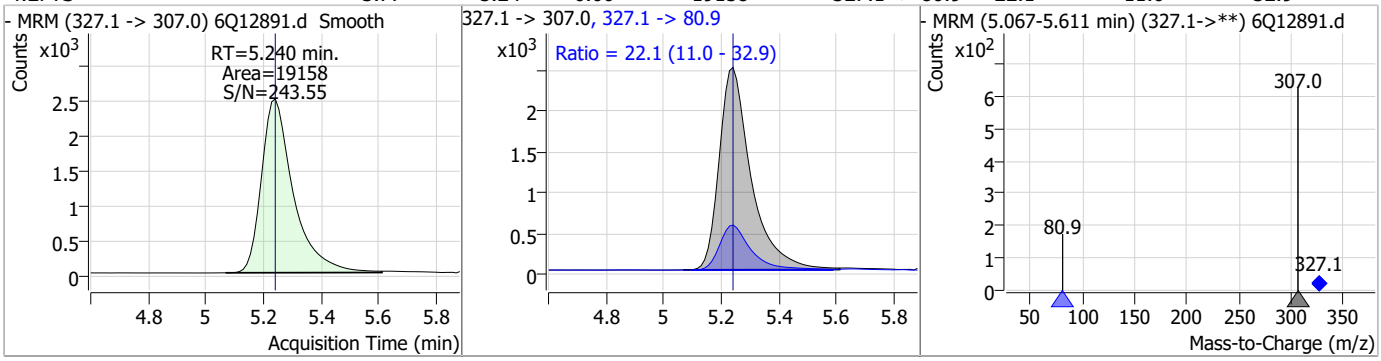


Perfluorinated Compounds by LC/MS/MS

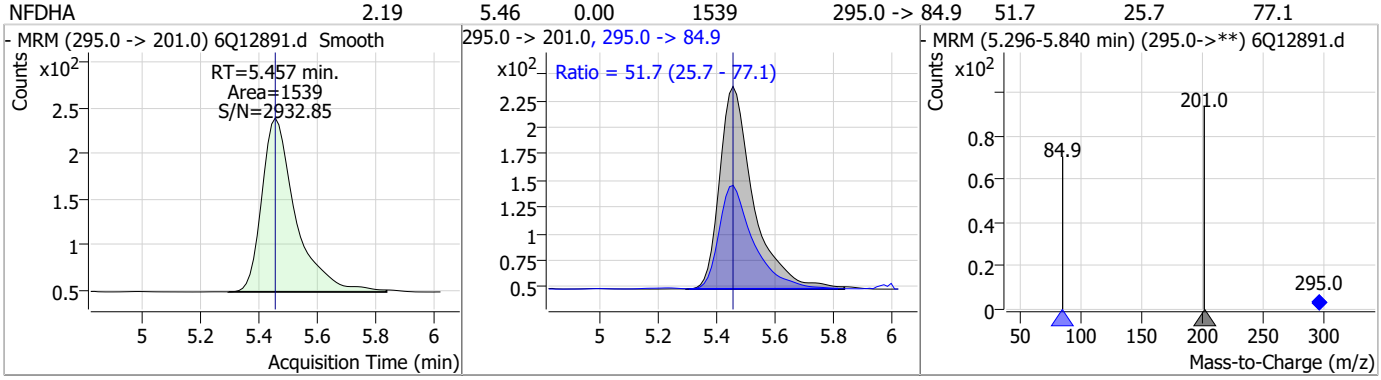
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.18	5.24	0.00	2265				



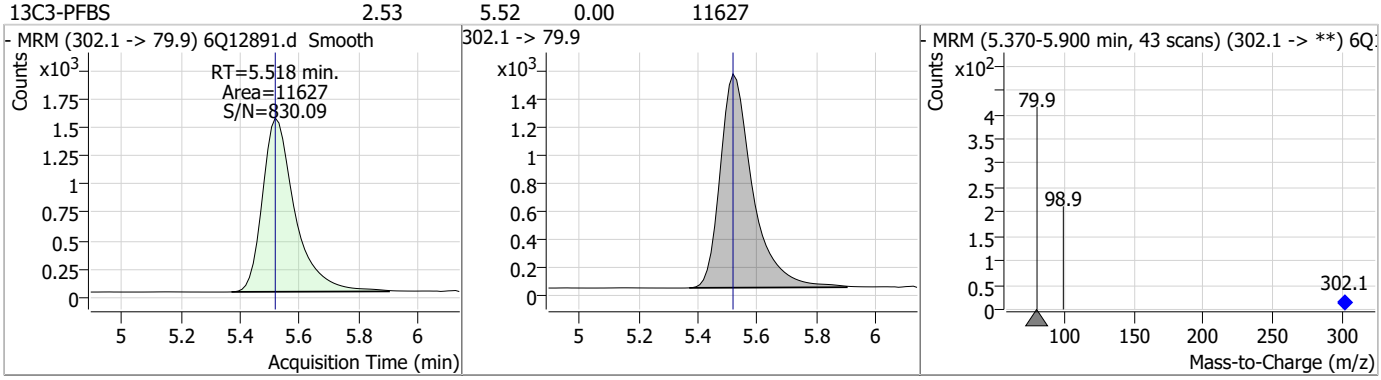
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	3.77	5.24	0.00	19158	327.1 -> 80.9	22.1	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	2.19	5.46	0.00	1539	295.0 -> 84.9	51.7	25.7	77.1

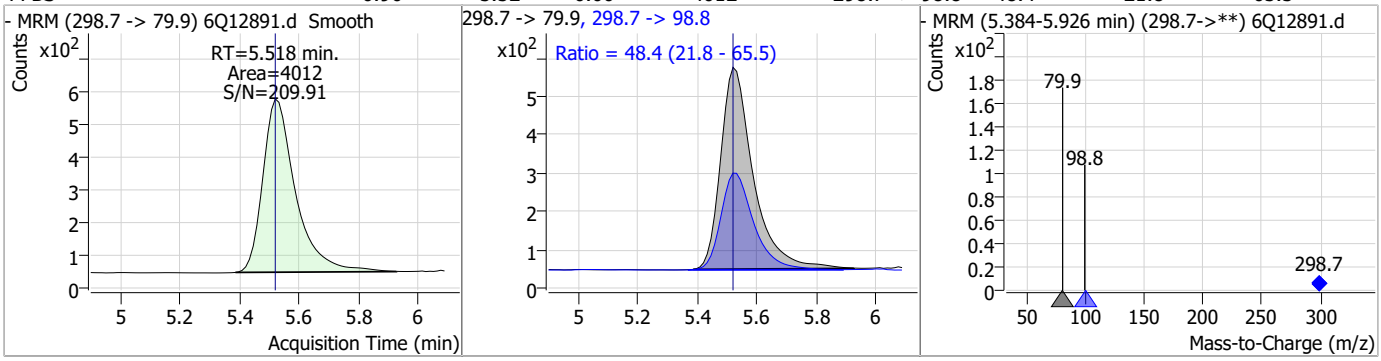


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.53	5.52	0.00	11627				

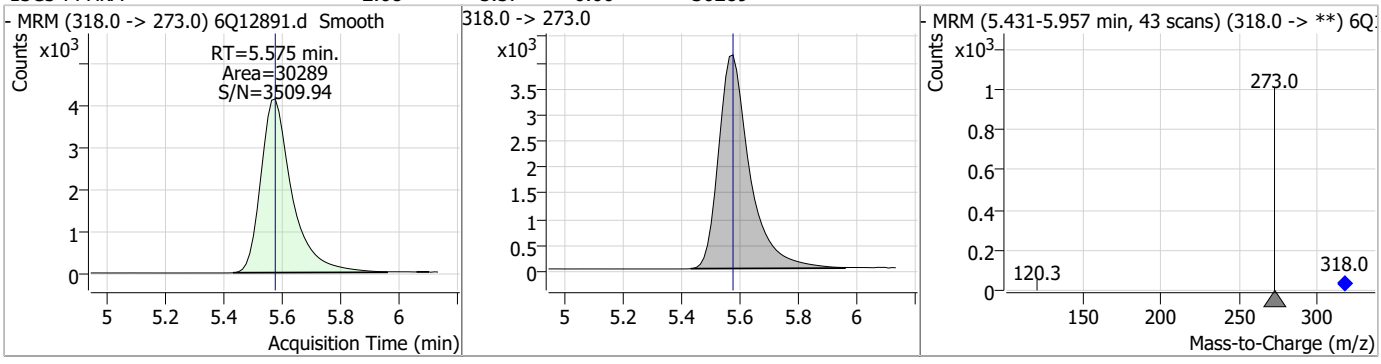


Perfluorinated Compounds by LC/MS/MS

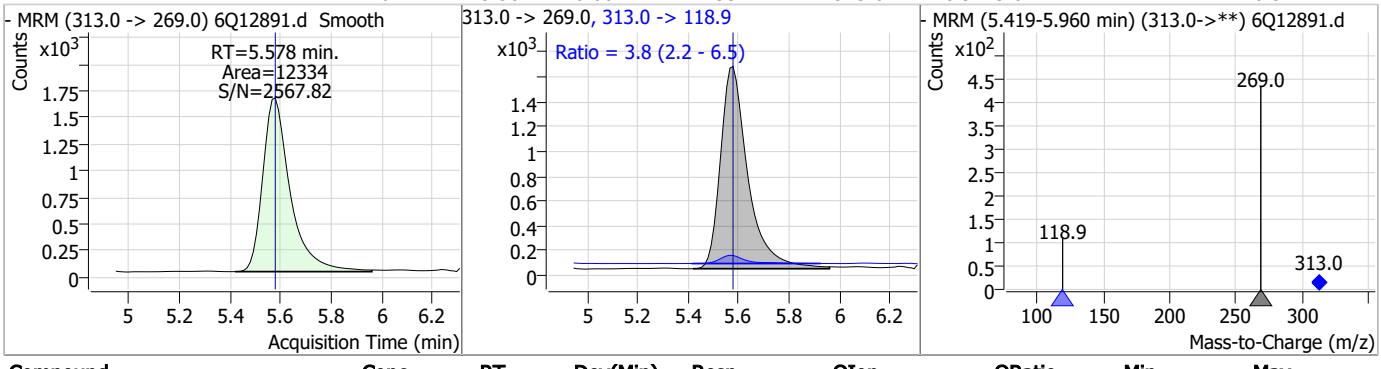
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.90	5.52	0.00	4012	298.7 -> 98.8	48.4	21.8	65.5



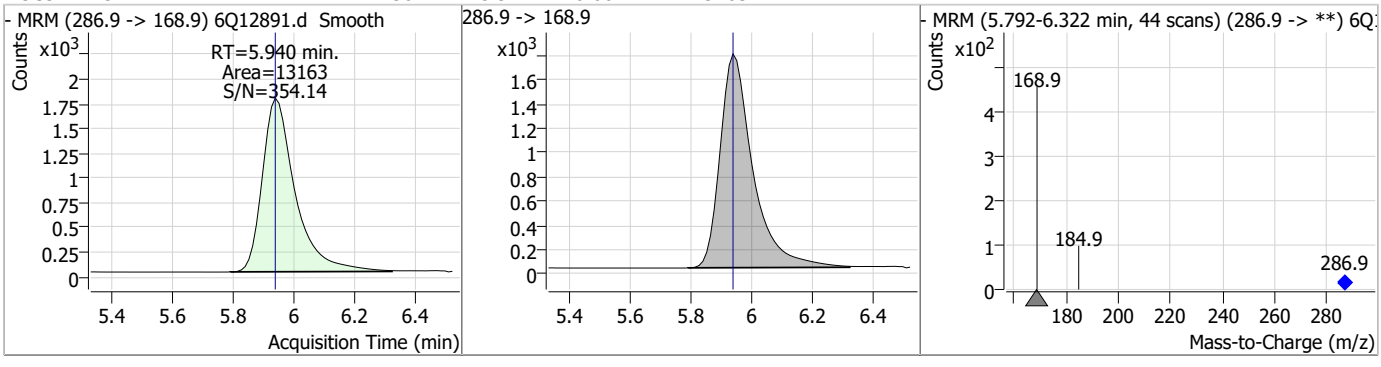
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.57	0.00	30289				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.04	5.58	0.00	12334	313.0 -> 118.9	3.8	2.2	6.5

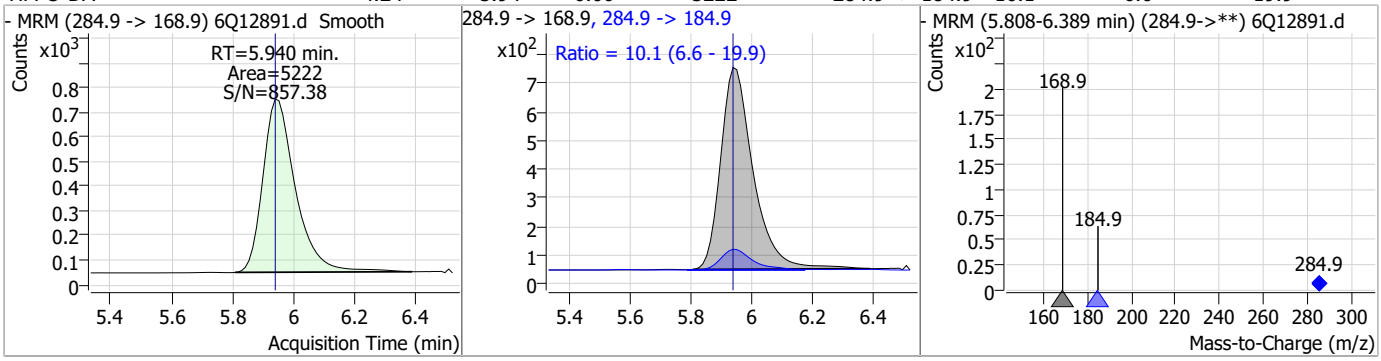


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.30	5.94	0.00	13163				

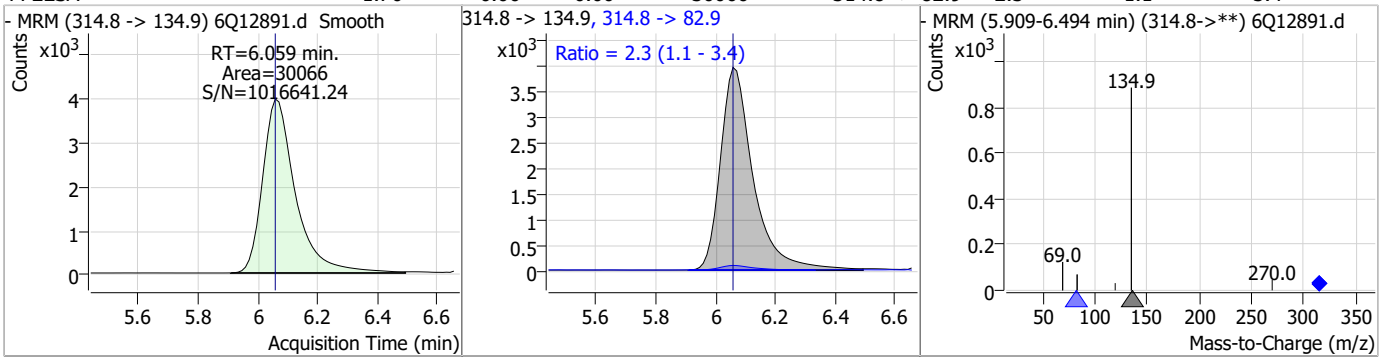


Perfluorinated Compounds by LC/MS/MS

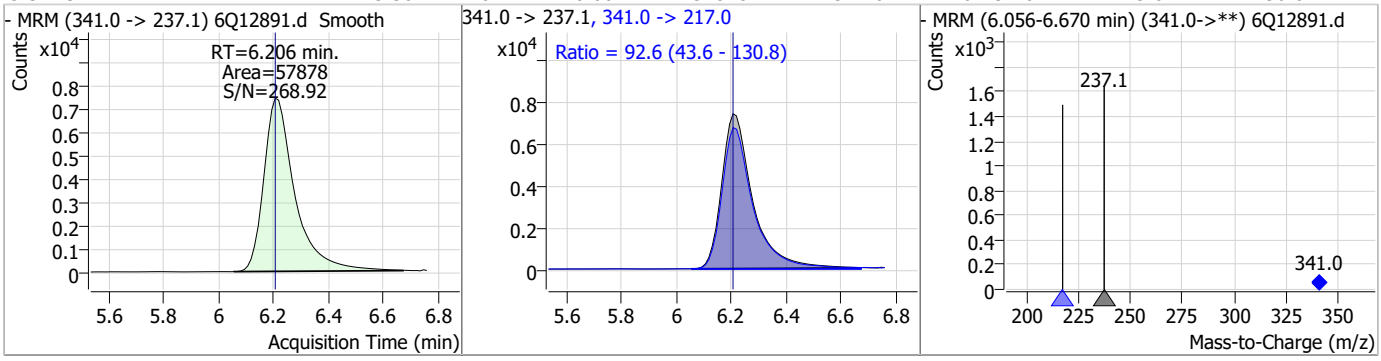
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.24	5.94	0.00	5222	284.9 -> 184.9	10.1	6.6	19.9



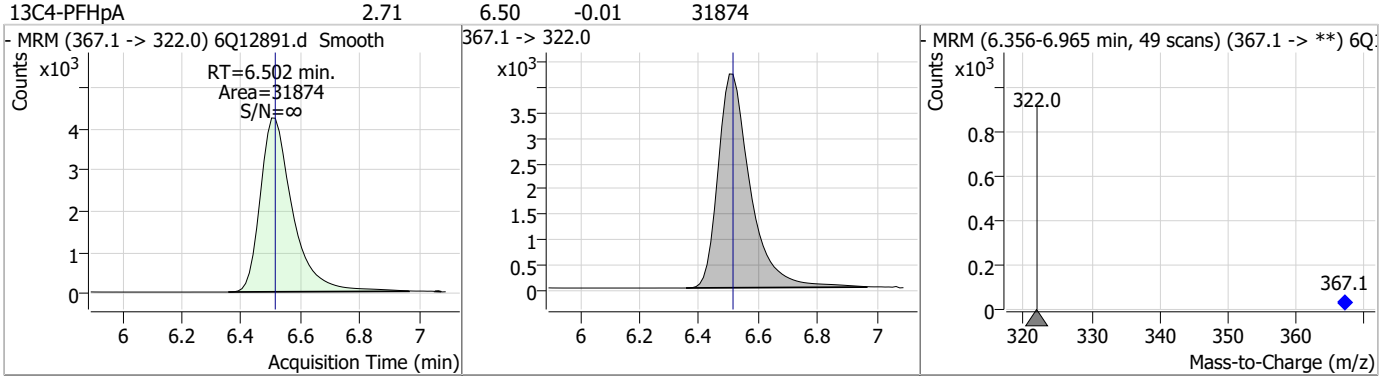
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.76	6.06	0.00	30066	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.30	6.21	0.00	57878	341.0 -> 217.0	92.6	43.6	130.8

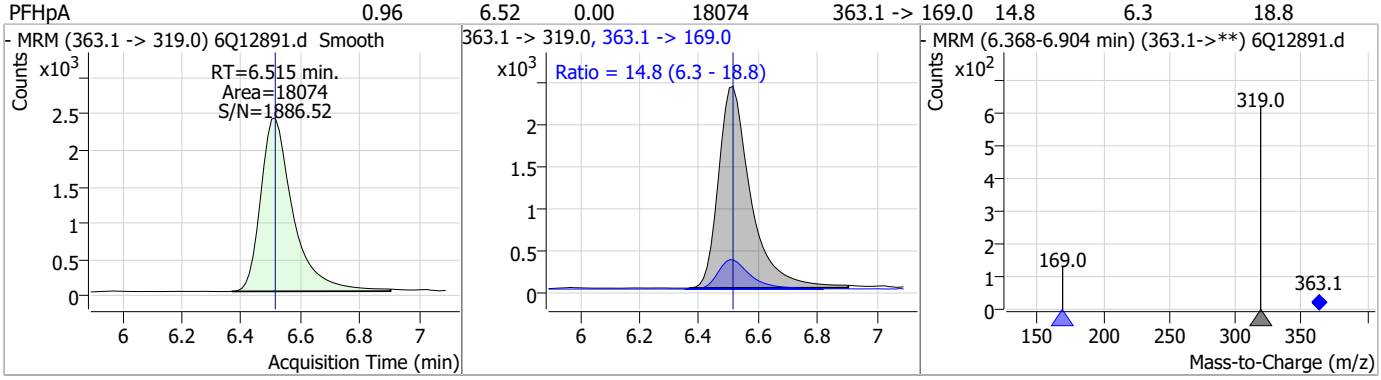


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.71	6.50	-0.01	31874				

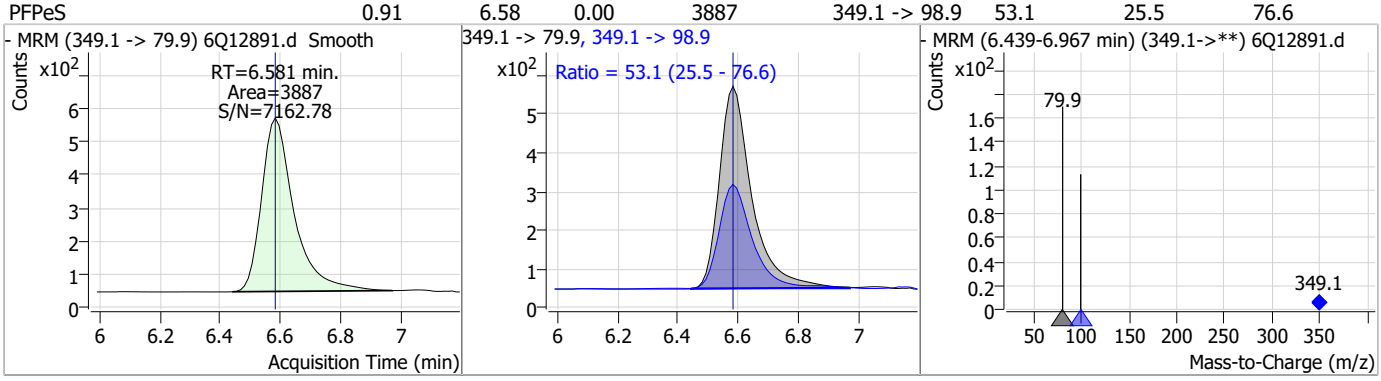


Perfluorinated Compounds by LC/MS/MS

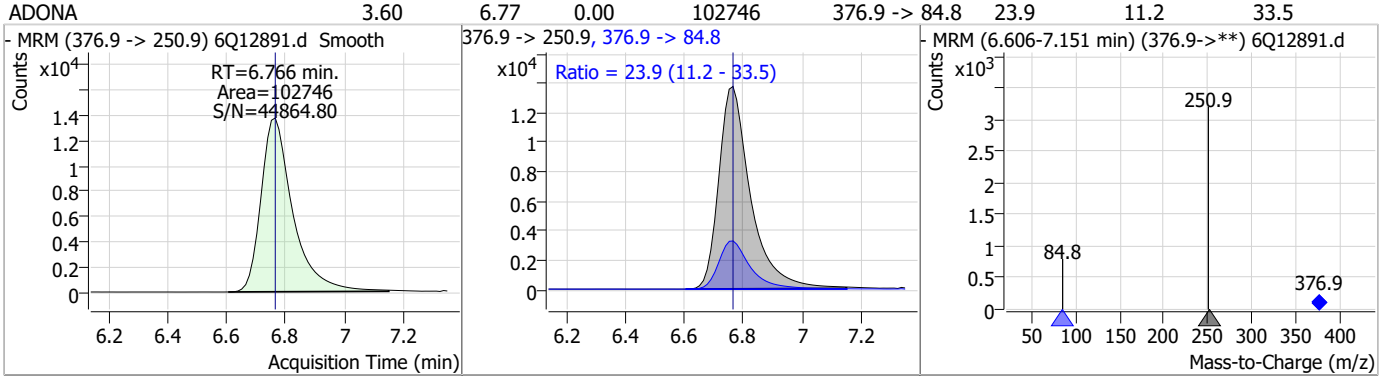
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.96	6.52	0.00	18074	363.1 -> 169.0	14.8	6.3	18.8



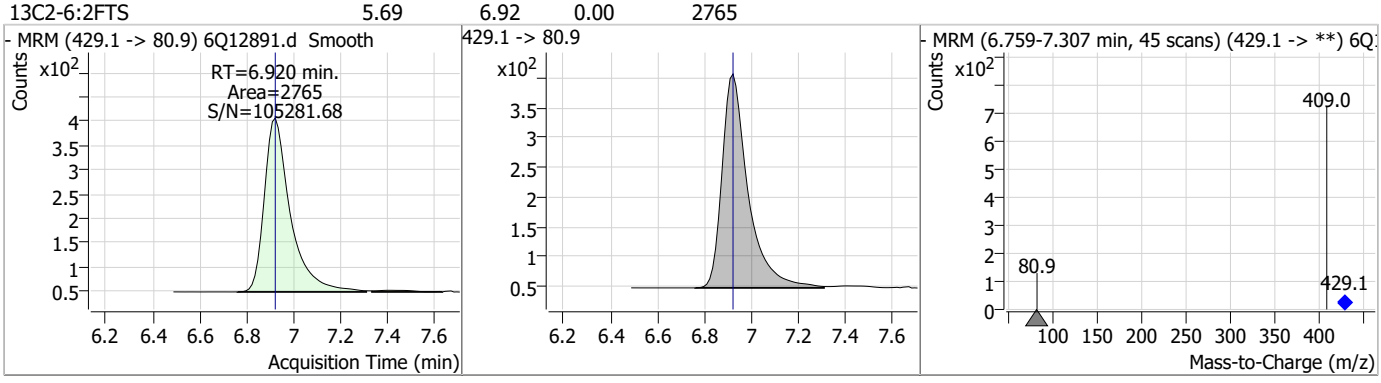
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.91	6.58	0.00	3887	349.1 -> 98.9	53.1	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.60	6.77	0.00	102746	376.9 -> 84.8	23.9	11.2	33.5

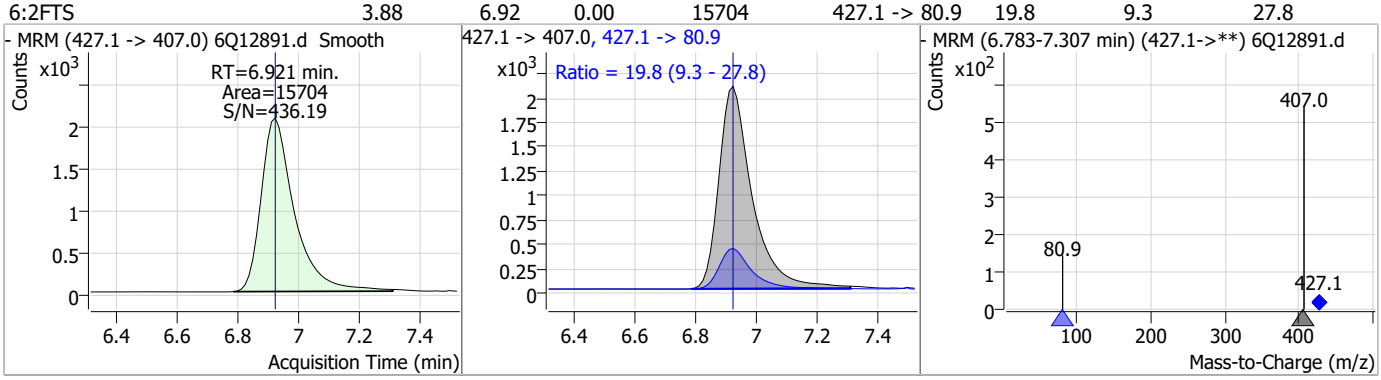


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.69	6.92	0.00	2765				

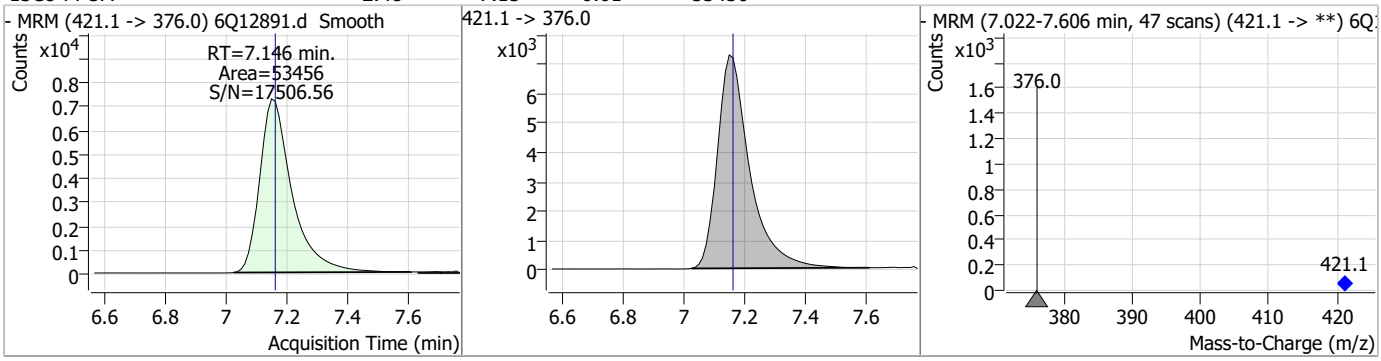


Perfluorinated Compounds by LC/MS/MS

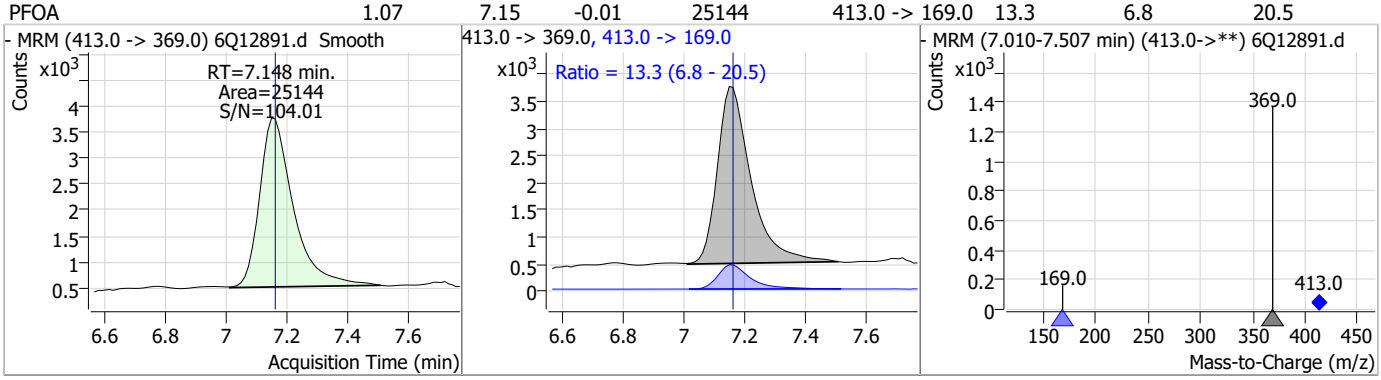
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	3.88	6.92	0.00	15704	427.1 -> 80.9	19.8	9.3	27.8



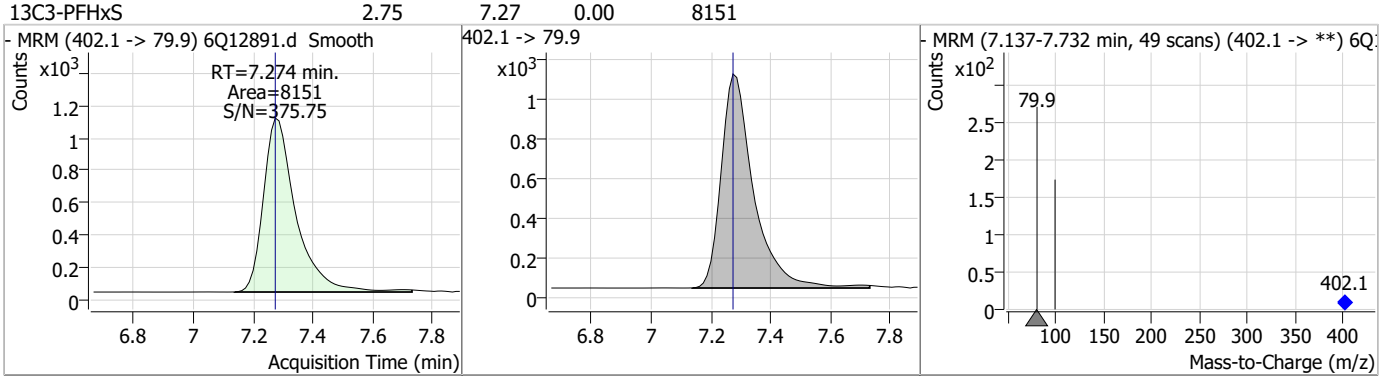
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.48	7.15	-0.01	53456				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.07	7.15	-0.01	25144	413.0 -> 169.0	13.3	6.8	20.5

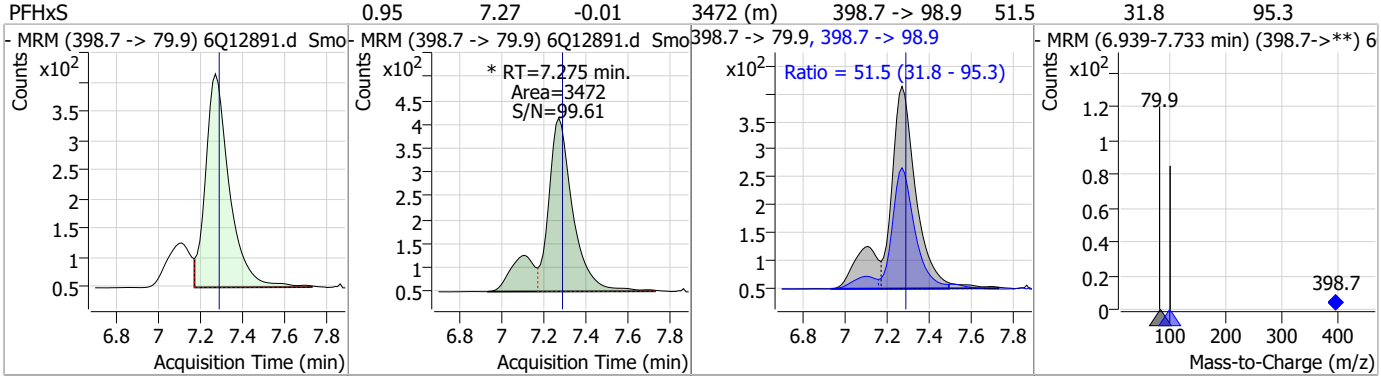


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.75	7.27	0.00	8151				

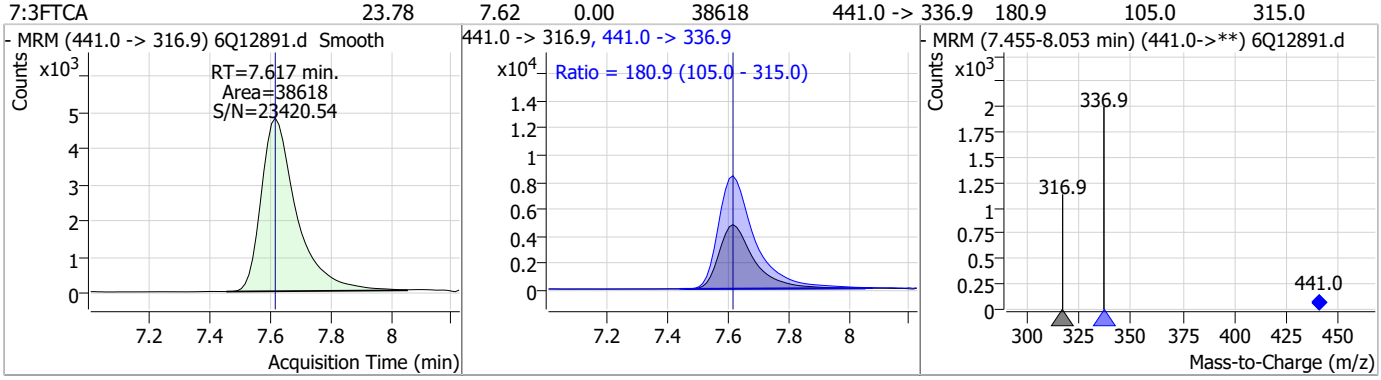


Perfluorinated Compounds by LC/MS/MS

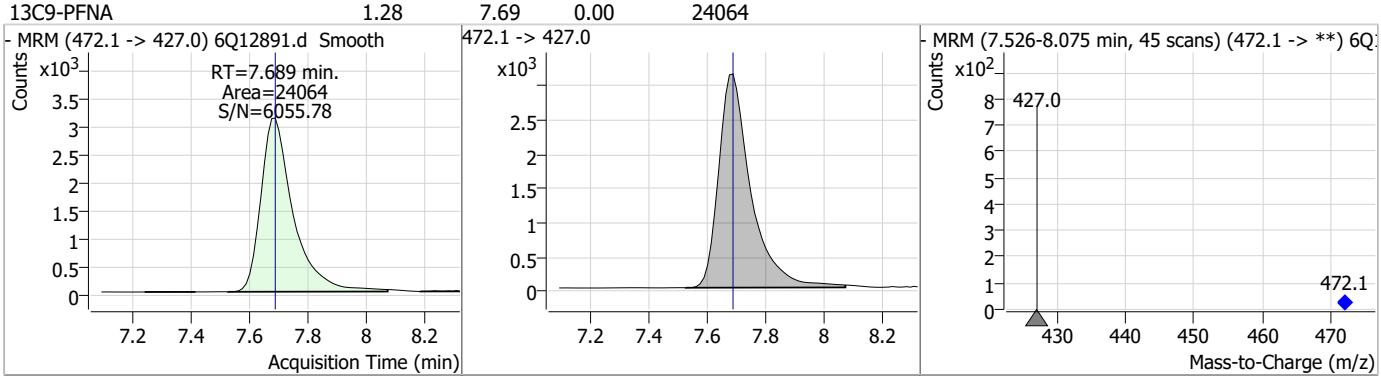
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.95	7.27	-0.01	3472 (m)	398.7 -> 98.9	51.5	31.8	95.3



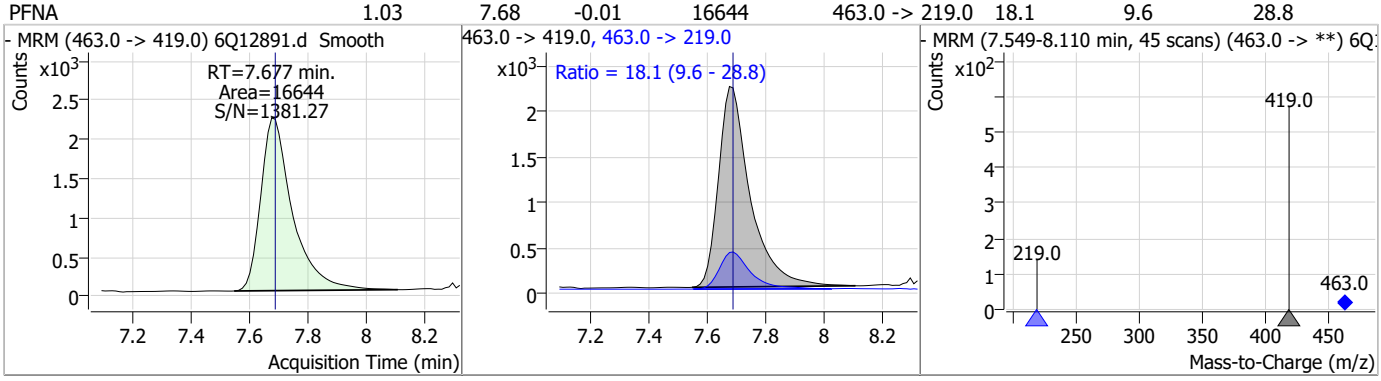
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	23.78	7.62	0.00	38618	441.0 -> 336.9	180.9	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.28	7.69	0.00	24064				

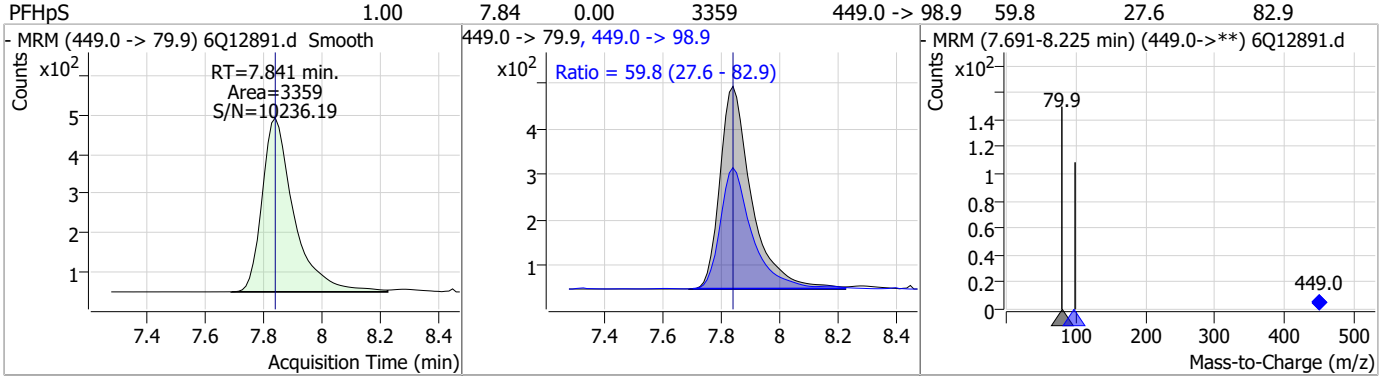


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.03	7.68	-0.01	16644	463.0 -> 219.0	18.1	9.6	28.8

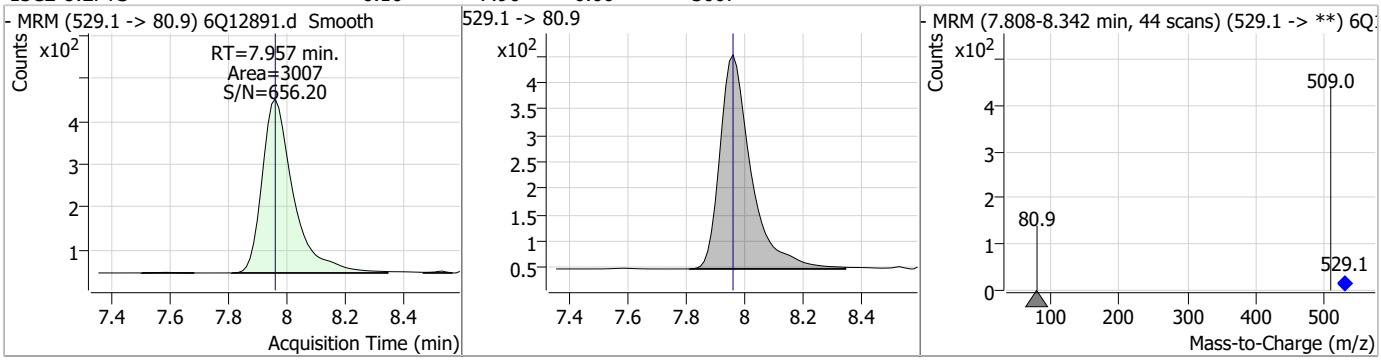


Perfluorinated Compounds by LC/MS/MS

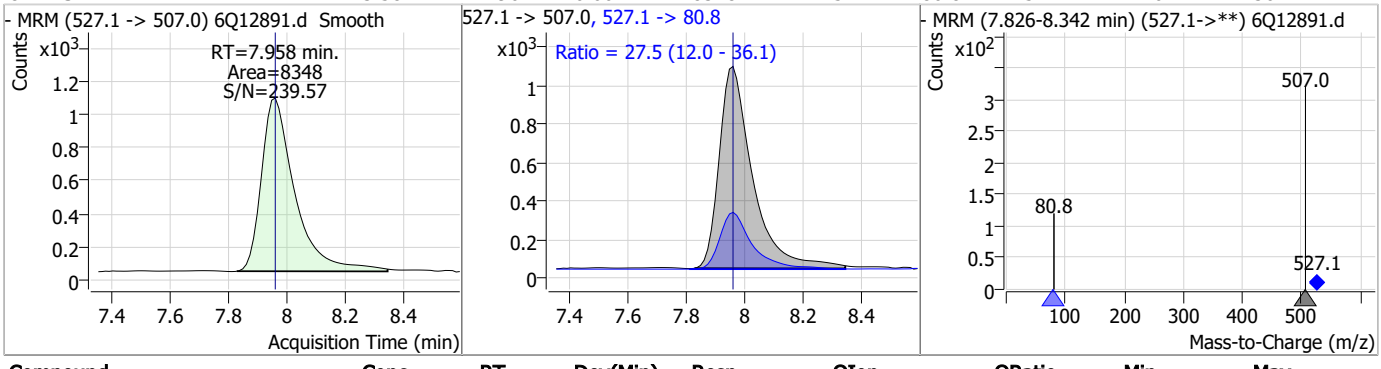
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.00	7.84	0.00	3359	449.0 -> 98.9	59.8	27.6	82.9



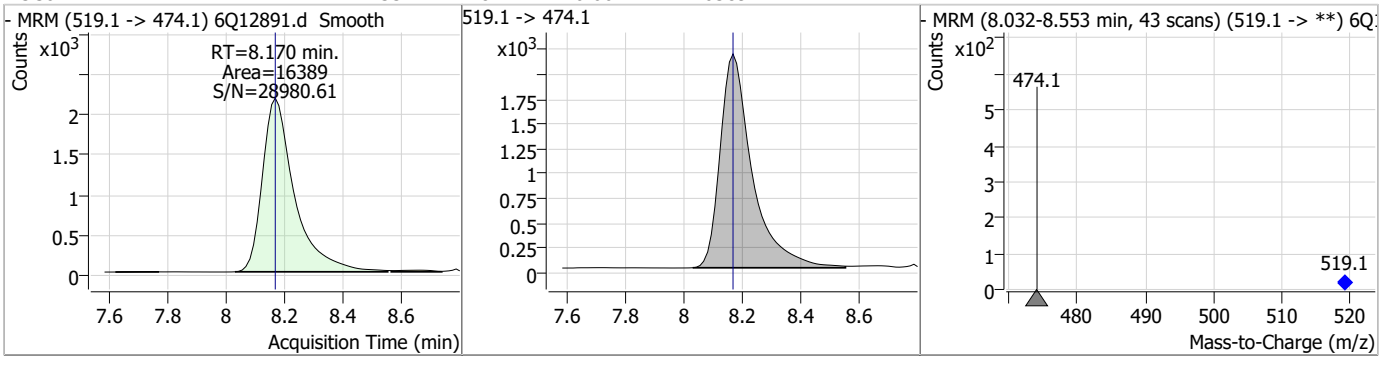
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.16	7.96	0.00	3007				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	3.58	7.96	0.00	8348	527.1 -> 80.8	27.5	12.0	36.1

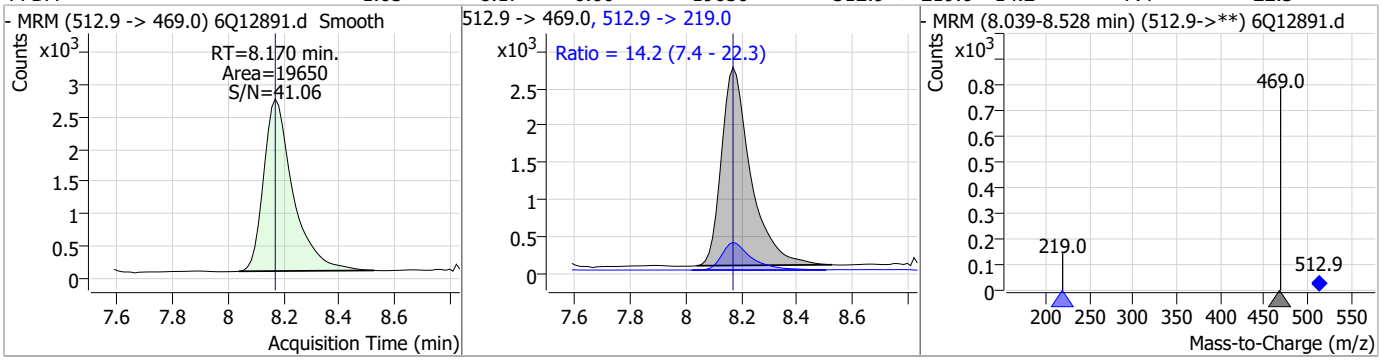


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.33	8.17	0.00	16389				

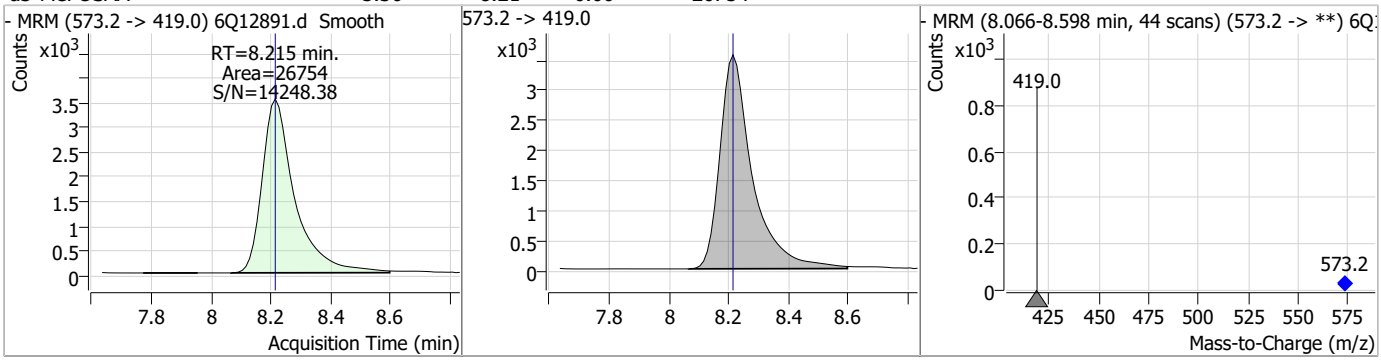


Perfluorinated Compounds by LC/MS/MS

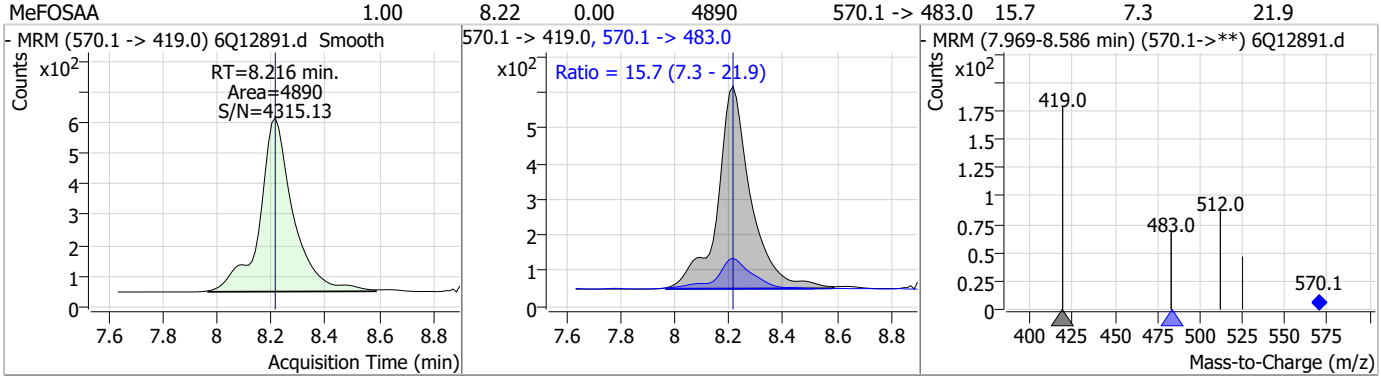
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.05	8.17	0.00	19650	512.9 -> 219.0	14.2	7.4	22.3



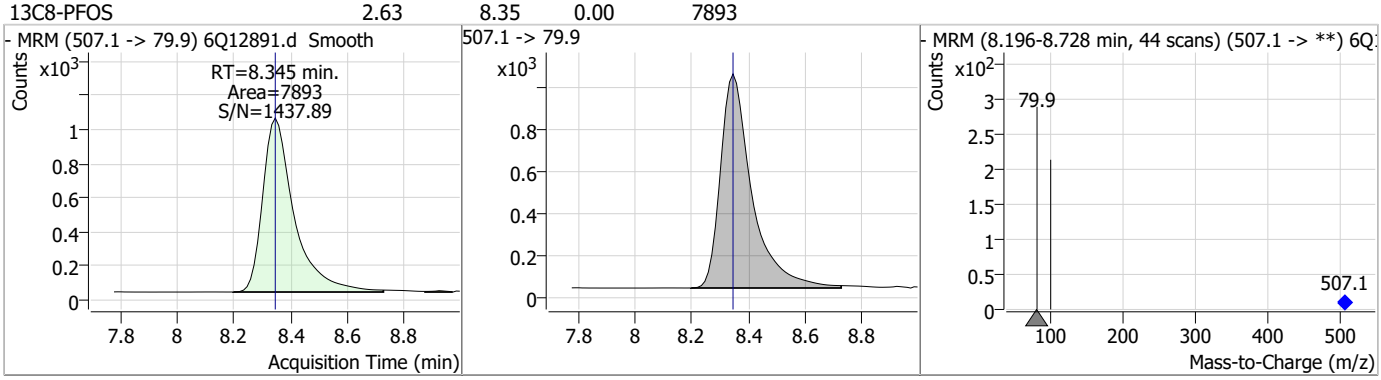
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.36	8.21	0.00	26754				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.00	8.22	0.00	4890	570.1 -> 483.0	15.7	7.3	21.9

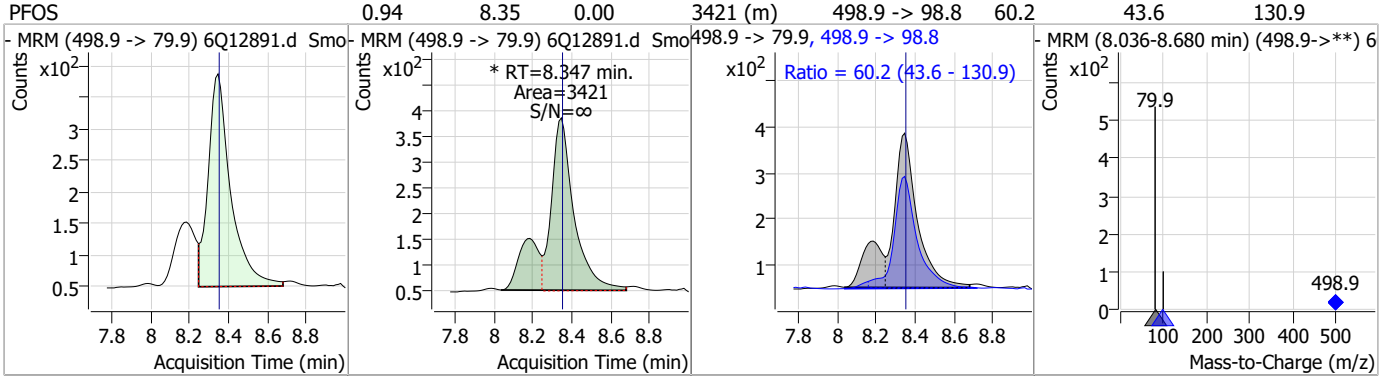


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.63	8.35	0.00	7893				

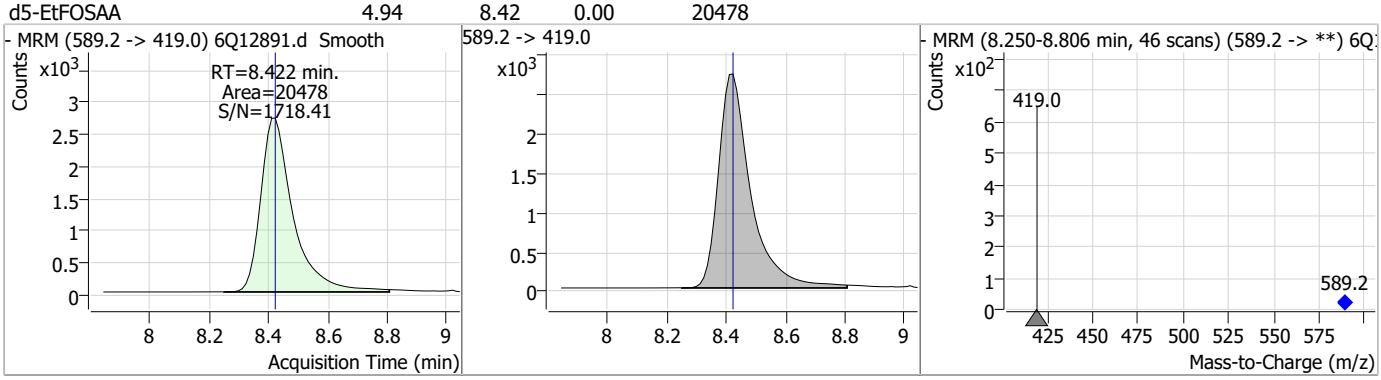


Perfluorinated Compounds by LC/MS/MS

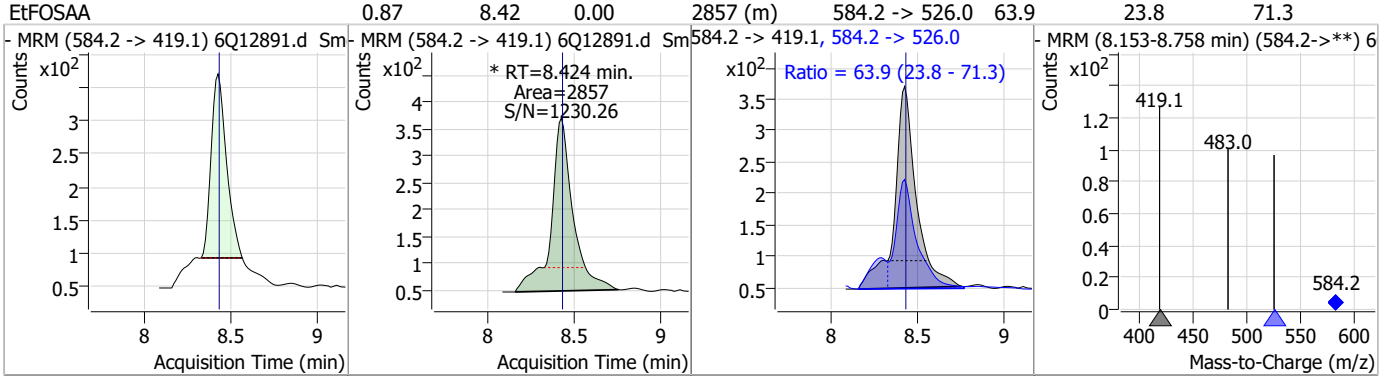
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.94	8.35	0.00	3421 (m)	498.9 -> 98.8	60.2	43.6	130.9



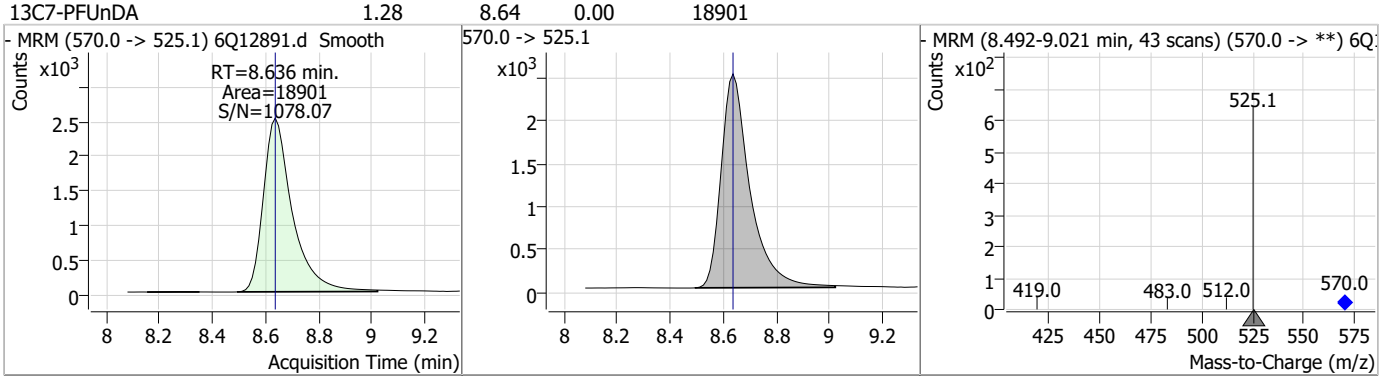
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.94	8.42	0.00	20478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.87	8.42	0.00	2857 (m)	584.2 -> 526.0	63.9	23.8	71.3

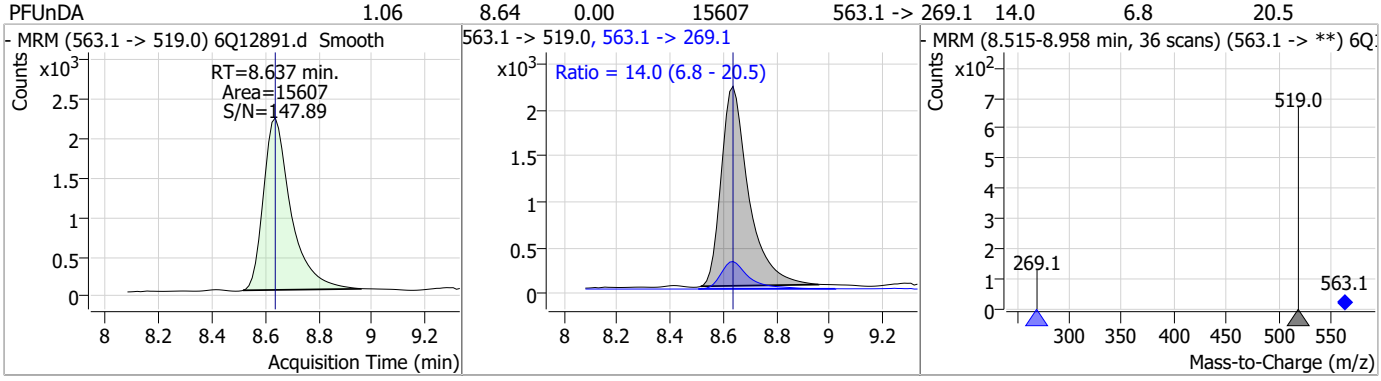


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.64	0.00	18901				

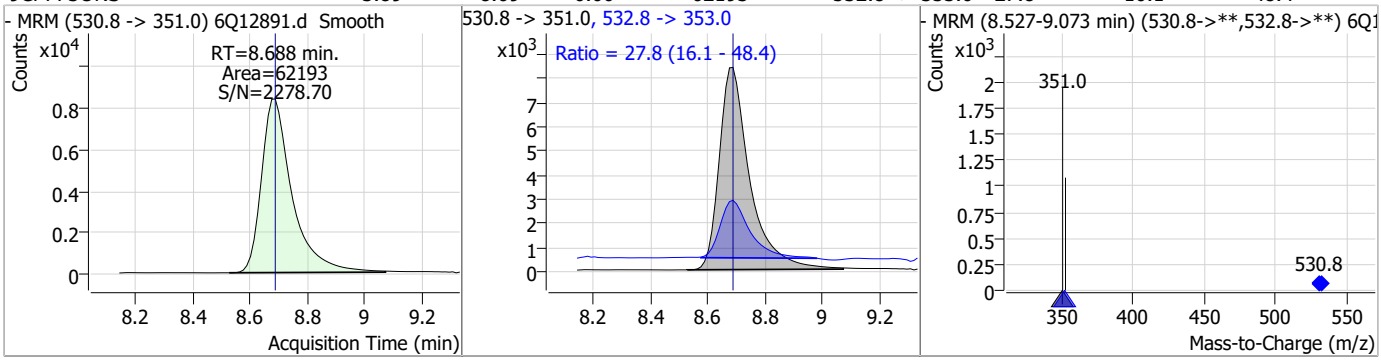


Perfluorinated Compounds by LC/MS/MS

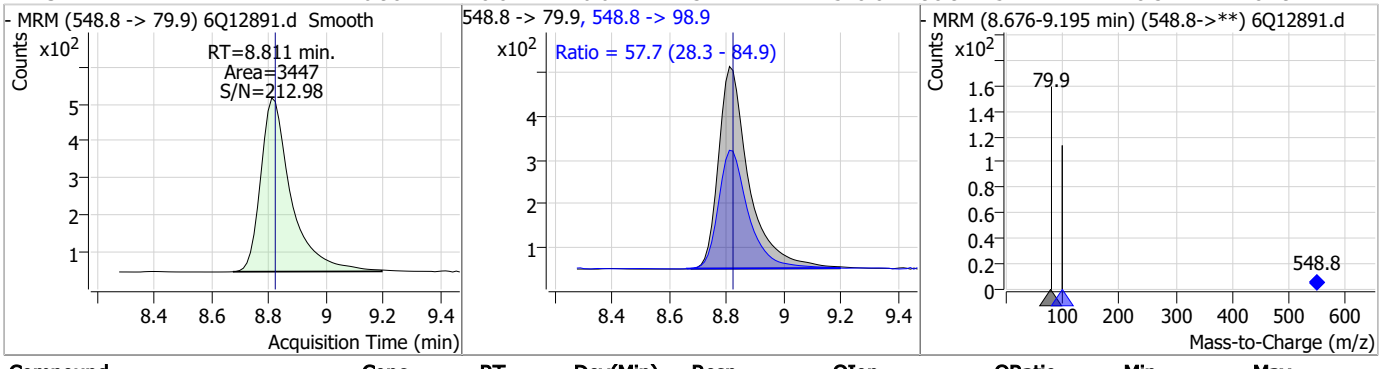
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.06	8.64	0.00	15607	563.1 -> 269.1	14.0	6.8	20.5



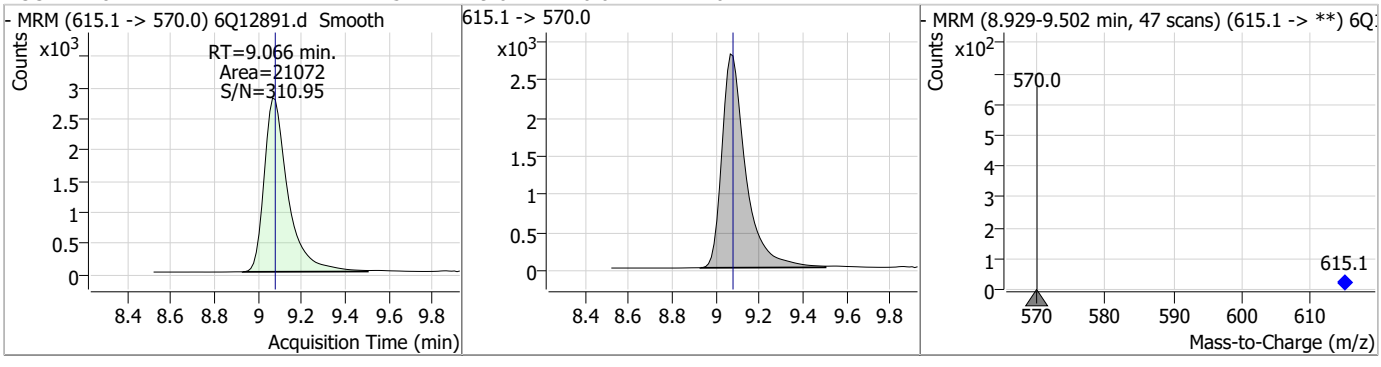
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	3.89	8.69	0.00	62193	532.8 -> 353.0	27.8	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.98	8.81	-0.01	3447	548.8 -> 98.9	57.7	28.3	84.9

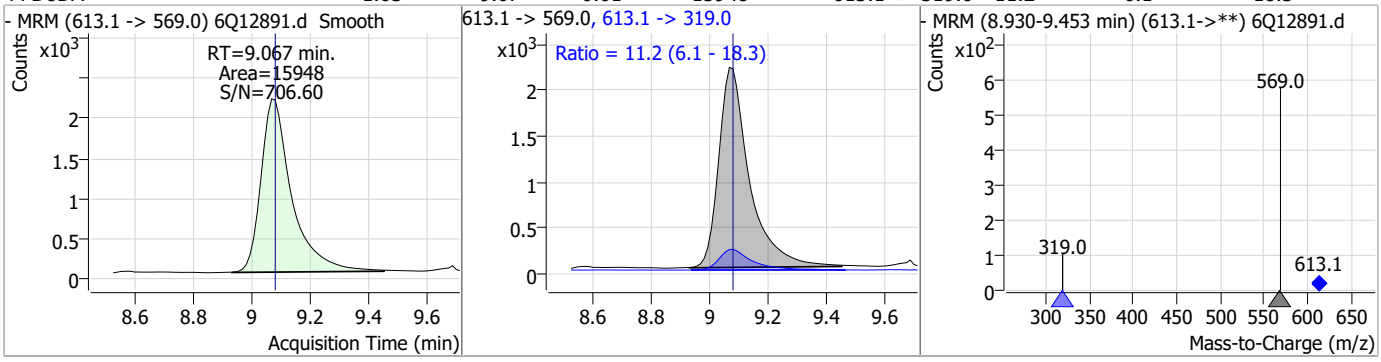


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.07	-0.01	21072				

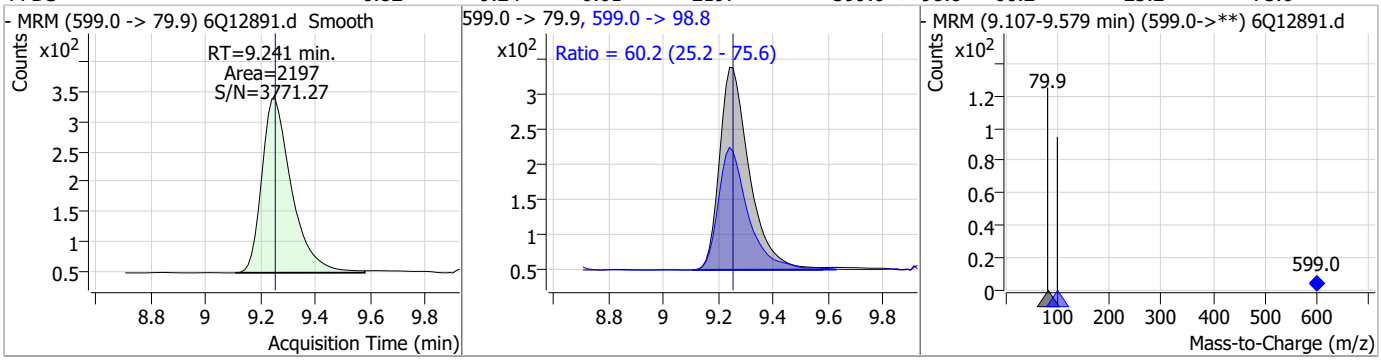


Perfluorinated Compounds by LC/MS/MS

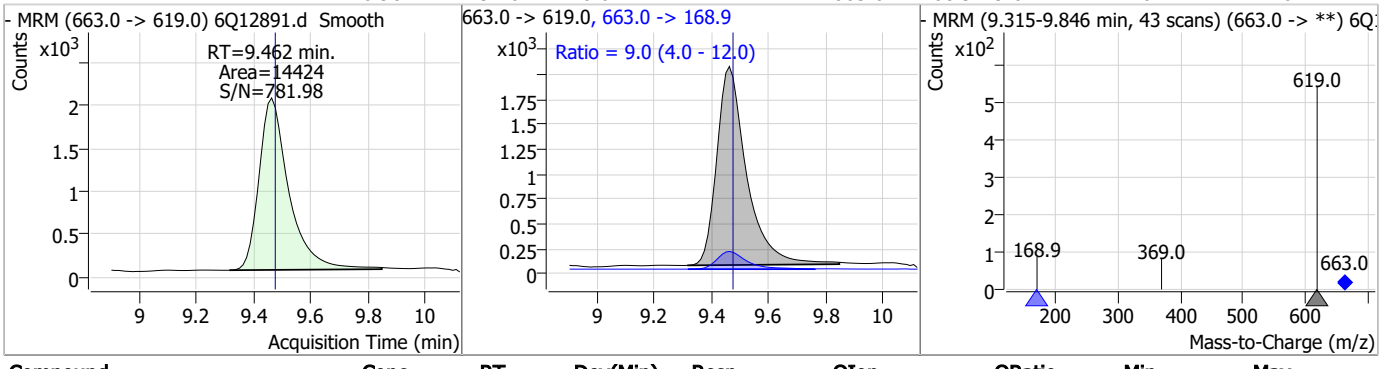
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.03	9.07	-0.01	15948	613.1 -> 319.0	11.2	6.1	18.3



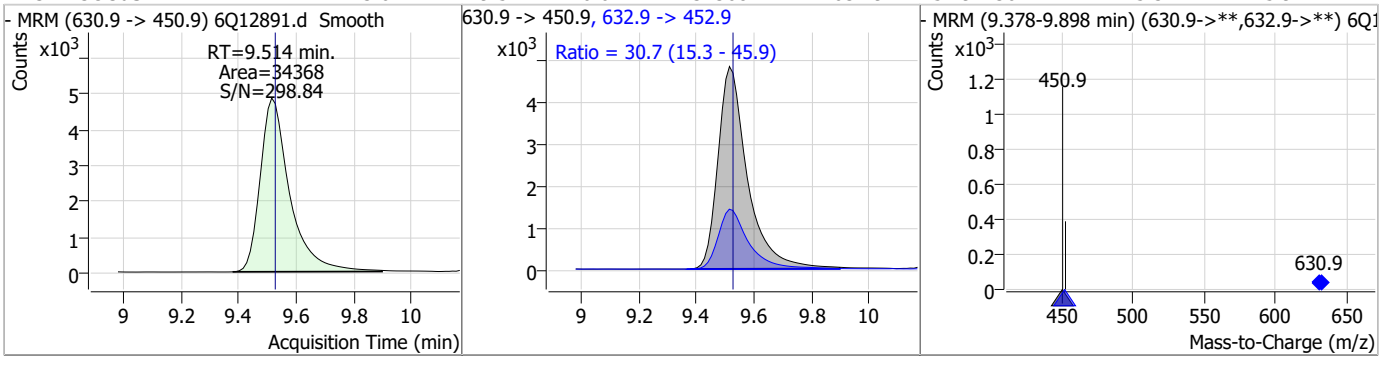
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.82	9.24	-0.01	2197	599.0 -> 98.8	60.2	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.98	9.46	-0.01	14424	663.0 -> 168.9	9.0	4.0	12.0

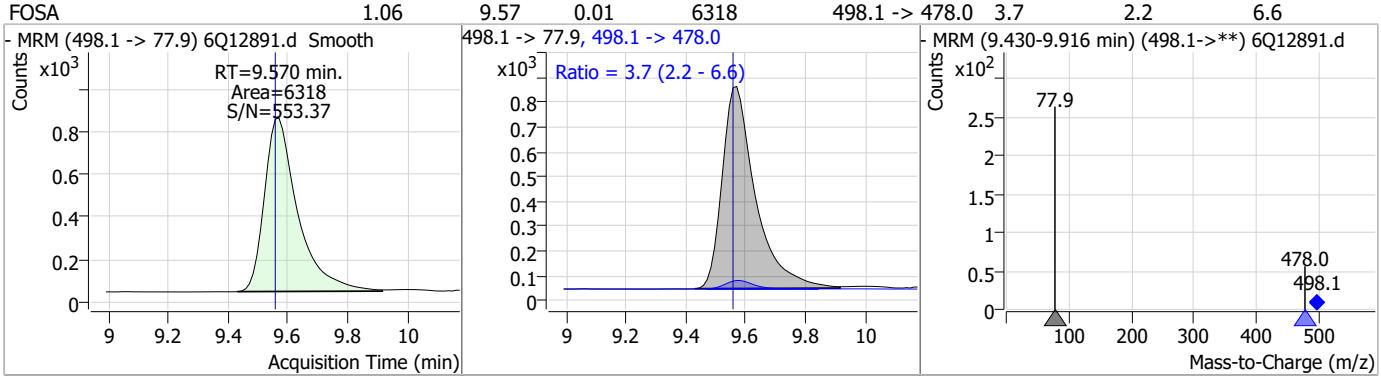


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	3.64	9.51	-0.01	34368	632.9 -> 452.9	30.7	15.3	45.9

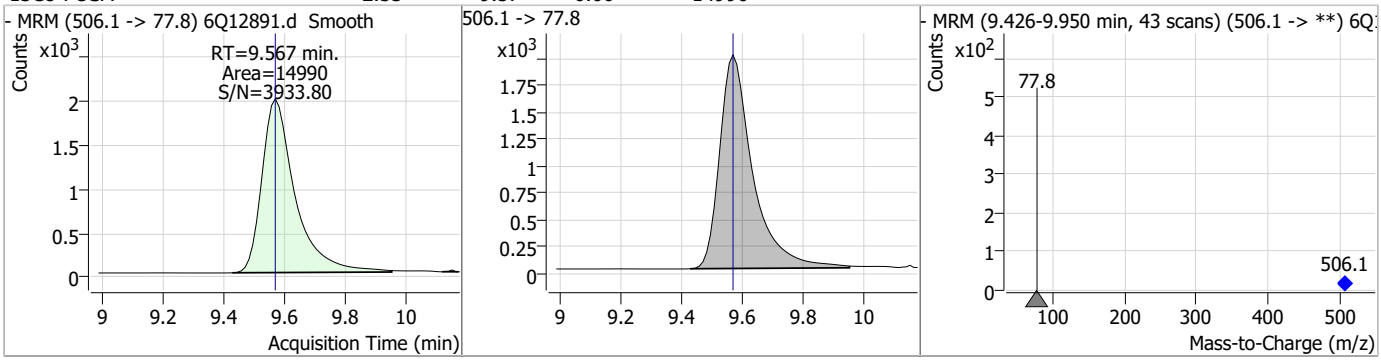


Perfluorinated Compounds by LC/MS/MS

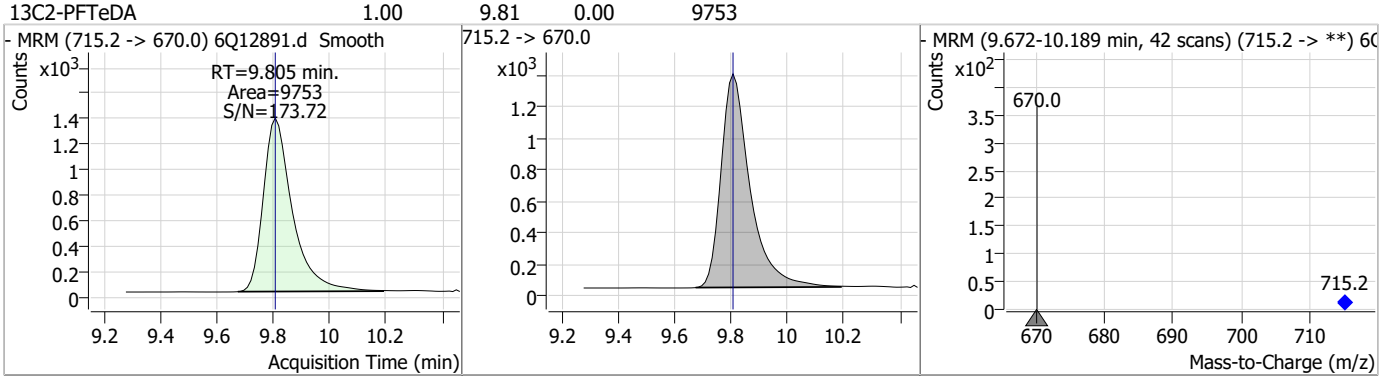
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.06	9.57	0.01	6318	498.1 -> 478.0	3.7	2.2	6.6



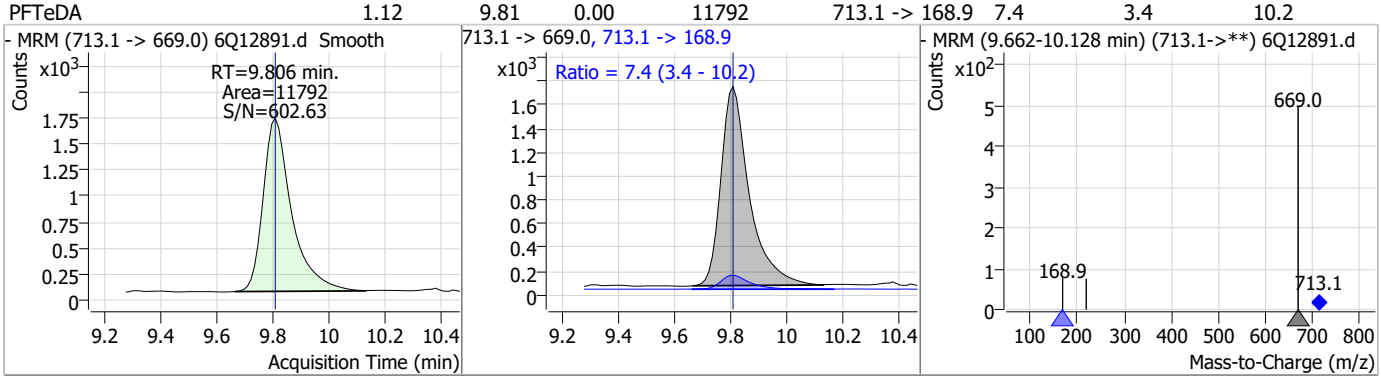
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.57	0.00	14990				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.00	9.81	0.00	9753				

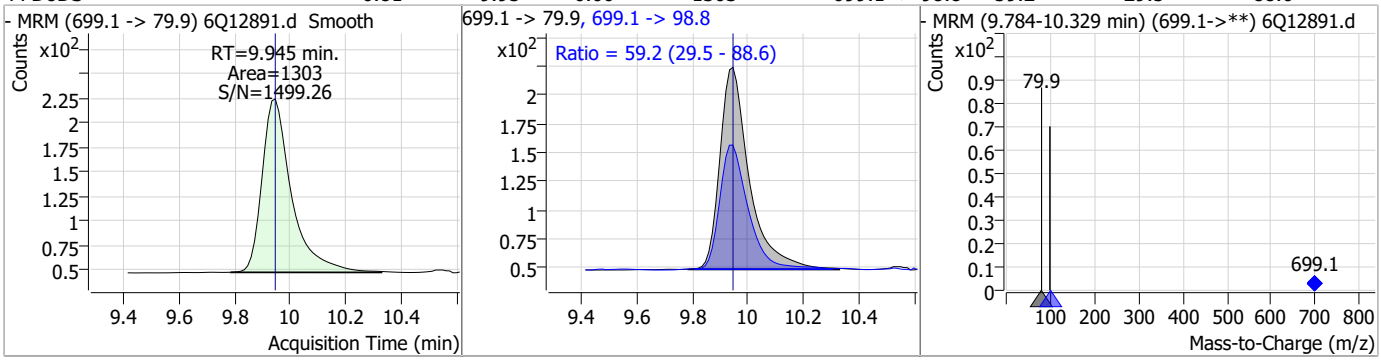


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.12	9.81	0.00	11792	713.1 -> 168.9	7.4	3.4	10.2

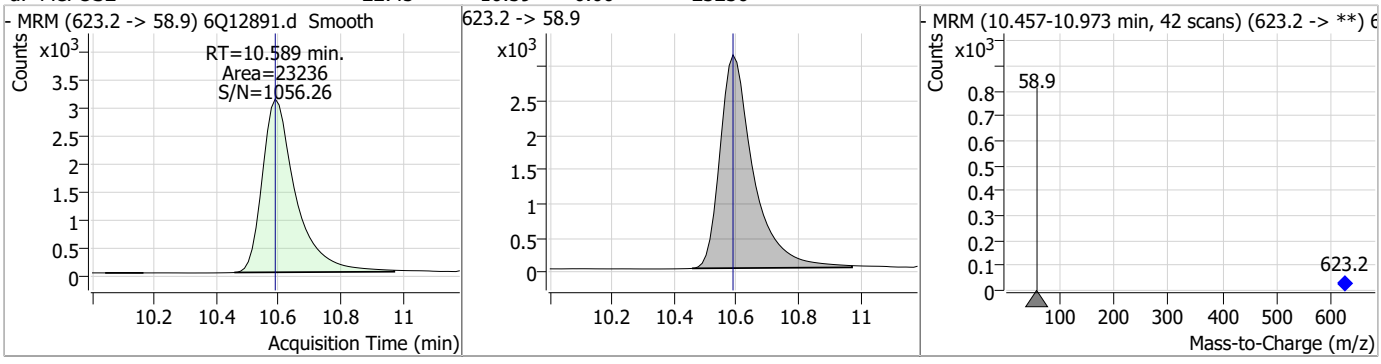


Perfluorinated Compounds by LC/MS/MS

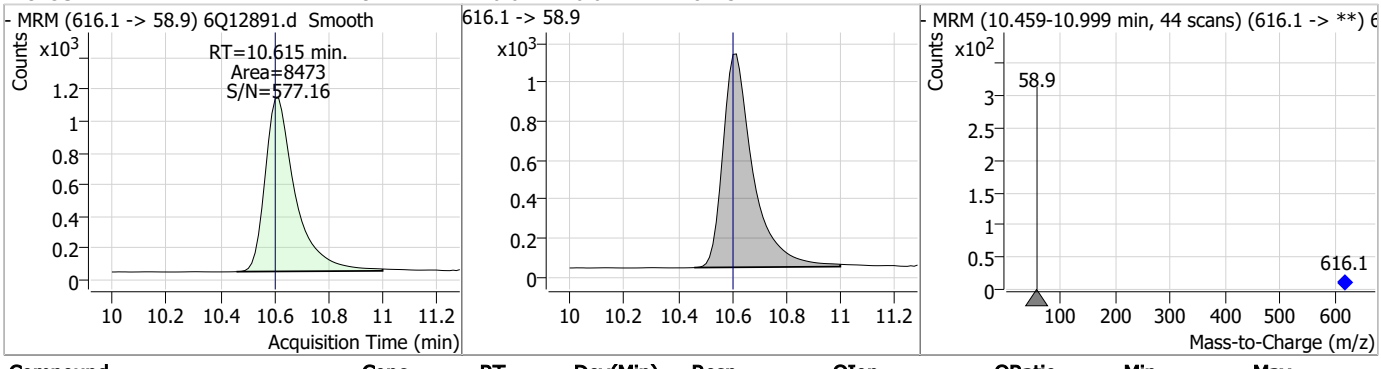
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.81	9.95	0.00	1303	699.1 -> 98.8	59.2	29.5	88.6



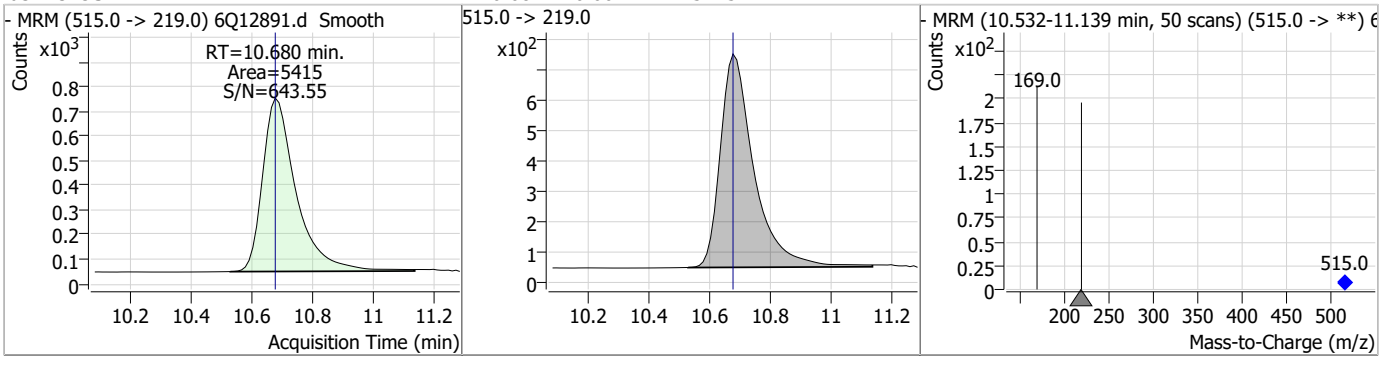
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.45	10.59	0.00	23236				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	9.14	10.61	0.01	8473				

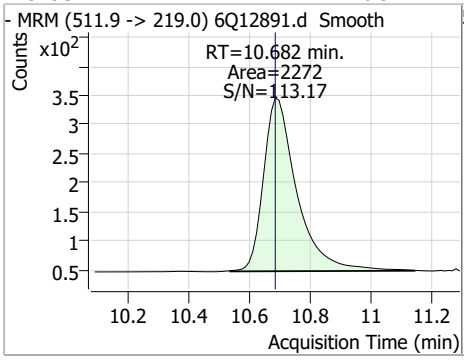


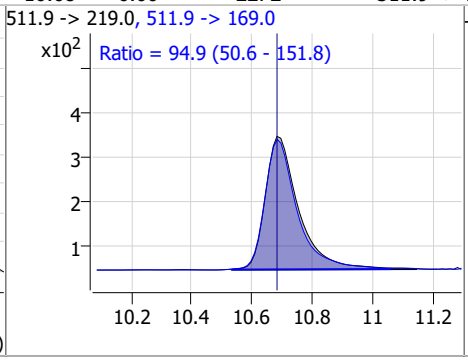
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.12	10.68	0.00	5415				

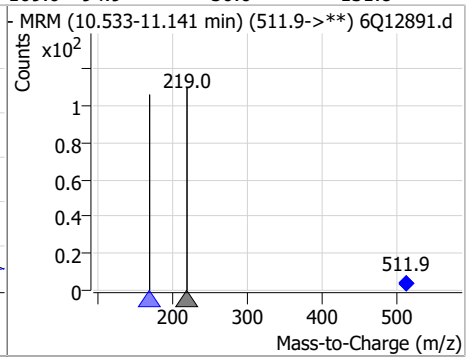


Perfluorinated Compounds by LC/MS/MS

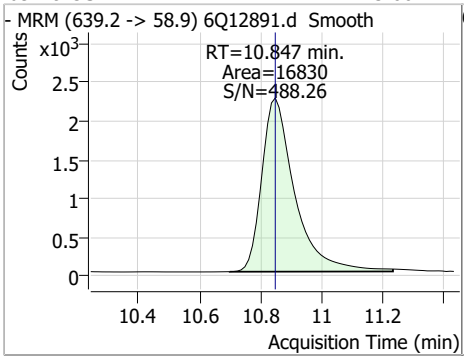
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.97	10.68	0.00	2272	511.9 -> 169.0	94.9	50.6	151.8

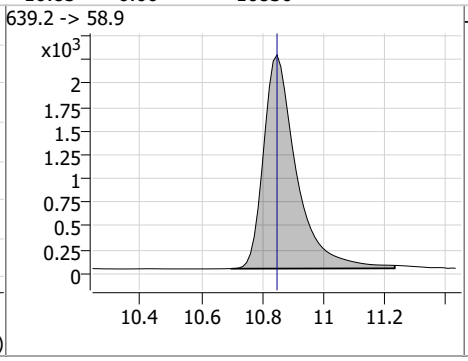


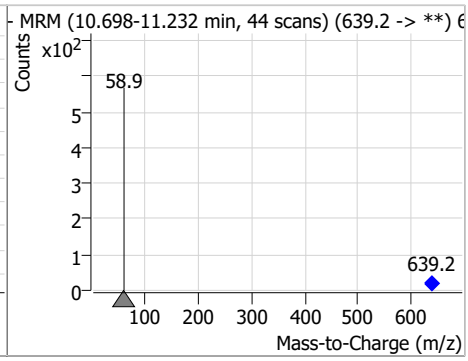




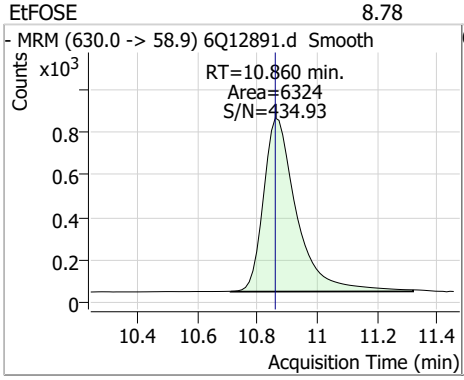
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.60	10.85	0.00	16830				

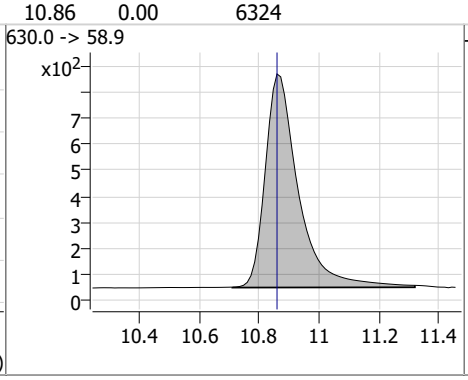


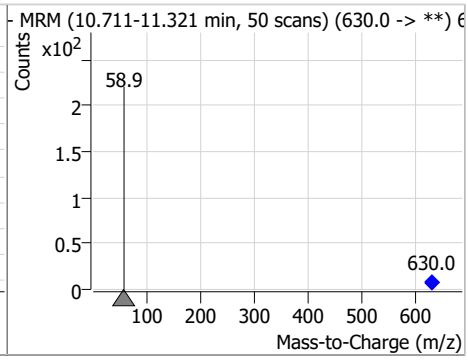




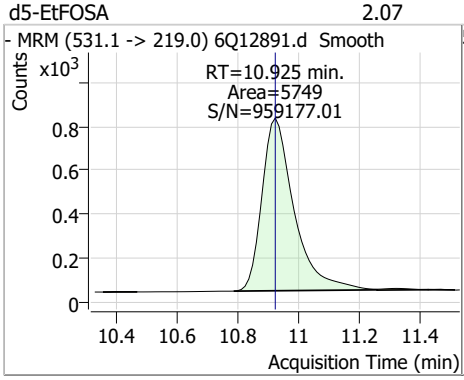
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	8.78	10.86	0.00	6324				

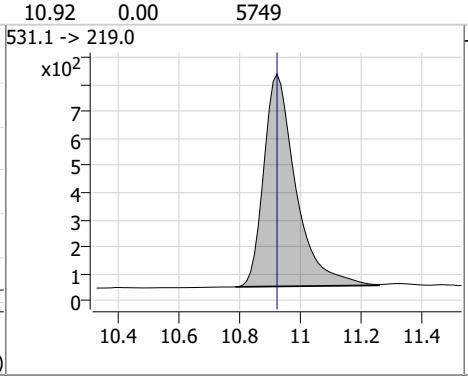


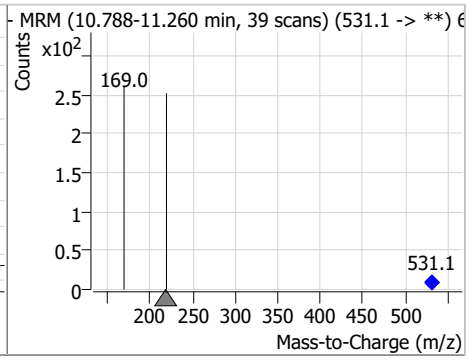




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.07	10.92	0.00	5749				

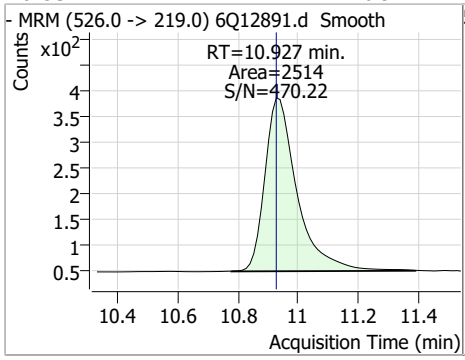


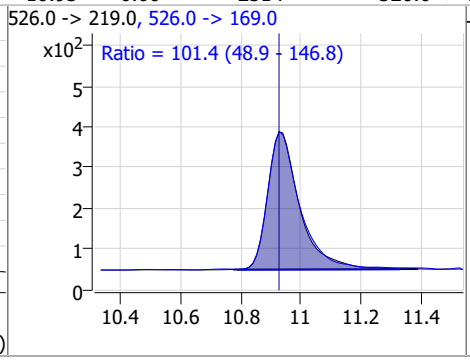


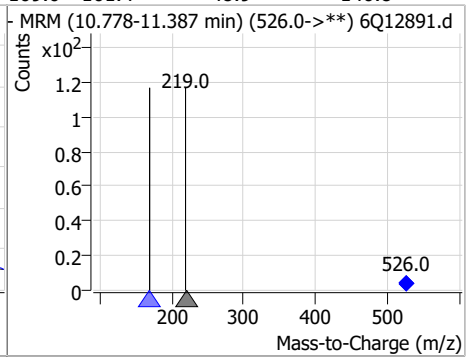


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.92	10.93	0.00	2514	526.0 -> 169.0	101.4	48.9	146.8







7.3.2

7

Manual Integration Approval Summary

Sample Number:	OP95216-LLBS	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12891.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 11:40	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12899.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 1:31:54 PM
Sample Name	:	op95216-ms
Vial	:	P4-B1
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	66535	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	35975	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33499	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	32981	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	57434	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	24340	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18372	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20194	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	20460	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	9757	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16226	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12349	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8190	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7843	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2171	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2932	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2823	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26157	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14513	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	20856	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	22981	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16114	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6364	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5908	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10088	2.50	µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29819	5.00	µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5494	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	65584	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23132	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27513	1.25	µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	28614	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2171	6.07	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.5%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2932	6.19	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2823	5.93	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.6%		
13C2-PFDoDA	9.066	615.1 -> 570.0	20460	1.16	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	9757	0.96	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 76.8%		
13C3-PFBS	5.518	302.1 -> 79.9	12349	2.76	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.4%		
13C3-PFHxS	7.274	402.1 -> 79.9	8190	2.84	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.4%		
13C4-PFBA	3.013	216.8 -> 171.9	66535	10.05 µg/L		0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	32981	2.79 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%		
13C5-PFHxA	5.575	318.0 -> 273.0	33499	2.96 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	35975	5.64 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%		
13C6-PFDA	8.170	519.1 -> 474.1	18372	1.43 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.2%		
13C7-PFUnDA	8.636	570.0 -> 525.1	20194	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C8-FOSA	9.567	506.1 -> 77.8	16226	2.47 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C8-PFOA	7.146	421.1 -> 376.0	57434	2.62 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C8-PFOS	8.345	507.1 -> 79.9	7843	2.36 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C9-PFNA	7.677	472.1 -> 427.0	24340	1.26 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%		
d3-MeFOSAA	8.215	573.2 -> 419.0	26157	4.73 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14513	12.41 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	5908	2.09 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%		
d5-EtFOSAA	8.410	589.2 -> 419.0	20856	4.55 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.9%		
d7-MeFOSE	10.589	623.2 -> 58.9	22981	20.06 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	16114	20.41 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	6364	2.07 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	46776	9.61 µg/L		99
		327.1 -> 80.9	9952			
6:2FTS	6.908	427.1 -> 407.0	41403	9.64 µg/L		98
		427.1 -> 80.9	8033			
8:2FTS	7.945	527.1 -> 507.0	21862	9.97 µg/L		97
		527.1 -> 80.8	5600			
EtFOSAA	8.424	584.2 -> 419.1	7945	2.38 µg/L	m	92
		584.2 -> 526.0	4225			
FOSA	9.557	498.1 -> 77.9	16277	2.51 µg/L		99
		498.1 -> 478.0	680			
MeFOSAA	8.216	570.1 -> 419.0	11854	2.47 µg/L		96
		570.1 -> 483.0	1937			
PFBA	3.019	212.8 -> 168.9	15090	10.15 µg/L		100
PFBS	5.531	298.7 -> 79.9	11030	2.33 µg/L		96
		298.7 -> 98.8	5077			
PFDA	8.170	512.9 -> 469.0	51336	2.46 µg/L		96
		512.9 -> 219.0	6704			
PFDoDA	9.067	613.1 -> 569.0	41146	2.74 µg/L		98
		613.1 -> 319.0	4713			
PFDS	9.241	599.0 -> 79.9	5665	2.13 µg/L		90

Perfluorinated Compounds by LC/MS/MS

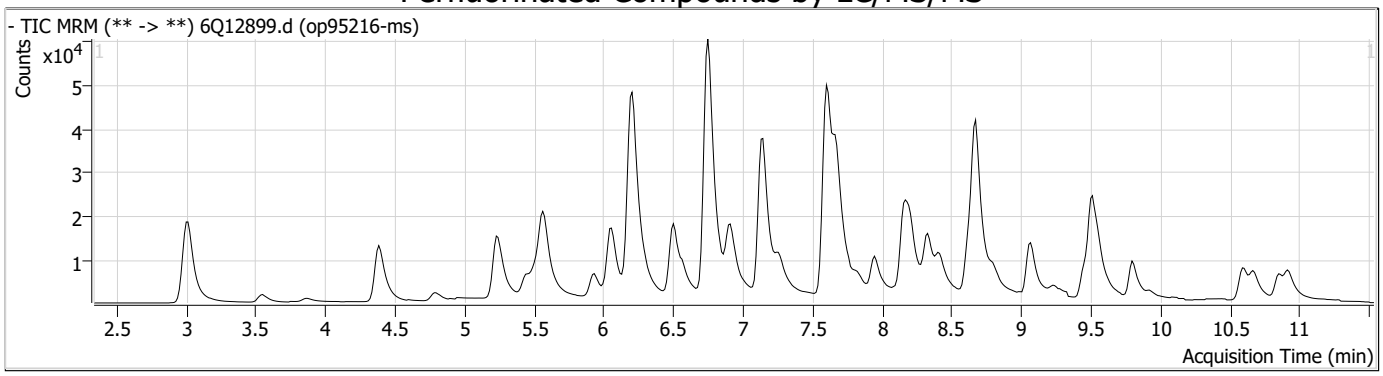
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3243				
PFHpA	6.503	363.1 -> 319.0	50511	2.59	µg/L		96
		363.1 -> 169.0	7131				
PFHpS	7.841	449.0 -> 79.9	7982	2.40	µg/L		94
		449.0 -> 98.9	4781				
PFHxA	5.578	313.0 -> 269.0	31811	2.42	µg/L		98
		313.0 -> 118.9	1206				
PFHxS	7.275	398.7 -> 79.9	9396	2.55	µg/L	m	92
		398.7 -> 98.9	5414				
PFNA	7.677	463.0 -> 419.0	40472	2.46	µg/L		97
		463.0 -> 219.0	8244				
PFNS	8.811	548.8 -> 79.9	7959	2.28	µg/L		98
		548.8 -> 98.9	4597				
PFOA	7.148	413.0 -> 369.0	69597	2.75	µg/L	m	98
		413.0 -> 169.0	8824				
PFOS	8.347	498.9 -> 79.9	11348	3.15	µg/L	m	71
		498.9 -> 98.8	6904				
PFPeA	4.388	263.0 -> 219.0	39420	5.19	µg/L		100
PFPeS	6.581	349.1 -> 79.9	10489	2.45	µg/L		96
		349.1 -> 98.9	5629				
PFTeDA	9.806	713.1 -> 669.0	28841	2.74	µg/L		100
		713.1 -> 168.9	1985				
PFTrDA	9.462	663.0 -> 619.0	32740	2.28	µg/L		99
		663.0 -> 168.9	2780				
PFUnDA	8.624	563.1 -> 519.0	40702	2.59	µg/L		100
		563.1 -> 269.1	5646				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	79214	7.61	µg/L		99
		632.9 -> 452.9	23664				
9Cl-PF3ONS	8.676	530.8 -> 351.0	144648	8.22	µg/L		97
		532.8 -> 353.0	49084				
ADONA	6.753	376.9 -> 250.9	275008	8.73	µg/L		100
		376.9 -> 84.8	61015				
HFPO-DA	5.940	284.9 -> 168.9	12459	9.18	µg/L		95
		284.9 -> 184.9	1416				
3:3FTCA	3.878	241.0 -> 177.0	3965	10.63	µg/L		96
		241.0 -> 117.0	520				
5:3FTCA	6.206	341.0 -> 237.1	151365	55.09	µg/L		97
		341.0 -> 217.0	136459				
7:3FTCA	7.617	441.0 -> 316.9	100468	55.95	µg/L		89
		441.0 -> 336.9	194414				
EtFOSA	10.927	526.0 -> 219.0	7267	2.39	µg/L		97
		526.0 -> 169.0	6932				
EtFOSE	10.860	630.0 -> 58.9	16935	24.55	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	6140	2.40	µg/L		95
		511.9 -> 169.0	6512				
MeFOSE	10.602	616.1 -> 58.9	23517	25.65	µg/L		100
PFDoDS	9.933	699.1 -> 79.9	3309	2.08	µg/L		93
		699.1 -> 98.8	2128				
NFDHA	5.457	295.0 -> 201.0	3829	4.93	µg/L		97
		295.0 -> 84.9	1886				
PFMBA	4.800	279.0 -> 85.1	10981	5.14	µg/L		100
PFMPA	3.553	229.0 -> 84.9	9970	4.92	µg/L		100
PFEESA	6.059	314.8 -> 134.9	80379	4.25	µg/L		100
		314.8 -> 82.9	1945				

= Qualifier out of range, m = manually integrated, + = Area summed

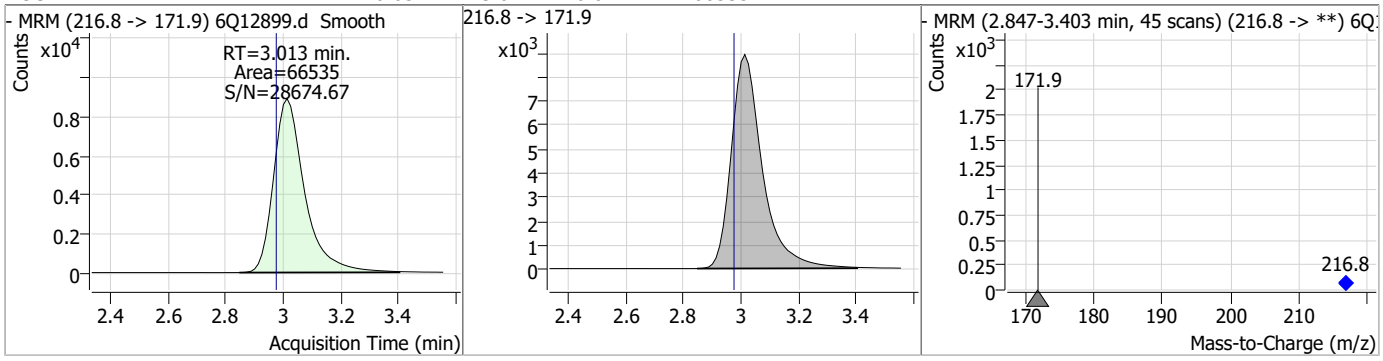
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

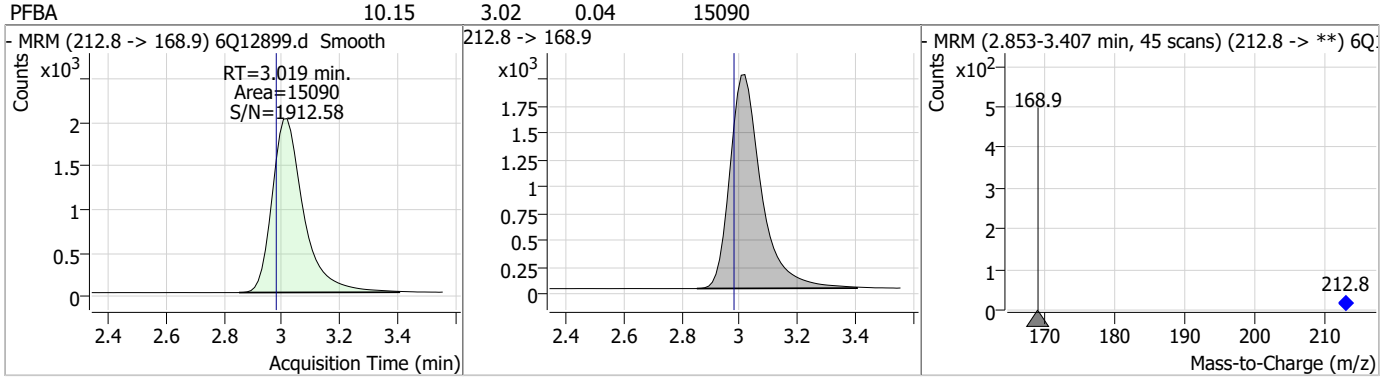
Perfluorinated Compounds by LC/MS/MS



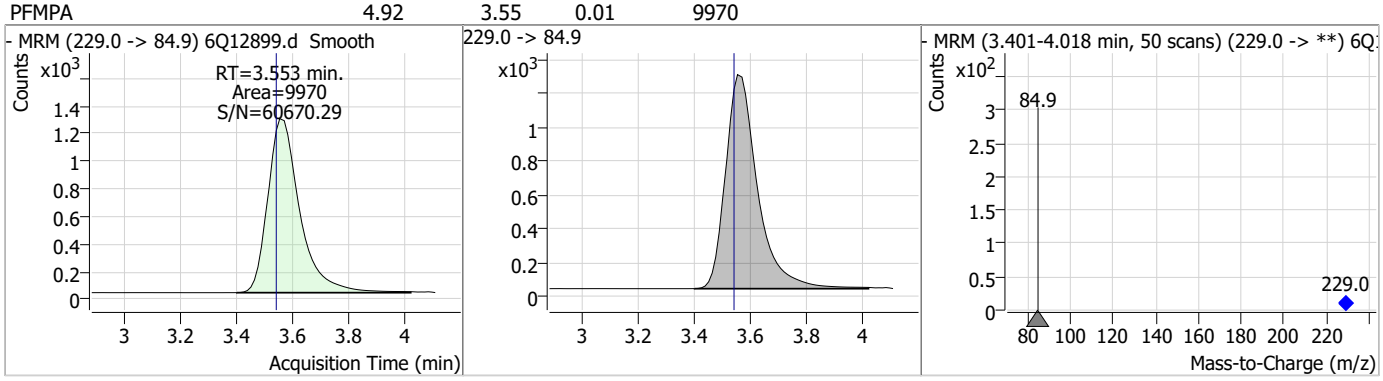
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.05	3.01	0.04	66535				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	10.15	3.02	0.04	15090				

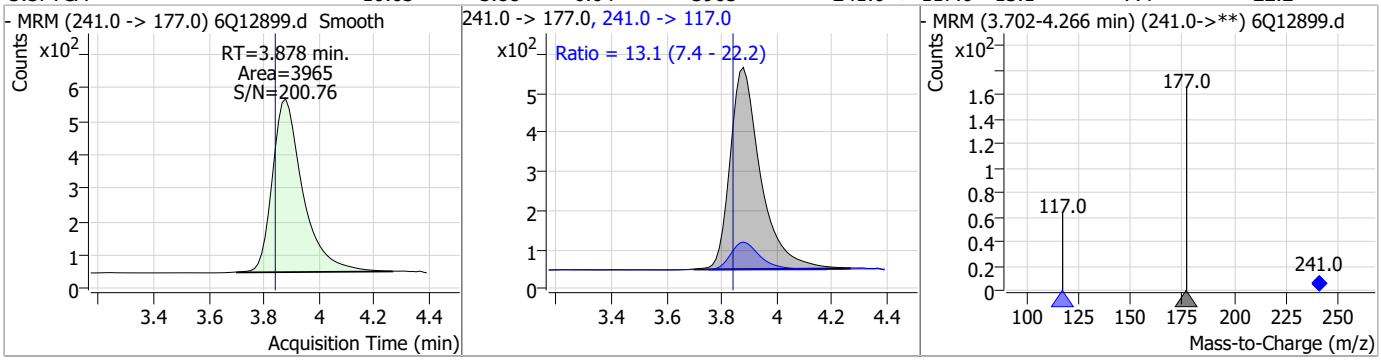


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	4.92	3.55	0.01	9970				

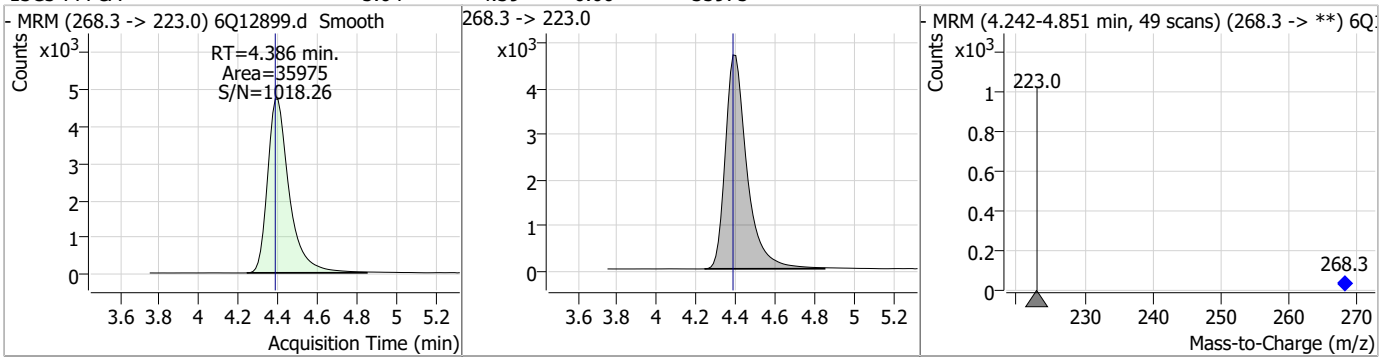


Perfluorinated Compounds by LC/MS/MS

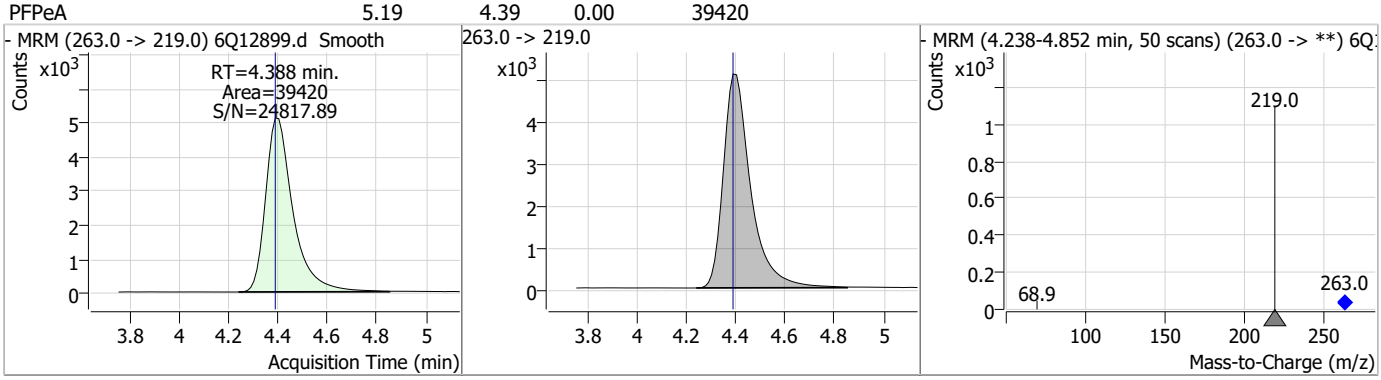
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	10.63	3.88	0.04	3965	241.0 -> 117.0	13.1	7.4	22.2



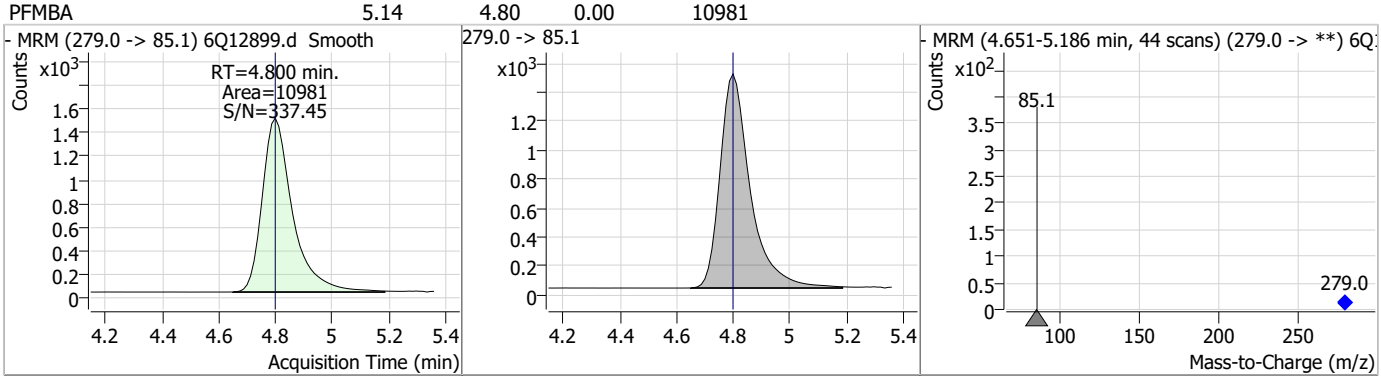
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.64	4.39	0.00	35975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.19	4.39	0.00	39420				

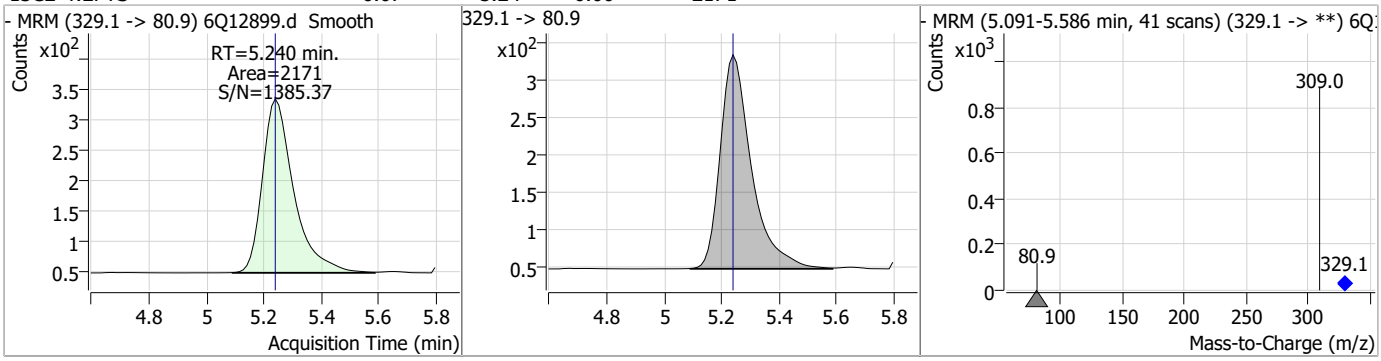


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.14	4.80	0.00	10981				

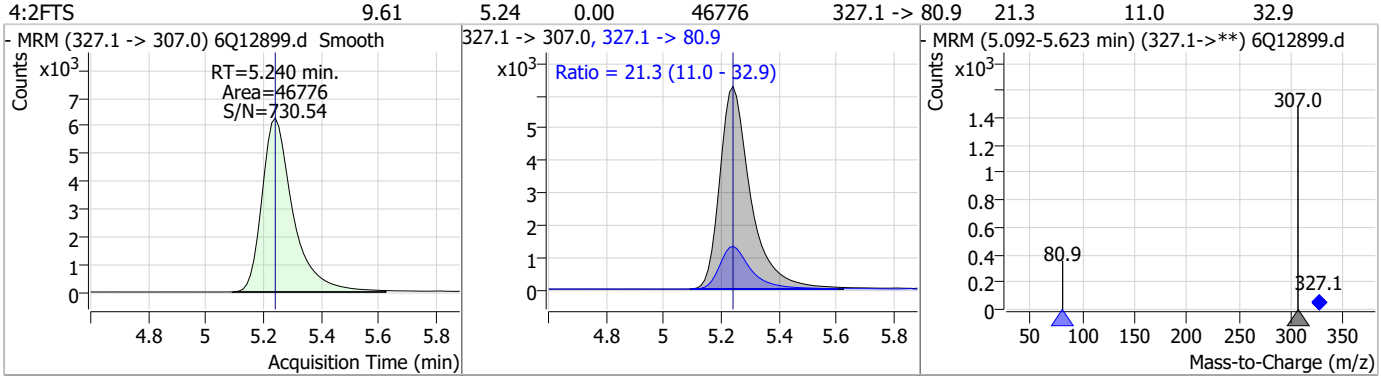


Perfluorinated Compounds by LC/MS/MS

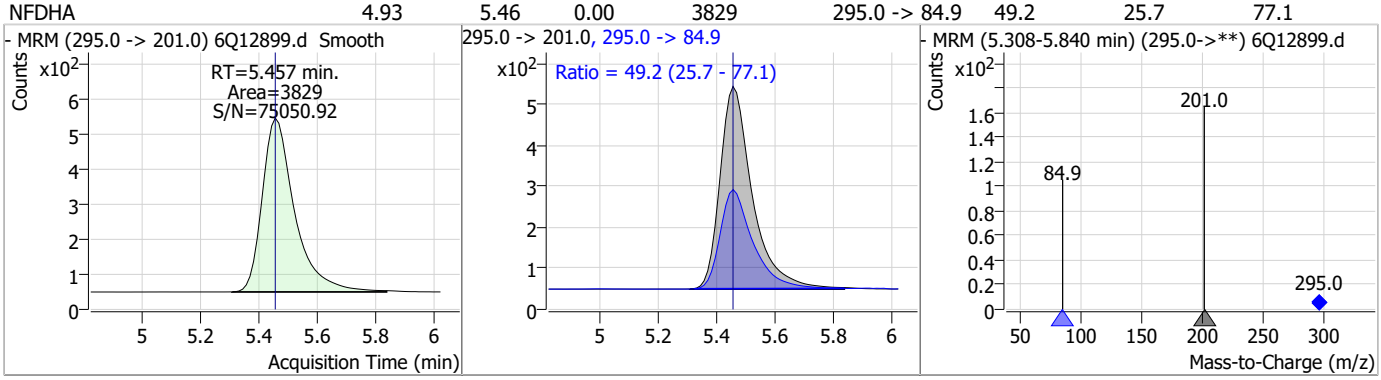
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.07	5.24	0.00	2171				



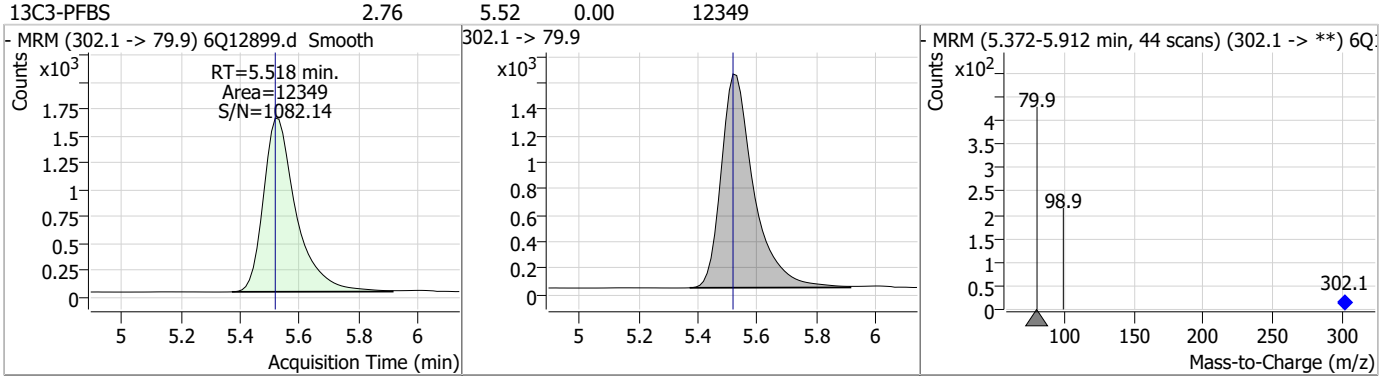
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.61	5.24	0.00	46776	327.1 -> 80.9	21.3	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.93	5.46	0.00	3829	295.0 -> 84.9	49.2	25.7	77.1

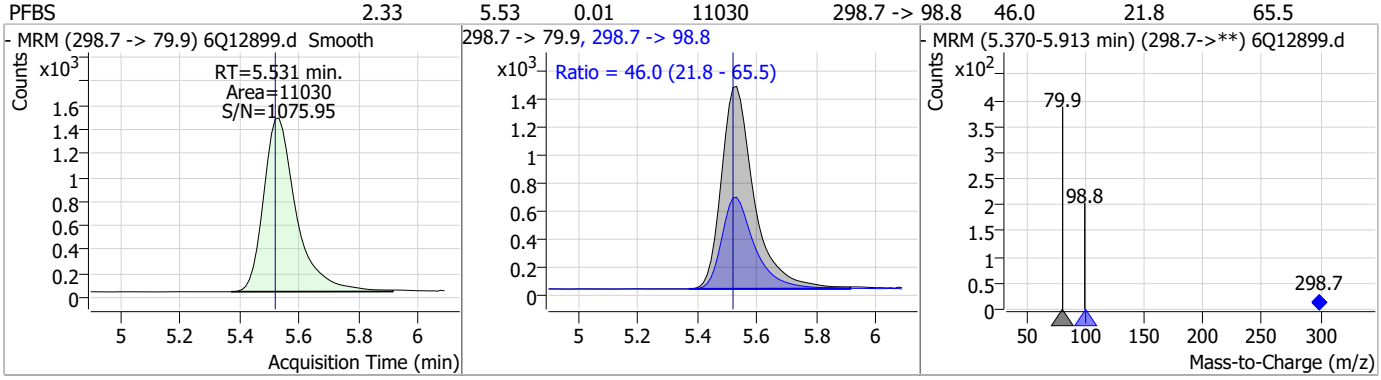


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.76	5.52	0.00	12349				

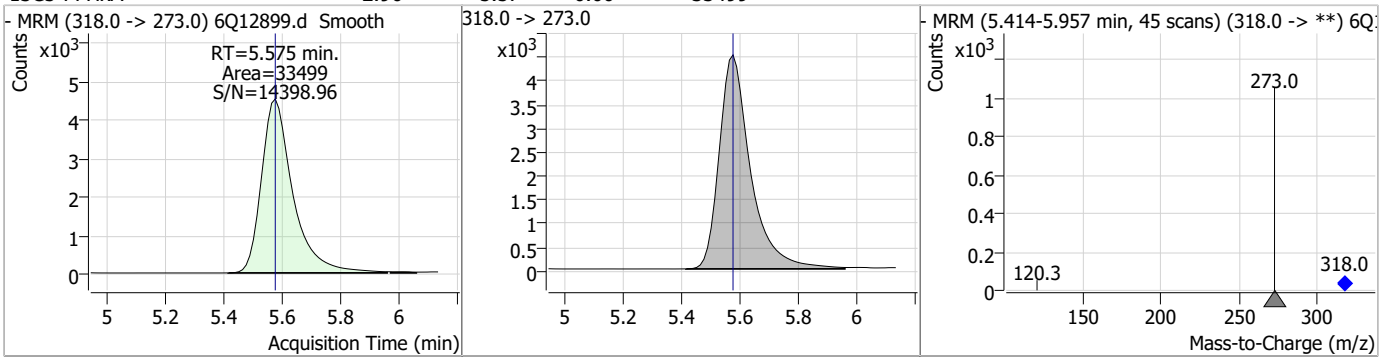


Perfluorinated Compounds by LC/MS/MS

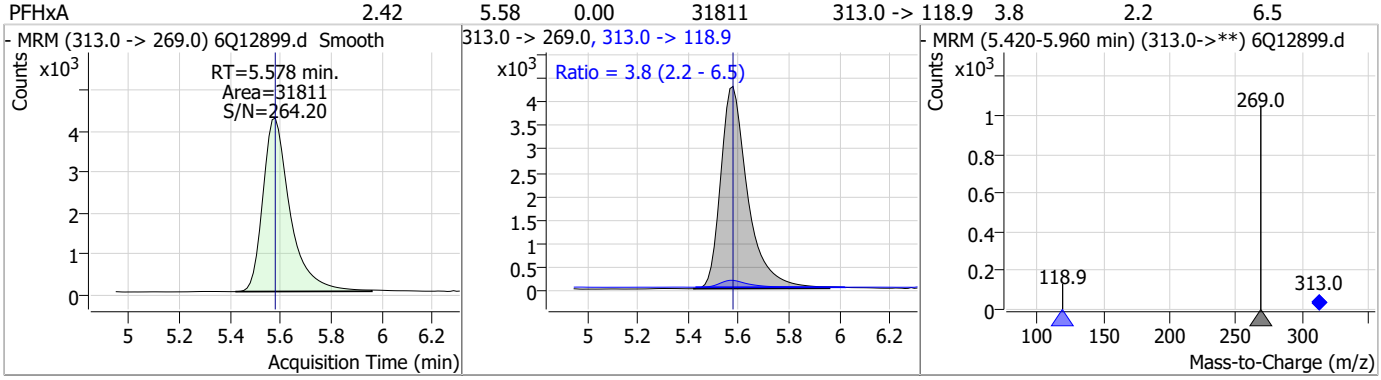
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.33	5.53	0.01	11030	298.7 -> 98.8	46.0	21.8	65.5



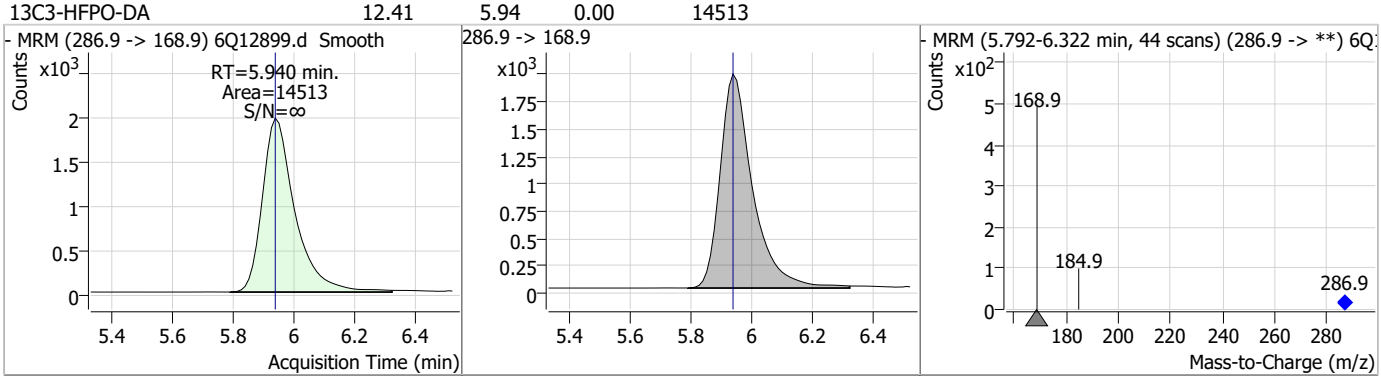
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.96	5.57	0.00	33499				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.42	5.58	0.00	31811	313.0 -> 118.9	3.8	2.2	6.5

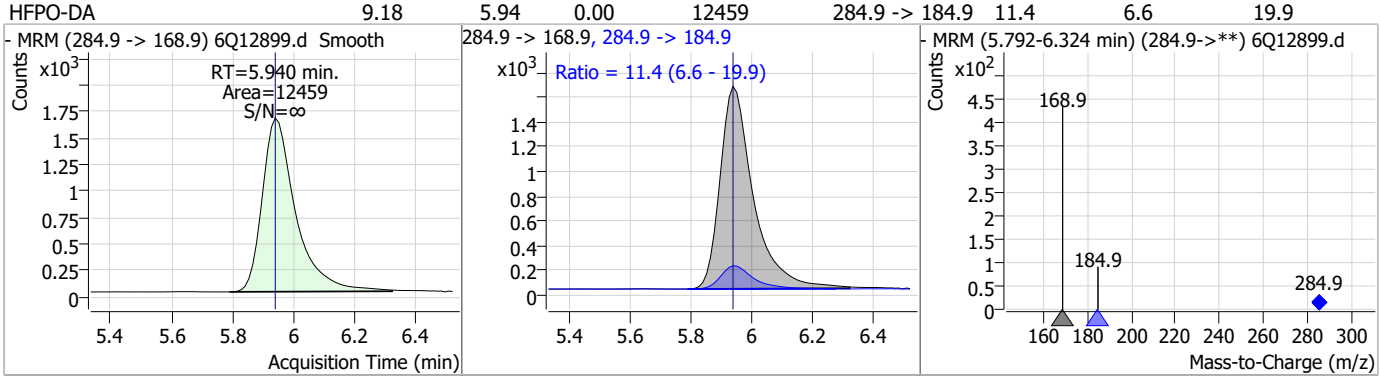


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	12.41	5.94	0.00	14513				

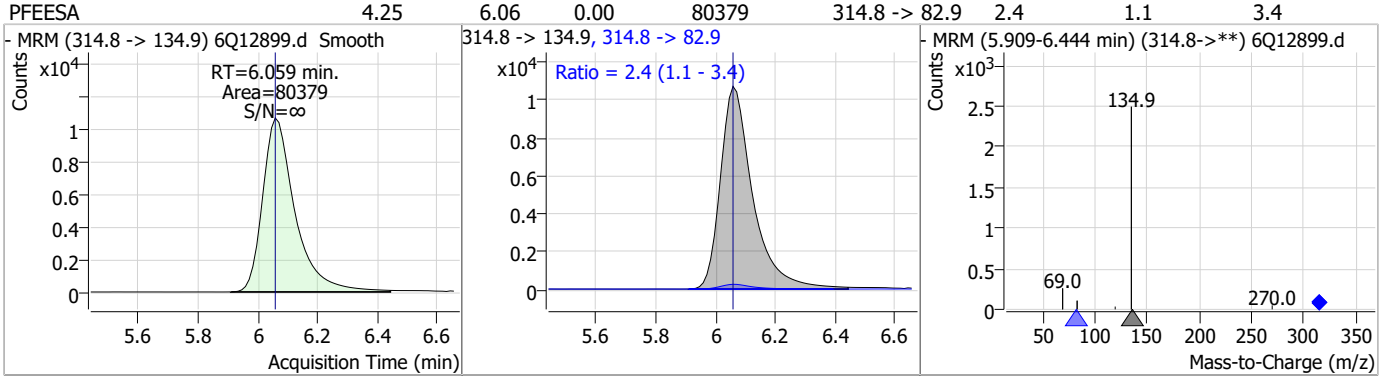


Perfluorinated Compounds by LC/MS/MS

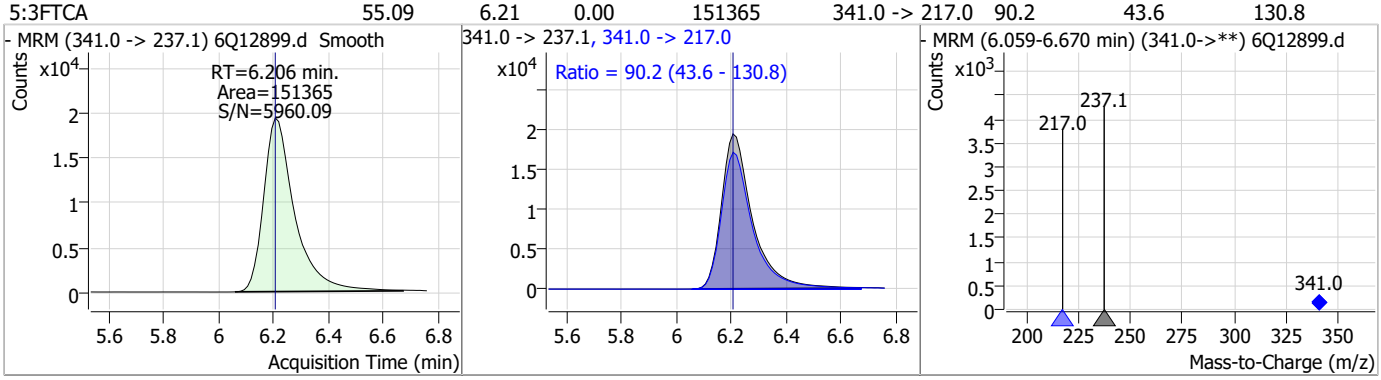
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.18	5.94	0.00	12459	284.9 -> 184.9	11.4	6.6	19.9



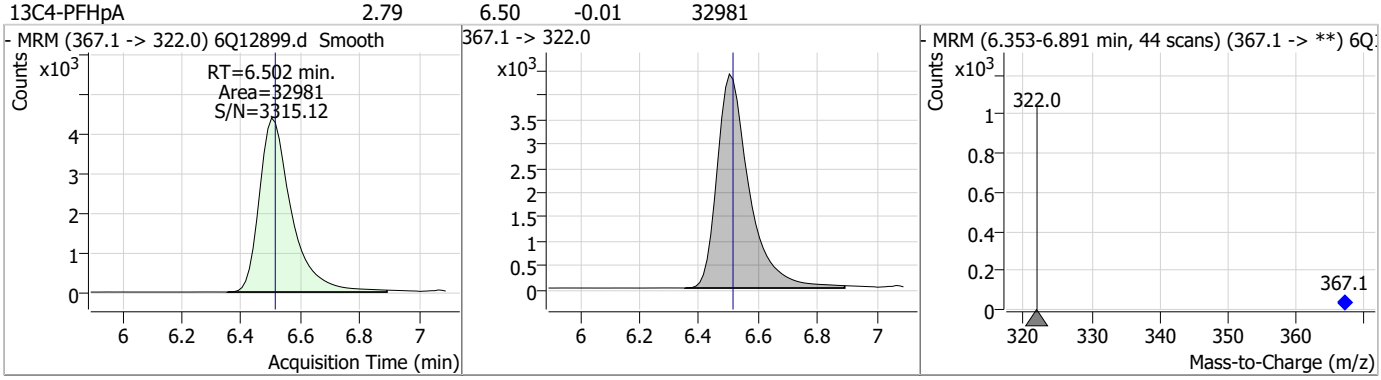
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.06	0.00	80379	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.09	6.21	0.00	151365	341.0 -> 217.0	90.2	43.6	130.8

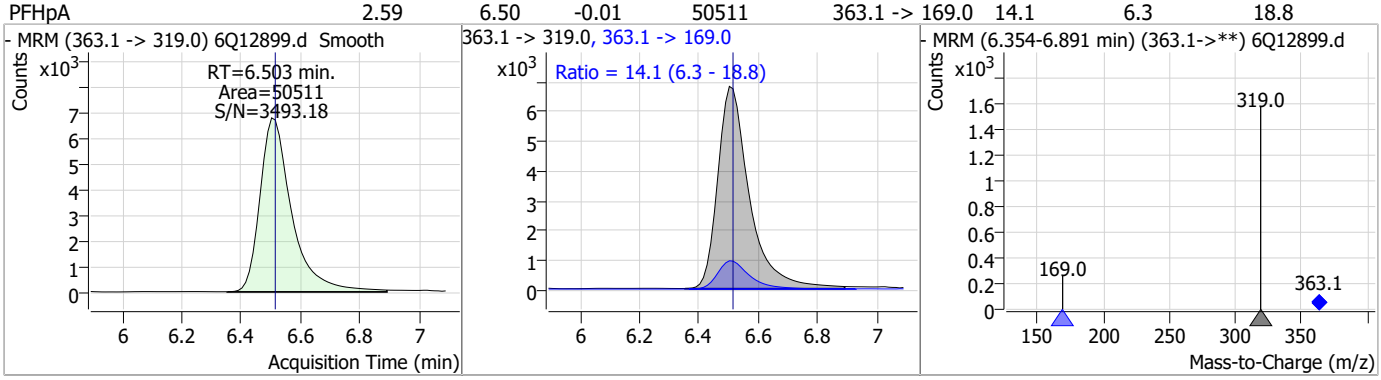


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.79	6.50	-0.01	32981				

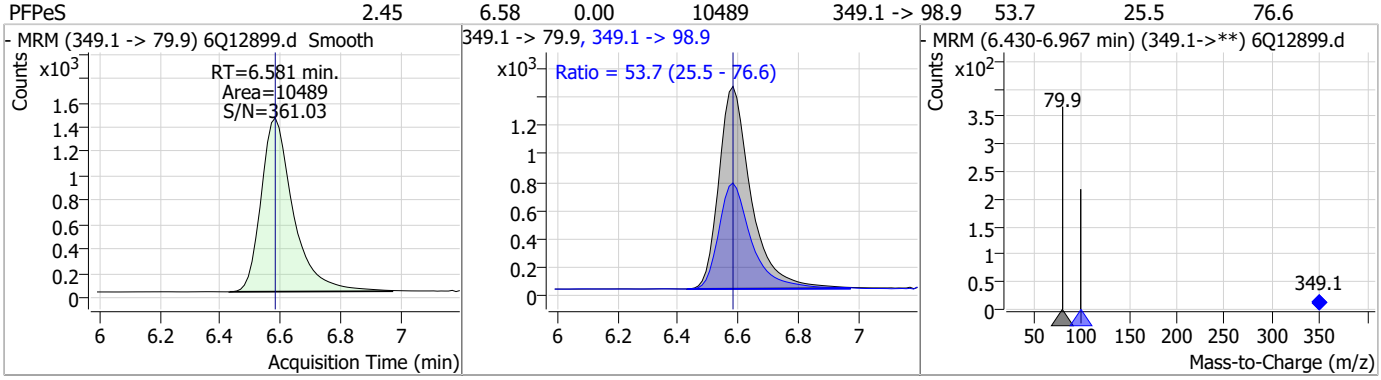


Perfluorinated Compounds by LC/MS/MS

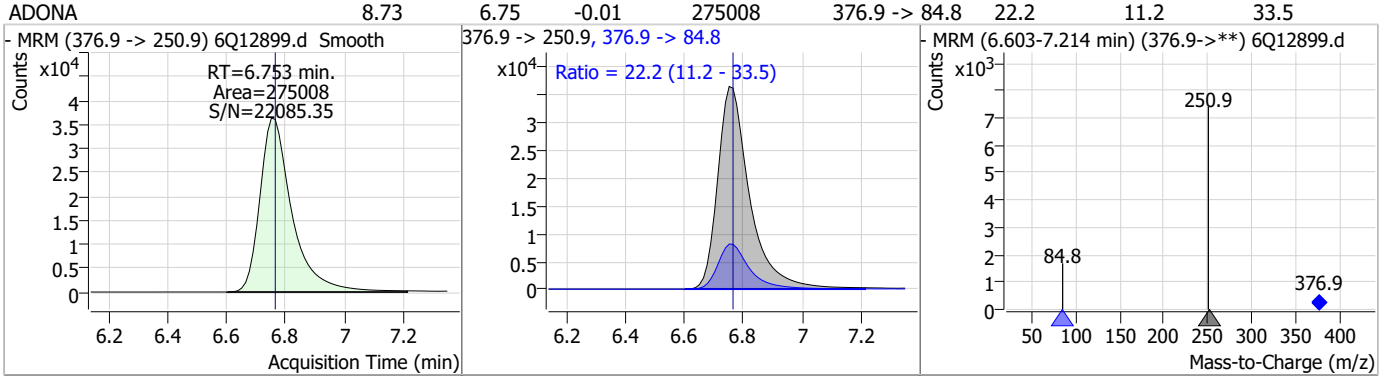
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.59	6.50	-0.01	50511	363.1 -> 169.0	14.1	6.3	18.8



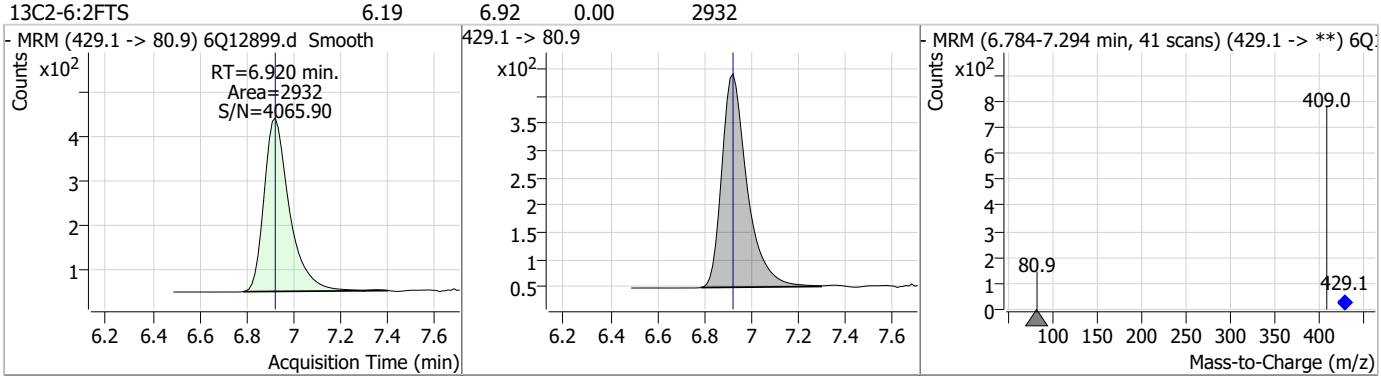
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.45	6.58	0.00	10489	349.1 -> 98.9	53.7	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.73	6.75	-0.01	275008	376.9 -> 84.8	22.2	11.2	33.5

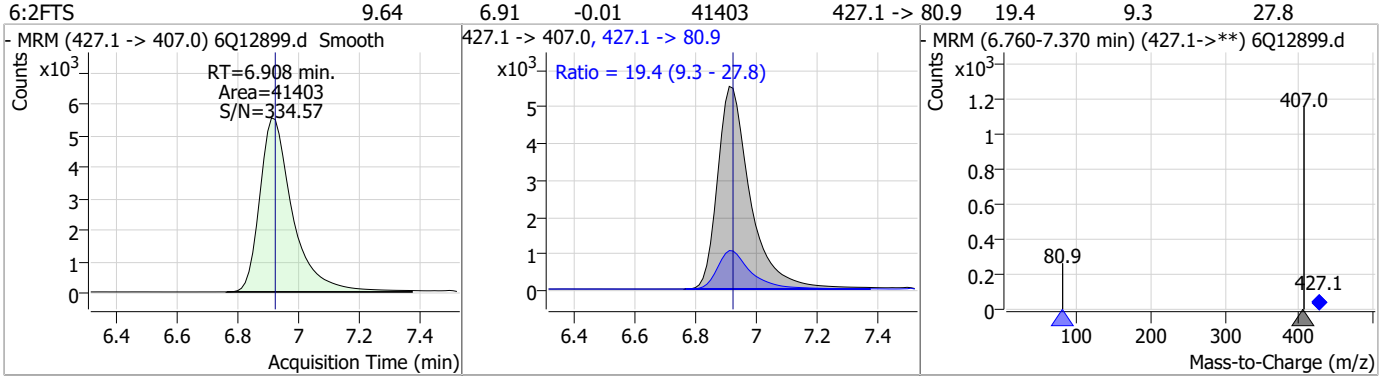


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.19	6.92	0.00	2932				

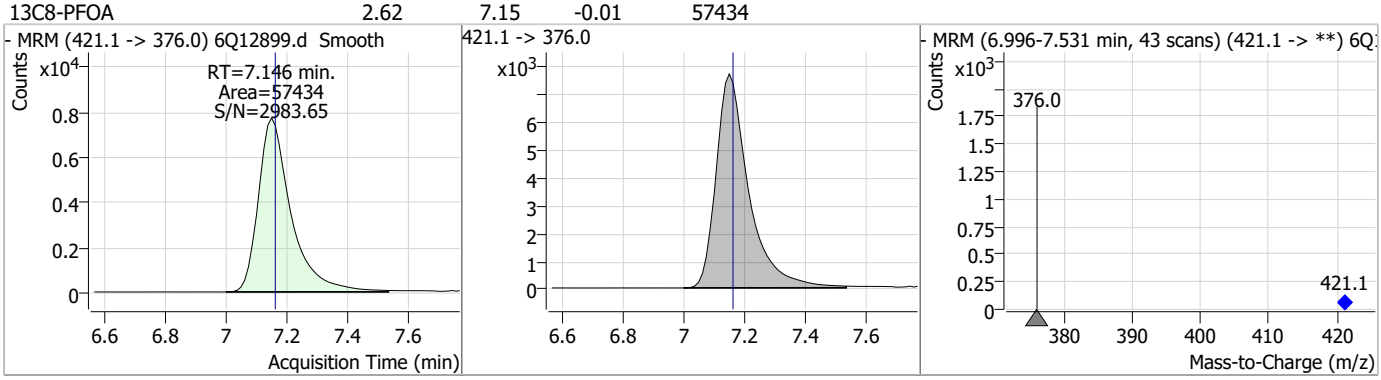


Perfluorinated Compounds by LC/MS/MS

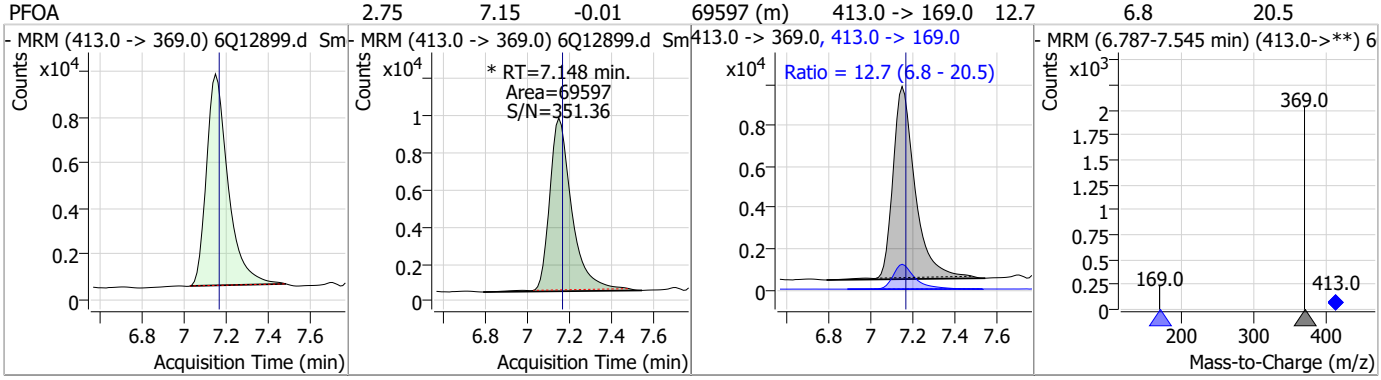
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.64	6.91	-0.01	41403	427.1 -> 80.9	19.4	9.3	27.8



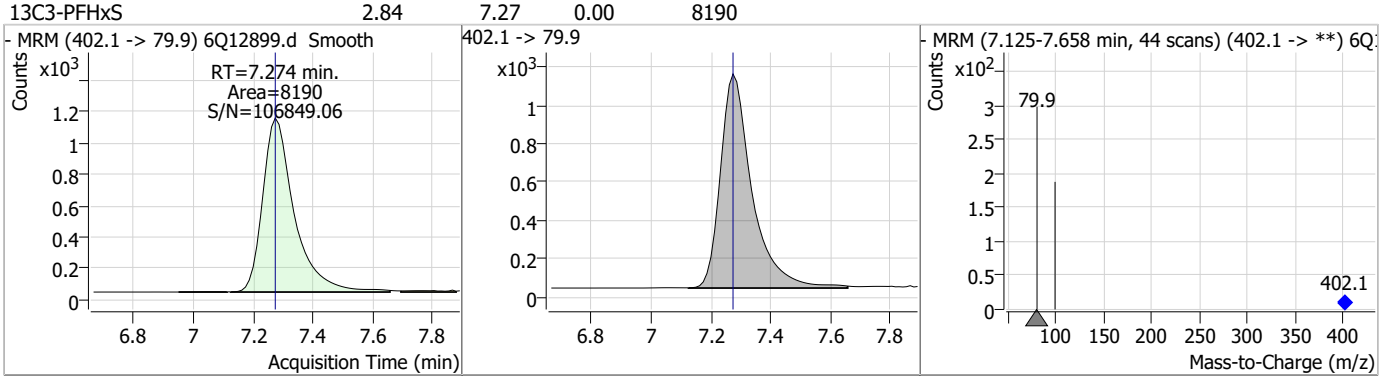
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.62	7.15	-0.01	57434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.75	7.15	-0.01	69597 (m)	413.0 -> 169.0	12.7	6.8	20.5

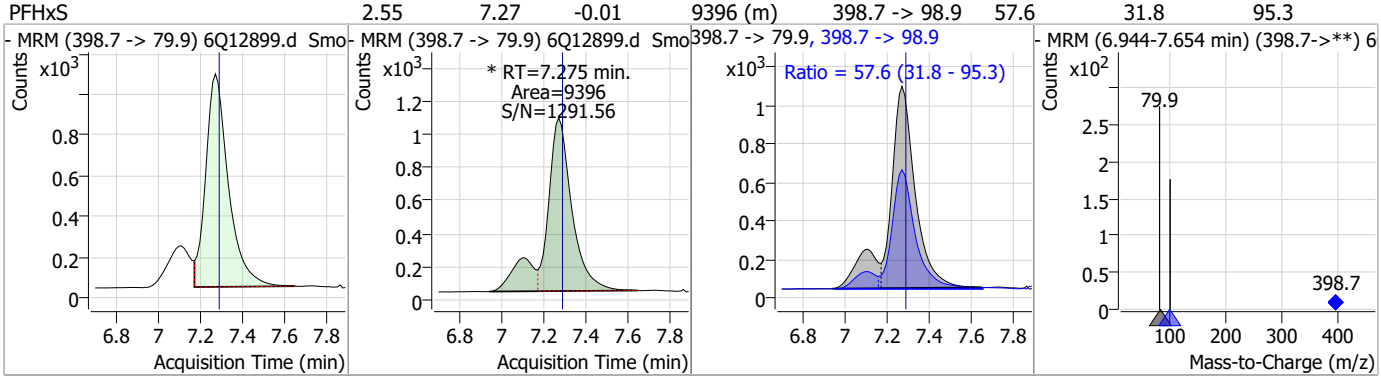


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.84	7.27	0.00	8190				

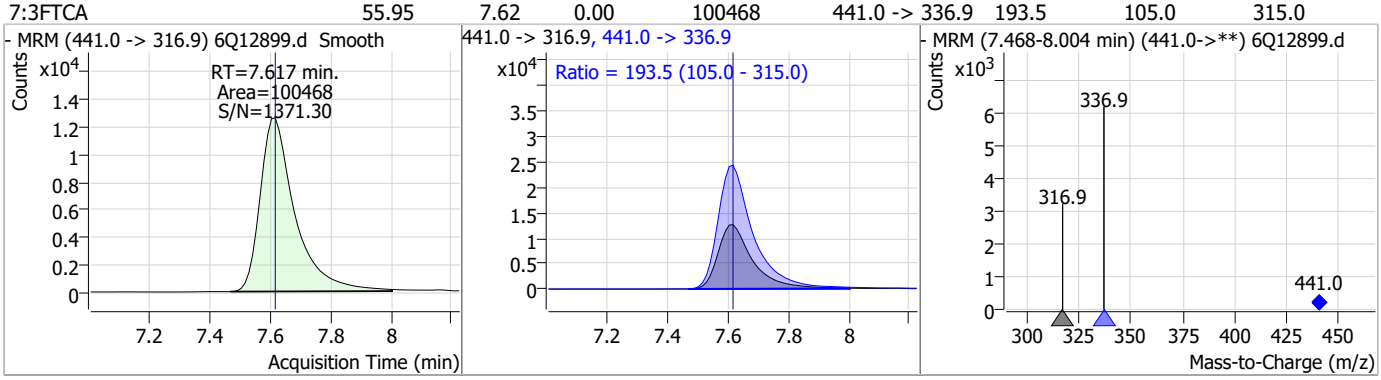


Perfluorinated Compounds by LC/MS/MS

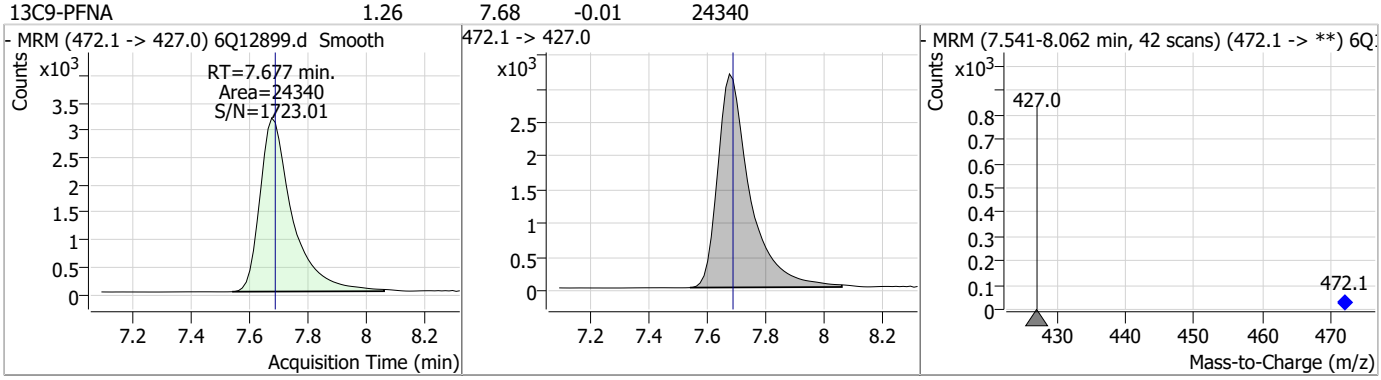
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.55	7.27	-0.01	9396 (m)	398.7 -> 98.9	57.6	31.8	95.3



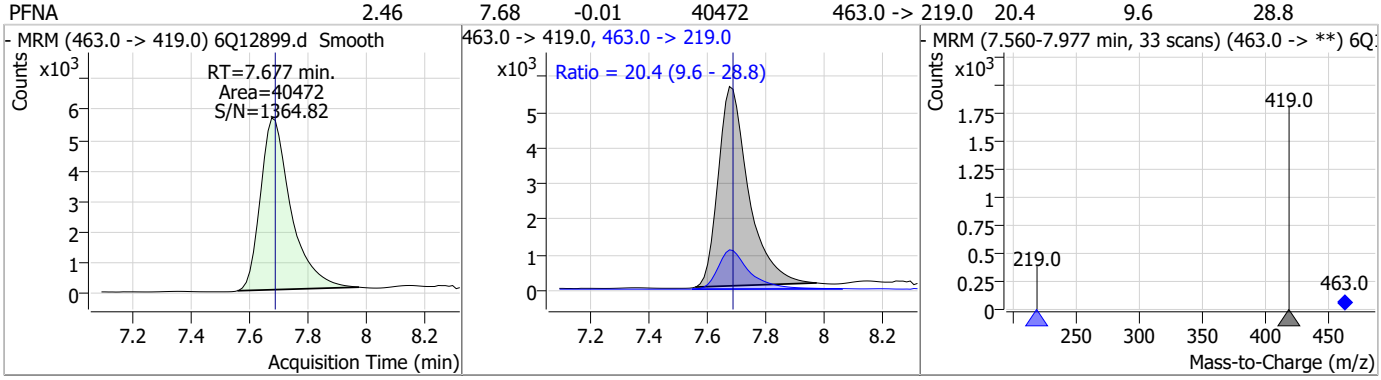
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	55.95	7.62	0.00	100468	441.0 -> 336.9	193.5	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.68	-0.01	24340				

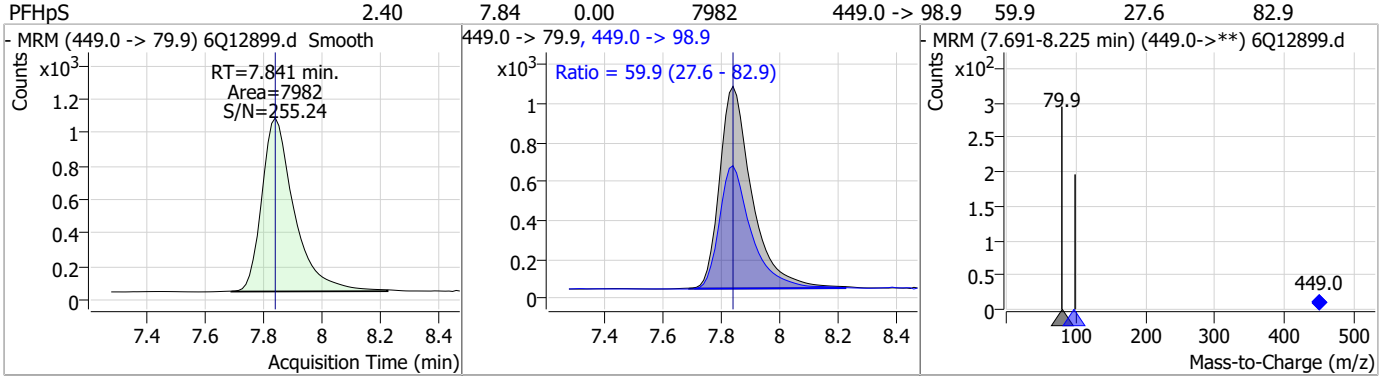


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.46	7.68	-0.01	40472	463.0 -> 219.0	20.4	9.6	28.8

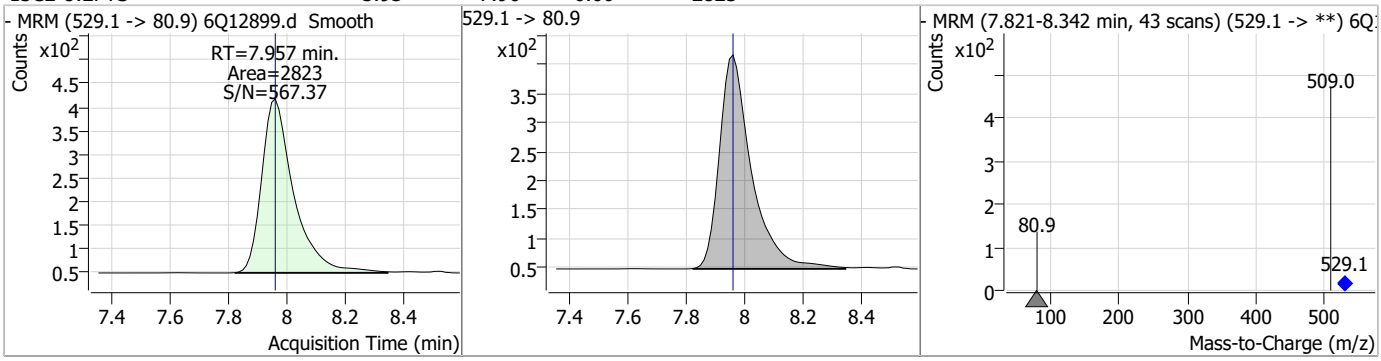


Perfluorinated Compounds by LC/MS/MS

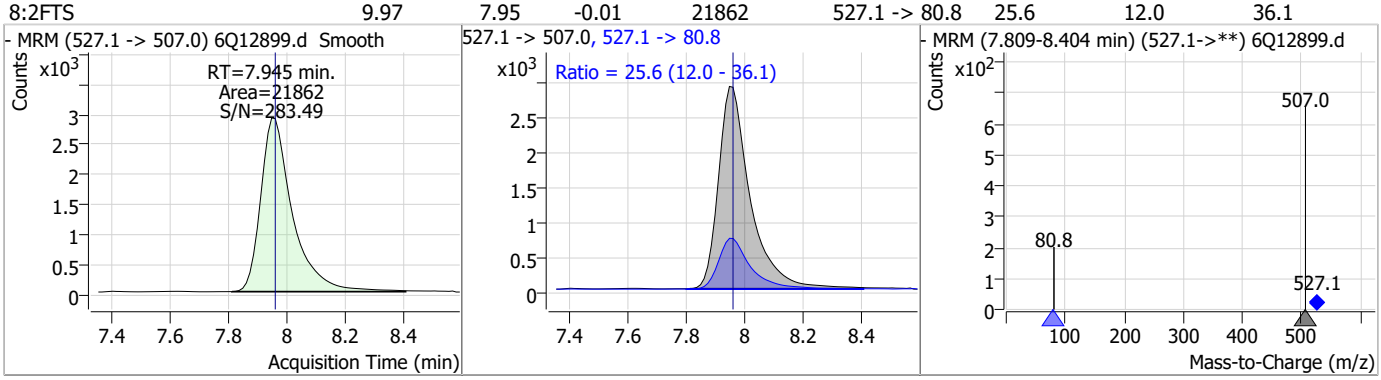
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.40	7.84	0.00	7982	449.0 -> 98.9	59.9	27.6	82.9



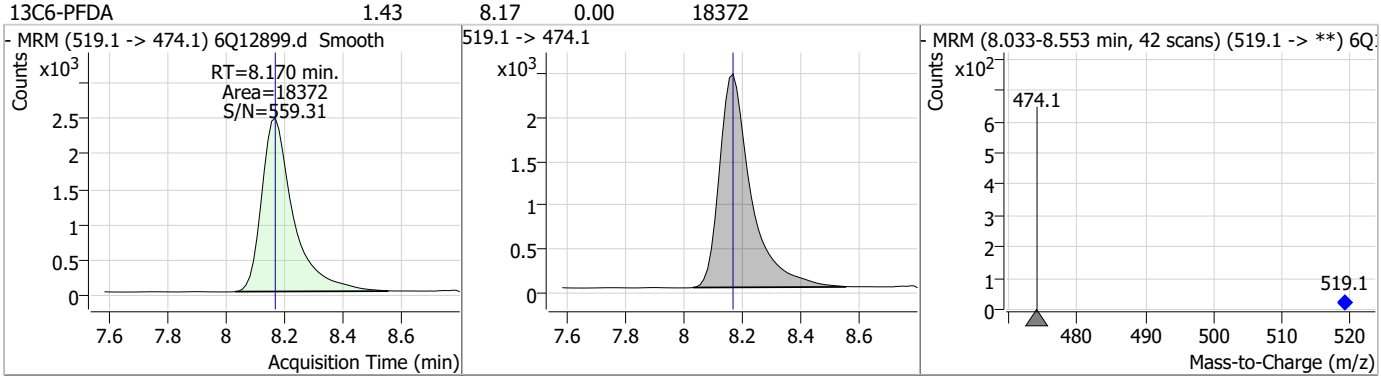
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.93	7.96	0.00	2823				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.97	7.95	-0.01	21862	527.1 -> 80.8	25.6	12.0	36.1

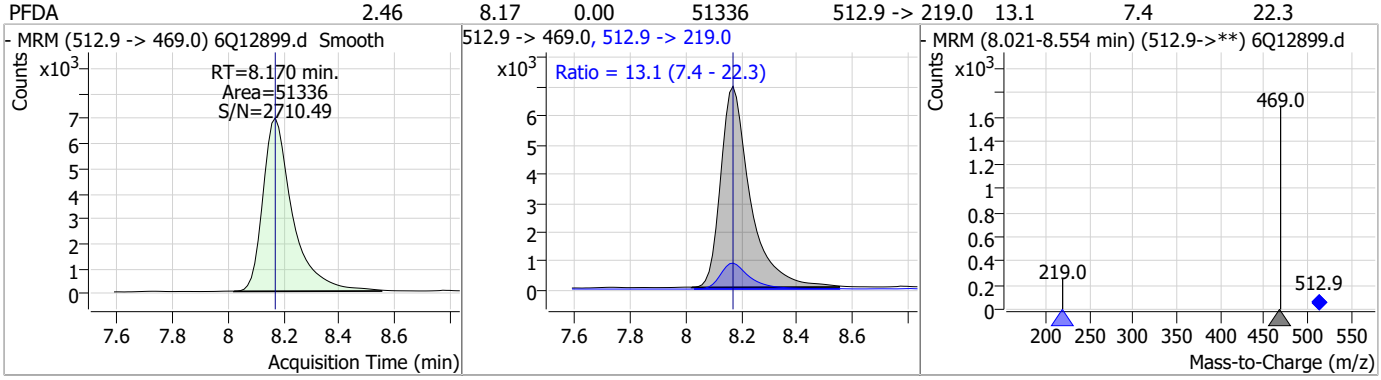


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.43	8.17	0.00	18372				

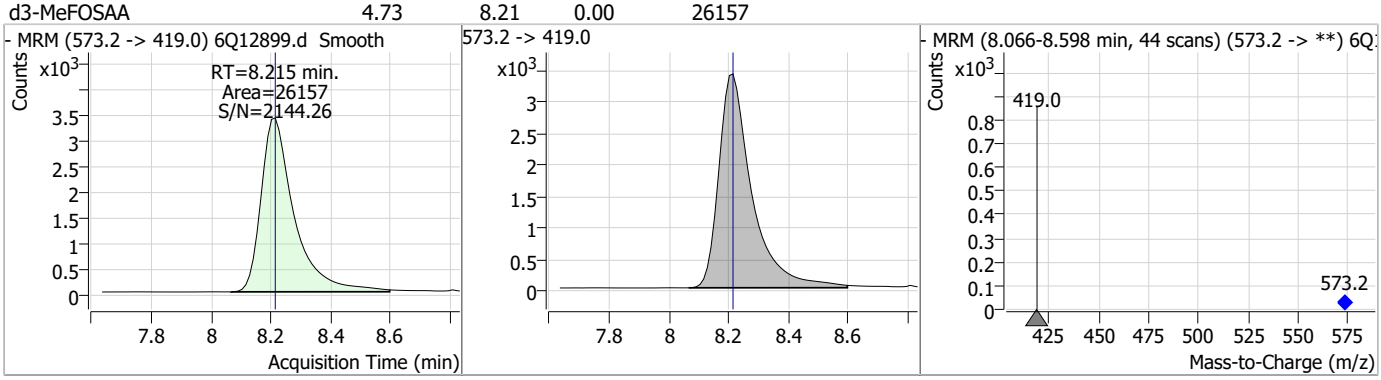


Perfluorinated Compounds by LC/MS/MS

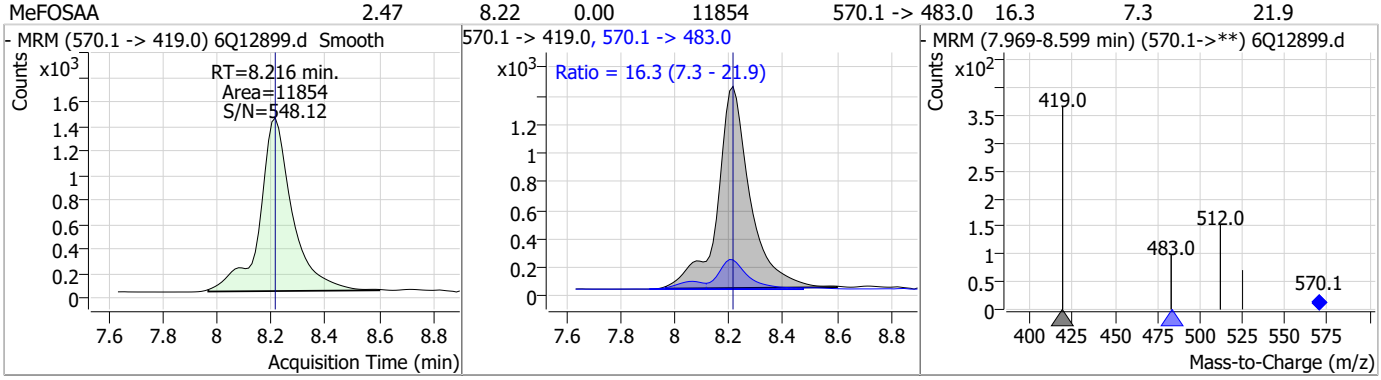
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.46	8.17	0.00	51336	512.9 -> 219.0	13.1	7.4	22.3



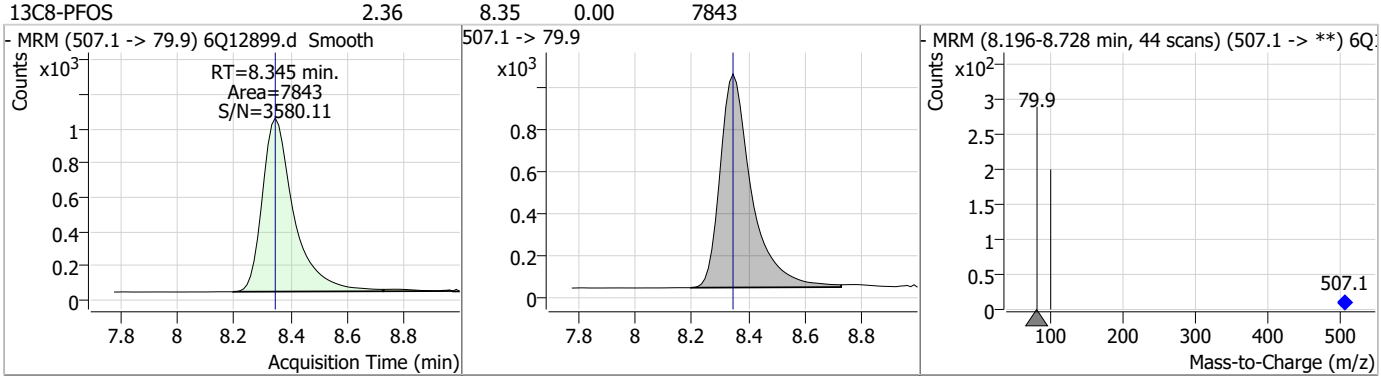
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.73	8.21	0.00	26157				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.47	8.22	0.00	11854	570.1 -> 483.0	16.3	7.3	21.9

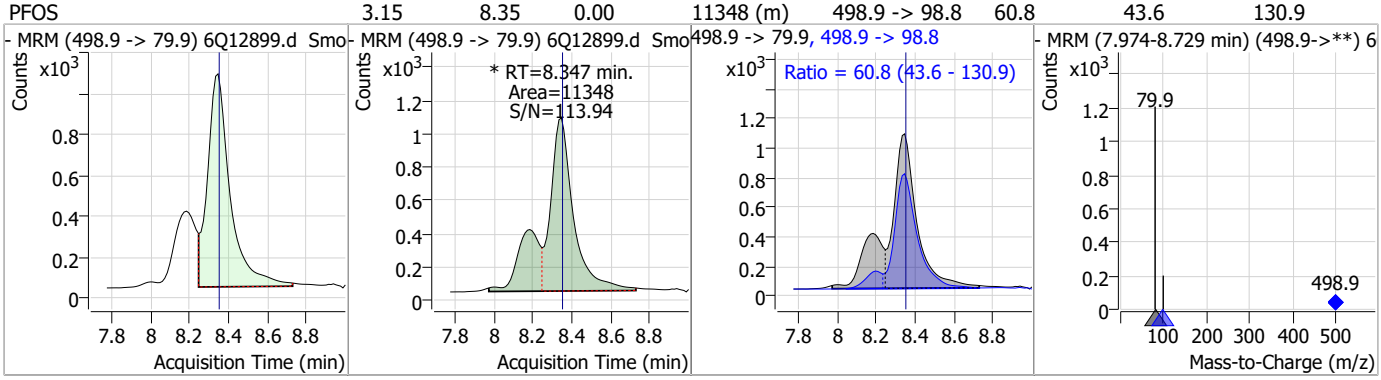


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.36	8.35	0.00	7843				

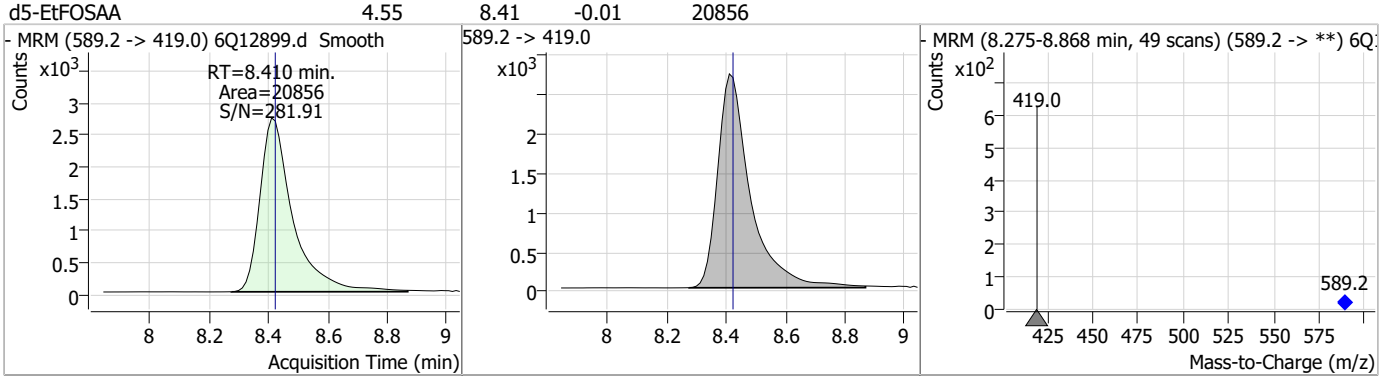


Perfluorinated Compounds by LC/MS/MS

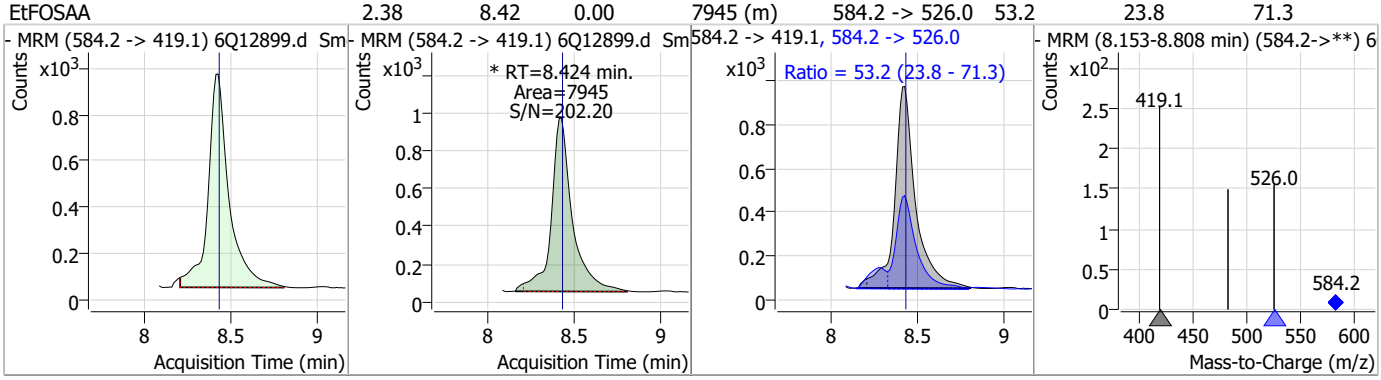
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.15	8.35	0.00	11348 (m)	498.9 -> 98.8	60.8	43.6	130.9



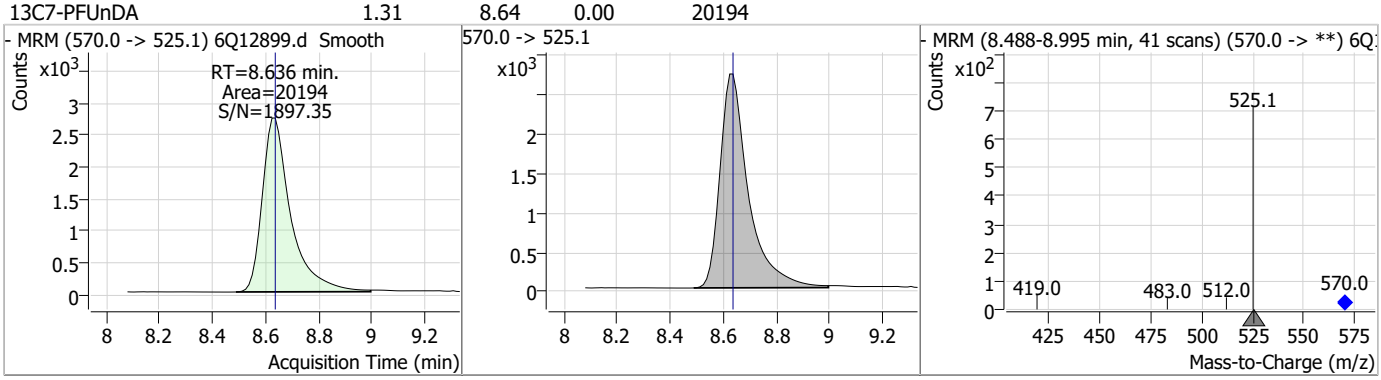
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.55	8.41	-0.01	20856				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.38	8.42	0.00	7945 (m)	584.2 -> 526.0	53.2	23.8	71.3

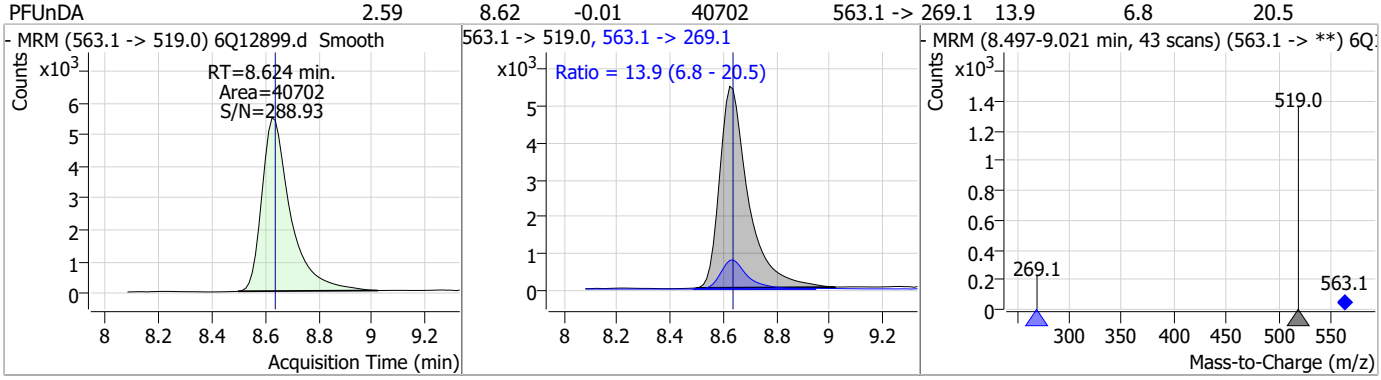


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	20194				

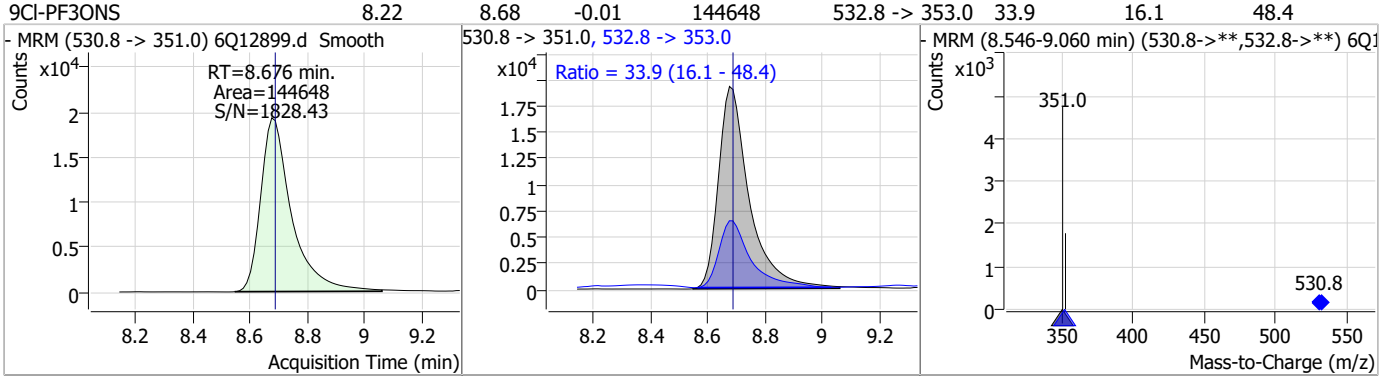


Perfluorinated Compounds by LC/MS/MS

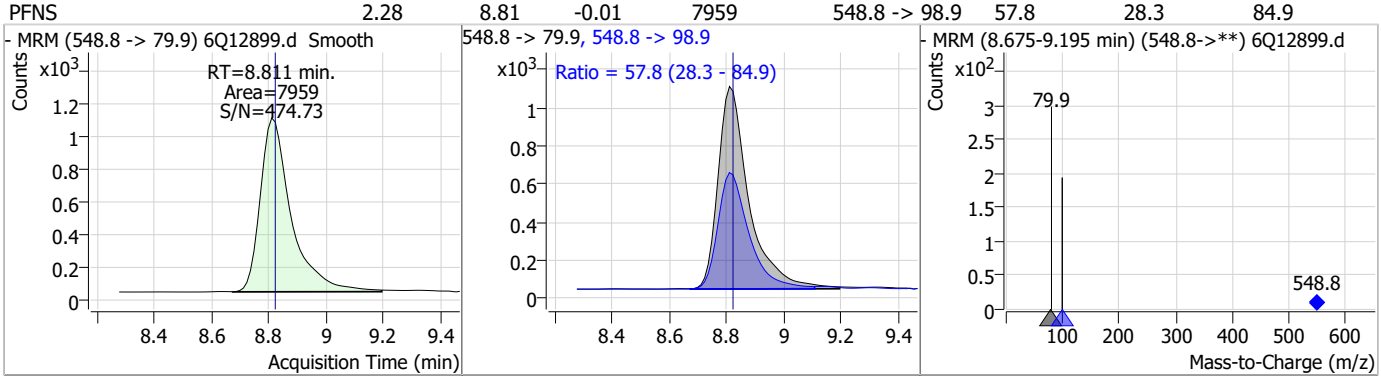
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.59	8.62	-0.01	40702	563.1 -> 269.1	13.9	6.8	20.5



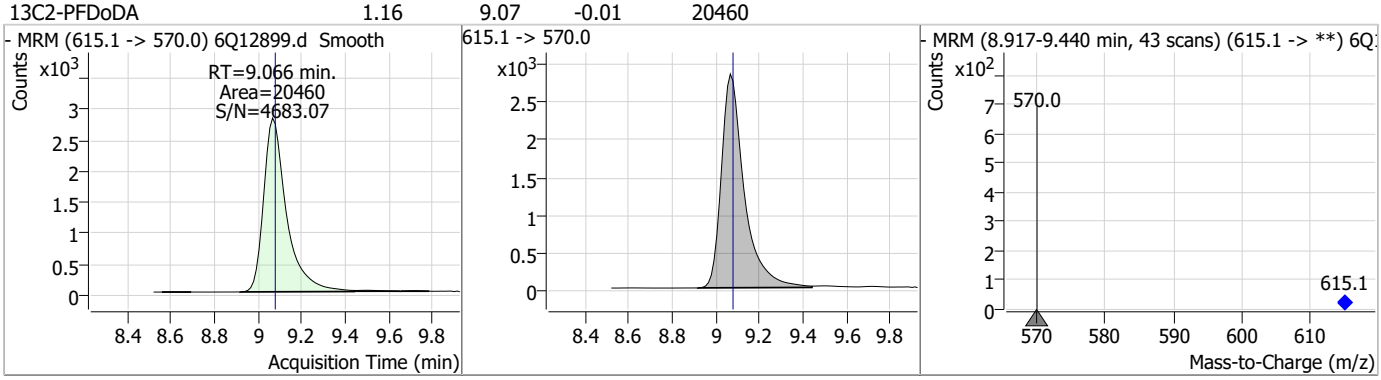
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.22	8.68	-0.01	144648	532.8 -> 353.0	33.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.28	8.81	-0.01	7959	548.8 -> 98.9	57.8	28.3	84.9

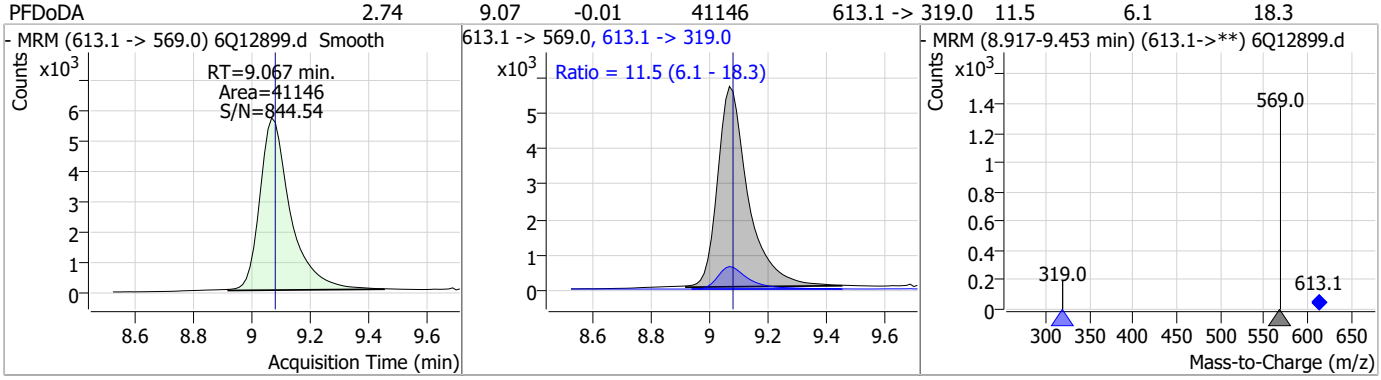


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.16	9.07	-0.01	20460				

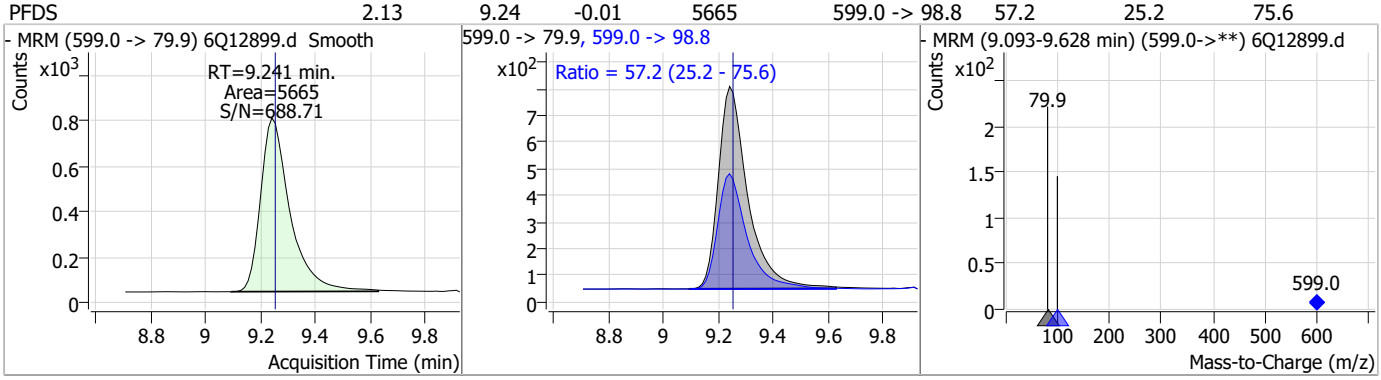


Perfluorinated Compounds by LC/MS/MS

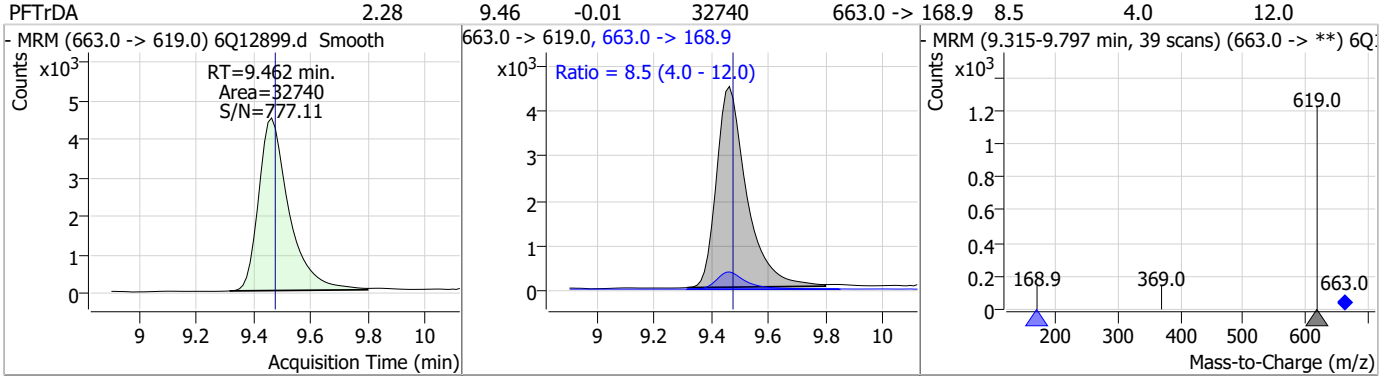
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.74	9.07	-0.01	41146	613.1 -> 319.0	11.5	6.1	18.3



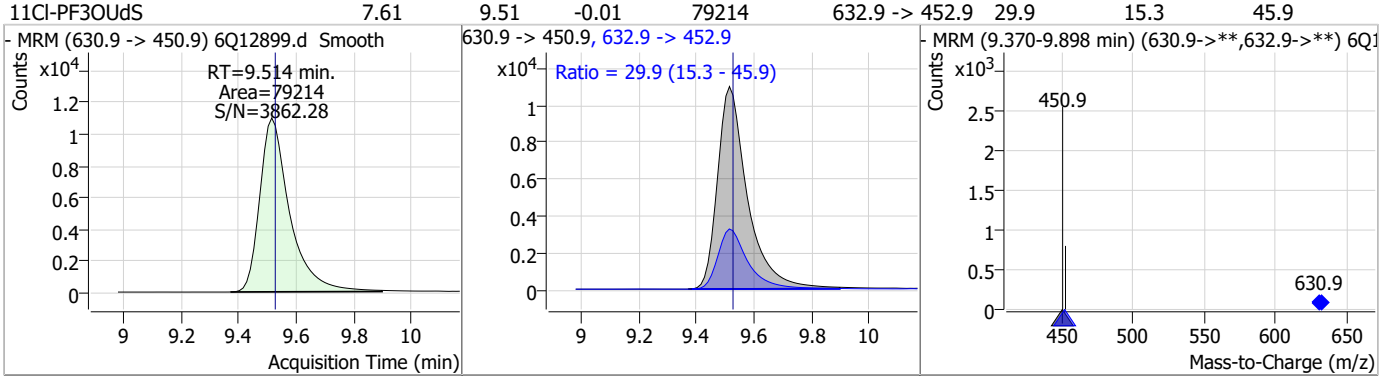
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.13	9.24	-0.01	5665	599.0 -> 98.8	57.2	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.28	9.46	-0.01	32740	663.0 -> 168.9	8.5	4.0	12.0

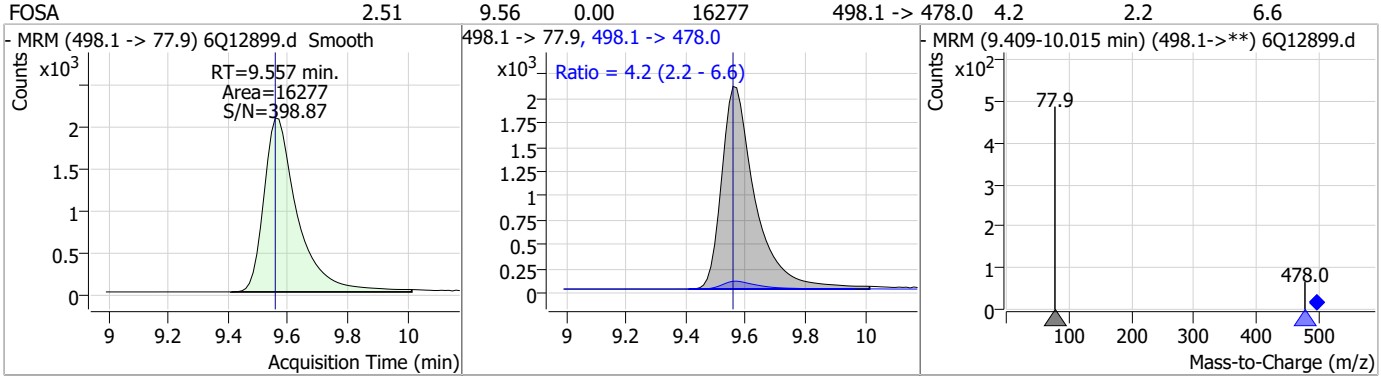


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	7.61	9.51	-0.01	79214	632.9 -> 452.9	29.9	15.3	45.9

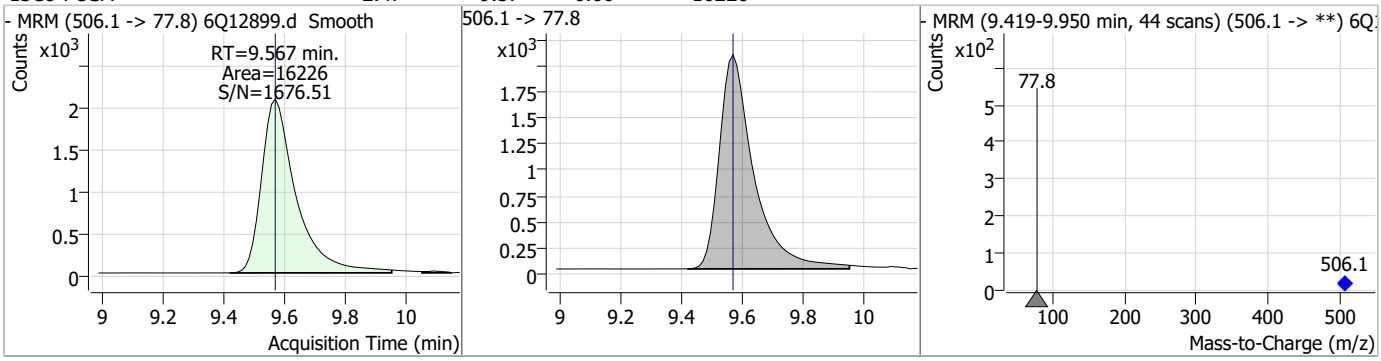


Perfluorinated Compounds by LC/MS/MS

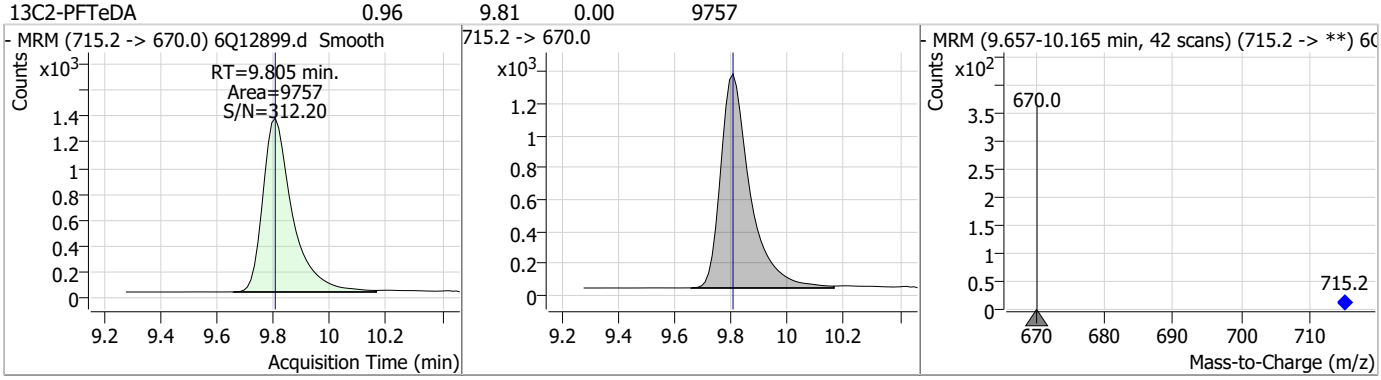
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.51	9.56	0.00	16277	498.1 -> 478.0	4.2	2.2	6.6



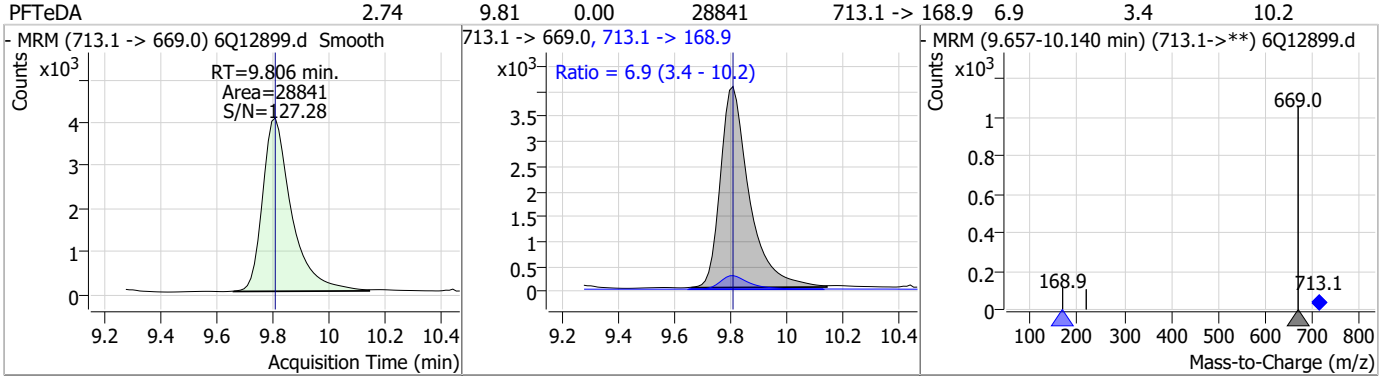
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.57	0.00	16226				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.96	9.81	0.00	9757				

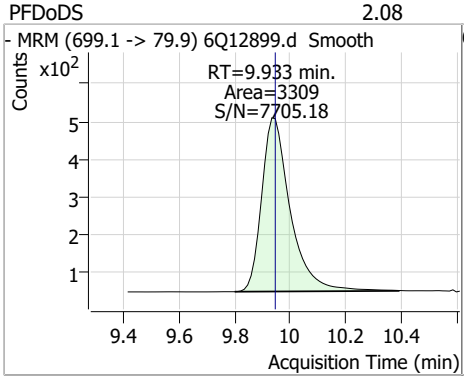


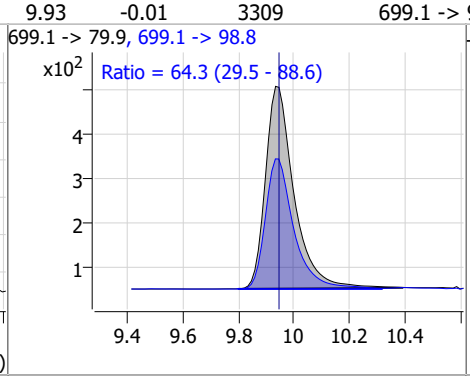
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.74	9.81	0.00	28841	713.1 -> 168.9	6.9	3.4	10.2

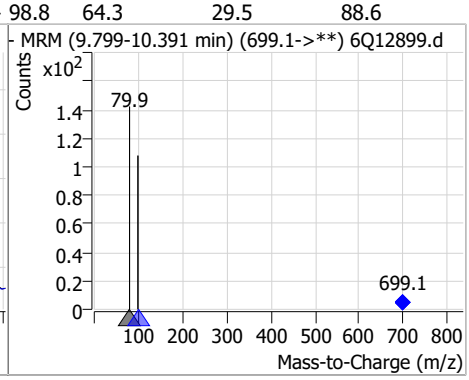


Perfluorinated Compounds by LC/MS/MS

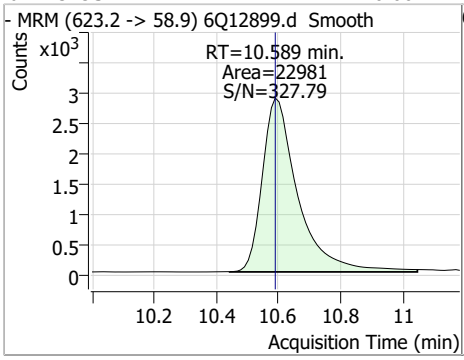
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.08	9.93	-0.01	3309	699.1 -> 98.8	64.3	29.5	88.6

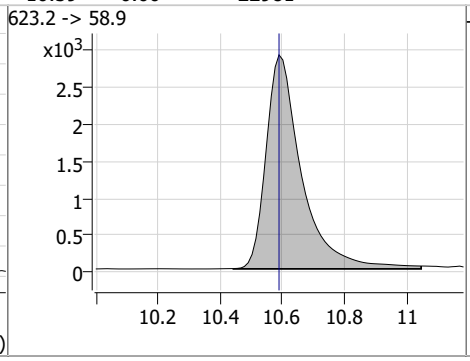


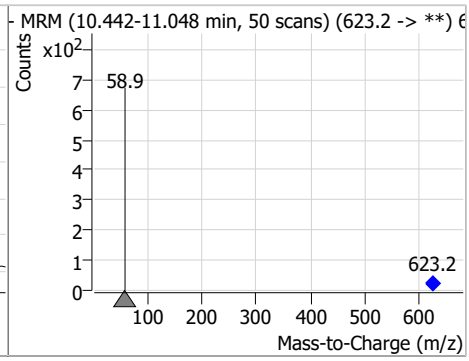




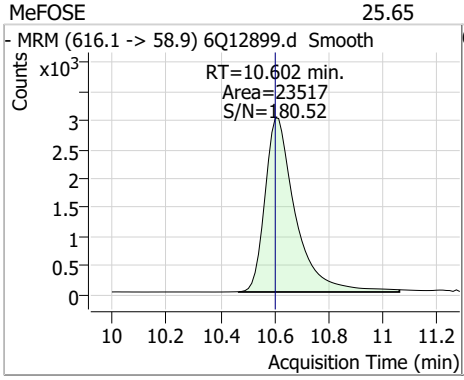
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.06	10.59	0.00	22981				

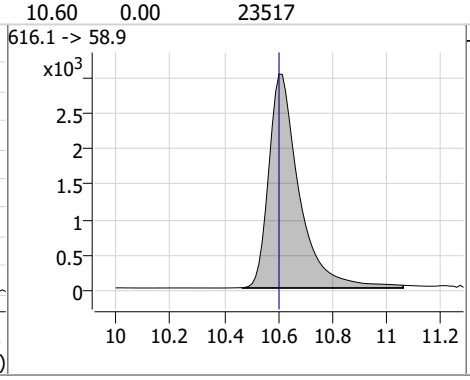


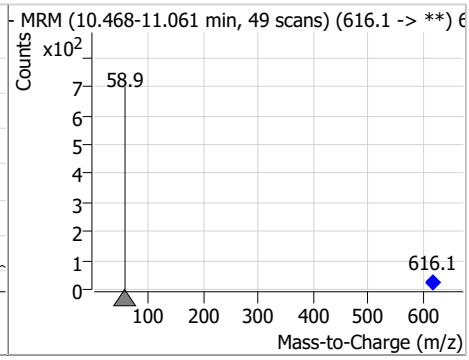




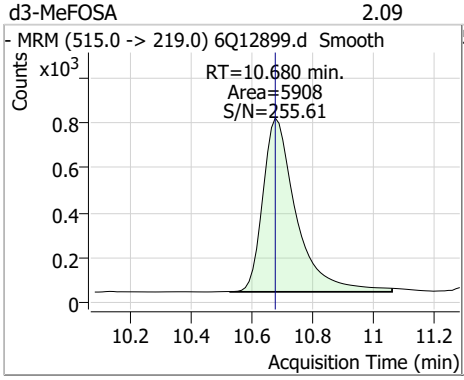
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	25.65	10.60	0.00	23517				

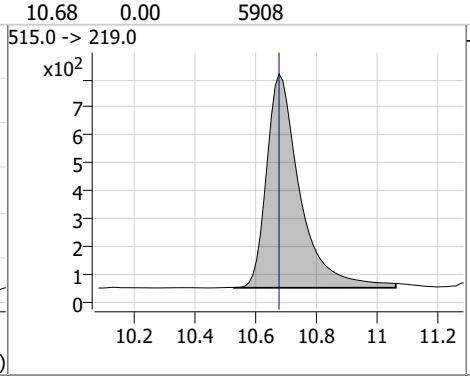


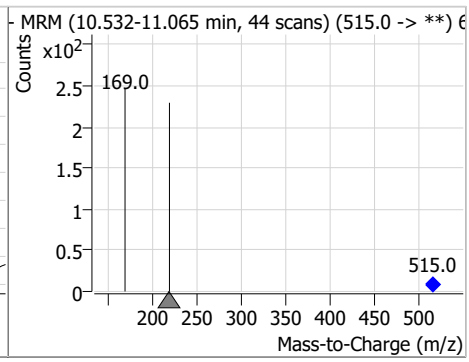




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.09	10.68	0.00	5908				

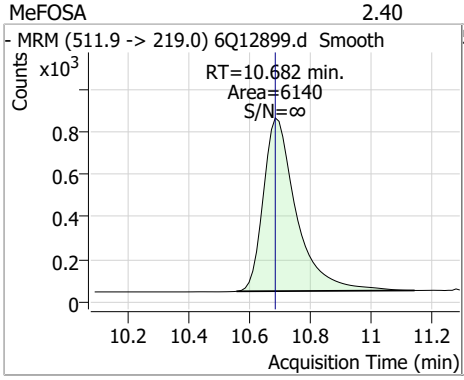


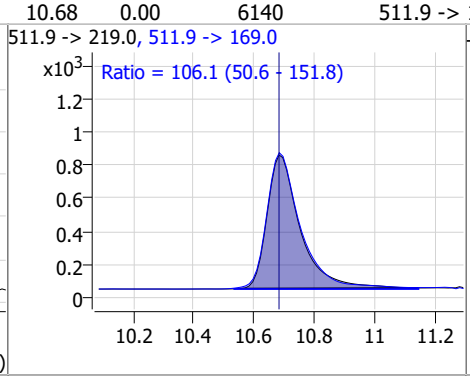


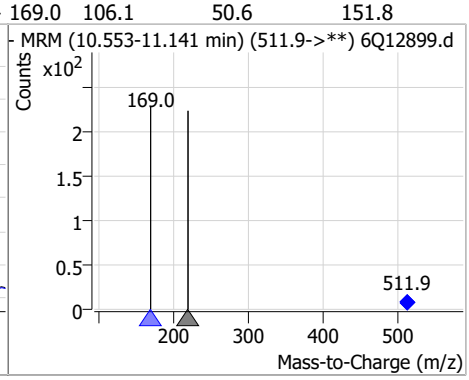


Perfluorinated Compounds by LC/MS/MS

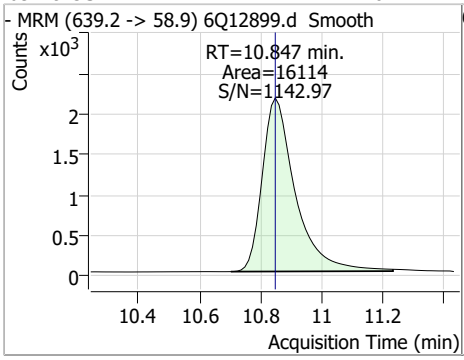
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.40	10.68	0.00	6140	511.9 -> 169.0	106.1	50.6	151.8

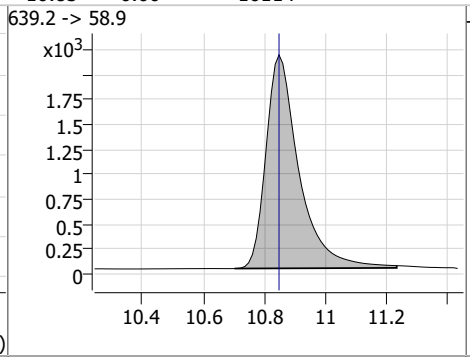


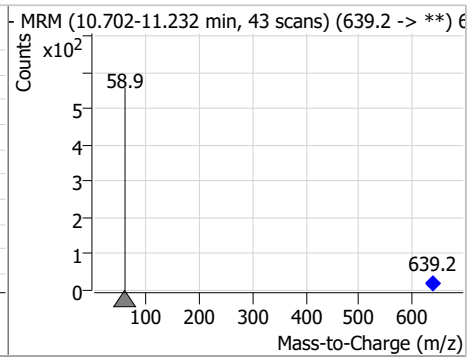




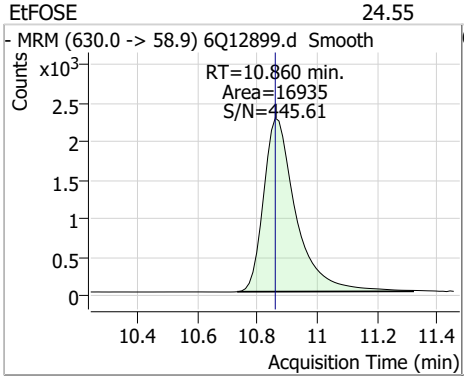
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.41	10.85	0.00	16114				

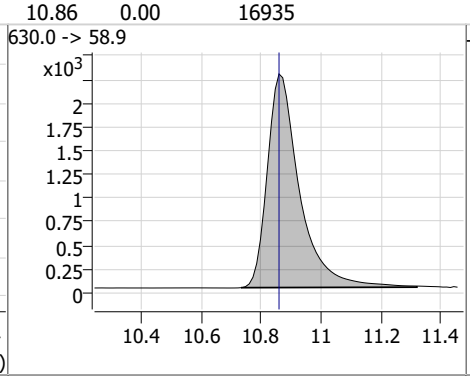


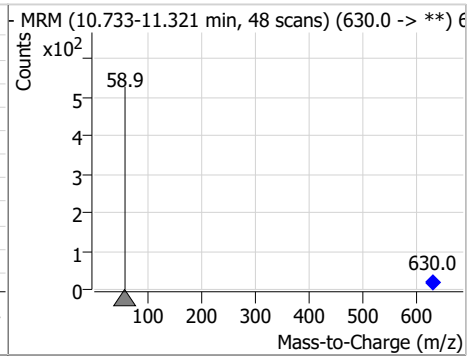




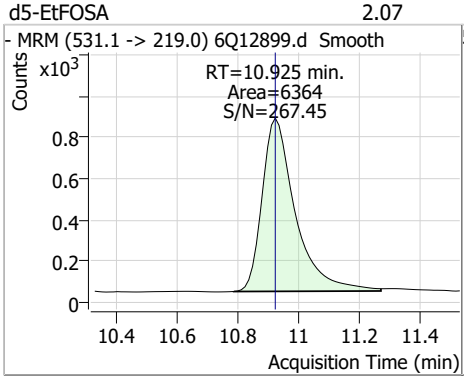
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.55	10.86	0.00	16935				

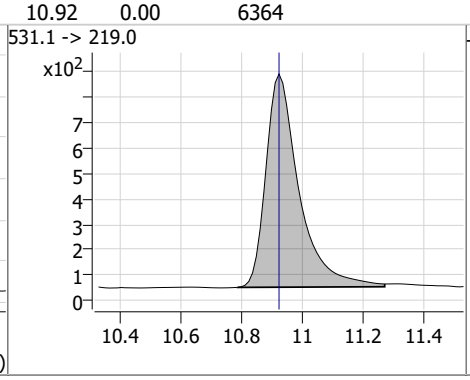


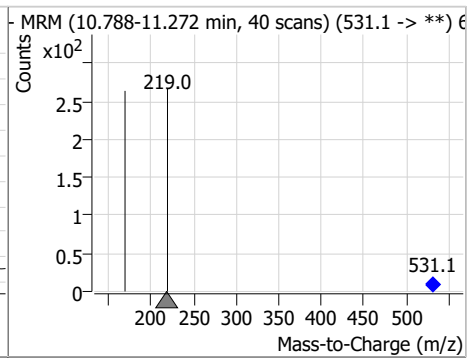




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.07	10.92	0.00	6364				

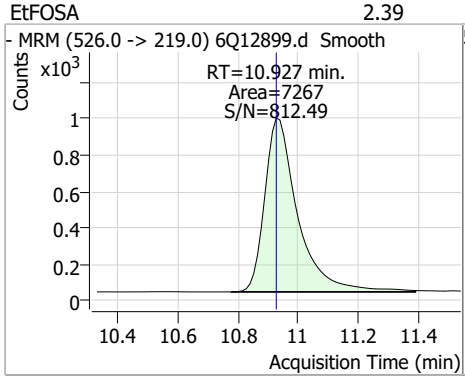


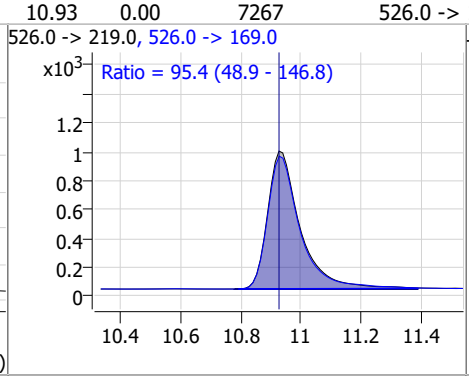


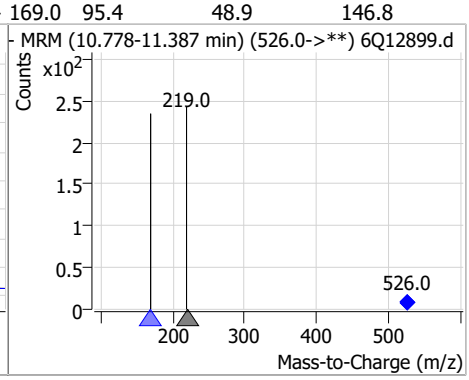


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.39	10.93	0.00	7267	526.0 -> 169.0	95.4	48.9	146.8







Manual Integration Approval Summary

Sample Number:	OP95216-MS	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12899.D	**Analyst approved:**	02/06/23 11:17 Martha Valls
Injection Time:	02/03/23 13:31	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12907.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 3:23:47 PM
Sample Name	:	op95216-dup
Vial	:	P4-B7
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP95216,S6Q198,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	3.013	216.8 -> 171.9	71192	10.00	µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	36133	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	31059	2.50	µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33291	2.50	µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	57191	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24576	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18767	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19713	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	21974	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	10123	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16603	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11848	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8144	2.50	µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	7241	2.50	µg/L	-0.012
M2-4:2FTS	5.240	329.1 -> 80.9	2219	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2426	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2400	5.00	µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	36984	5.00	µg/L	-0.012
M3-HFPO-DA	5.940	286.9 -> 168.9	13386	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	32172	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	24224	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17463	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6425	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6232	2.50	µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	8058	2.50	µg/L	-0.012
13C3-PFBA	3.016	216.0 -> 172.0	30735	5.00	µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5877	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	71582	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23071	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27455	1.25	µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	29904	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2219	5.81	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2426	4.79	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2400	4.71	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C2-PFDoDA	9.066	615.1 -> 570.0	21974	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10123	1.00	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.9%		
13C3-PFBS	5.518	302.1 -> 79.9	11848	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8144	2.64	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFBA	3.013	216.8 -> 171.9	71192	10.44 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFHpA	6.515	367.1 -> 322.0	33291	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFHxA	5.575	318.0 -> 273.0	31059	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFPeA	4.386	268.3 -> 223.0	36133	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C6-PFDA	8.170	519.1 -> 474.1	18767	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.0%	
13C7-PFUnDA	8.636	570.0 -> 525.1	19713	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-FOSA	9.567	506.1 -> 77.8	16603	3.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.5%	
13C8-PFOA	7.146	421.1 -> 376.0	57191	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C8-PFOS	8.333	507.1 -> 79.9	7241	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C9-PFNA	7.689	472.1 -> 427.0	24576	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSAA	8.202	573.2 -> 419.0	36984	8.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 167.5%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13386	10.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	6232	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
d5-EtFOSAA	8.410	589.2 -> 419.0	32172	8.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 175.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	24224	26.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
d9-EtFOSE	10.847	639.2 -> 58.9	17463	27.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	6425	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
Target Compounds					**QValue**
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.921	427.1 -> 407.0	2315	0.65 µg/L	100
		427.1 -> 80.9	434		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDoDA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

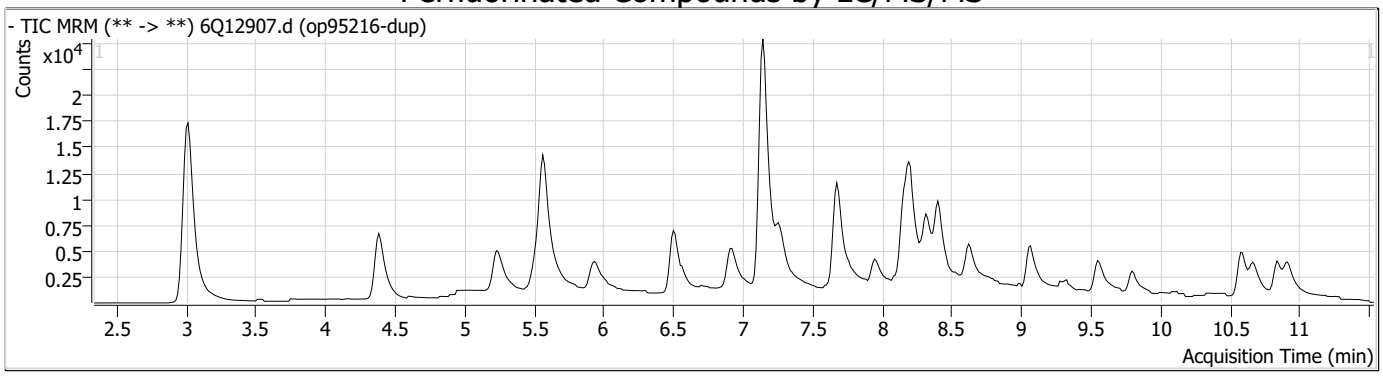
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8					
PFHpA	-	363.1 -> 319.0	-	N.D.			
		363.1 -> 169.0					
PFHpS	7.804	449.0 -> 79.9	0		µg/L	m	1
		449.0 -> 98.9	0				
PFHxA	5.578	313.0 -> 269.0	0		µg/L	m	1
		313.0 -> 118.9	0				
PFHxS	-	398.7 -> 79.9	-	N.D.			
		398.7 -> 98.9					
PFNA	-	463.0 -> 419.0	-	N.D.			
		463.0 -> 219.0					
PFNS	9.171	548.8 -> 79.9	0		µg/L	m	1
		548.8 -> 98.9	0				
PFOA	7.185	413.0 -> 369.0	0		µg/L	m	1
		413.0 -> 169.0	0				
PFOS	-	498.9 -> 79.9	-	N.D.			
		498.9 -> 98.8					
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFPeS	-	349.1 -> 79.9	-	N.D.			
		349.1 -> 98.9					
PFTeDA	9.336	713.1 -> 669.0	0		µg/L	m	1
		713.1 -> 168.9	0				
PFTrDA	-	663.0 -> 619.0	-	N.D.			
		663.0 -> 168.9					
PFUnDA	-	563.1 -> 519.0	-	N.D.			
		563.1 -> 269.1					
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.			
		632.9 -> 452.9					
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.			
		532.8 -> 353.0					
ADONA	-	376.9 -> 250.9	-	N.D.			
		376.9 -> 84.8					
HFPO-DA	-	284.9 -> 168.9	-	N.D.			
		284.9 -> 184.9					
3:3FTCA	-	241.0 -> 177.0	-	N.D.			
		241.0 -> 117.0					
5:3FTCA	-	341.0 -> 237.1	-	N.D.			
		341.0 -> 217.0					
7:3FTCA	-	441.0 -> 316.9	-	N.D.			
		441.0 -> 336.9					
EtFOSA	-	526.0 -> 219.0	-	N.D.			
		526.0 -> 169.0					
EtFOSE	-	630.0 -> 58.9	-	N.D.			
MeFOSA	-	511.9 -> 219.0	-	N.D.			
		511.9 -> 169.0					
MeFOSE	-	616.1 -> 58.9	-	N.D.			
PFDoDS	-	699.1 -> 79.9	-	N.D.			
		699.1 -> 98.8					
NFDHA	-	295.0 -> 201.0	-	N.D.			
		295.0 -> 84.9					
PFMBA	-	279.0 -> 85.1	-	N.D.			
PFMPA	-	229.0 -> 84.9	-	N.D.			
PFEESA	-	314.8 -> 134.9	-	N.D.			
		314.8 -> 82.9					

= Qualifier out of range, m = manually integrated, + = Area summed

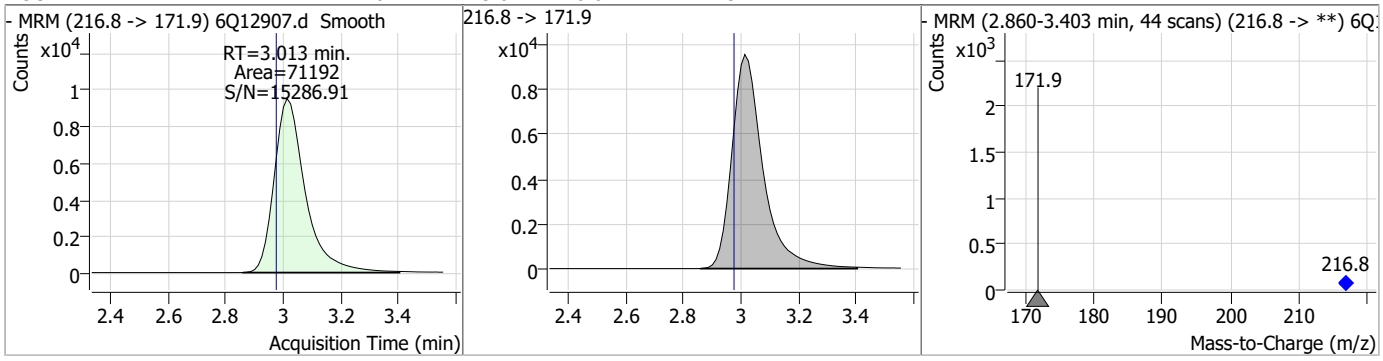
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

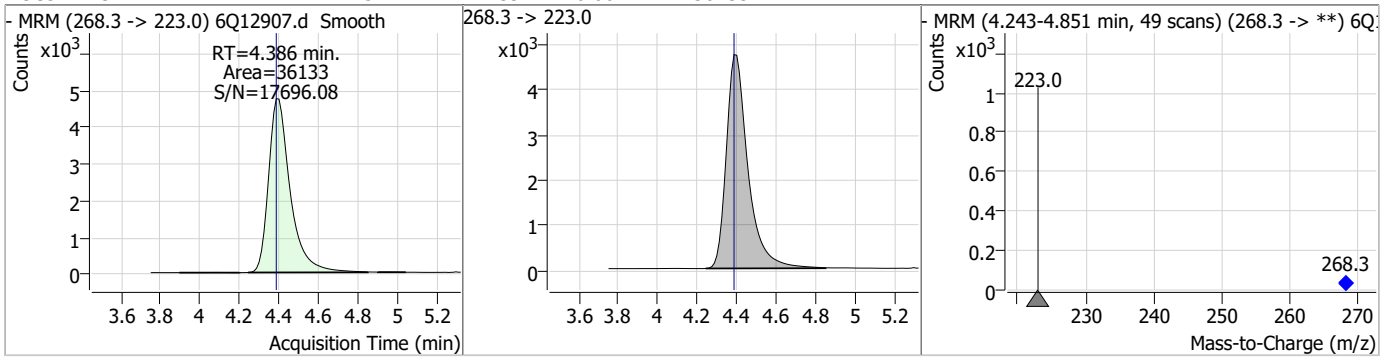
Perfluorinated Compounds by LC/MS/MS



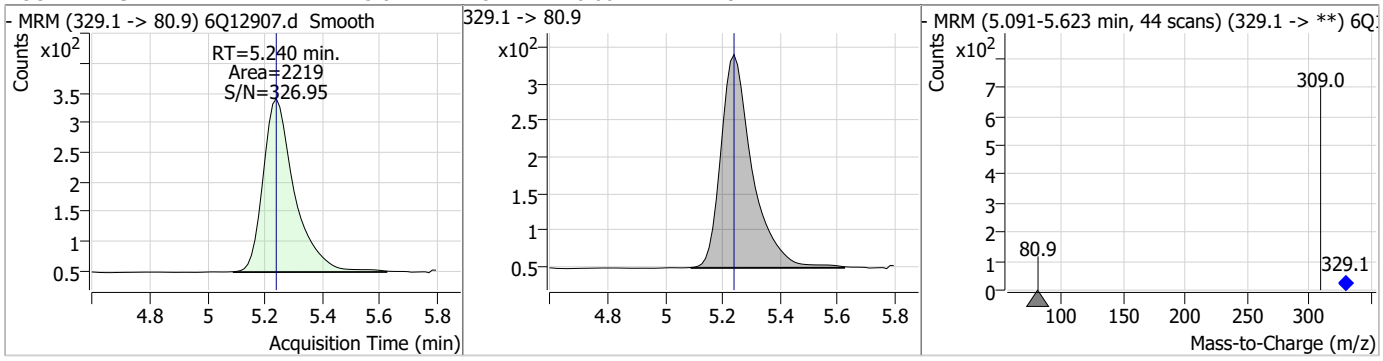
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.44	3.01	0.04	71192				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.42	4.39	0.00	36133				

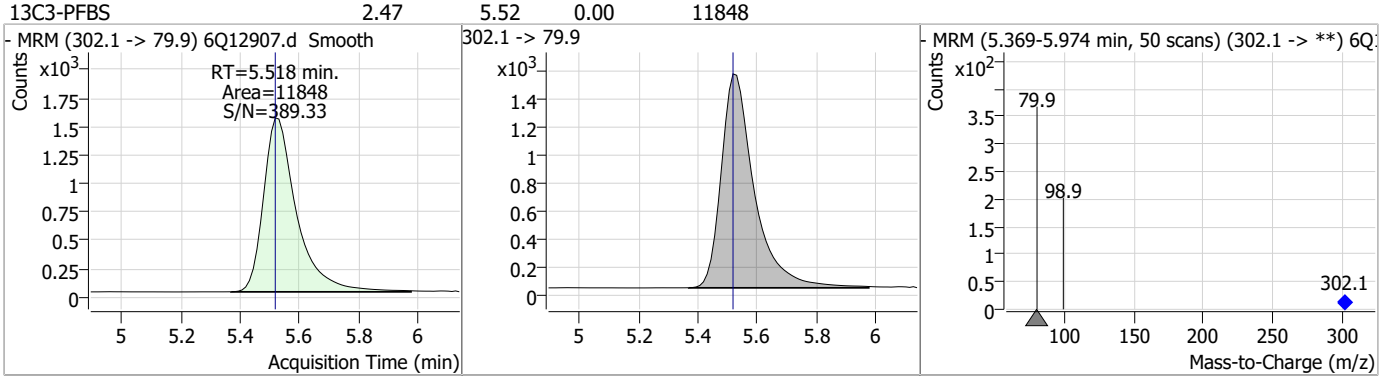


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.81	5.24	0.00	2219				

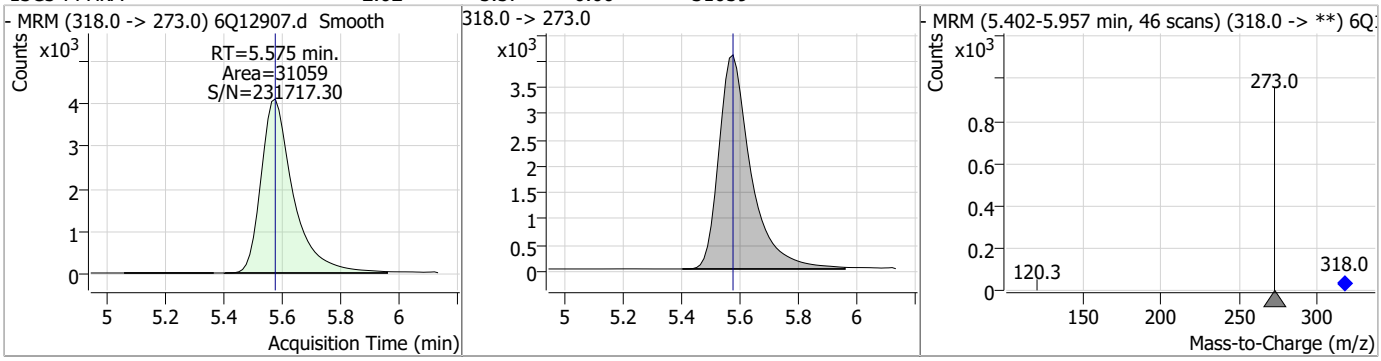


Perfluorinated Compounds by LC/MS/MS

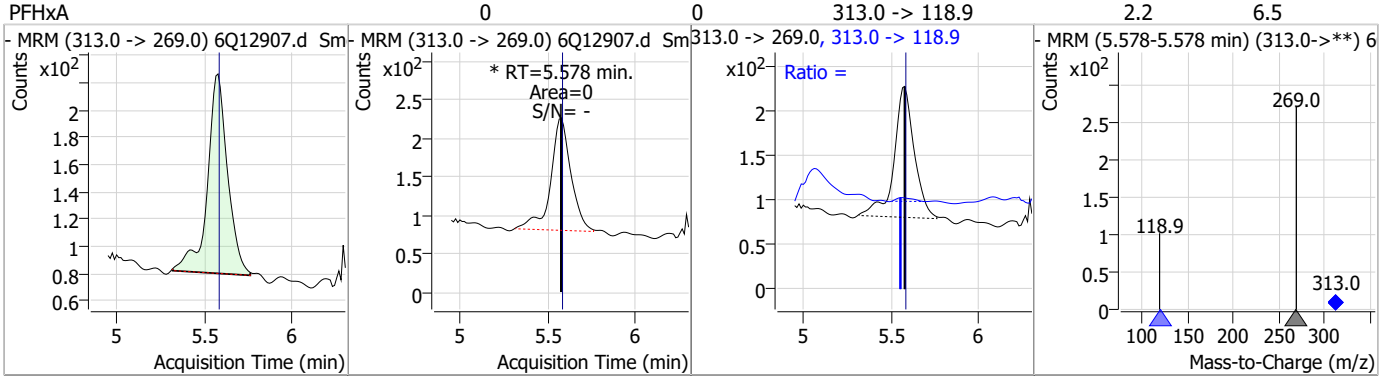
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.47	5.52	0.00	11848				



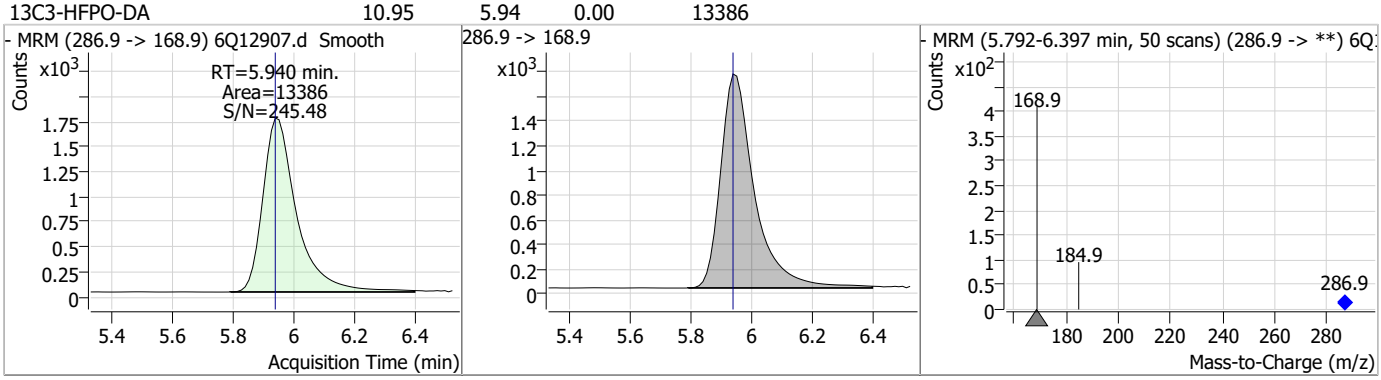
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.62	5.57	0.00	31059				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA		0		0	313.0 -> 118.9		2.2	6.5

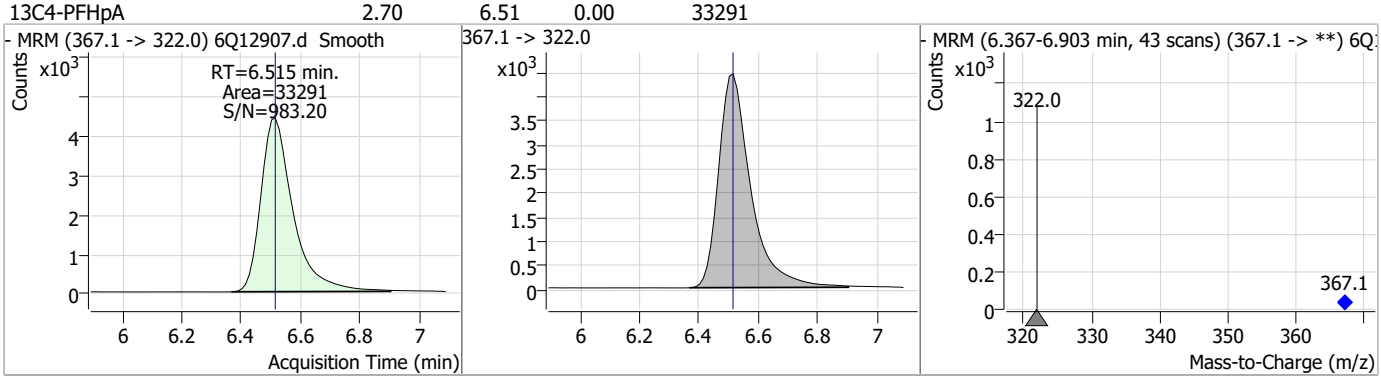


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.95	5.94	0.00	13386				

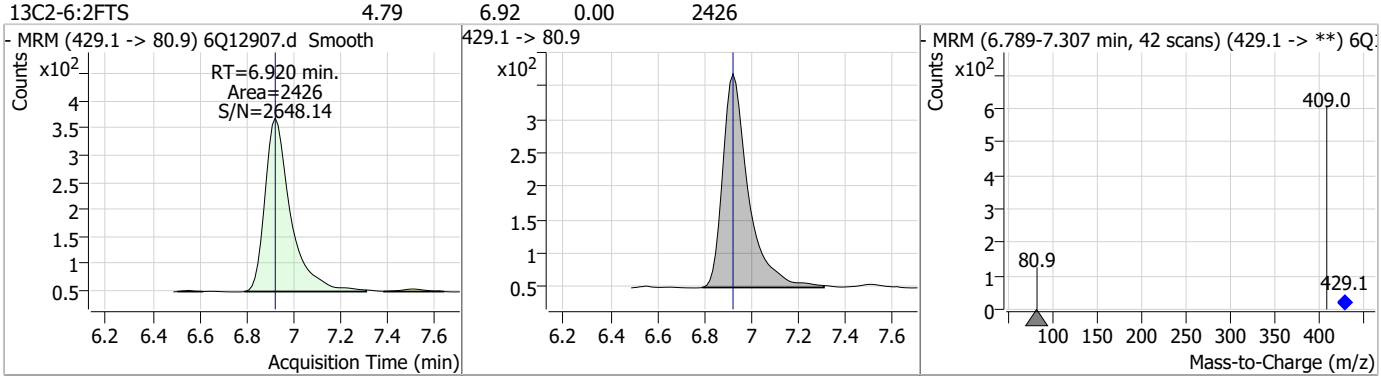


Perfluorinated Compounds by LC/MS/MS

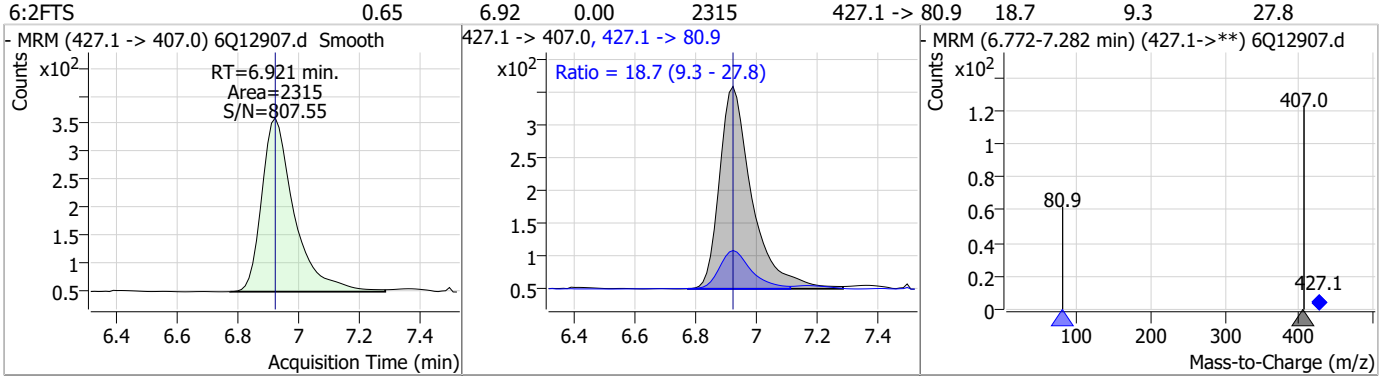
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.70	6.51	0.00	33291				



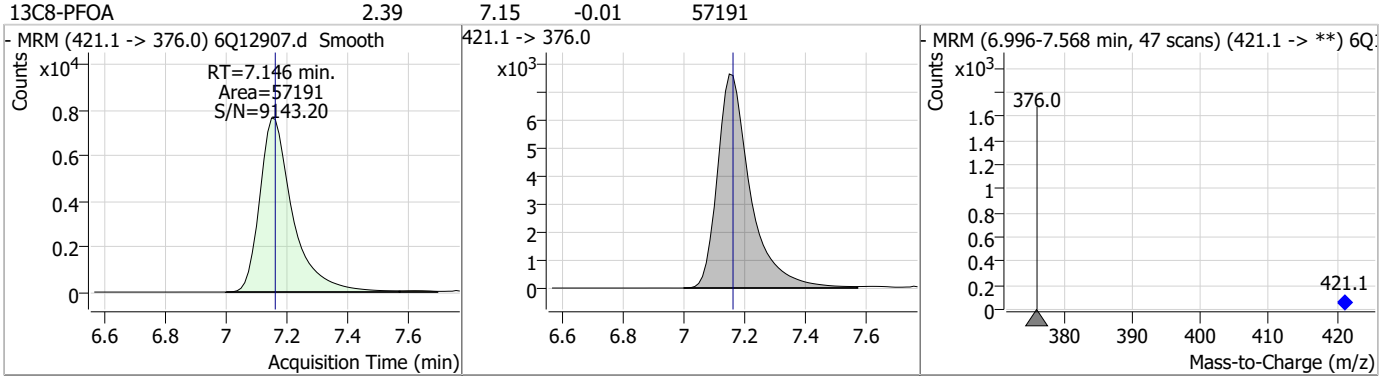
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.79	6.92	0.00	2426				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.65	6.92	0.00	2315	427.1 -> 80.9	18.7	9.3	27.8

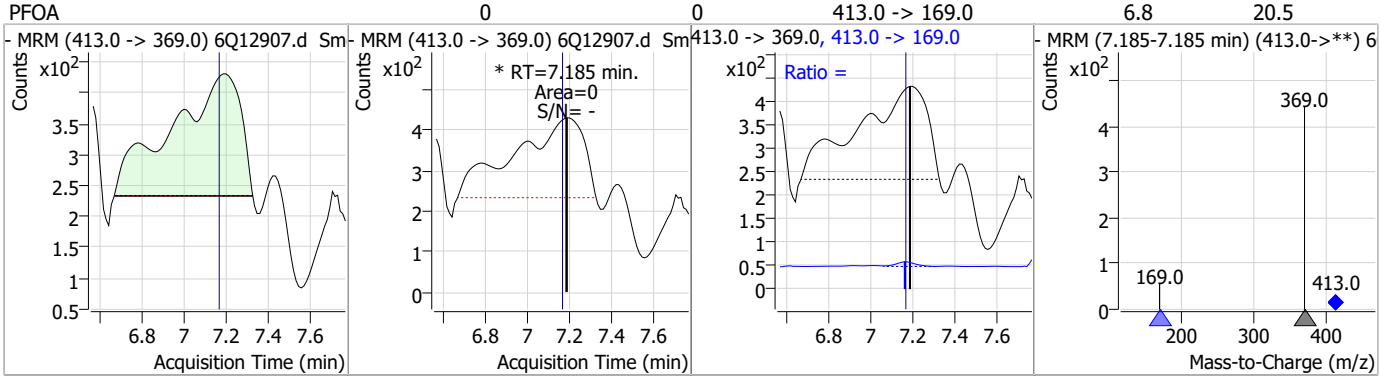


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.39	7.15	-0.01	57191				

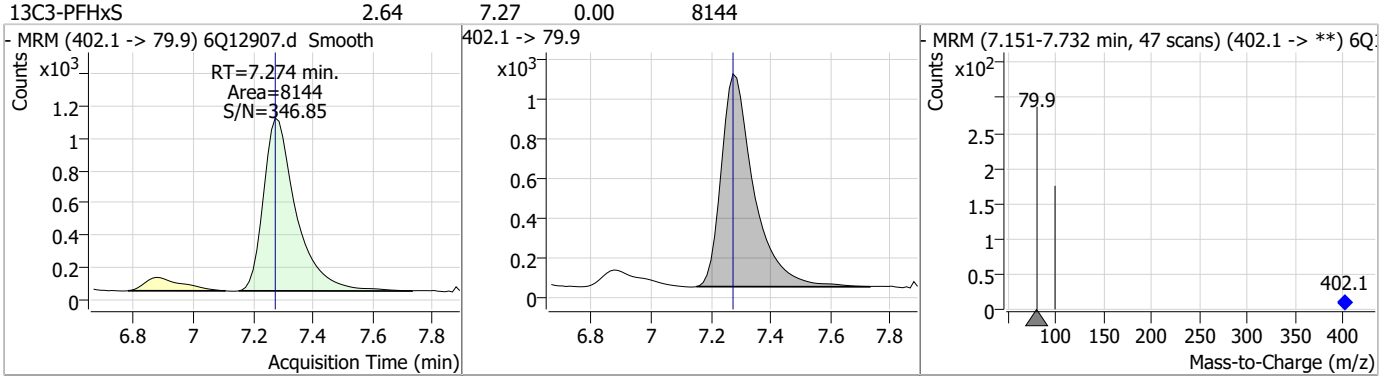


Perfluorinated Compounds by LC/MS/MS

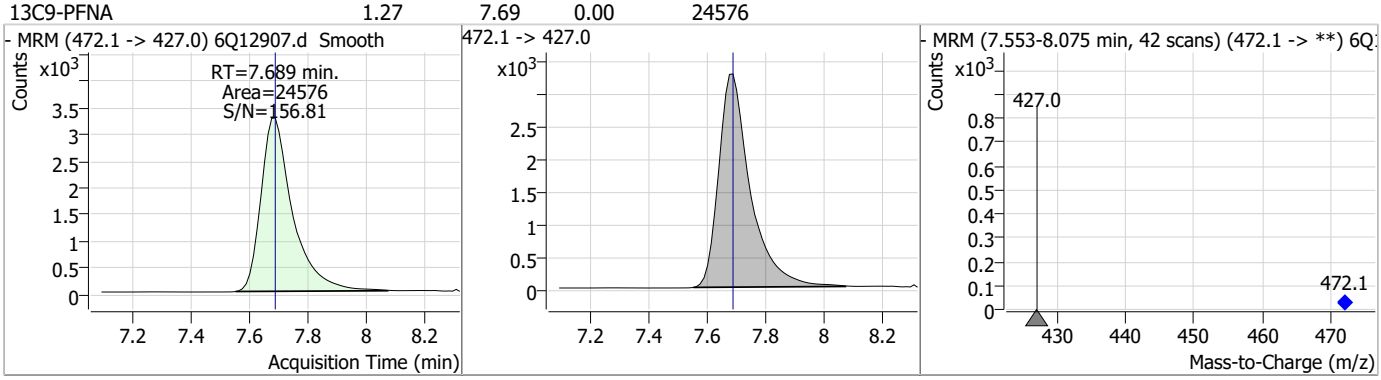
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA		0		0	413.0 -> 169.0		6.8	20.5



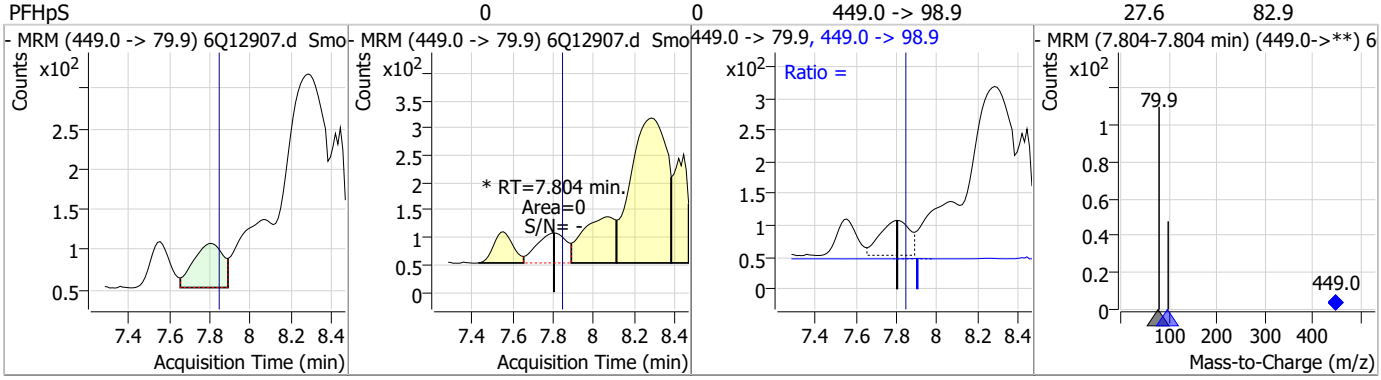
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.64	7.27	0.00	8144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.27	7.69	0.00	24576				

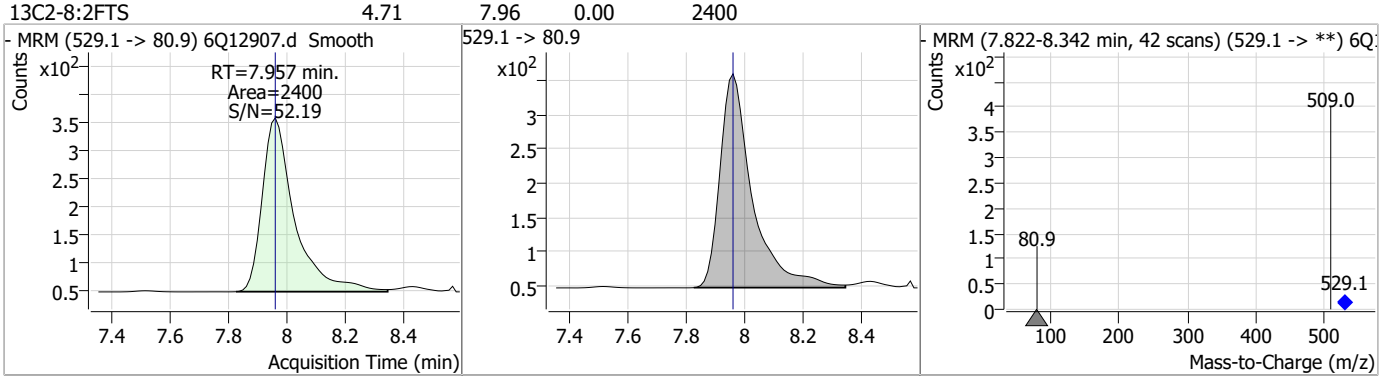


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS		0		0	449.0 -> 98.9		27.6	82.9

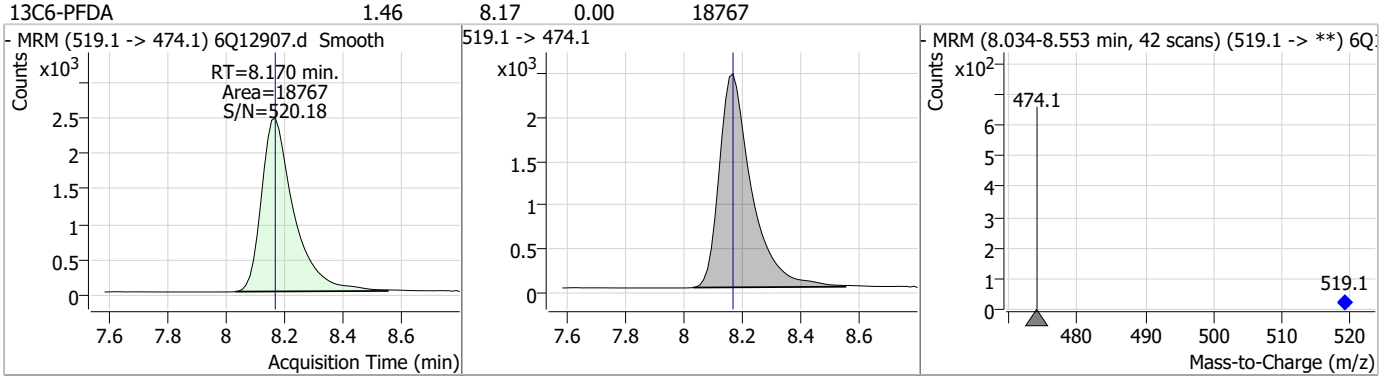


Perfluorinated Compounds by LC/MS/MS

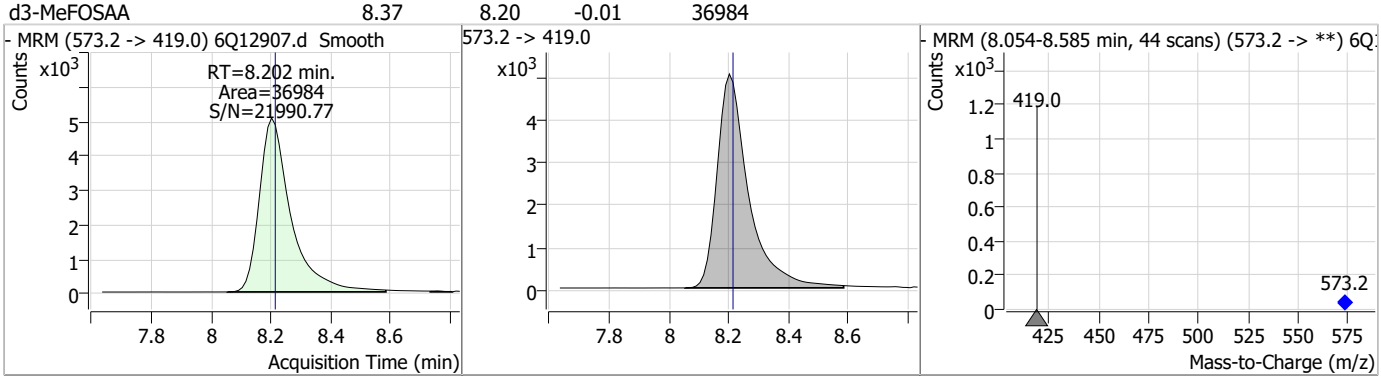
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.71	7.96	0.00	2400				



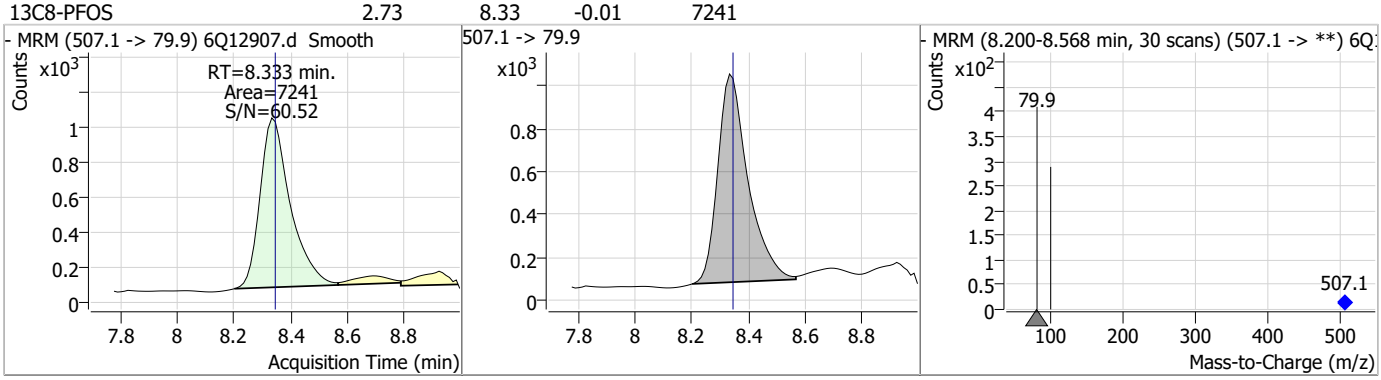
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.46	8.17	0.00	18767				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	8.37	8.20	-0.01	36984				

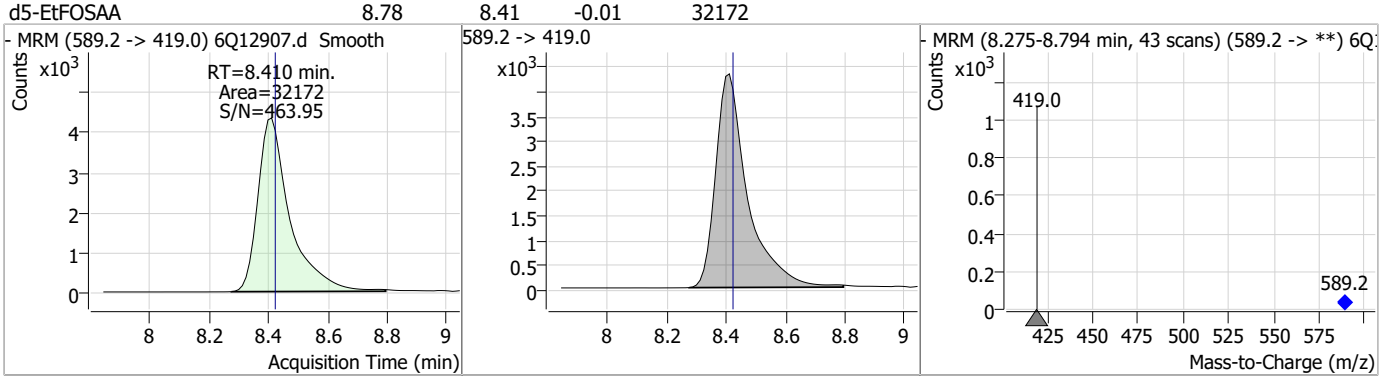


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.73	8.33	-0.01	7241				

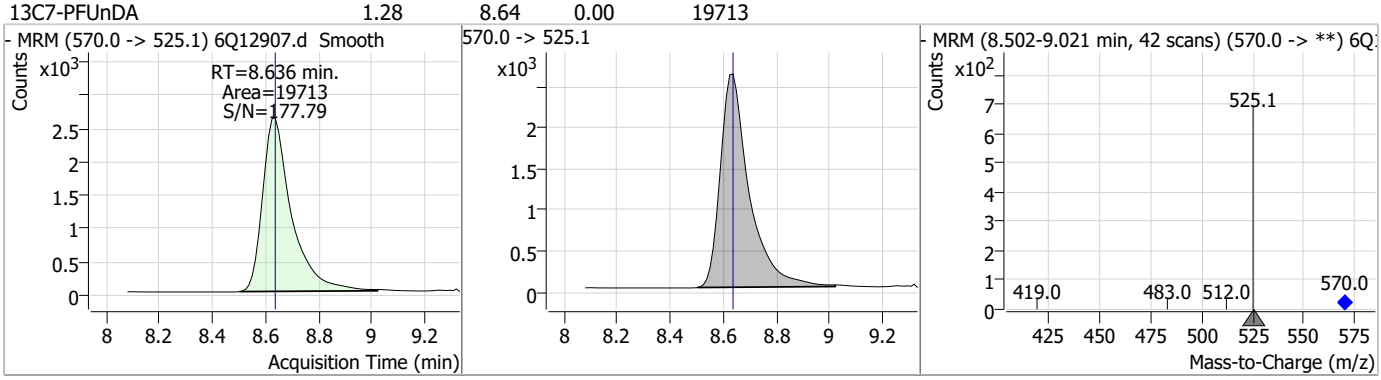


Perfluorinated Compounds by LC/MS/MS

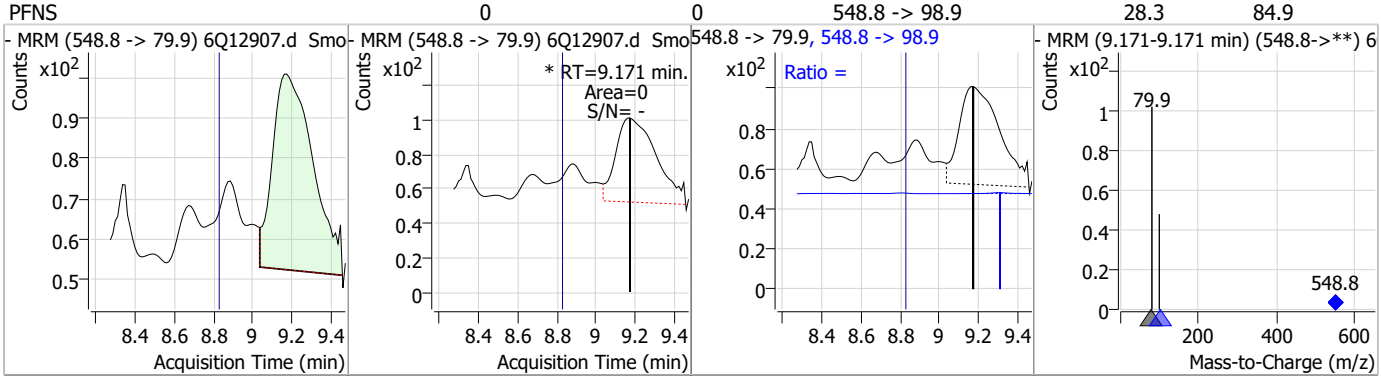
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	8.78	8.41	-0.01	32172				



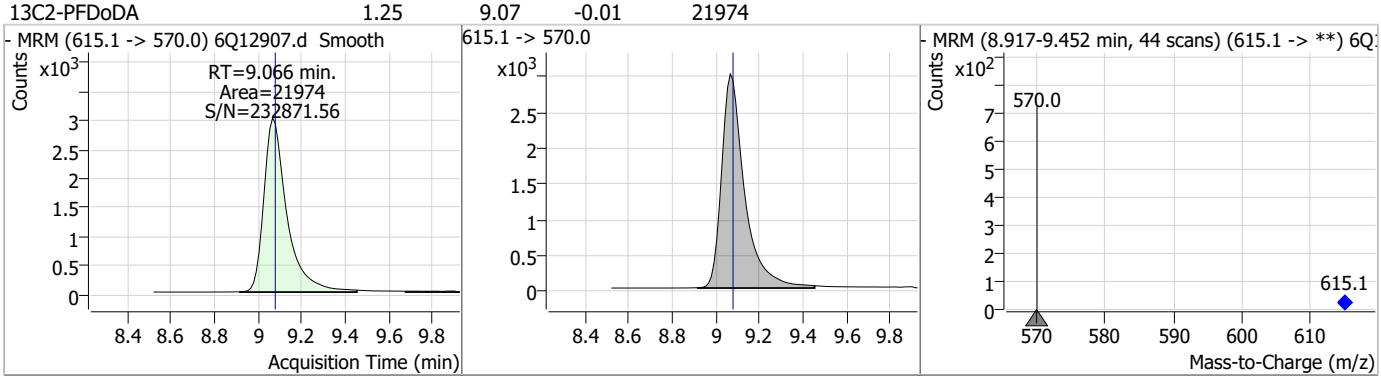
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.64	0.00	19713				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS		0		0	548.8 -> 98.9		28.3	84.9

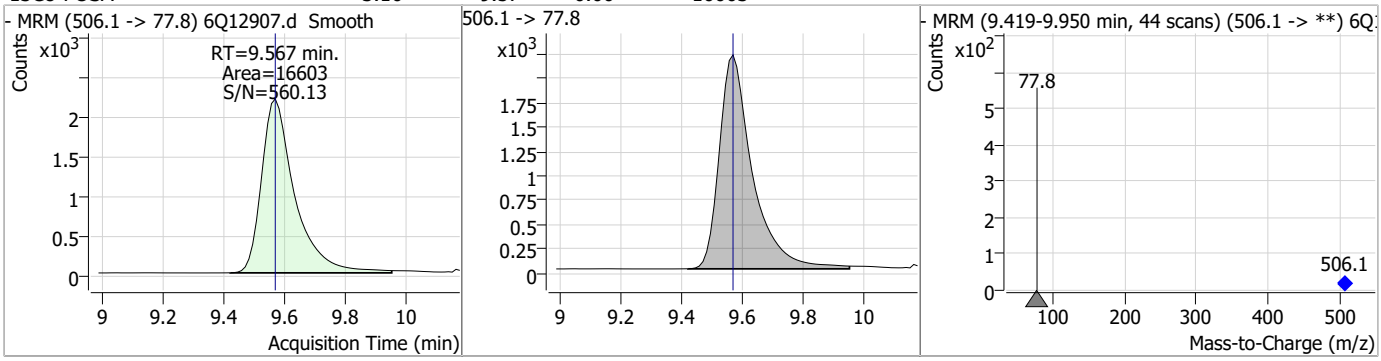


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.07	-0.01	21974				

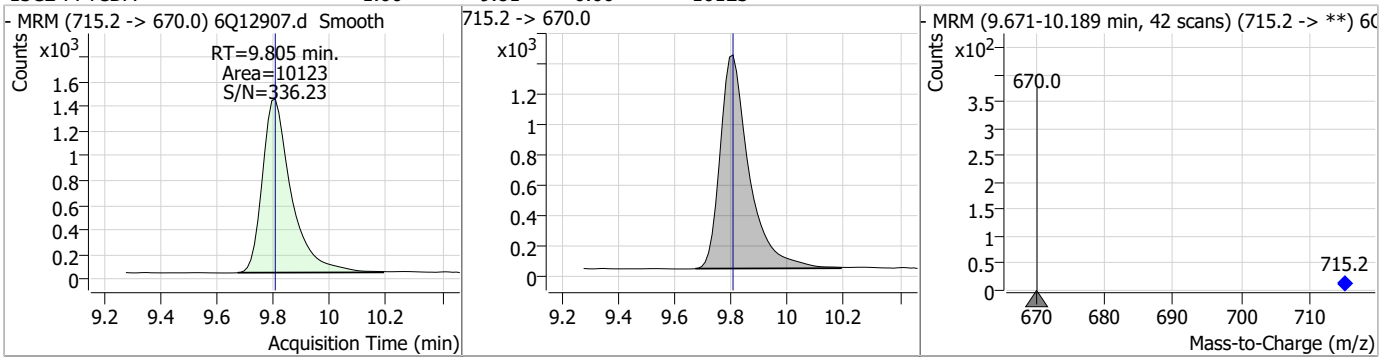


Perfluorinated Compounds by LC/MS/MS

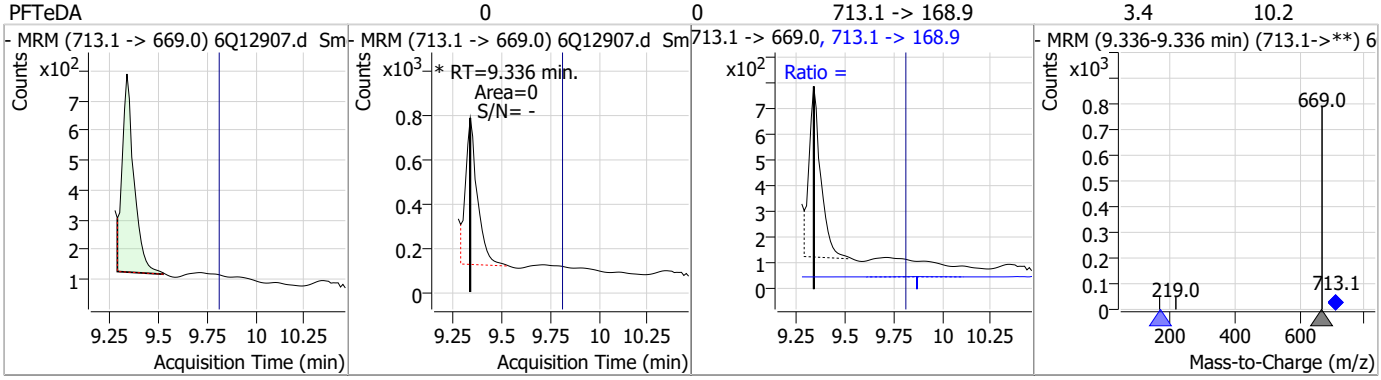
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.16	9.57	0.00	16603				



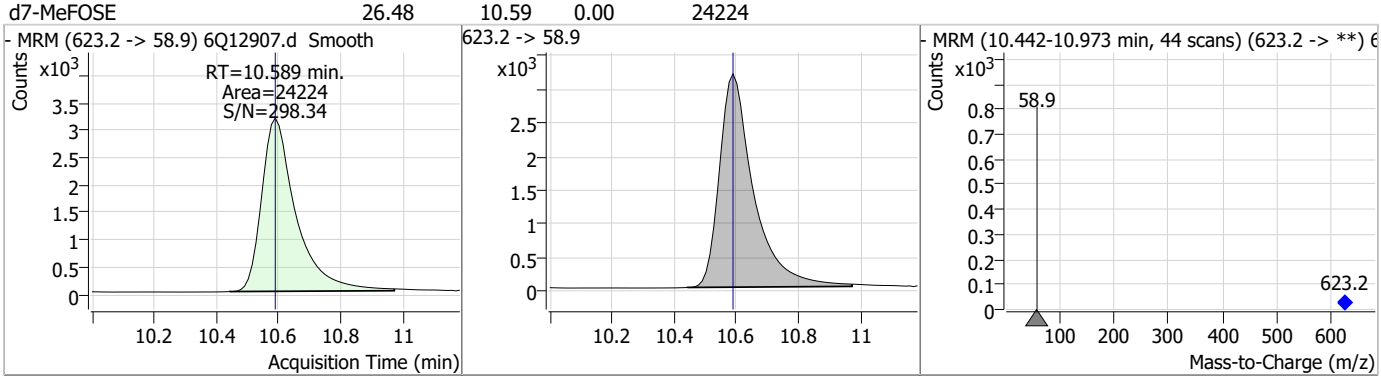
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.00	9.81	0.00	10123				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA		0		0	713.1 -> 168.9		3.4	10.2

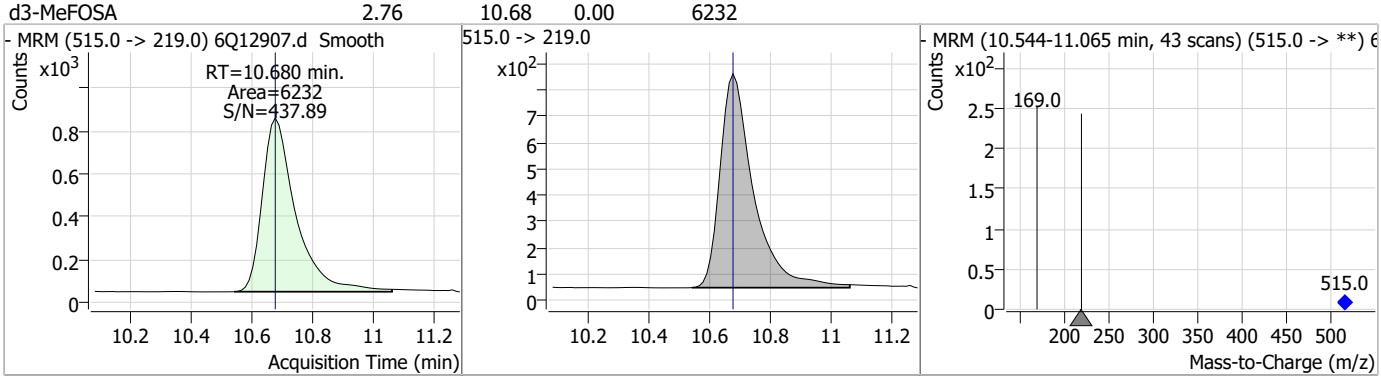


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.48	10.59	0.00	24224				

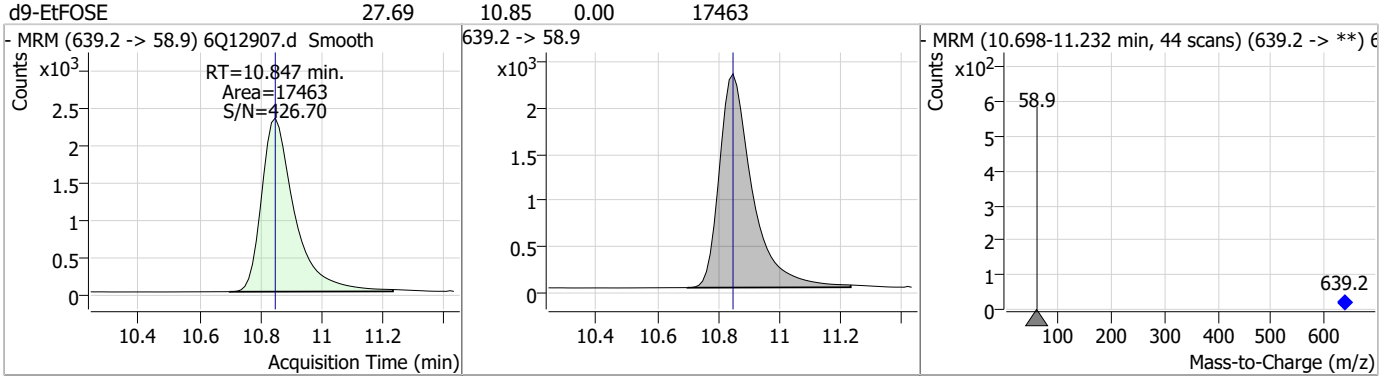


Perfluorinated Compounds by LC/MS/MS

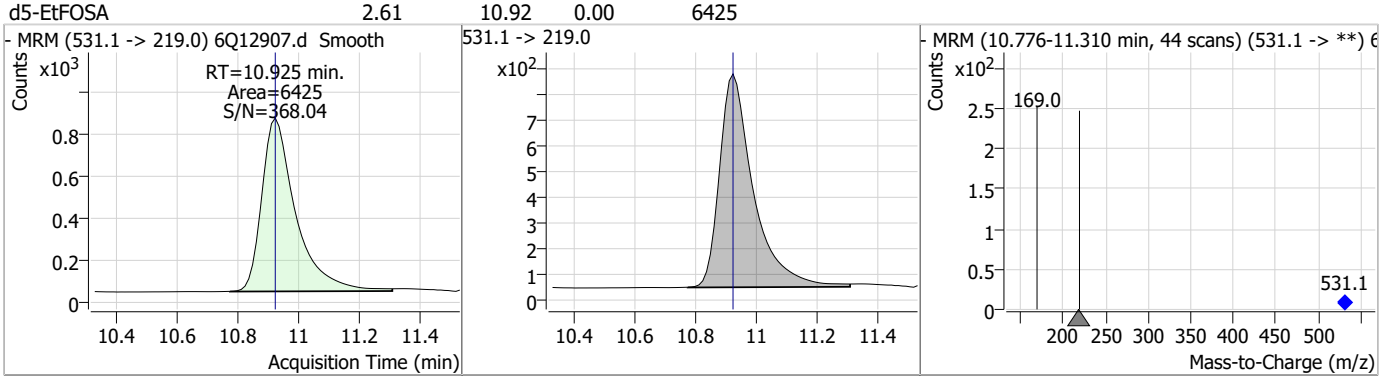
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.76	10.68	0.00	6232				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.69	10.85	0.00	17463				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.61	10.92	0.00	6425				



Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12720.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 5:09:16 PM
Sample Name	:	RT TDCA
Vial	:	P1-B3
DA Method File	:	TDCA.quantmethod.xml
Batch Name	:	s6q196 TDCA.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

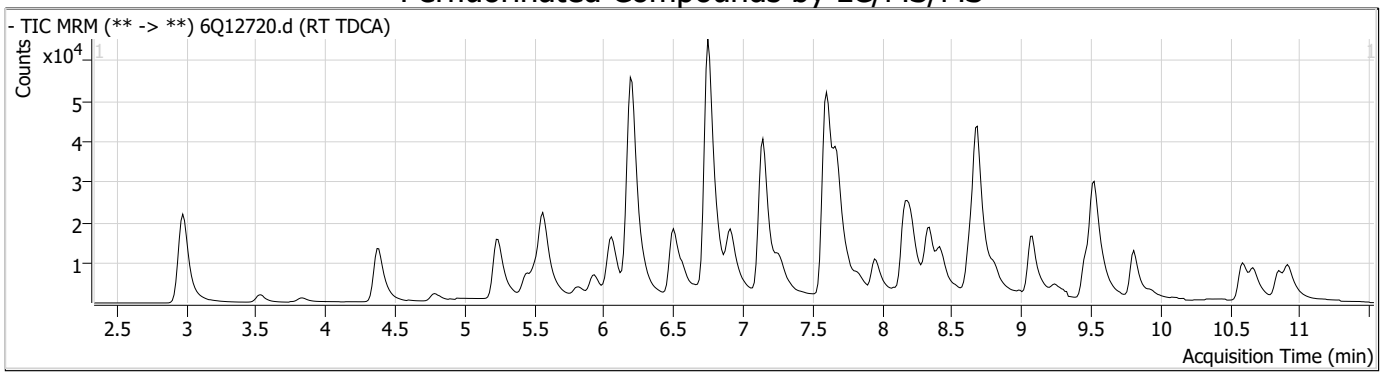
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
Internal Standards							
M8-PFOS	8.345	507.1 -> 79.9	11492	2.50	µg/L		-0.025
13C4-PFOS	8.346	502.8 -> 79.9	13463	2.50	µg/L		-0.012
System Monitoring Compounds							
13C8-PFOS	8.345	507.1 -> 79.9	11492	2.17	µg/L		-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%			
Target Compounds							QValue
PFOS	8.347	498.9 -> 79.9	11832	3.01	µg/L	#m	75
		498.9 -> 98.8	7025				
TCDCA	6.671	498.9 -> 79.9	2647	4.99	ng/ml		100
TDCA	6.832	498.9 -> 79.9	3908	8.14	ng/ml		100
TUDCA	5.819	498.9 -> 79.9	5425	5.32	ng/ml		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

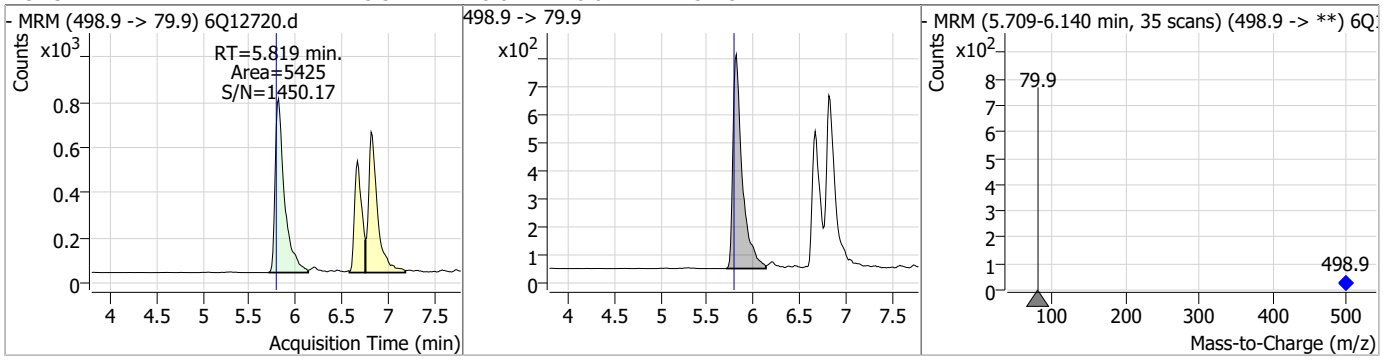
7.6.1

7

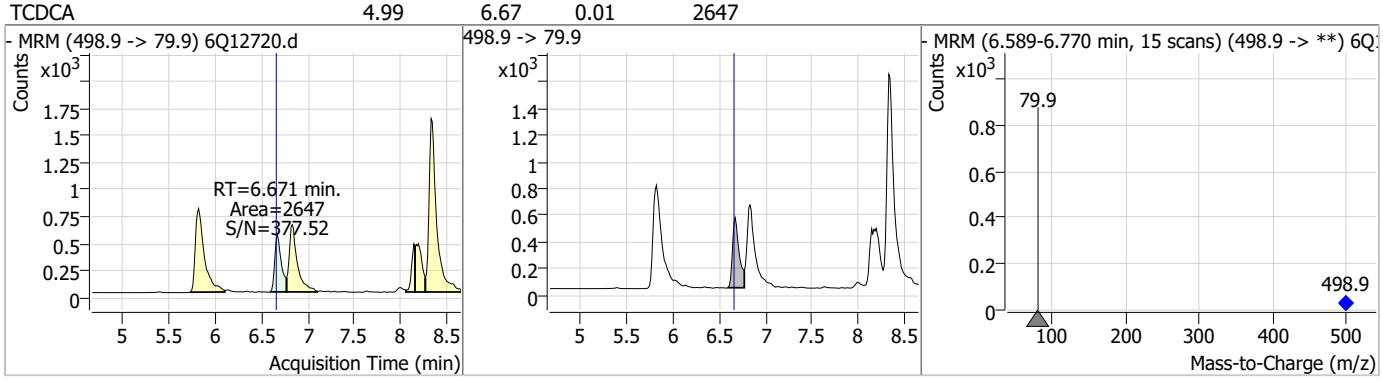
Perfluorinated Compounds by LC/MS/MS



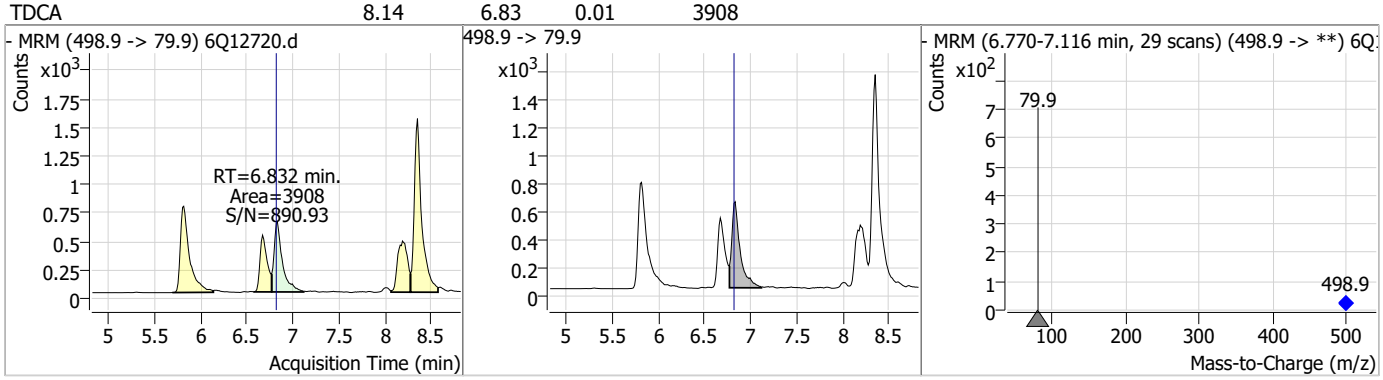
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TUDCA	5.32	5.82	0.02	5425				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TCDCA	4.99	6.67	0.01	2647				

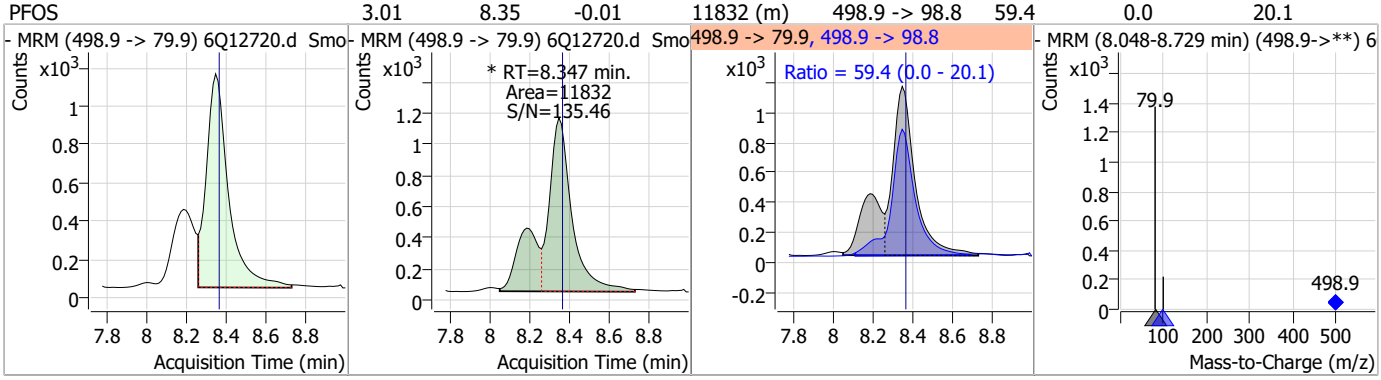


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TDCA	8.14	6.83	0.01	3908				

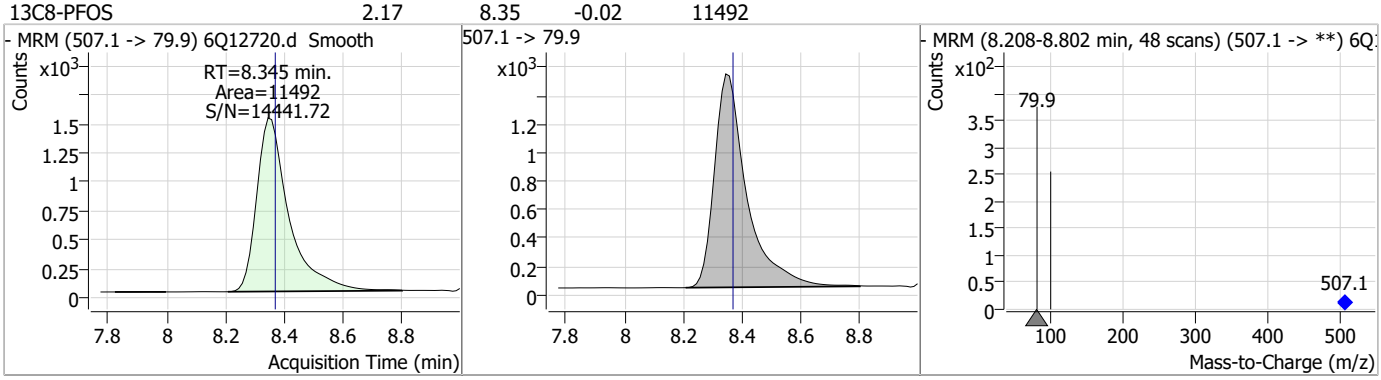


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.01	8.35	-0.01	11832 (m)	498.9 -> 98.8	59.4	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.17	8.35	-0.02	11492				



Manual Integration Approval Summary

Sample Number:	S6Q196-RT	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12720.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 17:09	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12721.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 5:23:17 PM
Sample Name	:	RT BR-LN
Vial	:	P1-B4
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.988	216.8 -> 171.9	73523	10.00	µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	37421	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33092	2.50	µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	34405	2.50	µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	57537	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27503	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	17096	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20746	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	23875	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14702	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16892	2.50	µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	13111	2.50	µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	8310	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8946	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1992	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2587	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2956	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.00	µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	14426	10.00	µg/L	0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29698	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20300	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7728	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7283	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9343	2.50	µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	32816	5.00	µg/L	0.012
18O2-PFHxS	7.273	403.0 -> 83.9	6427	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	74405	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27034	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32413	1.25	µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	31636	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	1992	4.77	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2587	4.67	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2956	5.31	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	23875	1.16	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14702	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-PFBS	5.530	302.1 -> 79.9	13111	2.50	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8310	2.46	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFBA	2.988	216.8 -> 171.9	73523	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.515	367.1 -> 322.0	34405	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	33092	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	37421	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C6-PFDA	8.170	519.1 -> 474.1	17096	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20746	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C8-FOSA	9.567	506.1 -> 77.8	16892	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C8-PFOA	7.146	421.1 -> 376.0	57537	2.32 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C8-PFOS	8.345	507.1 -> 79.9	8946	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.5%	
13C9-PFNA	7.677	472.1 -> 427.0	27503	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	14426	11.16 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	7283	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	29698	27.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	20300	27.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
d5-EtFOSA	10.925	531.1 -> 219.0	7728	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
Target Compounds					**QValue**
4:2FTS	5.240	327.1 -> 307.0	226996	50.83 µg/L	99
		327.1 -> 80.9	48871		
6:2FTS	6.921	427.1 -> 407.0	200157	52.84 µg/L	100
		427.1 -> 80.9	36784		
8:2FTS	7.958	527.1 -> 507.0	107975	47.03 µg/L	98
		527.1 -> 80.8	25217		
EtFOSAA	8.424	584.2 -> 419.1	48275	13.30 µg/L	91
		584.2 -> 526.0	25773		
FOSA	9.557	498.1 -> 77.9	203438	30.18 µg/L	98
		498.1 -> 478.0	7881		
MeFOSAA	8.216	570.1 -> 419.0	65181	12.83 µg/L	90
		570.1 -> 483.0	12259		
PFBA	2.982	212.8 -> 168.9	85932	52.33 µg/L	100
PFBS	5.531	298.7 -> 79.9	56662	11.25 µg/L	95
		298.7 -> 98.8	26601		
PFDA	8.170	512.9 -> 469.0	273501	14.06 µg/L	96
		512.9 -> 219.0	36332		
PFDoDA	9.079	613.1 -> 569.0	250845	14.34 µg/L	99
		613.1 -> 319.0	29279		
PFDS	9.241	599.0 -> 79.9	33382	11.02 µg/L	93

Perfluorinated Compounds by LC/MS/MS

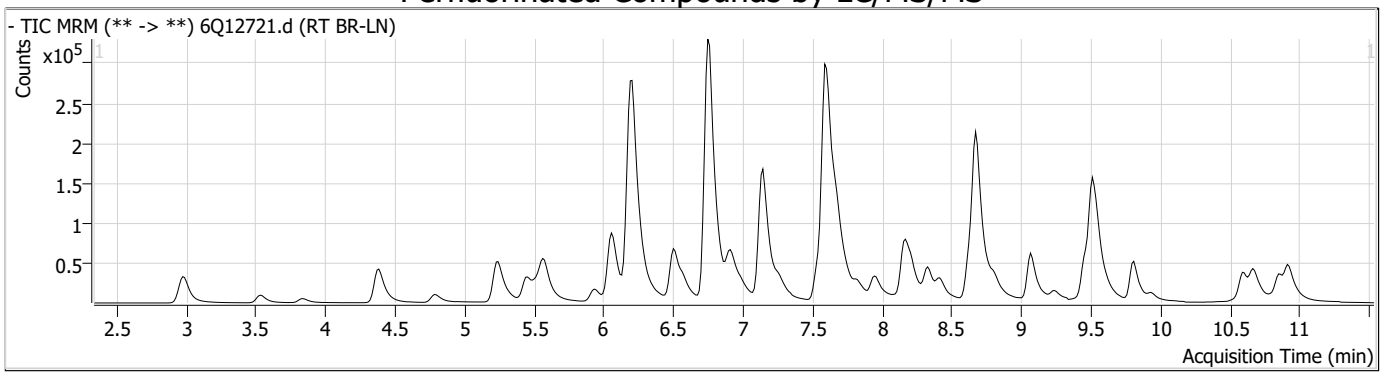
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	18515				
PFHpA	6.515	363.1 -> 319.0	271998	13.35	µg/L		97
		363.1 -> 169.0	36800				
PFHpS	7.841	449.0 -> 79.9	41704	10.99	µg/L		95
		449.0 -> 98.9	24706				
PFHxA	5.578	313.0 -> 269.0	175824	13.54	µg/L		98
		313.0 -> 118.9	6240				
PFHxS	7.275	398.7 -> 79.9	44818	12.00	µg/L	m	88
		398.7 -> 98.9	24474				
PFNA	7.677	463.0 -> 419.0	420857	22.68	µg/L	m	96
		463.0 -> 219.0	88158				
PFNS	8.811	548.8 -> 79.9	47824	12.03	µg/L		96
		548.8 -> 98.9	25757				
PFOA	7.148	413.0 -> 369.0	741557	29.26	µg/L	m	100
		413.0 -> 169.0	99856				
PFOS	8.347	498.9 -> 79.9	46232	11.26	µg/L	m	75
		498.9 -> 98.8	29862				
PFPeA	4.388	263.0 -> 219.0	208878	26.43	µg/L		100
PFPeS	6.581	349.1 -> 79.9	53740	12.37	µg/L		94
		349.1 -> 98.9	29704				
PFTeDA	9.806	713.1 -> 669.0	209152	13.19	µg/L		99
		713.1 -> 168.9	13269				
PFTrDA	9.462	663.0 -> 619.0	236702	14.15	µg/L		99
		663.0 -> 168.9	18159				
PFUnDA	8.637	563.1 -> 519.0	240303	14.87	µg/L		100
		563.1 -> 269.1	32548				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	494947	47.81	µg/L		98
		632.9 -> 452.9	157776				
9Cl-PF3ONS	8.688	530.8 -> 351.0	813794	46.51	µg/L		96
		532.8 -> 353.0	243168				
ADONA	6.766	376.9 -> 250.9	1540645	49.23	µg/L		96
		376.9 -> 84.8	312249				
HFPO-DA	5.953	284.9 -> 168.9	66655	49.40	µg/L		99
		284.9 -> 184.9	8622				
3:3FTCA	3.841	241.0 -> 177.0	24851	64.04	µg/L		97
		241.0 -> 117.0	3376				
5:3FTCA	6.206	341.0 -> 237.1	888542	327.39	µg/L		98
		341.0 -> 217.0	787399				
7:3FTCA	7.605	441.0 -> 316.9	587084	330.95	µg/L		89
		441.0 -> 336.9	1135231				
EtFOSA	10.927	526.0 -> 219.0	118317	32.08	µg/L		86
		526.0 -> 169.0	132251				
EtFOSE	10.860	630.0 -> 58.9	125370	144.30	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	100539	31.91	µg/L		88
		511.9 -> 169.0	113613				
MeFOSE	10.602	616.1 -> 58.9	168745	142.44	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	21461	11.84	µg/L		100
		699.1 -> 98.8	12686				
NFDHA	5.457	295.0 -> 201.0	19199	25.02	µg/L		98
		295.0 -> 84.9	10072				
PFMBA	4.800	279.0 -> 85.1	58012	26.11	µg/L		100
PFMPA	3.541	229.0 -> 84.9	54665	25.94	µg/L		100
PFEESA	6.071	314.8 -> 134.9	446823	23.91	µg/L		100
		314.8 -> 82.9	10093				

 # = Qualifier out of range, m = manually integrated, + = Area summed

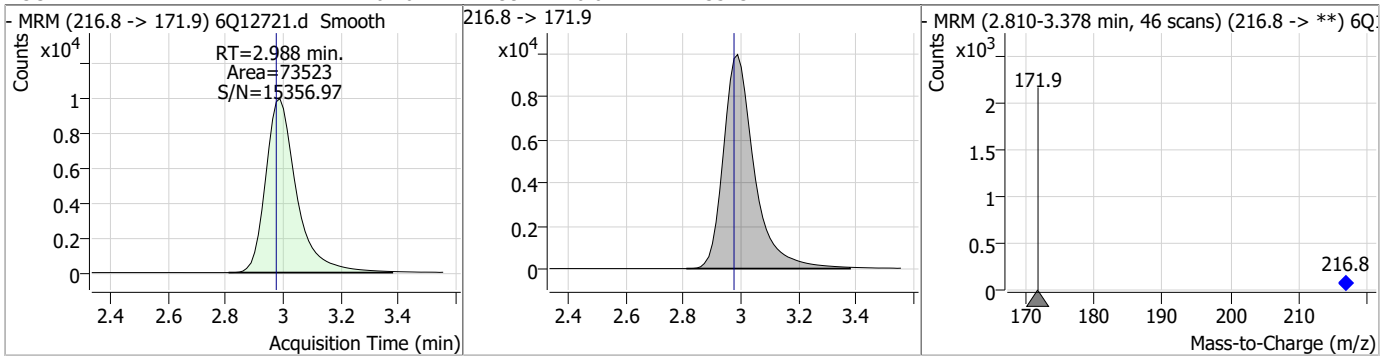
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

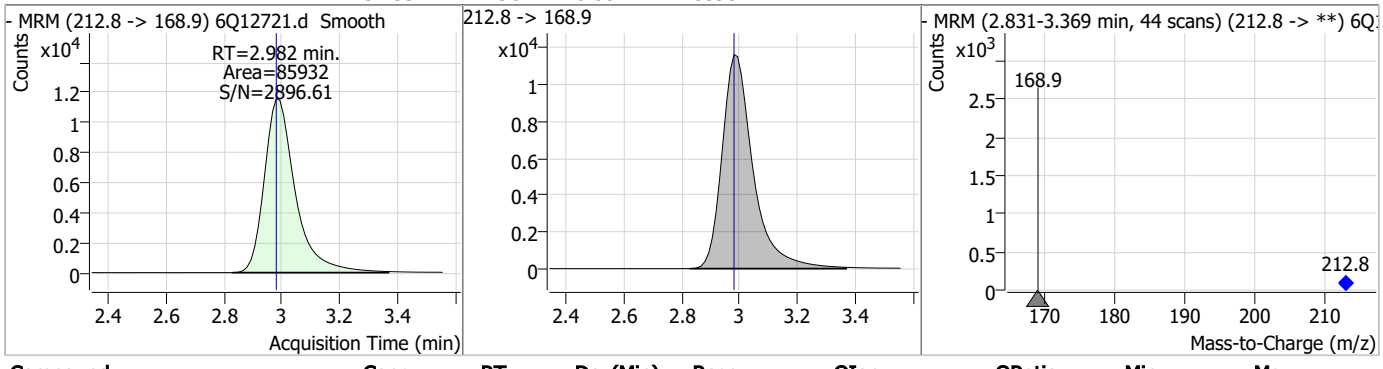
Perfluorinated Compounds by LC/MS/MS



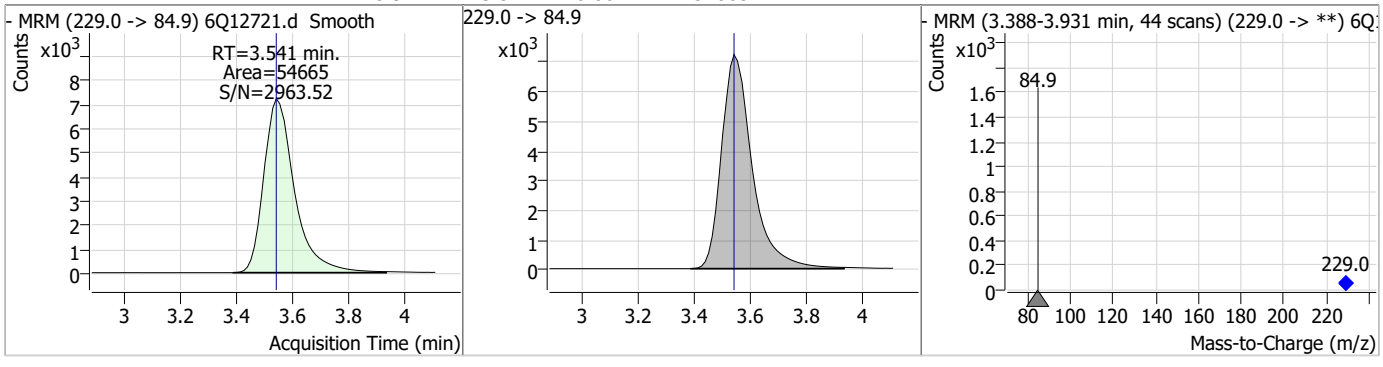
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.10	2.99	0.01	73523				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	52.33	2.98	0.00	85932				

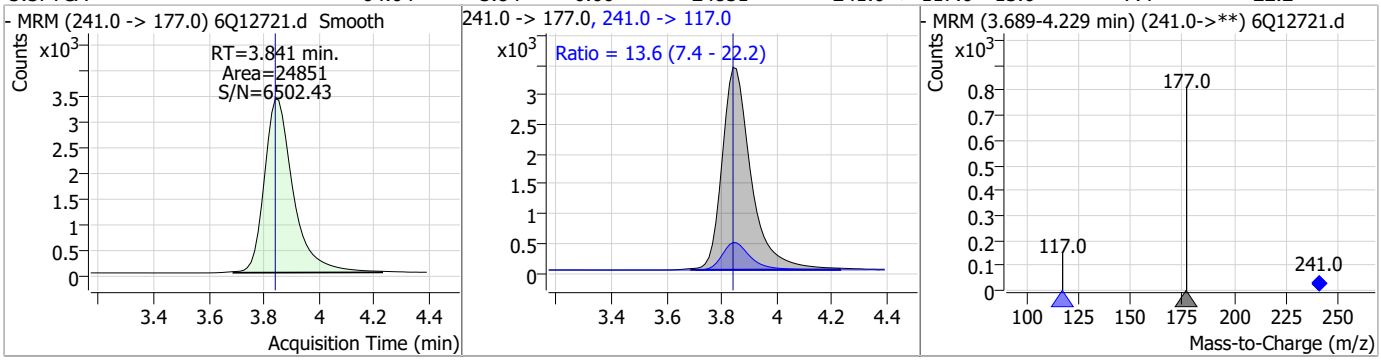


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	25.94	3.54	0.00	54665				

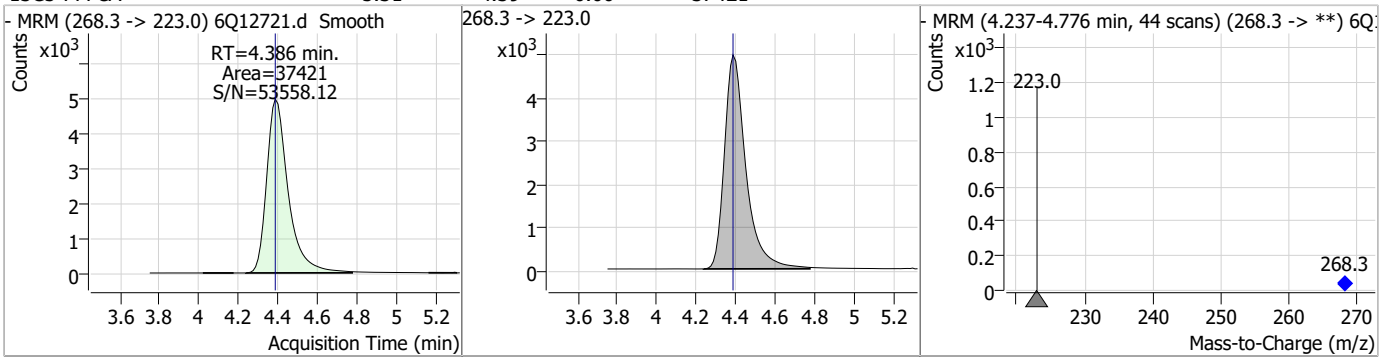


Perfluorinated Compounds by LC/MS/MS

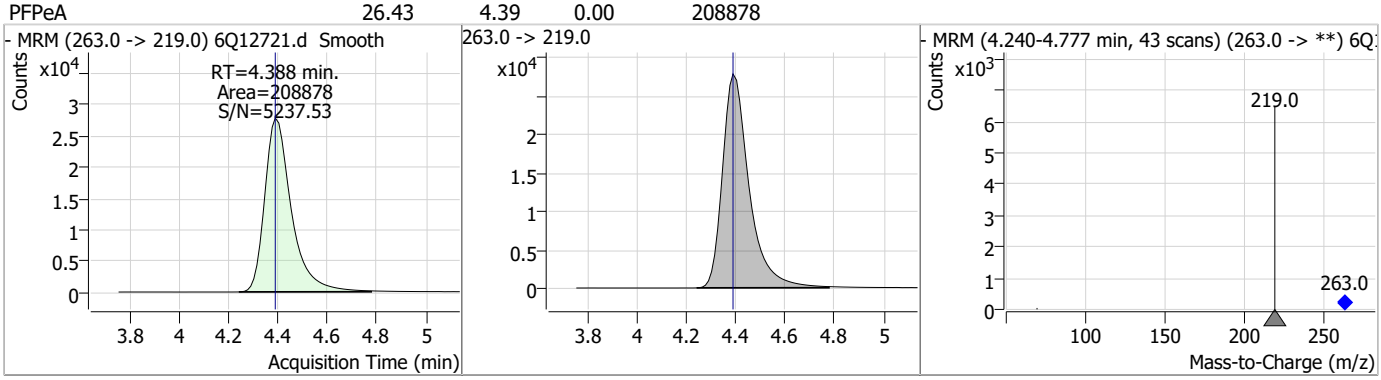
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	64.04	3.84	0.00	24851	241.0 -> 117.0	13.6	7.4	22.2



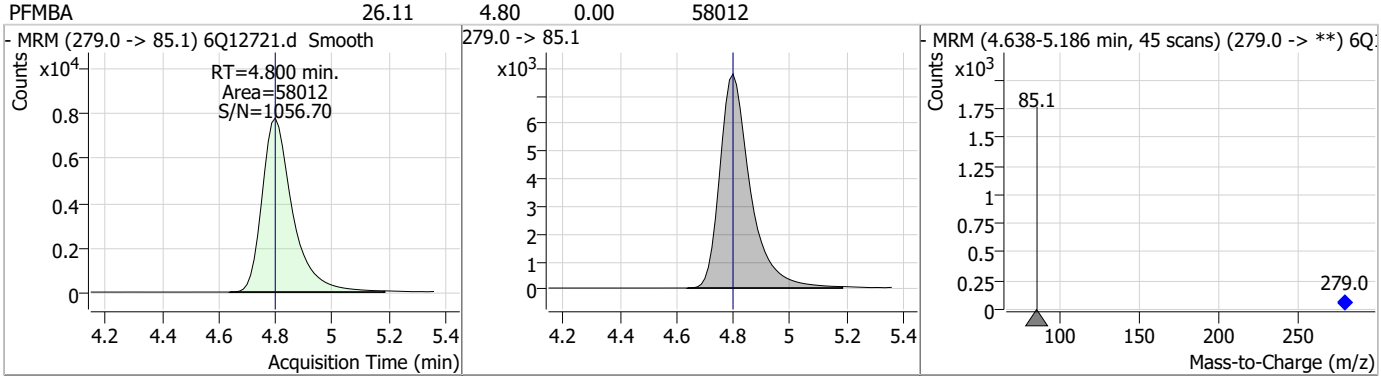
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.31	4.39	0.00	37421				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.43	4.39	0.00	208878				

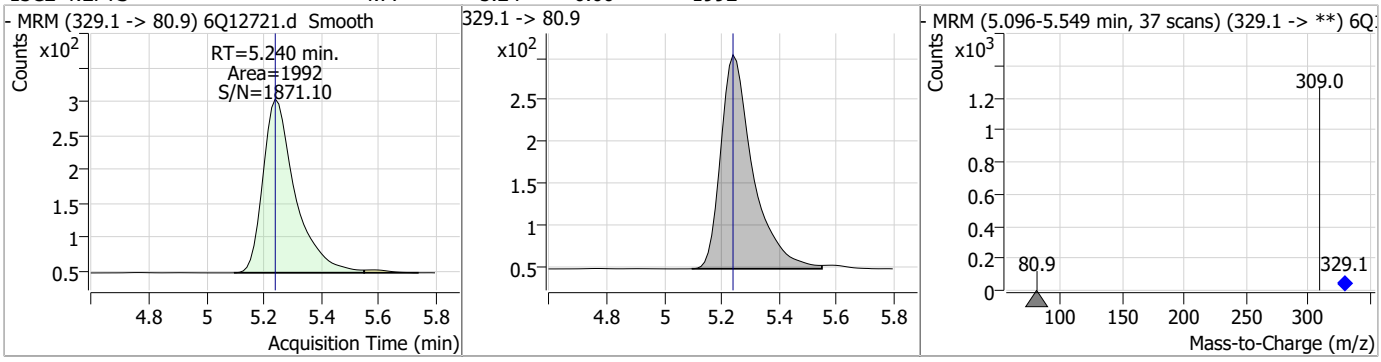


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	26.11	4.80	0.00	58012				

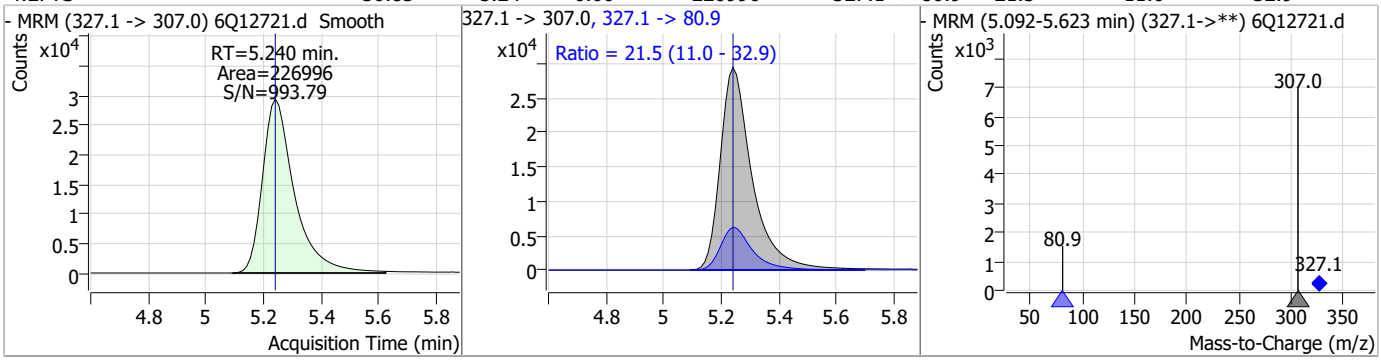


Perfluorinated Compounds by LC/MS/MS

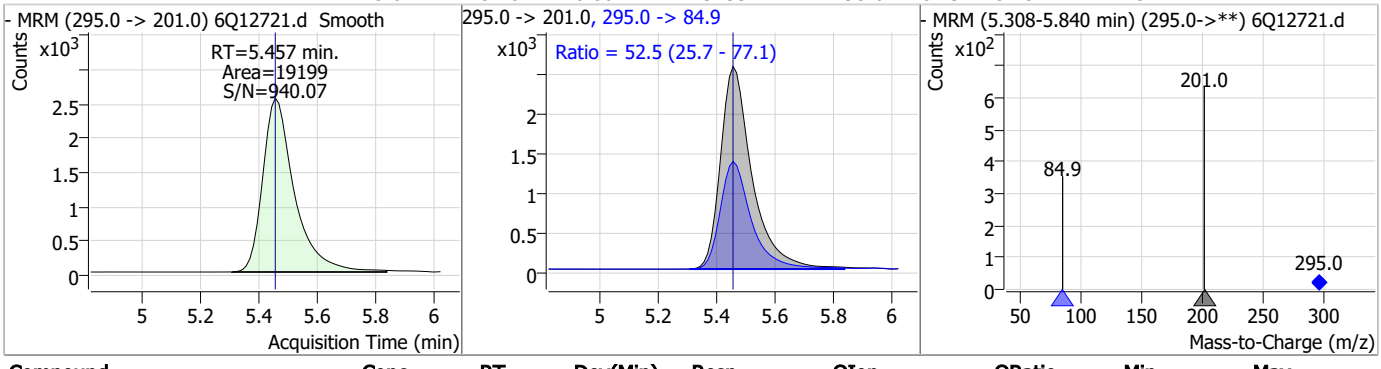
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.77	5.24	0.00	1992				



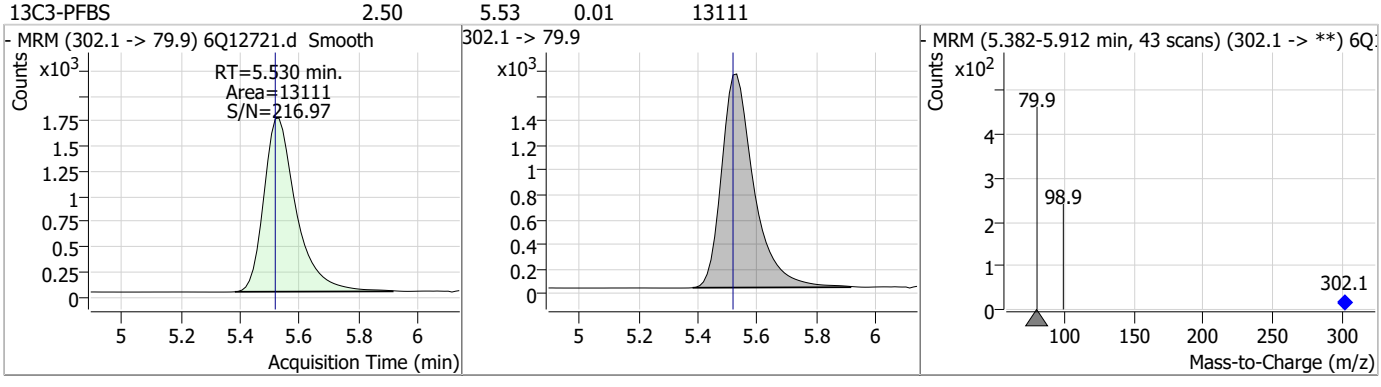
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.83	5.24	0.00	226996	327.1 -> 80.9	21.5	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	25.02	5.46	0.00	19199	295.0 -> 84.9	52.5	25.7	77.1

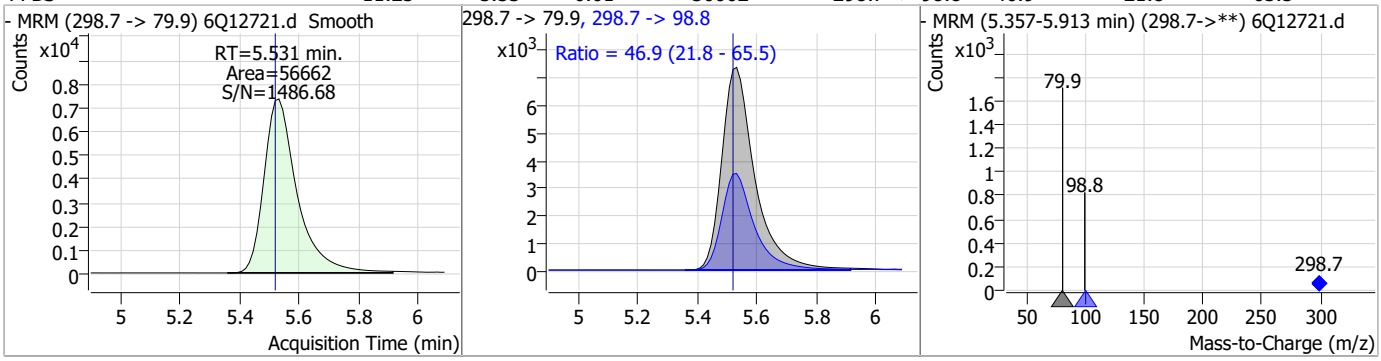


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.50	5.53	0.01	13111				

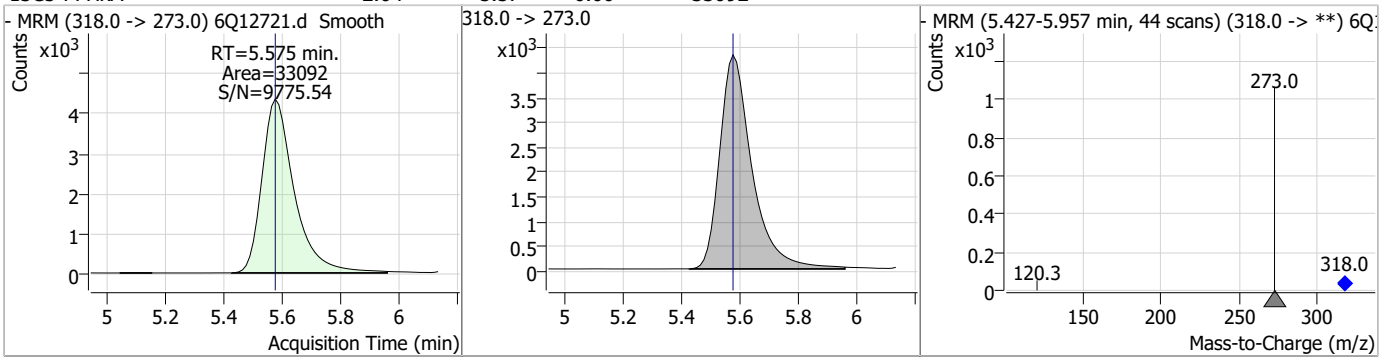


Perfluorinated Compounds by LC/MS/MS

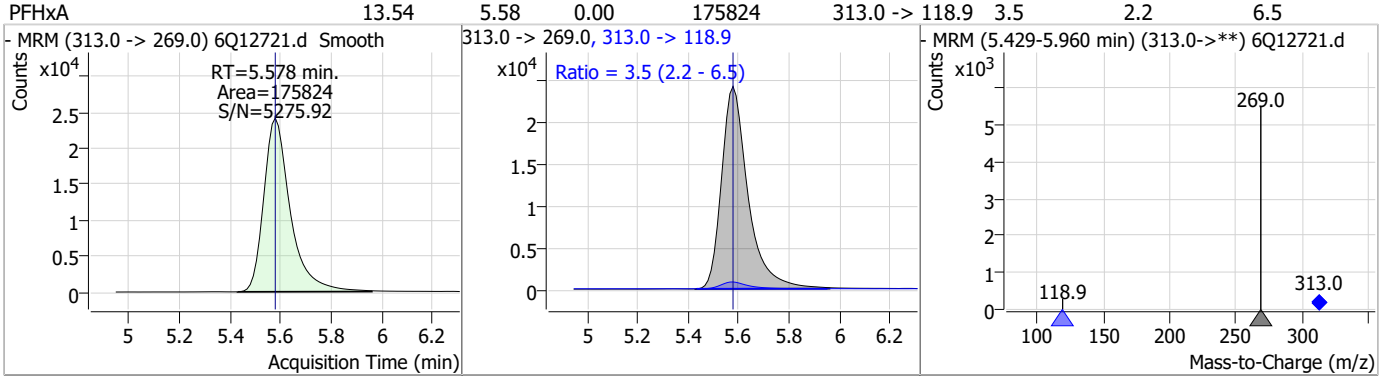
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.25	5.53	0.01	56662	298.7 -> 98.8	46.9	21.8	65.5



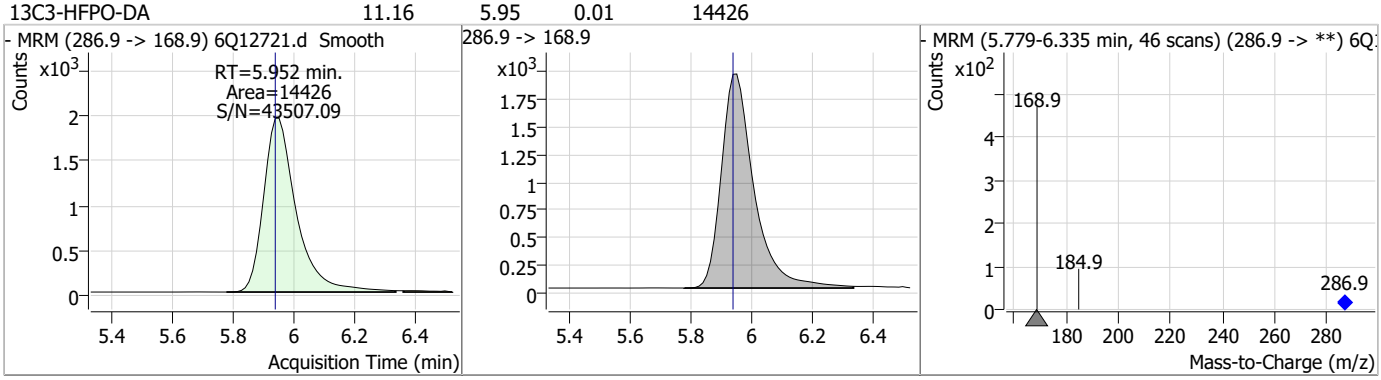
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.64	5.57	0.00	33092				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.54	5.58	0.00	175824	313.0 -> 118.9	3.5	2.2	6.5

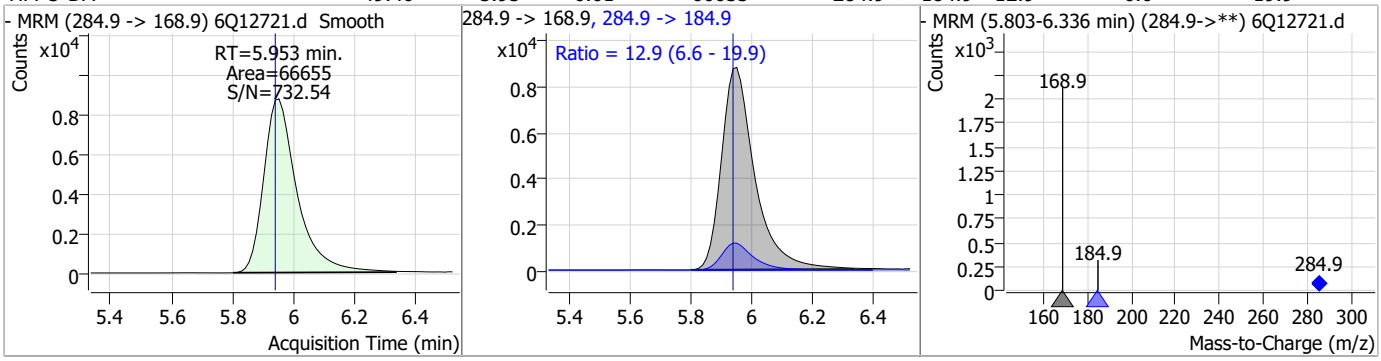


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.16	5.95	0.01	14426				

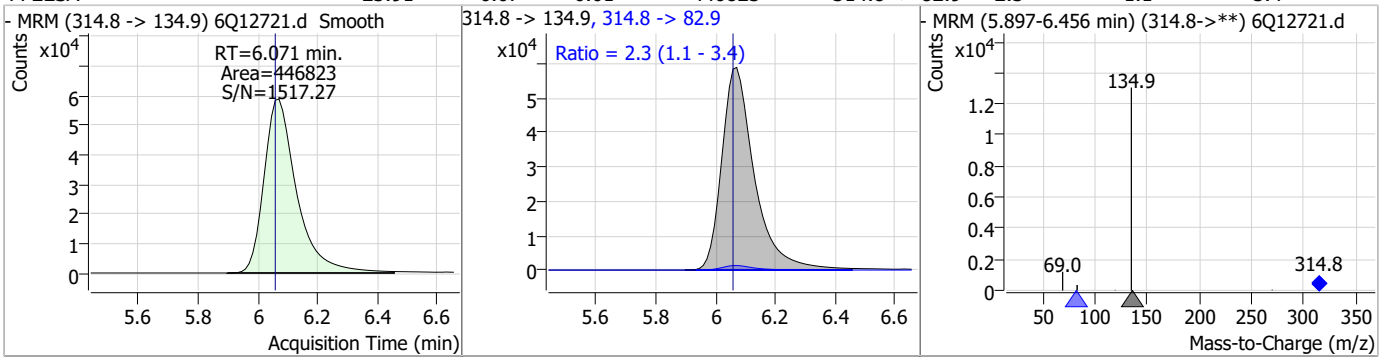


Perfluorinated Compounds by LC/MS/MS

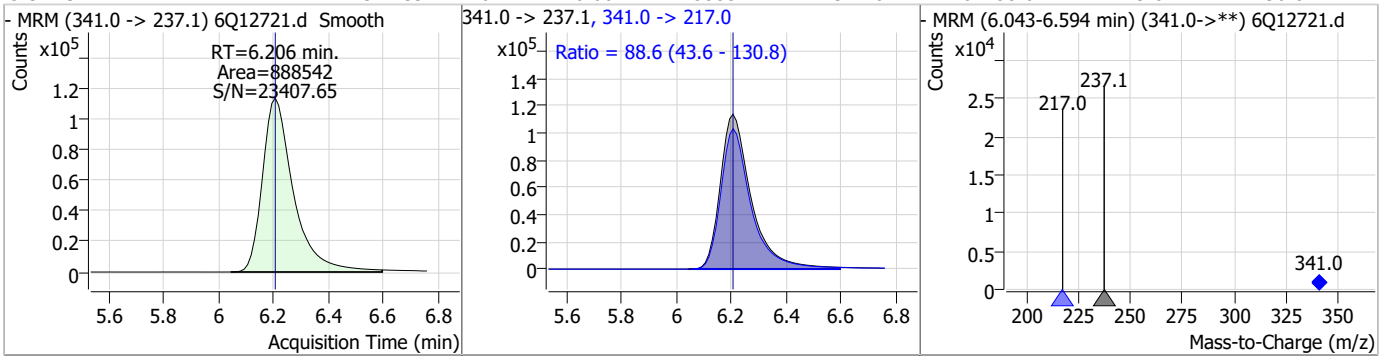
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.40	5.95	0.01	66655	284.9 -> 184.9	12.9	6.6	19.9



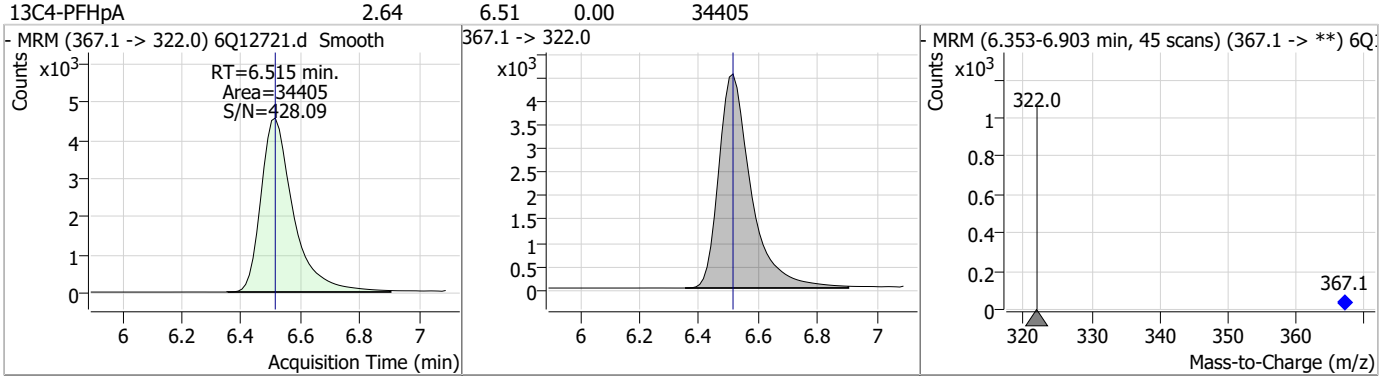
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.91	6.07	0.01	446823	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	327.39	6.21	0.00	888542	341.0 -> 217.0	88.6	43.6	130.8

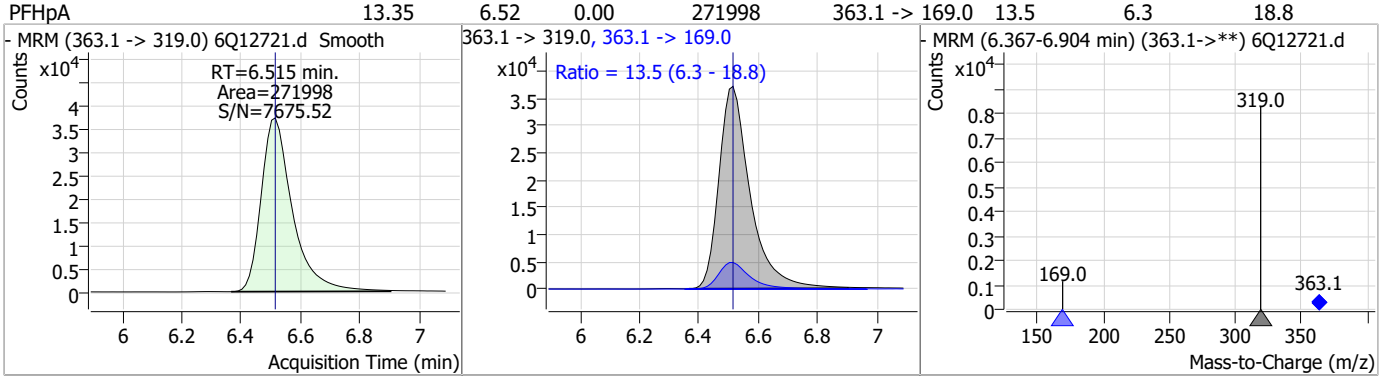


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.64	6.51	0.00	34405				

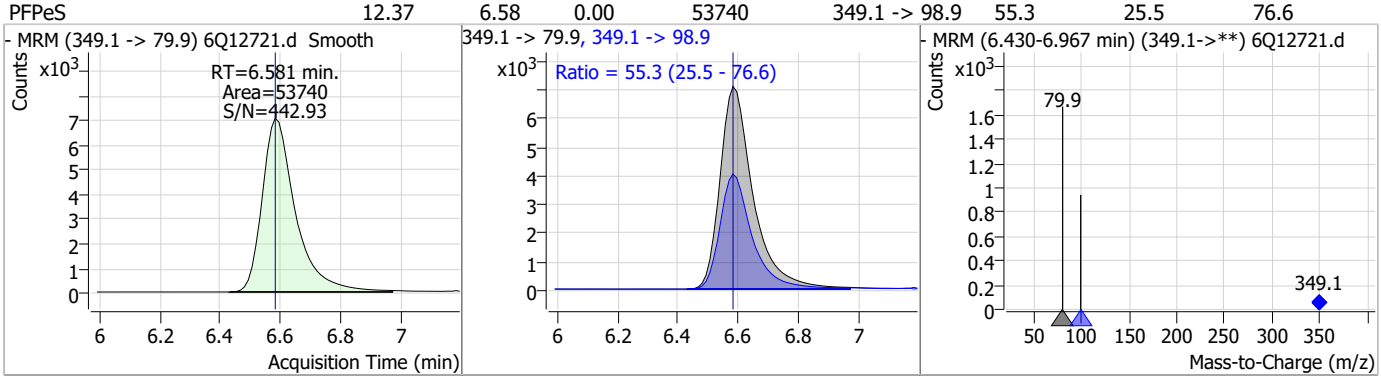


Perfluorinated Compounds by LC/MS/MS

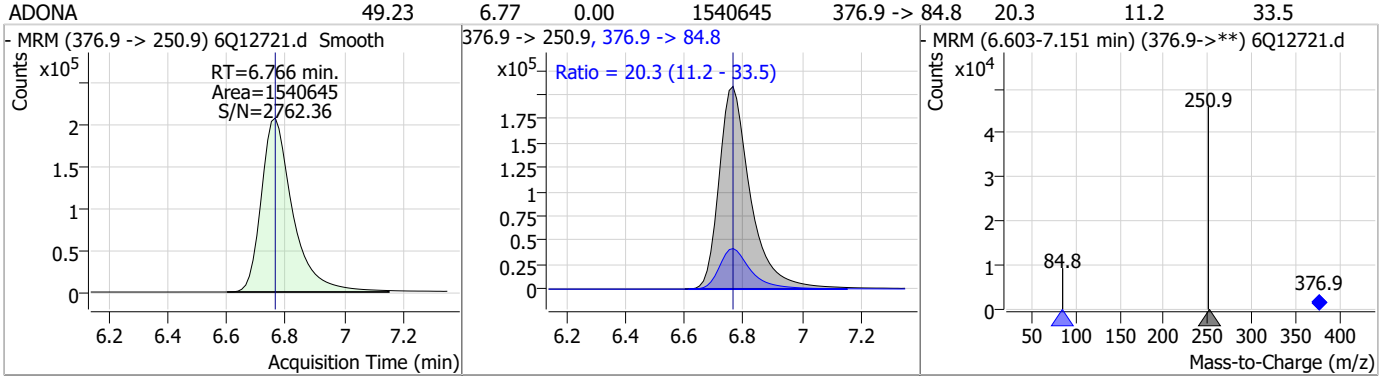
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.35	6.52	0.00	271998	363.1 -> 169.0	13.5	6.3	18.8



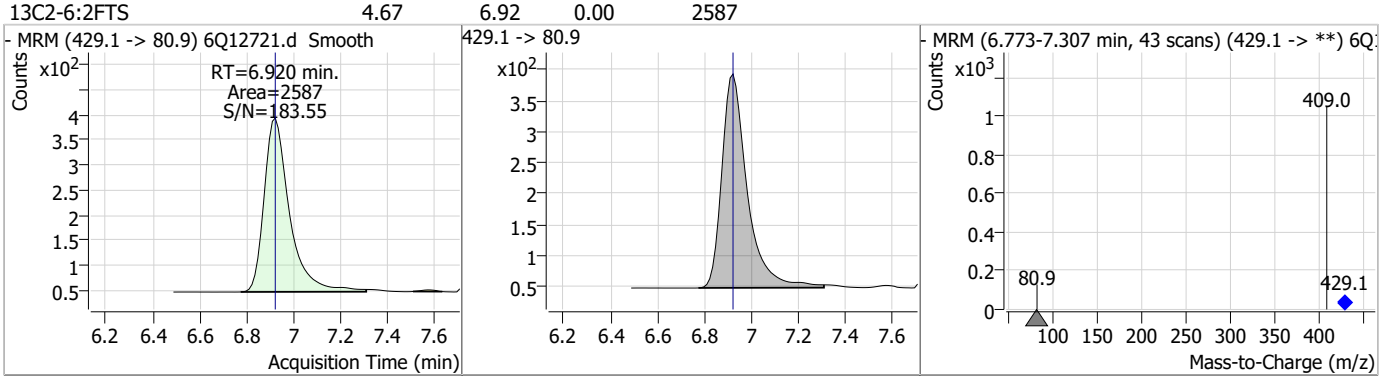
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	12.37	6.58	0.00	53740	349.1 -> 98.9	55.3	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	49.23	6.77	0.00	1540645	376.9 -> 84.8	20.3	11.2	33.5

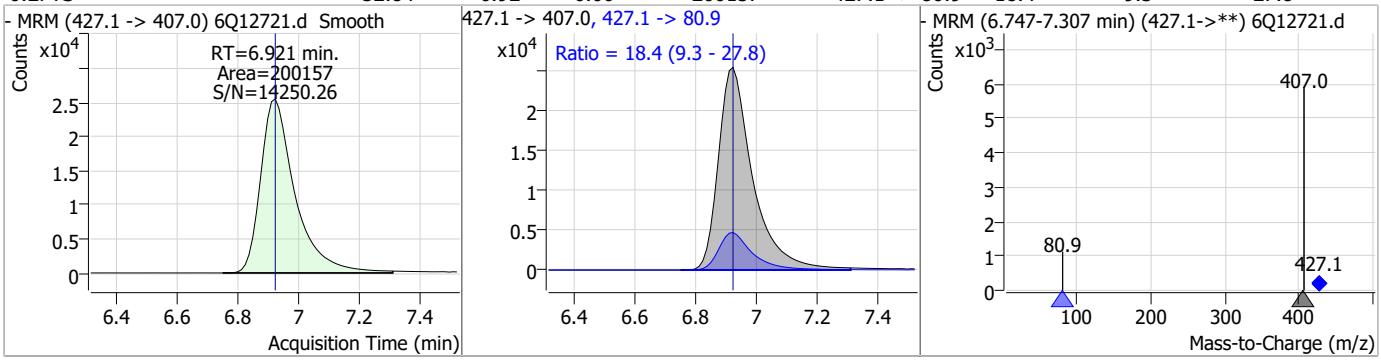


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.67	6.92	0.00	2587				

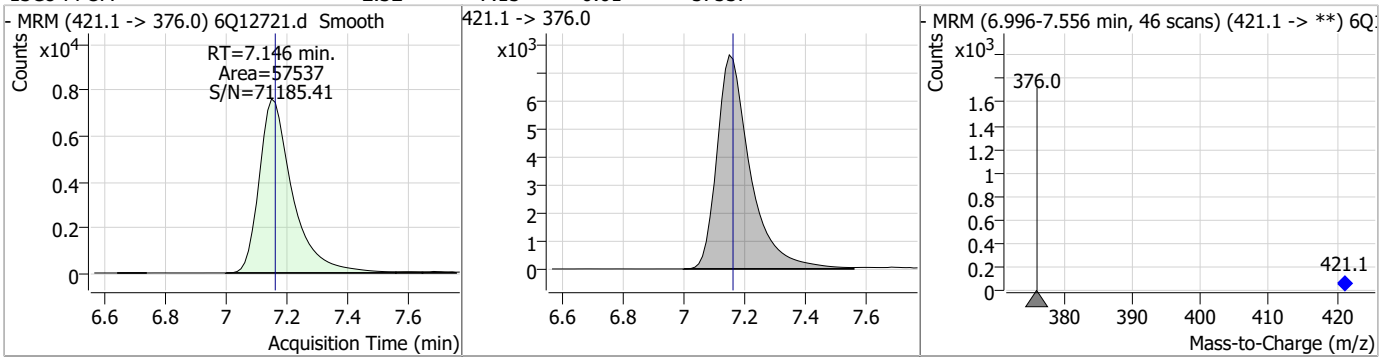


Perfluorinated Compounds by LC/MS/MS

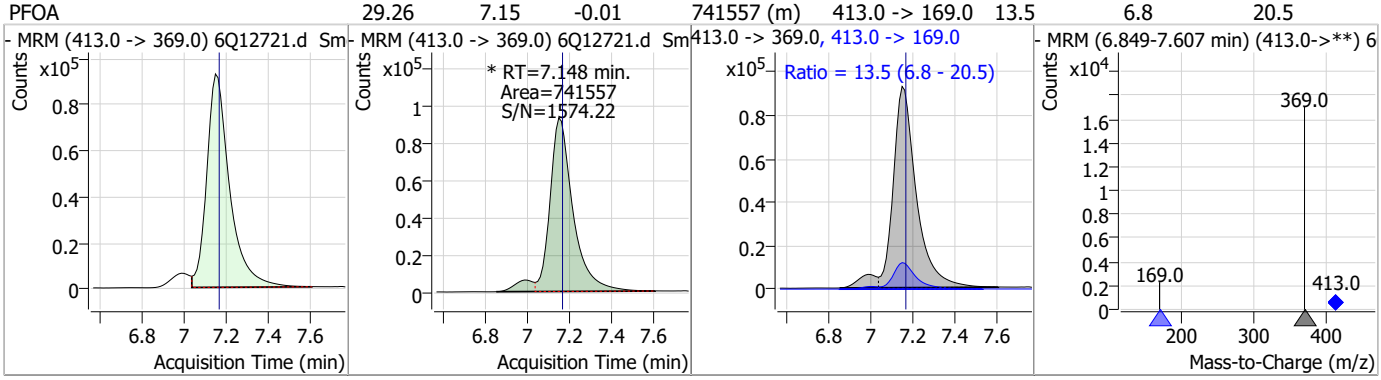
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	52.84	6.92	0.00	200157	427.1 -> 80.9	18.4	9.3	27.8



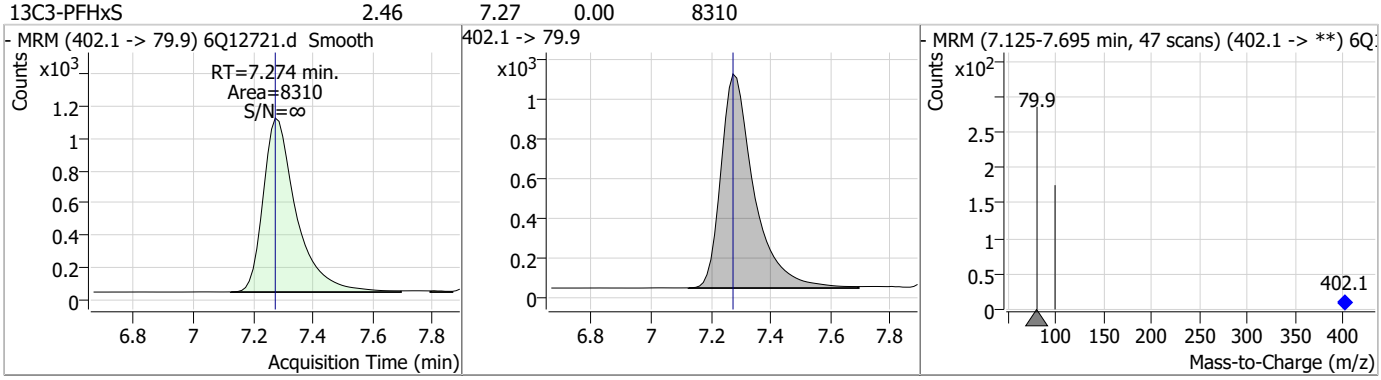
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.32	7.15	-0.01	57537				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	29.26	7.15	-0.01	741557 (m)	413.0 -> 169.0	13.5	6.8	20.5

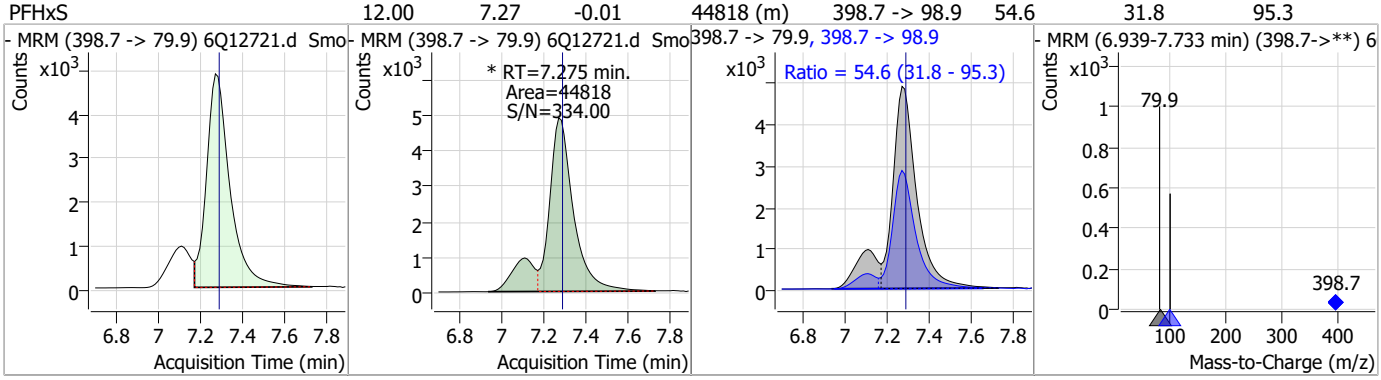


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.46	7.27	0.00	8310				

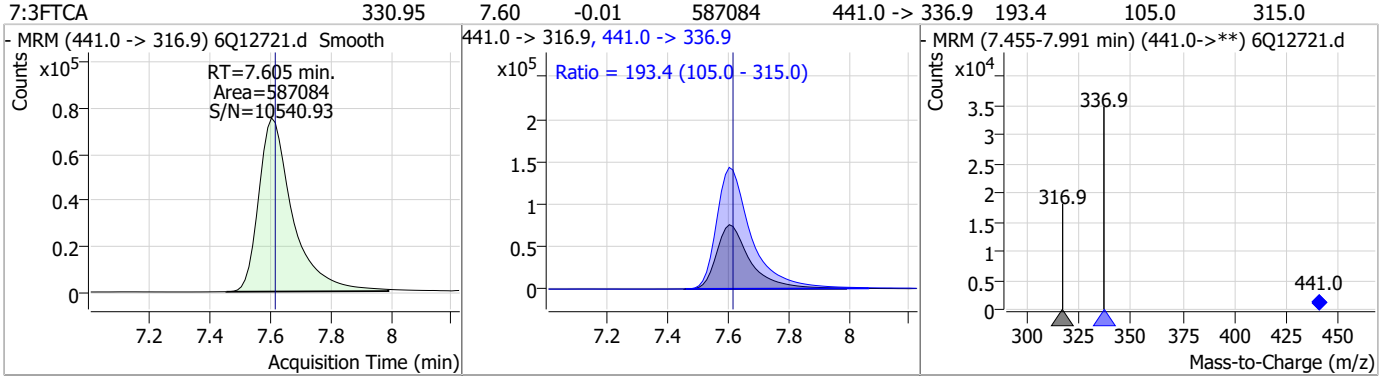


Perfluorinated Compounds by LC/MS/MS

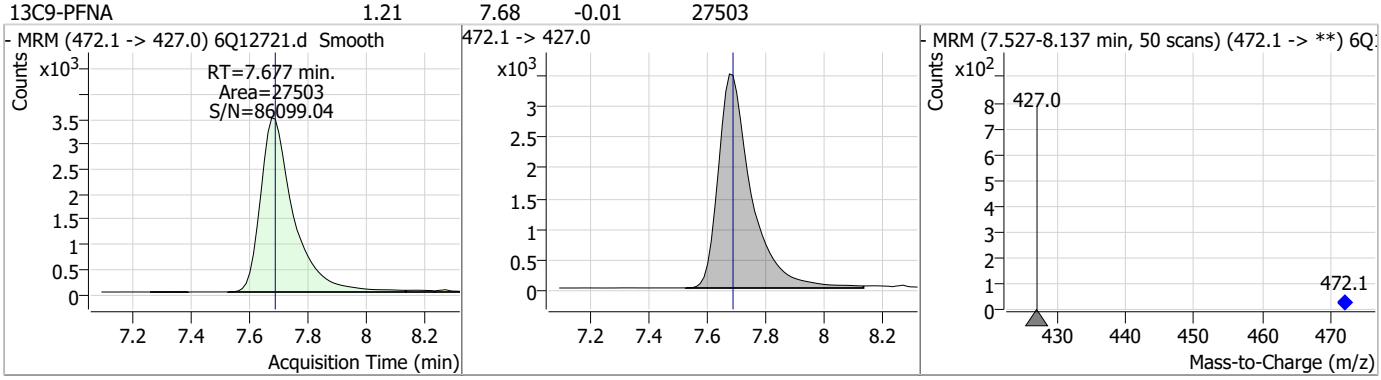
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	12.00	7.27	-0.01	44818 (m)	398.7 -> 98.9	54.6	31.8	95.3



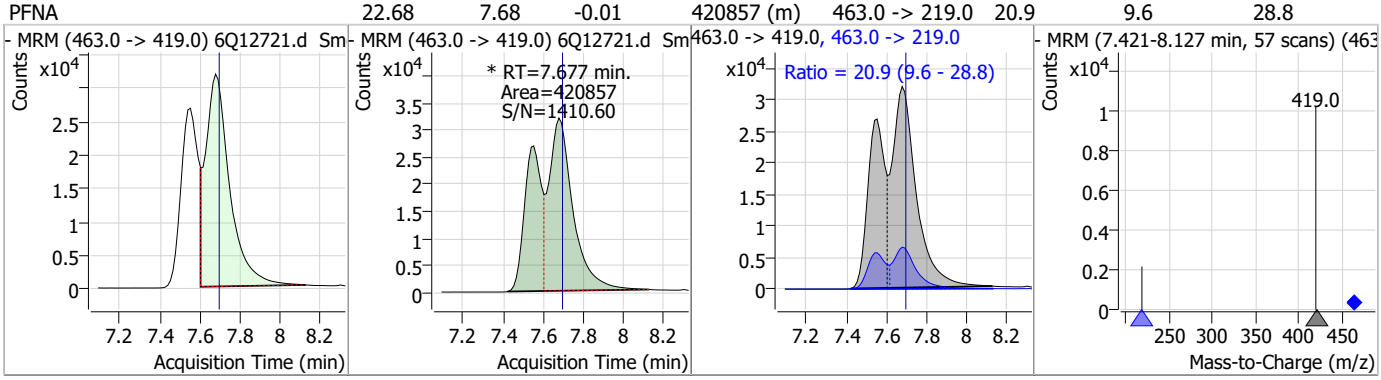
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	330.95	7.60	-0.01	587084	441.0 -> 336.9	193.4	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.68	-0.01	27503				

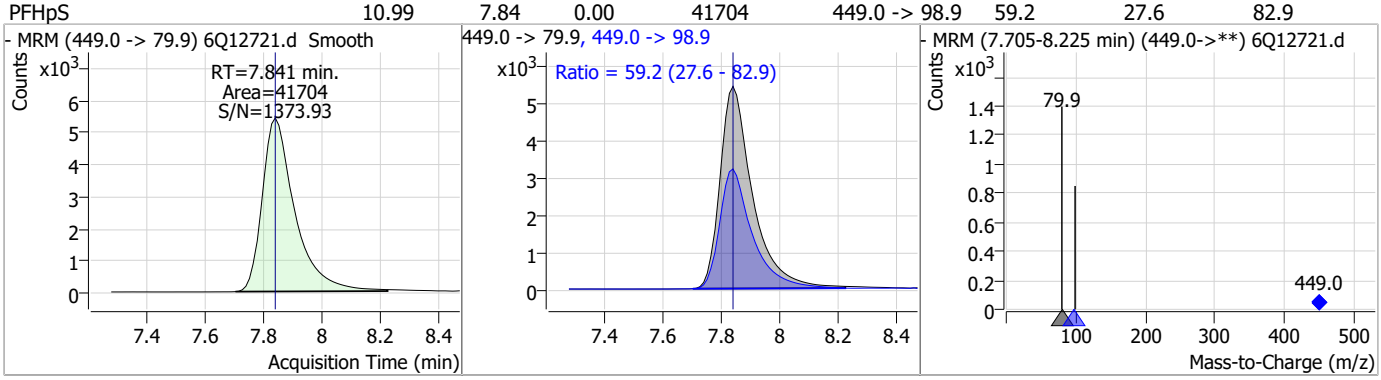


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	22.68	7.68	-0.01	420857 (m)	463.0 -> 219.0	20.9	9.6	28.8

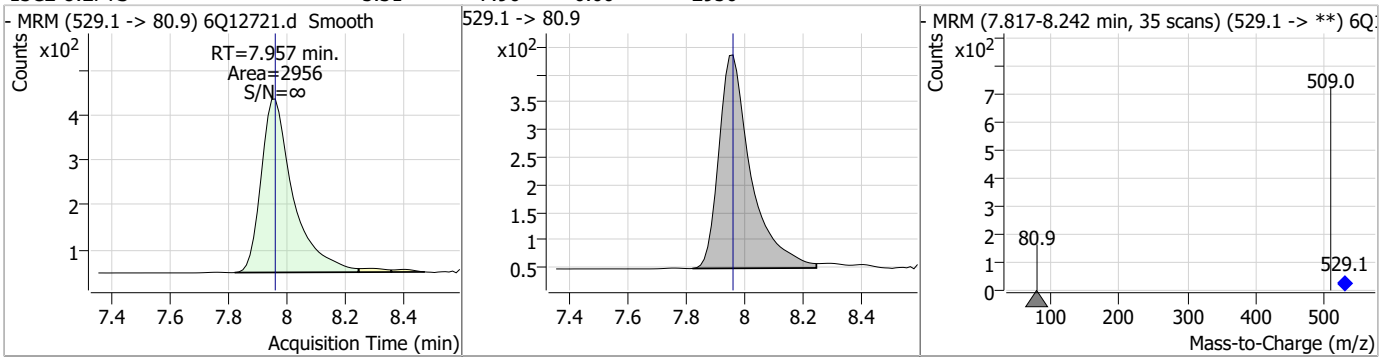


Perfluorinated Compounds by LC/MS/MS

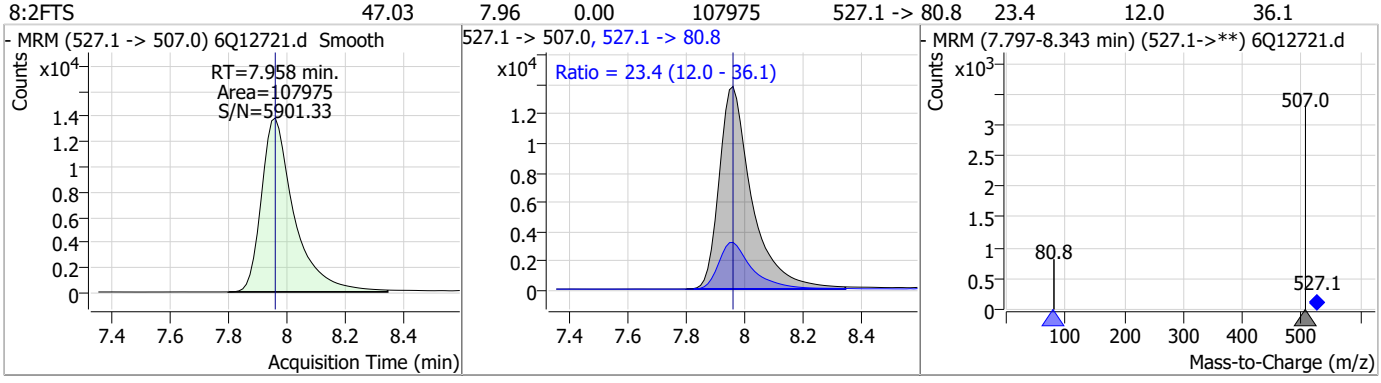
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	10.99	7.84	0.00	41704	449.0 -> 98.9	59.2	27.6	82.9



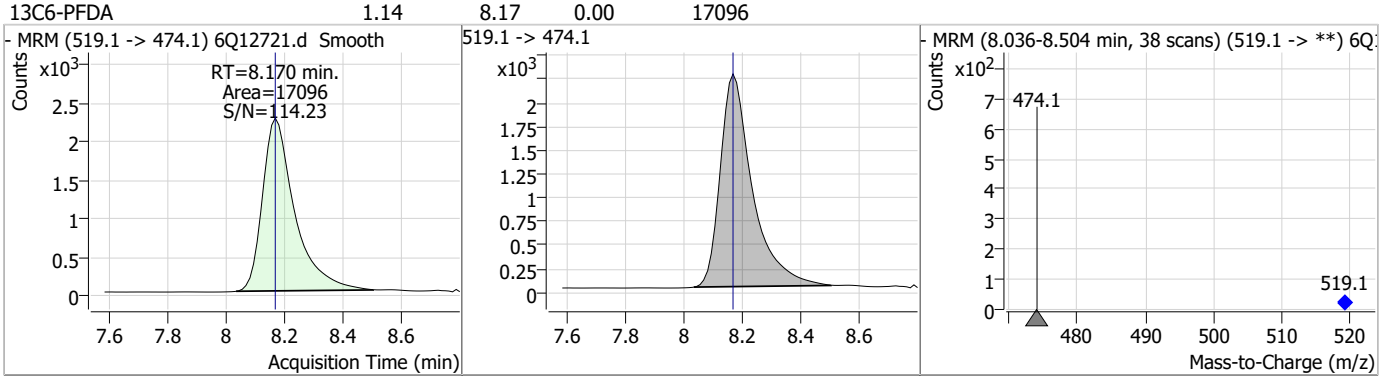
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.31	7.96	0.00	2956				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	47.03	7.96	0.00	107975	527.1 -> 80.8	23.4	12.0	36.1

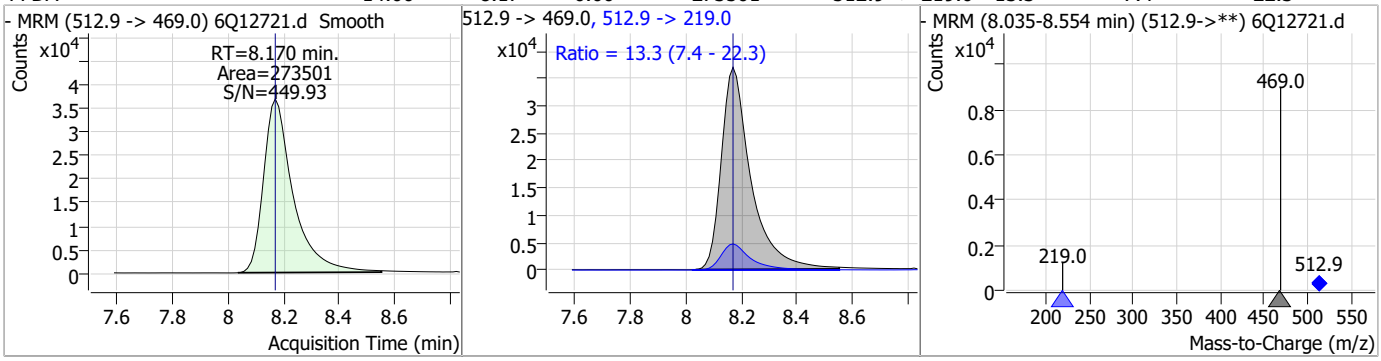


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.14	8.17	0.00	17096				

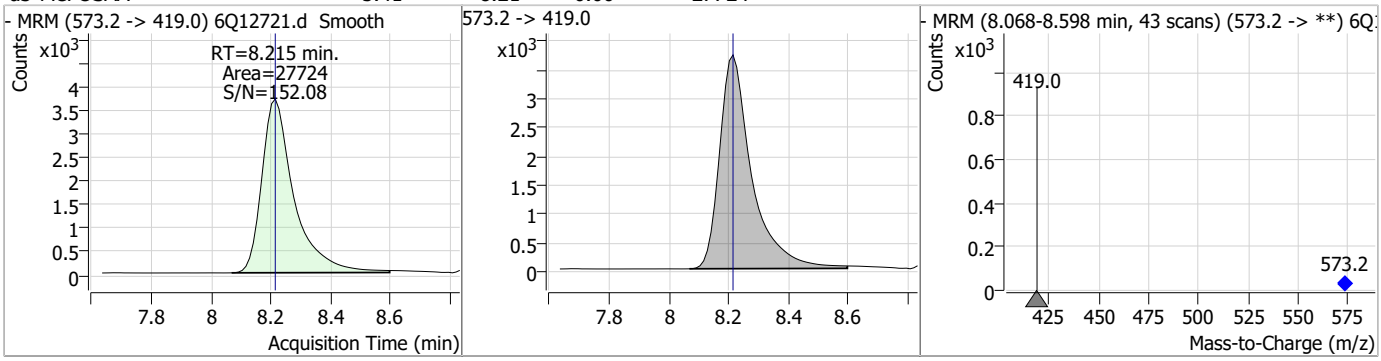


Perfluorinated Compounds by LC/MS/MS

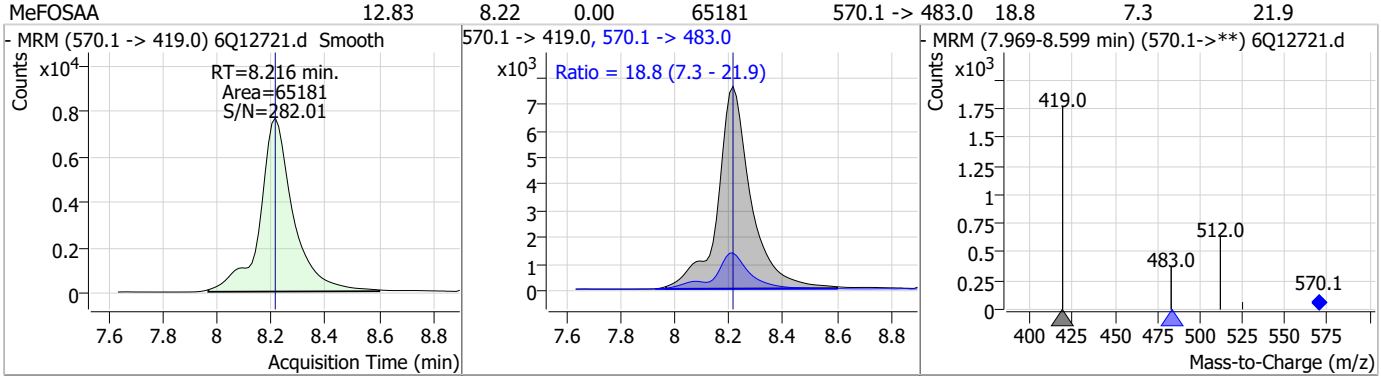
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	14.06	8.17	0.00	273501	512.9 -> 219.0	13.3	7.4	22.3



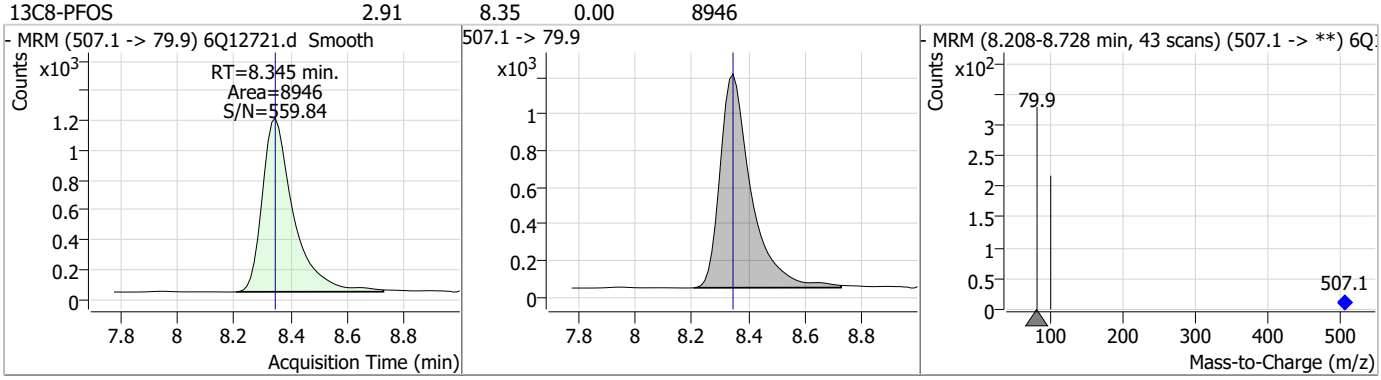
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.41	8.21	0.00	27724				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.83	8.22	0.00	65181	570.1 -> 483.0	18.8	7.3	21.9

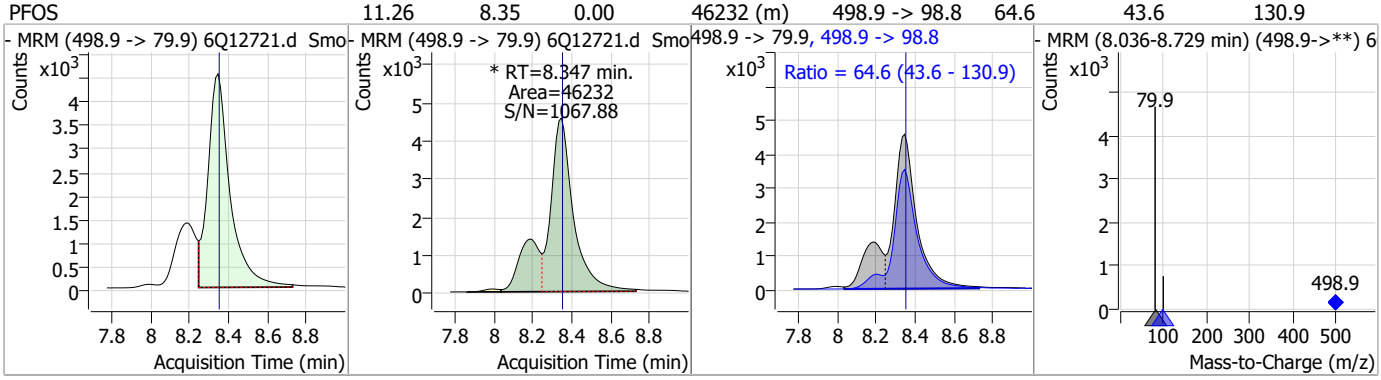


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.91	8.35	0.00	8946				

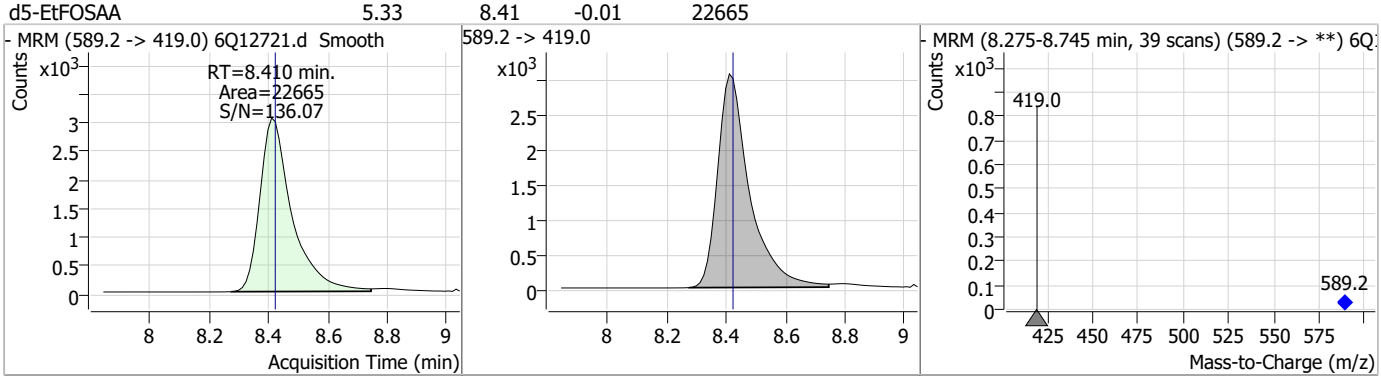


Perfluorinated Compounds by LC/MS/MS

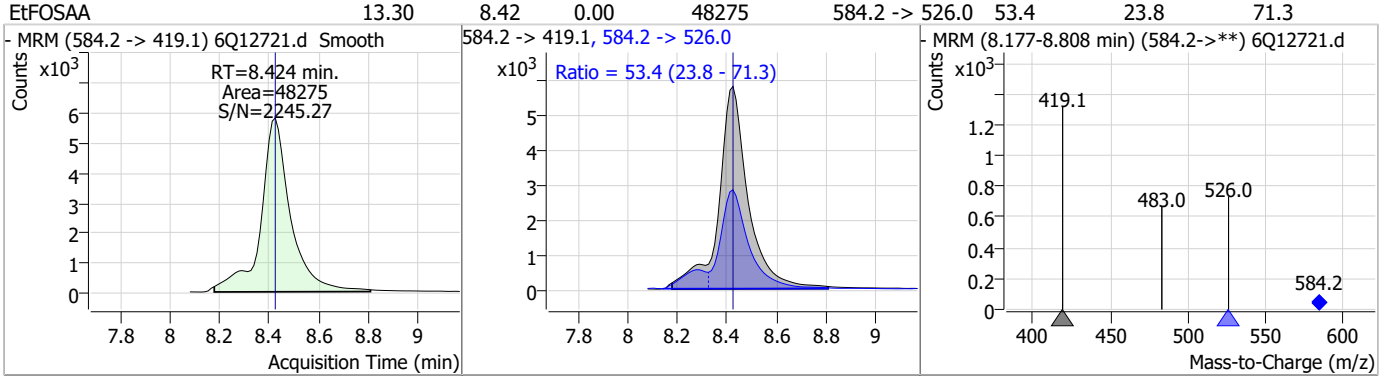
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.26	8.35	0.00	46232 (m)	498.9 -> 98.8	64.6	43.6	130.9



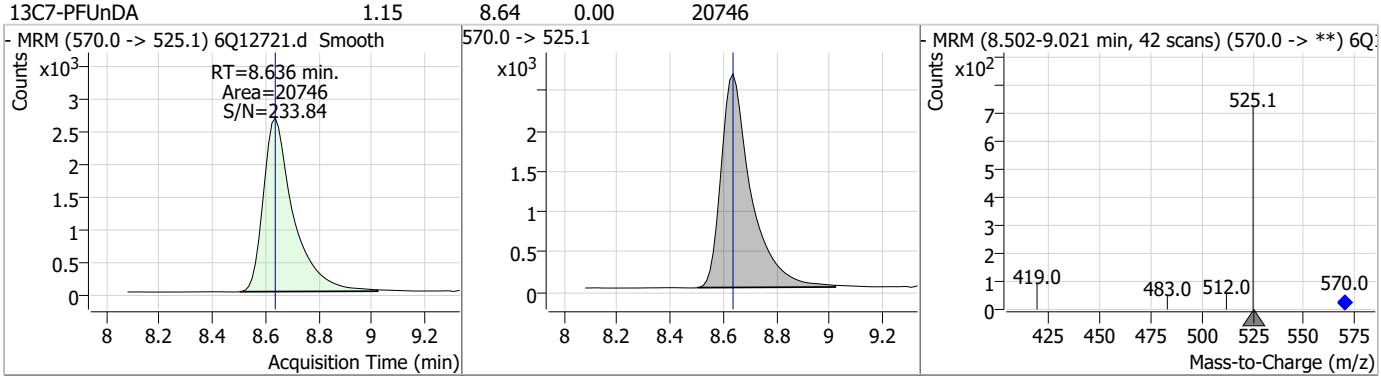
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.33	8.41	-0.01	22665				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	13.30	8.42	0.00	48275	584.2 -> 526.0	53.4	23.8	71.3

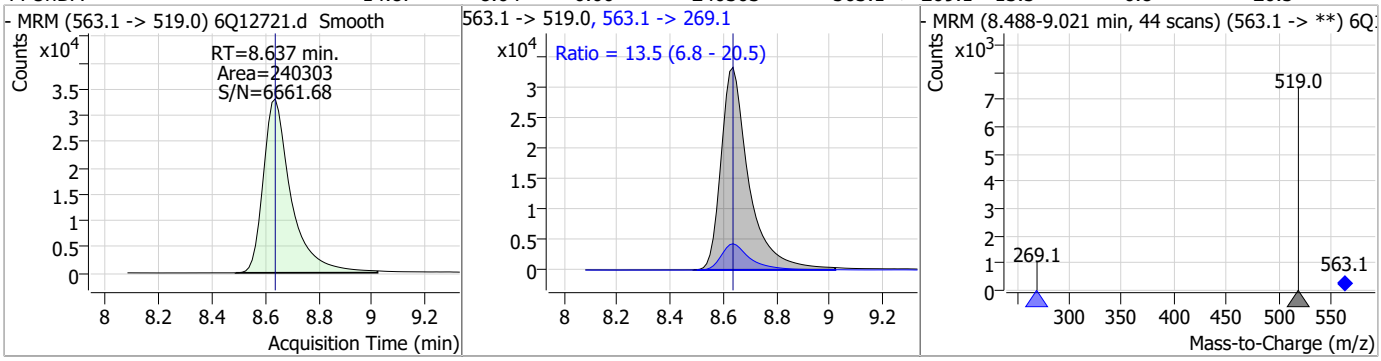


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.64	0.00	20746				

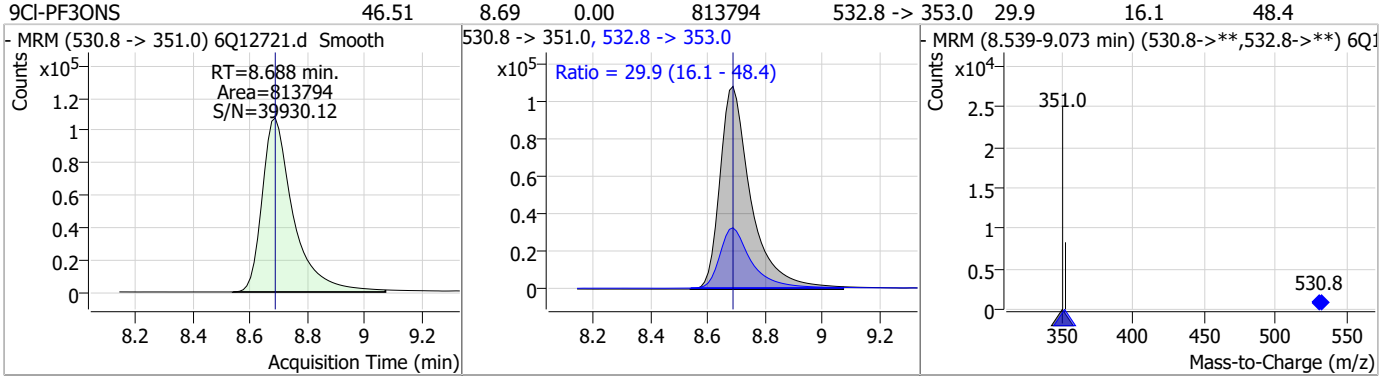


Perfluorinated Compounds by LC/MS/MS

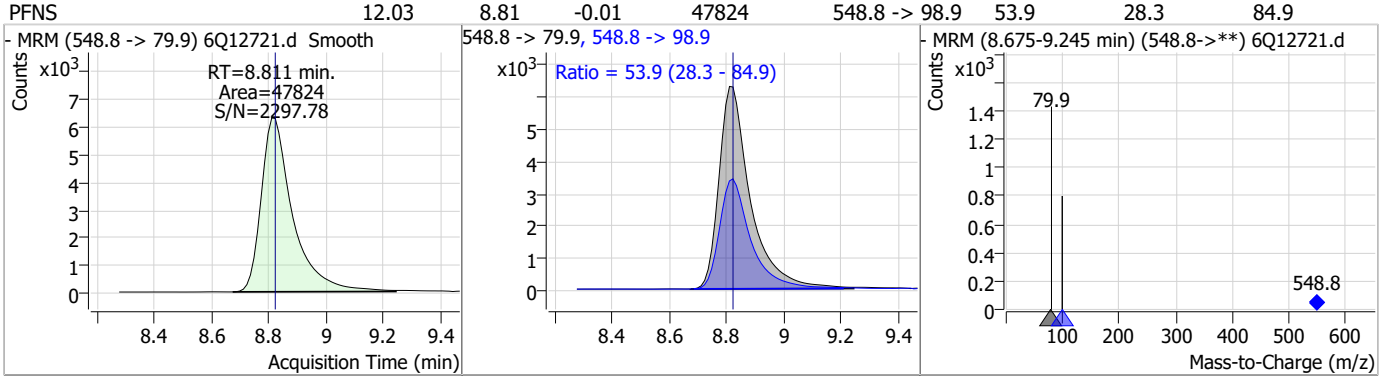
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	14.87	8.64	0.00	240303	563.1 -> 269.1	13.5	6.8	20.5



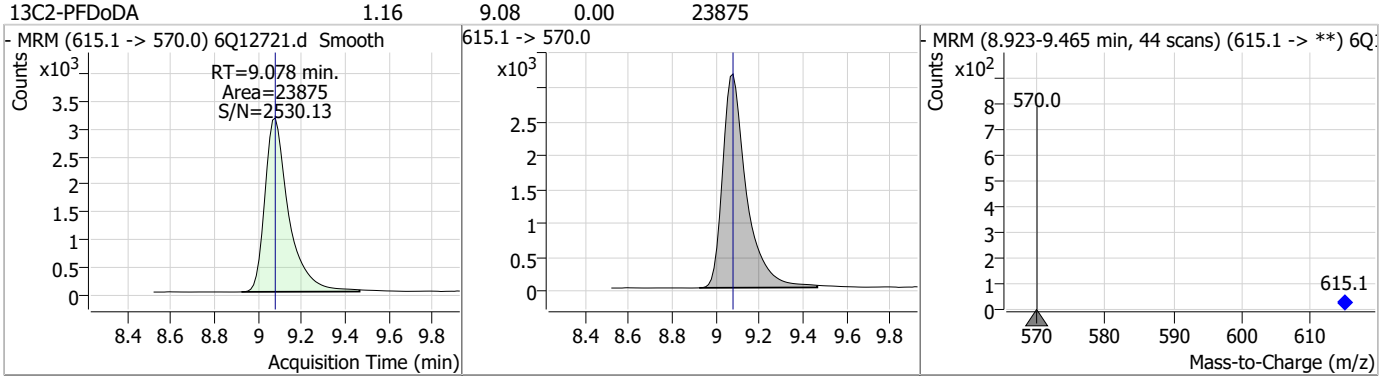
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	46.51	8.69	0.00	813794	532.8 -> 353.0	29.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.03	8.81	-0.01	47824	548.8 -> 98.9	53.9	28.3	84.9

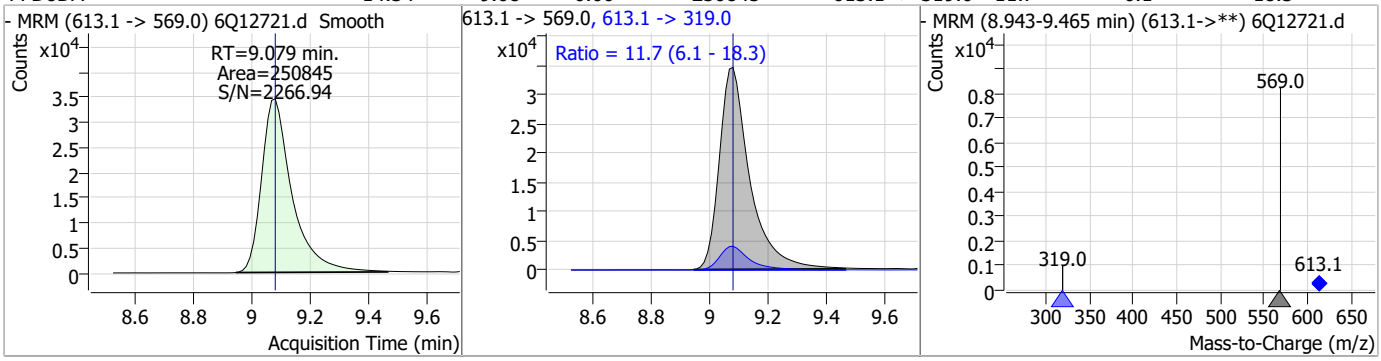


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.16	9.08	0.00	23875				

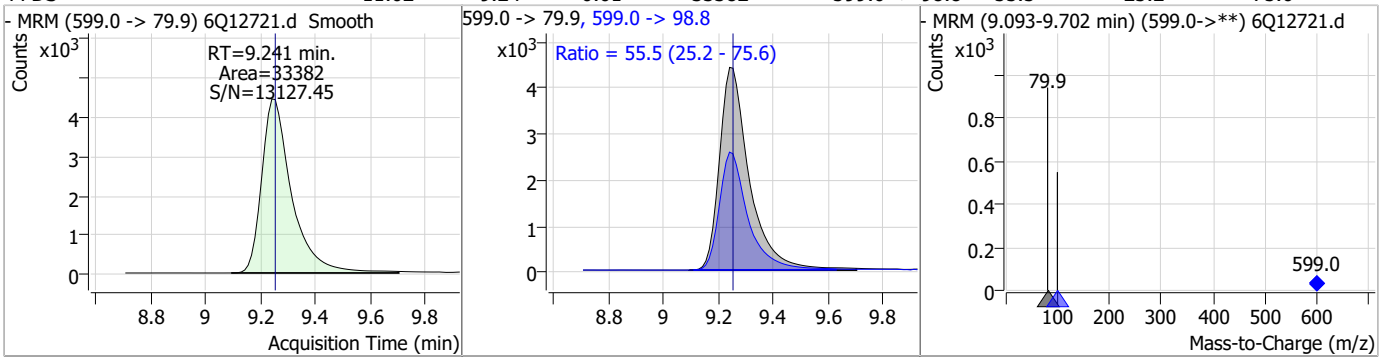


Perfluorinated Compounds by LC/MS/MS

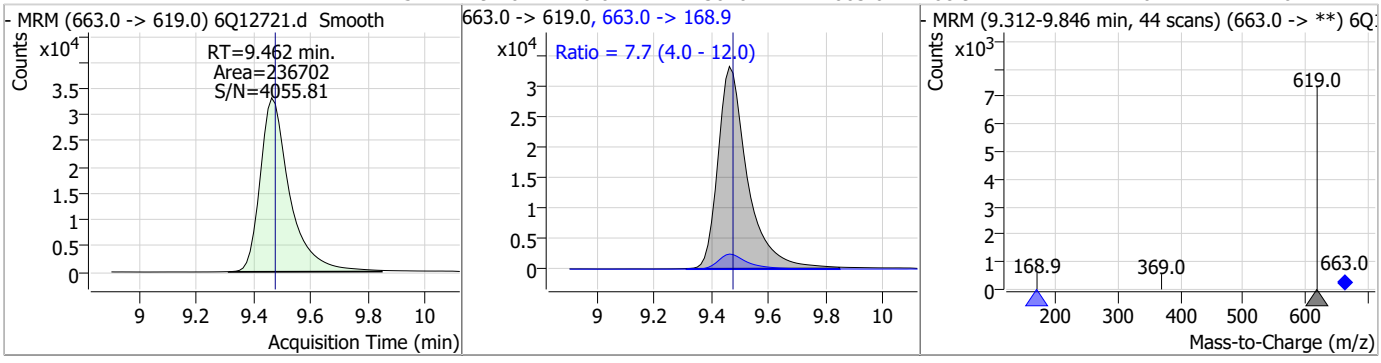
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	14.34	9.08	0.00	250845	613.1 -> 319.0	11.7	6.1	18.3



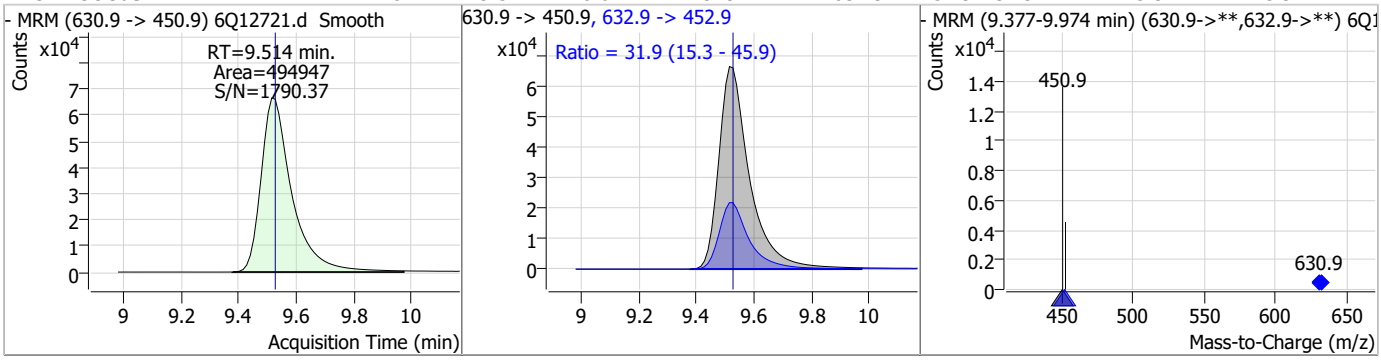
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	11.02	9.24	-0.01	33382	599.0 -> 98.8	55.5	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	14.15	9.46	-0.01	236702	663.0 -> 168.9	7.7	4.0	12.0

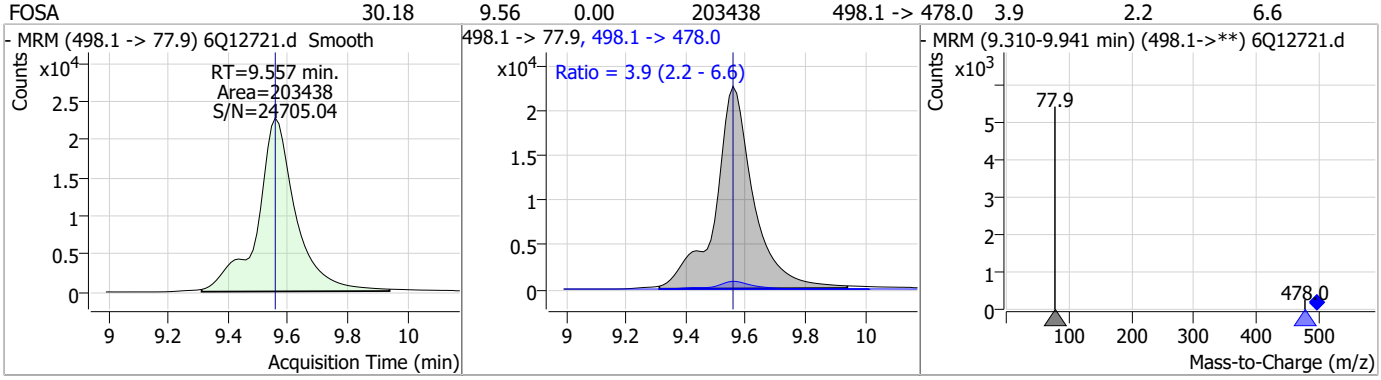


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	47.81	9.51	-0.01	494947	632.9 -> 452.9	31.9	15.3	45.9

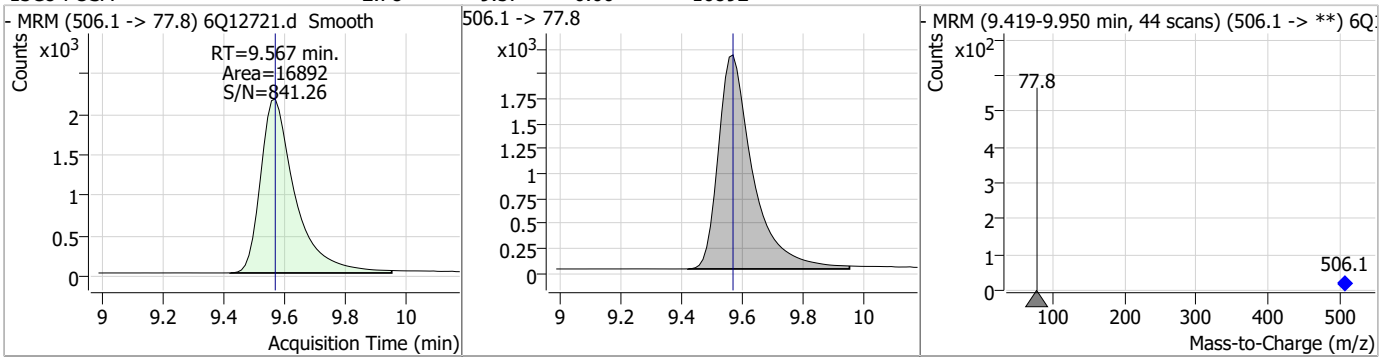


Perfluorinated Compounds by LC/MS/MS

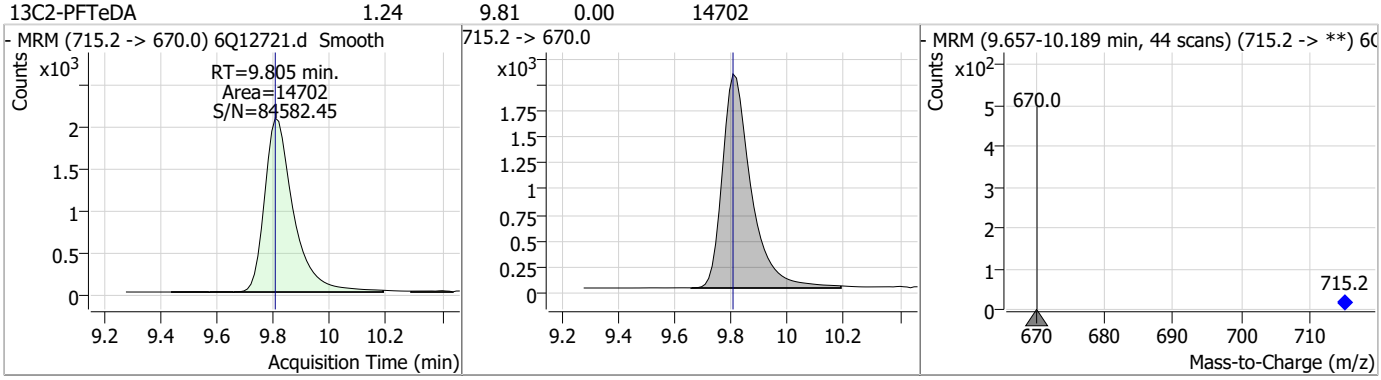
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.18	9.56	0.00	203438	498.1 -> 478.0	3.9	2.2	6.6



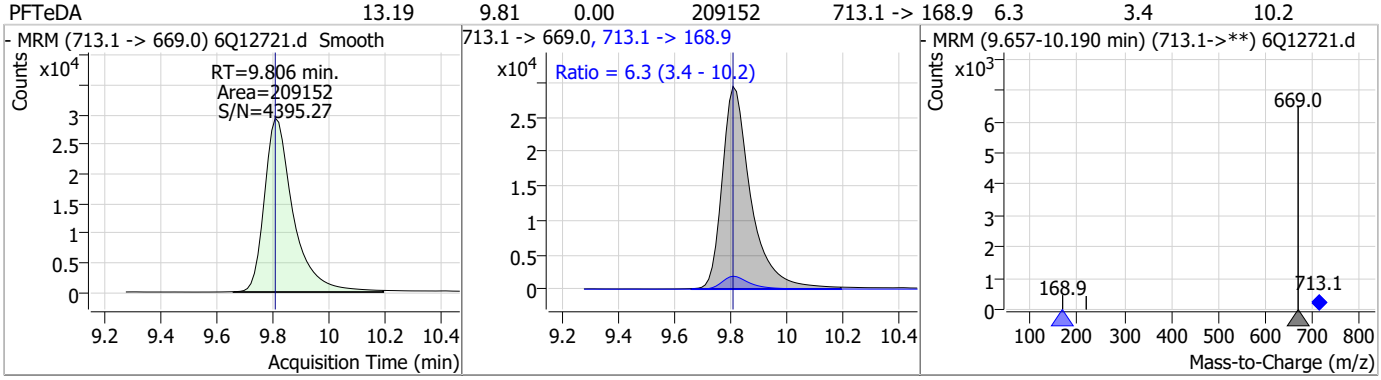
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.57	0.00	16892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.81	0.00	14702				

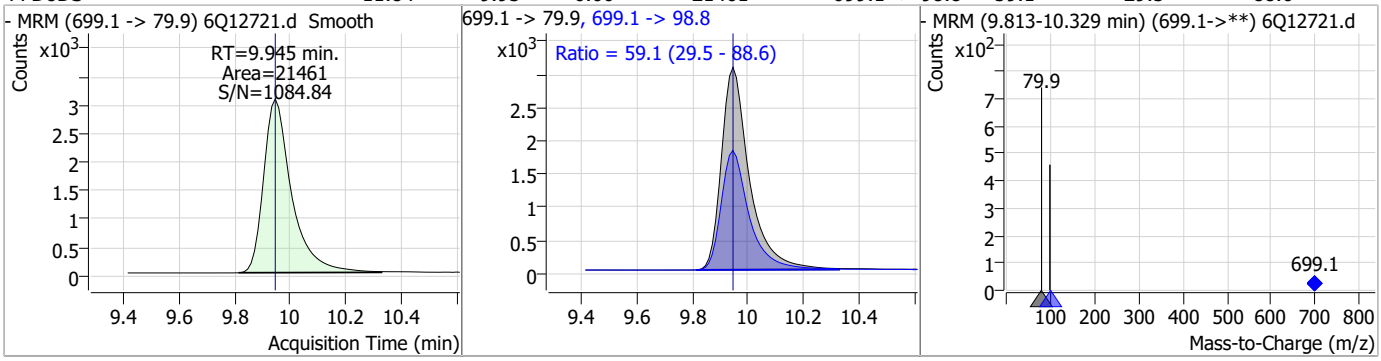


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.19	9.81	0.00	209152	713.1 -> 168.9	6.3	3.4	10.2

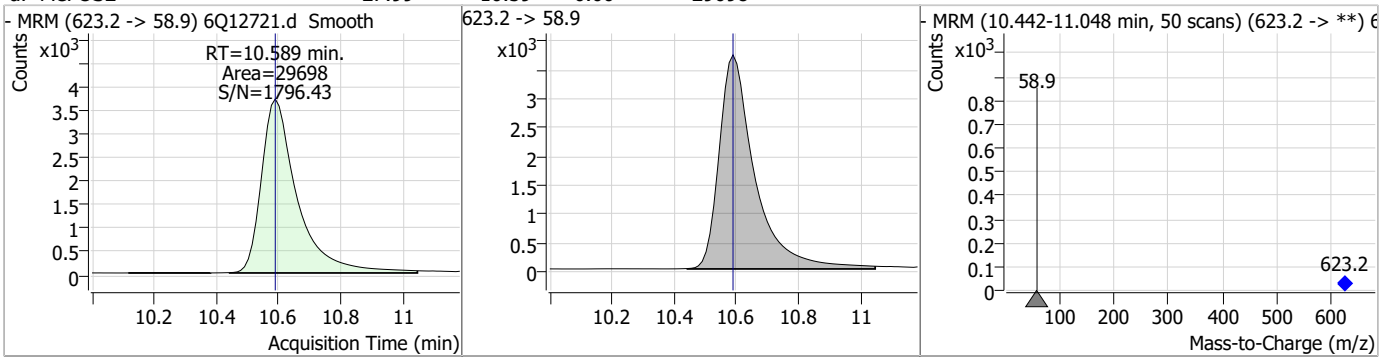


Perfluorinated Compounds by LC/MS/MS

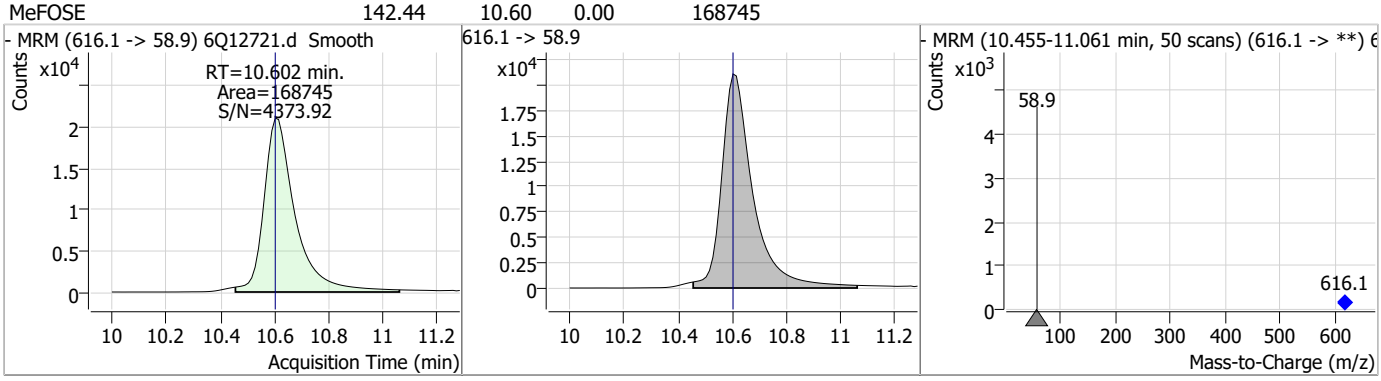
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	11.84	9.95	0.00	21461	699.1 -> 98.8	59.1	29.5	88.6



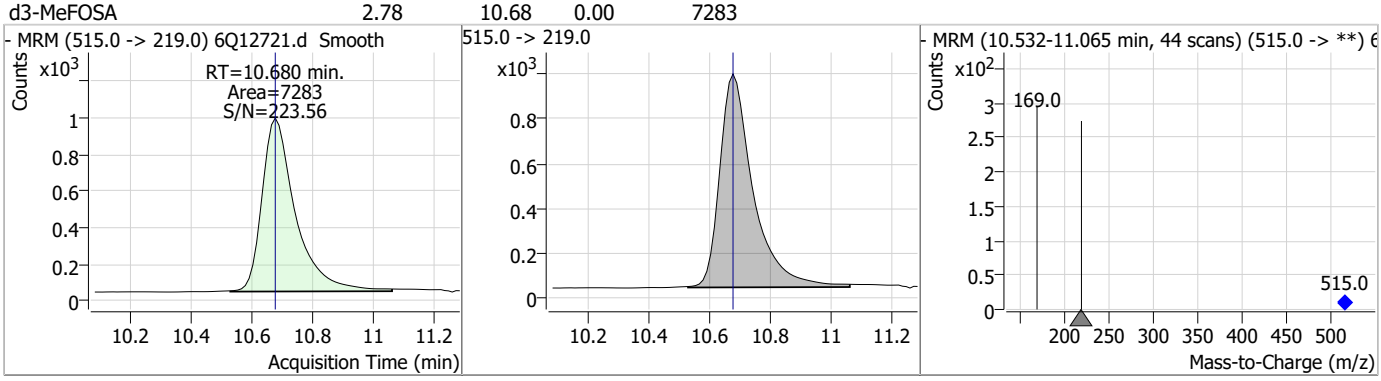
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.99	10.59	0.00	29698				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	142.44	10.60	0.00	168745				

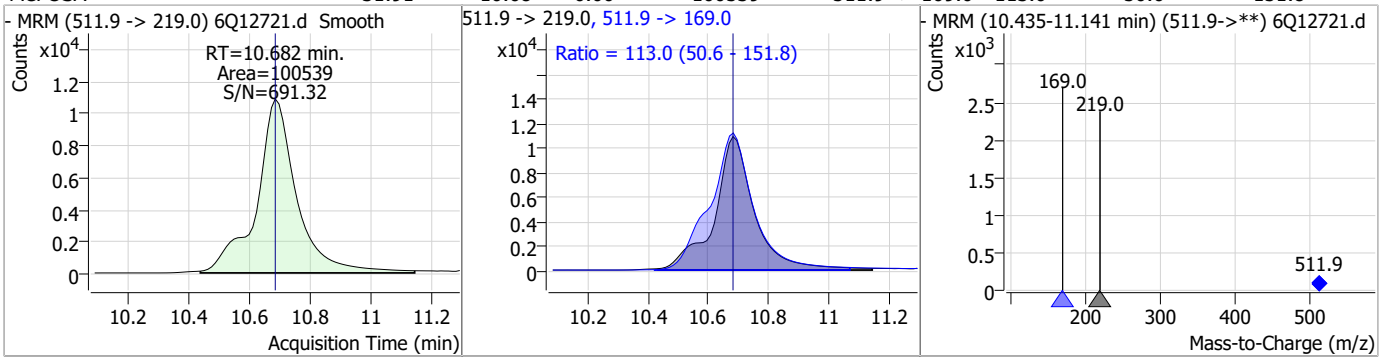


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.78	10.68	0.00	7283				

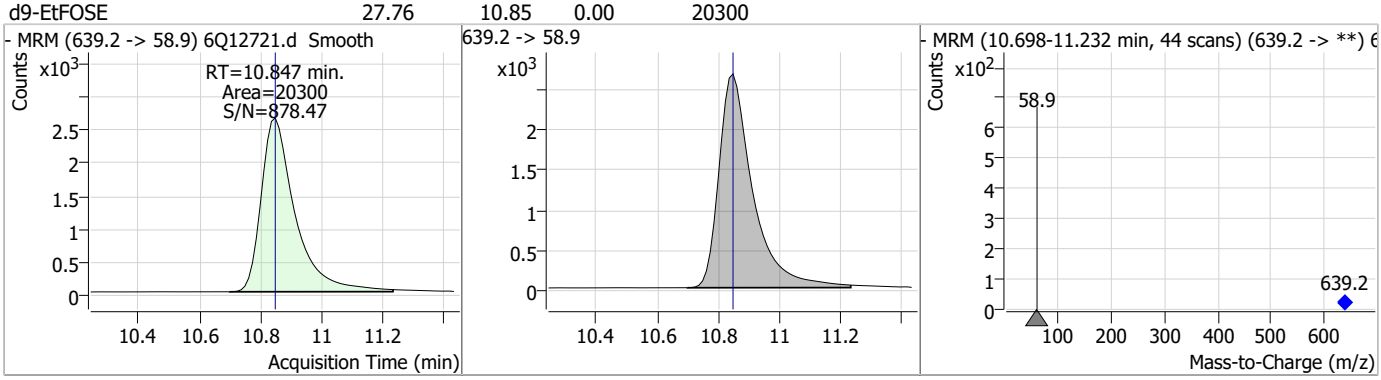


Perfluorinated Compounds by LC/MS/MS

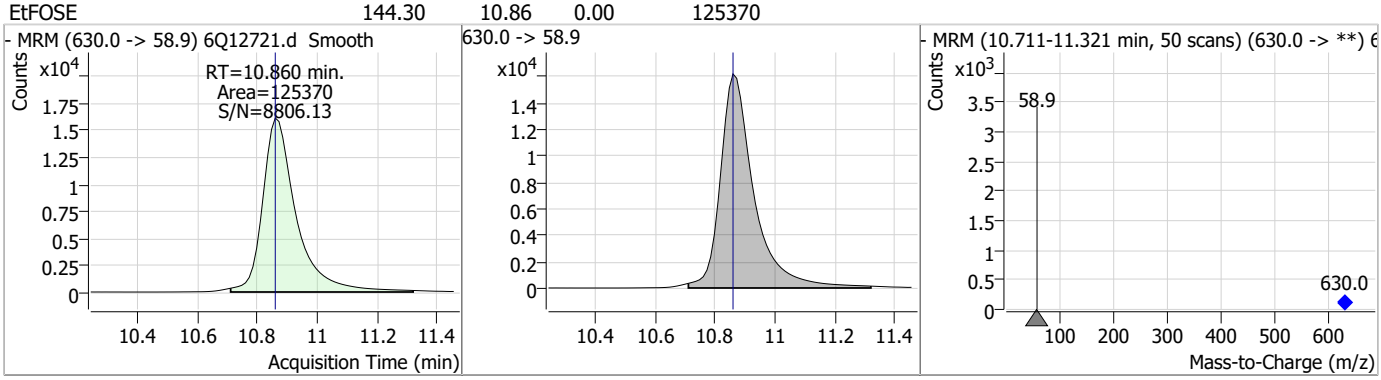
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	31.91	10.68	0.00	100539	511.9 -> 169.0	113.0	50.6	151.8



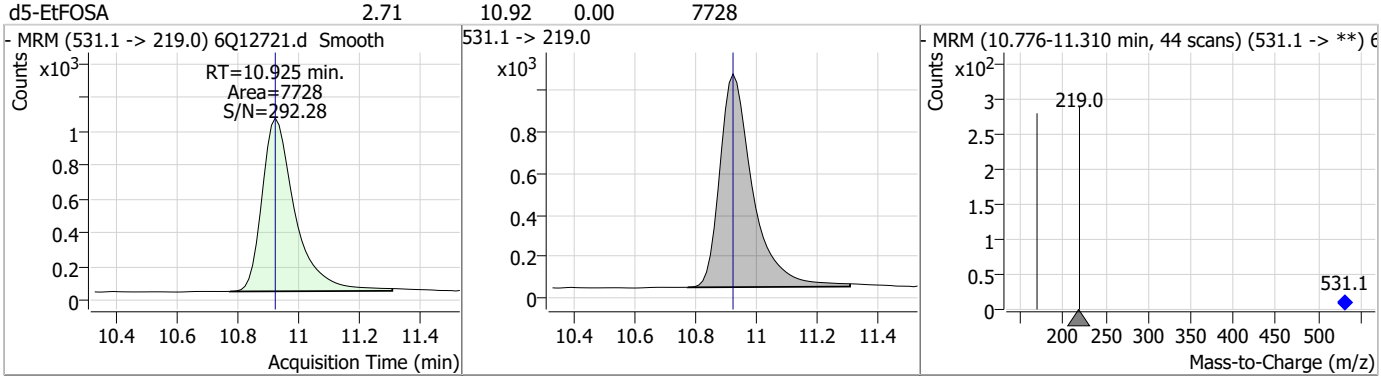
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.76	10.85	0.00	20300				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	144.30	10.86	0.00	125370				

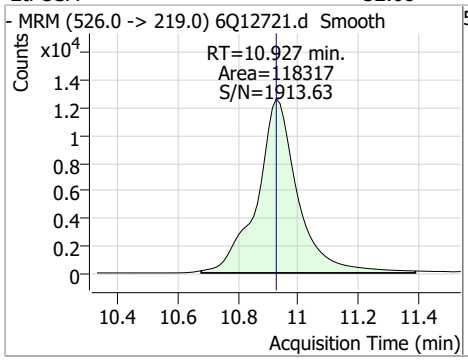


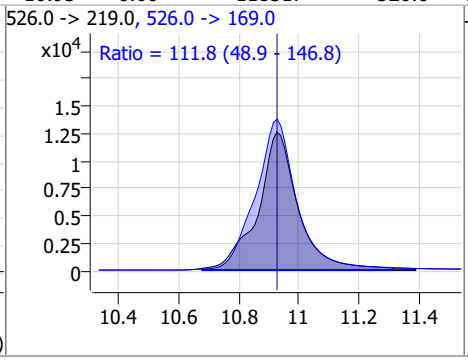
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.71	10.92	0.00	7728				

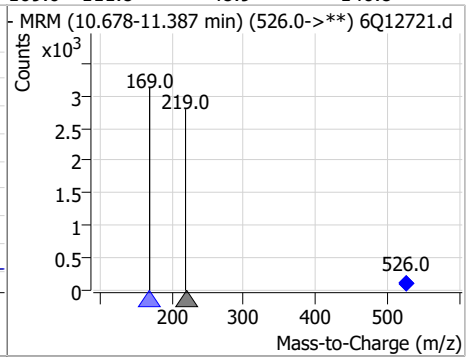


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	32.08	10.93	0.00	118317	526.0 -> 169.0	111.8	48.9	146.8







7.6.2

7

Manual Integration Approval Summary

Sample Number:	S6Q196-RT	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12721.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 17:23	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

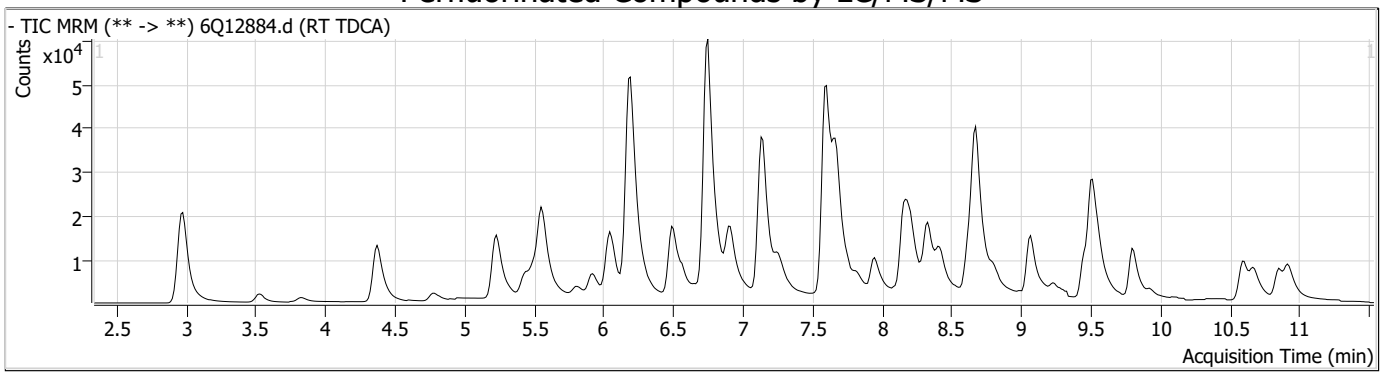
Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12884.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 10:02:07 AM
Sample Name	:	RT TDCA
Vial	:	P1-B3
DA Method File	:	TDCA.quantmethod.xml
Batch Name	:	s6q198_TDCA.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

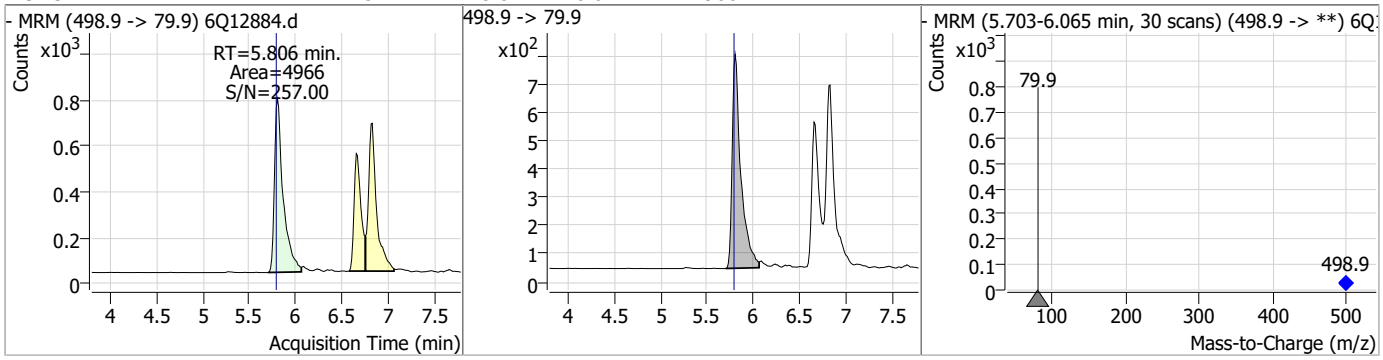
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
Internal Standards							
M8-PFOS	8.345	507.1 -> 79.9	10906	2.50	µg/L		-0.025
13C4-PFOS	8.346	502.8 -> 79.9	13688	2.50	µg/L		-0.012
System Monitoring Compounds							
13C8-PFOS	8.345	507.1 -> 79.9	10906	2.02	µg/L		-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.8%			
Target Compounds							QValue
PFOS	8.334	498.9 -> 79.9	11855	3.18	µg/L	#m	76
		498.9 -> 98.8	6743				
TCDCA	6.658	498.9 -> 79.9	2435	4.84	ng/ml		100
TDCA	6.820	498.9 -> 79.9	3651	8.01	ng/ml		100
TUDCA	5.806	498.9 -> 79.9	4966	5.14	ng/ml		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

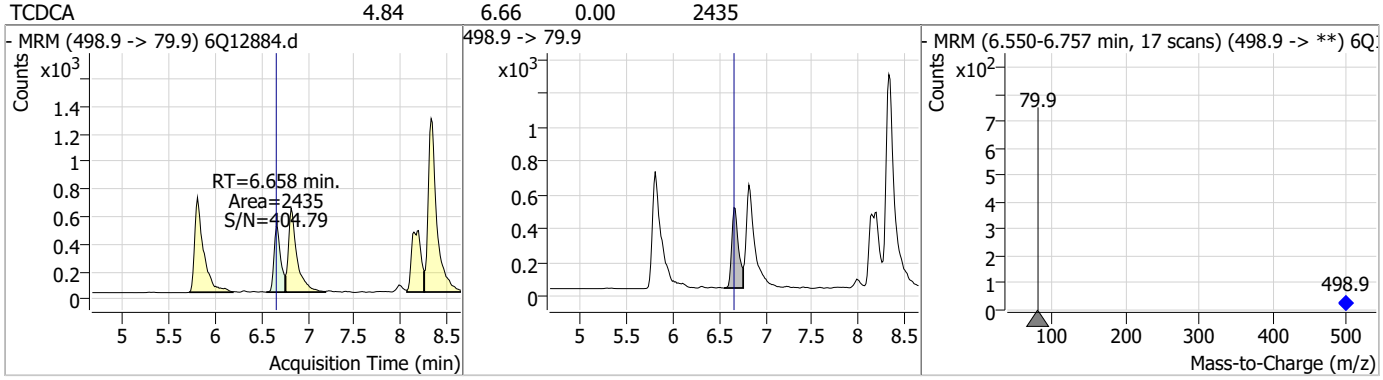
Perfluorinated Compounds by LC/MS/MS



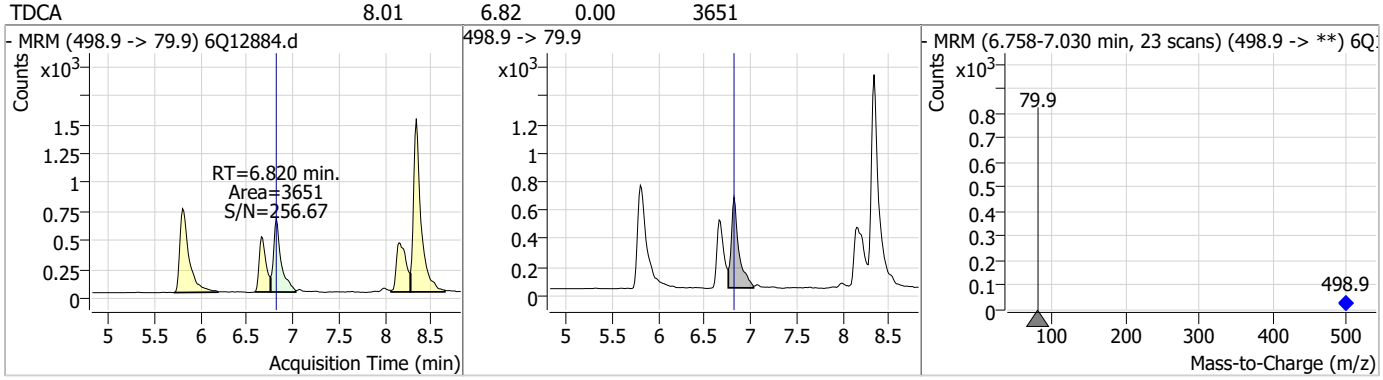
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TUDCA	5.14	5.81	0.01	4966				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TCDCA	4.84	6.66	0.00	2435				

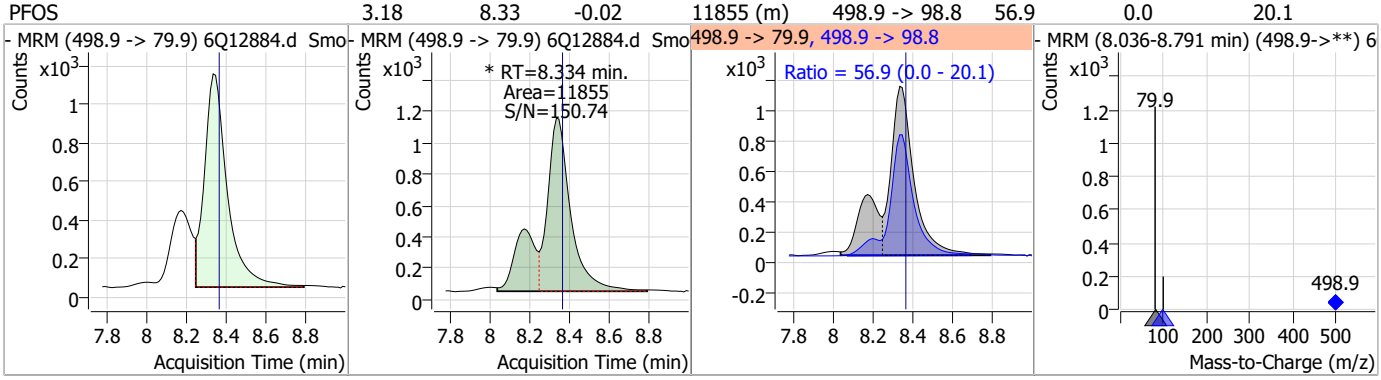


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
TDCA	8.01	6.82	0.00	3651				

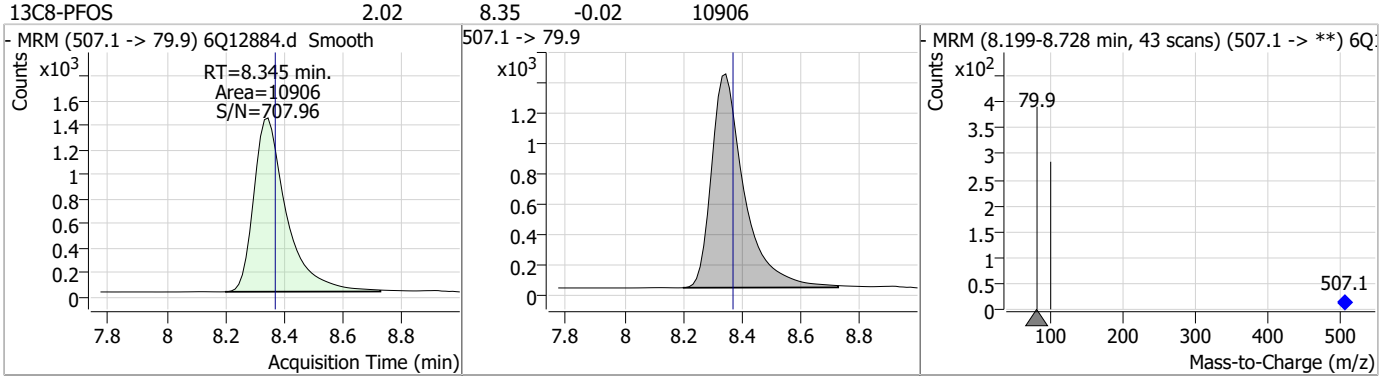


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.18	8.33	-0.02	11855 (m)	498.9 -> 98.8	56.9	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.02	8.35	-0.02	10906				



Manual Integration Approval Summary

Sample Number:	S6Q198-RT	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12884.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 10:02	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12885.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 10:16:06 AM
Sample Name	:	RT BR-LN
Vial	:	P1-B4
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	69063	10.00	µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	35131	5.00	µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	32195	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	33142	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	57245	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	24500	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	17455	1.25	µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	19572	1.25	µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	22480	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14185	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15685	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11971	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7926	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8067	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1971	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2646	5.00	µg/L	-0.012
M2-8:2FTS	7.944	529.1 -> 80.9	2855	5.00	µg/L	-0.012
M3-MeFOSAA	8.215	573.2 -> 419.0	26369	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13323	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	22536	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	27579	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19396	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7015	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6775	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9863	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	31040	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	5951	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	68763	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	24107	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27459	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	33078	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	1971	5.09	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2646	5.15	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2855	5.54	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22480	1.23	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14185	1.34	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C3-PFBS	5.518	302.1 -> 79.9	11971	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C3-PFHxS	7.274	402.1 -> 79.9	7926	2.53	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C4-PFBA	2.975	216.8 -> 171.9	69063	10.03 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C4-PFHpA	6.502	367.1 -> 322.0	33142	2.43 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C5-PFHxA	5.563	318.0 -> 273.0	32195	2.46 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C5-PFPeA	4.374	268.3 -> 223.0	35131	4.77 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C6-PFDA	8.170	519.1 -> 474.1	17455	1.30 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C7-PFUnDA	8.624	570.0 -> 525.1	19572	1.22 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C8-FOSA	9.567	506.1 -> 77.8	15685	2.44 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C8-PFOA	7.146	421.1 -> 376.0	57245	2.49 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8067	2.49 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C9-PFNA	7.677	472.1 -> 427.0	24500	1.27 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	26369	4.88 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13323	9.86 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	6775	2.45 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%		
d5-EtFOSAA	8.410	589.2 -> 419.0	22536	5.02 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
d7-MeFOSE	10.589	623.2 -> 58.9	27579	24.63 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	19396	25.13 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7015	2.33 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%		
Target Compounds						**QValue**
4:2FTS	5.228	327.1 -> 307.0	212232	48.01 µg/L		99
		327.1 -> 80.9	45294			
6:2FTS	6.908	427.1 -> 407.0	186735	48.19 µg/L		100
		427.1 -> 80.9	35054			
8:2FTS	7.945	527.1 -> 507.0	99743	44.99 µg/L		96
		527.1 -> 80.8	26016			
EtFOSAA	8.424	584.2 -> 419.1	43946	12.18 µg/L	m	85
		584.2 -> 526.0	25232			
FOSA	9.557	498.1 -> 77.9	191818	30.64 µg/L		98
		498.1 -> 478.0	7337			
MeFOSAA	8.216	570.1 -> 419.0	62726	12.98 µg/L		95
		570.1 -> 483.0	10348			
PFBA	2.982	212.8 -> 168.9	81777	53.01 µg/L		100
PFBS	5.518	298.7 -> 79.9	53399	11.61 µg/L		94
		298.7 -> 98.8	25313			
PFDA	8.170	512.9 -> 469.0	259526	13.07 µg/L		98
		512.9 -> 219.0	36696			
PFDoDA	9.067	613.1 -> 569.0	222552	13.51 µg/L		99
		613.1 -> 319.0	26338			
PFDS	9.241	599.0 -> 79.9	31922	11.68 µg/L		97

Perfluorinated Compounds by LC/MS/MS

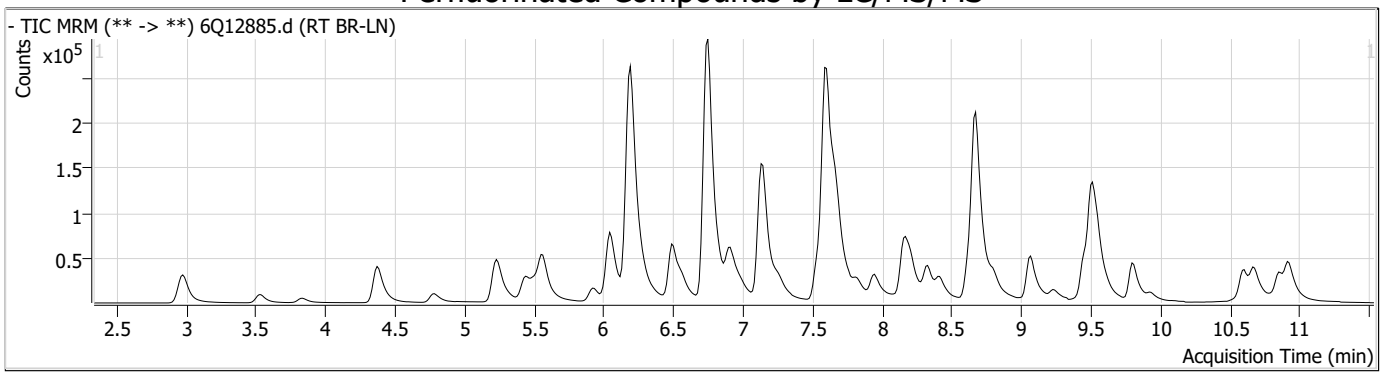
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	16669				
PFHpA	6.503	363.1 -> 319.0	263246	13.41	µg/L		99
		363.1 -> 169.0	33759				
PFHpS	7.841	449.0 -> 79.9	42644	12.46	µg/L		98
		449.0 -> 98.9	24227				
PFHxA	5.566	313.0 -> 269.0	162752	12.89	µg/L		99
		313.0 -> 118.9	6221				
PFHxS	7.275	398.7 -> 79.9	40606	11.40	µg/L	m	92
		398.7 -> 98.9	23434				
PFNA	7.677	463.0 -> 419.0	414967	25.11	µg/L	m	95
		463.0 -> 219.0	88642				
PFNS	8.811	548.8 -> 79.9	44075	12.29	µg/L		98
		548.8 -> 98.9	24342				
PFOA	7.148	413.0 -> 369.0	697861	27.68	µg/L	m	98
		413.0 -> 169.0	90370				
PFOS	8.334	498.9 -> 79.9	44000	11.89	µg/L	m	70
		498.9 -> 98.8	26161				
PFPeA	4.388	263.0 -> 219.0	196337	26.47	µg/L		100
PFPeS	6.569	349.1 -> 79.9	50235	12.13	µg/L		96
		349.1 -> 98.9	27236				
PFTeDA	9.806	713.1 -> 669.0	178479	11.66	µg/L		99
		713.1 -> 168.9	12484				
PFTrDA	9.462	663.0 -> 619.0	210884	13.39	µg/L		98
		663.0 -> 168.9	15629				
PFUnDA	8.624	563.1 -> 519.0	207870	13.64	µg/L		99
		563.1 -> 269.1	29184				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	445535	46.60	µg/L		97
		632.9 -> 452.9	144631				
9Cl-PF3ONS	8.676	530.8 -> 351.0	826804	51.16	µg/L		94
		532.8 -> 353.0	238995				
ADONA	6.753	376.9 -> 250.9	1358288	47.00	µg/L		98
		376.9 -> 84.8	287373				
HFPO-DA	5.940	284.9 -> 168.9	64987	52.15	µg/L		97
		284.9 -> 184.9	7850				
3:3FTCA	3.841	241.0 -> 177.0	23558	64.66	µg/L		97
		241.0 -> 117.0	3189				
5:3FTCA	6.193	341.0 -> 237.1	825728	312.72	µg/L		100
		341.0 -> 217.0	722920				
7:3FTCA	7.605	441.0 -> 316.9	499447	289.39	µg/L		97
		441.0 -> 336.9	1025926				
EtFOSA	10.927	526.0 -> 219.0	112356	33.56	µg/L		88
		526.0 -> 169.0	123807				
EtFOSE	10.860	630.0 -> 58.9	118882	143.20	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	92341	31.51	µg/L		86
		511.9 -> 169.0	106019				
MeFOSE	10.602	616.1 -> 58.9	154284	140.24	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	18693	11.44	µg/L		87
		699.1 -> 98.8	12829				
NFDHA	5.445	295.0 -> 201.0	19311	25.87	µg/L		96
		295.0 -> 84.9	9335				
PFMBA	4.787	279.0 -> 85.1	56899	27.27	µg/L		100
PFMPA	3.541	229.0 -> 84.9	52317	26.44	µg/L		100
PFEESA	6.059	314.8 -> 134.9	395233	21.74	µg/L		99
		314.8 -> 82.9	9847				

= Qualifier out of range, m = manually integrated, + = Area summed

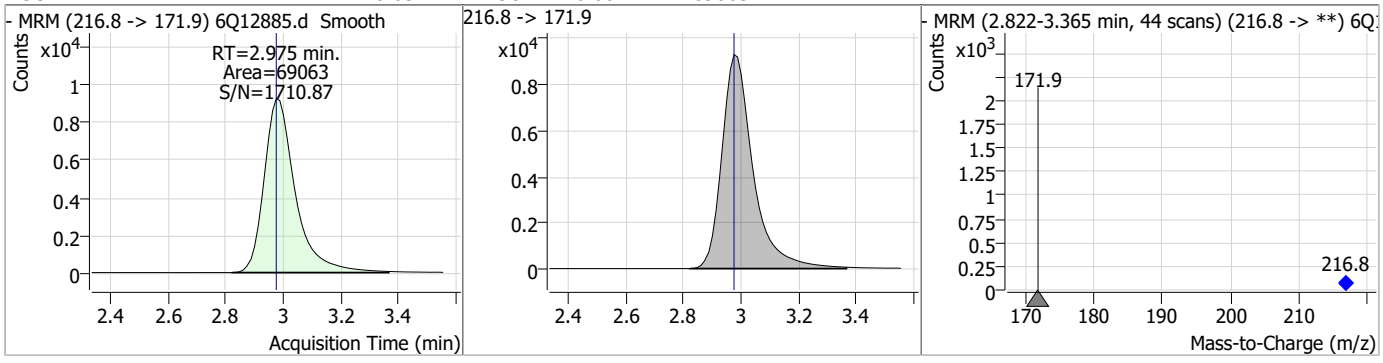
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

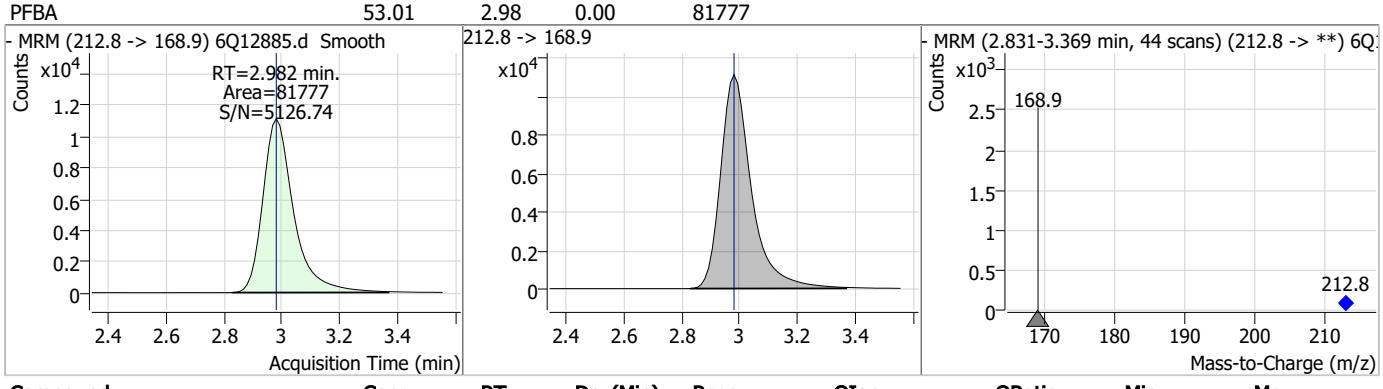
Perfluorinated Compounds by LC/MS/MS



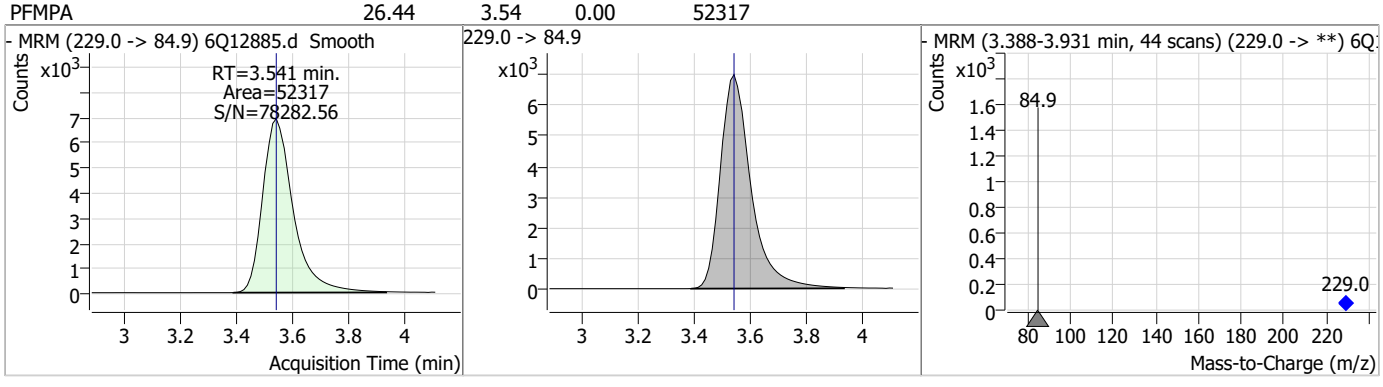
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.03	2.98	0.00	69063				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	53.01	2.98	0.00	81777				

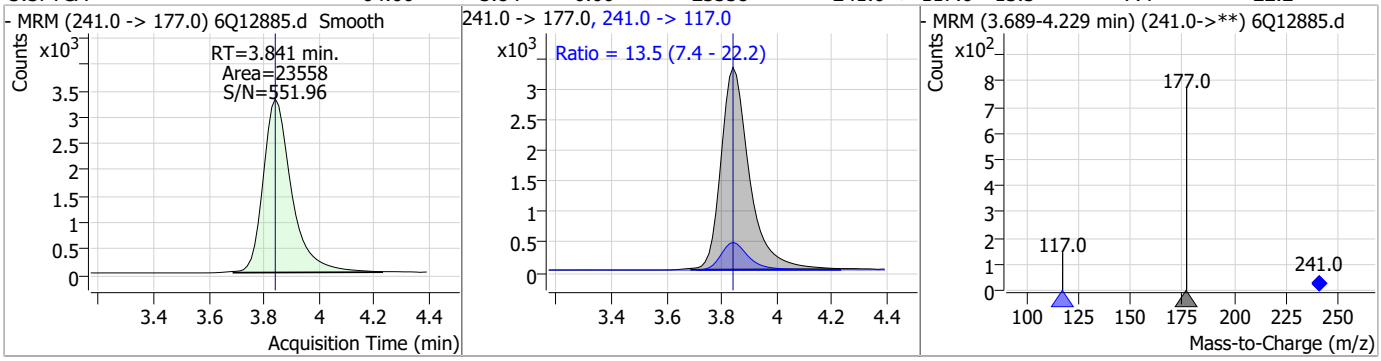


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	26.44	3.54	0.00	52317				

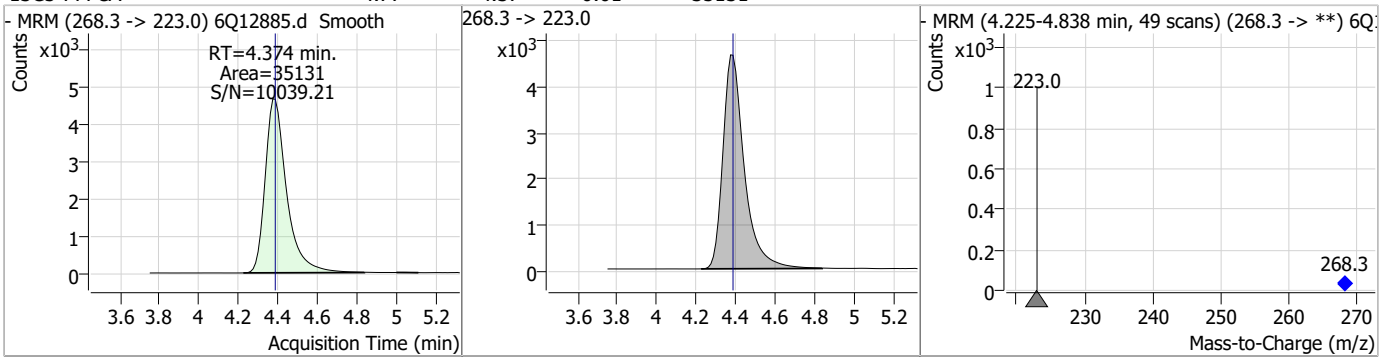


Perfluorinated Compounds by LC/MS/MS

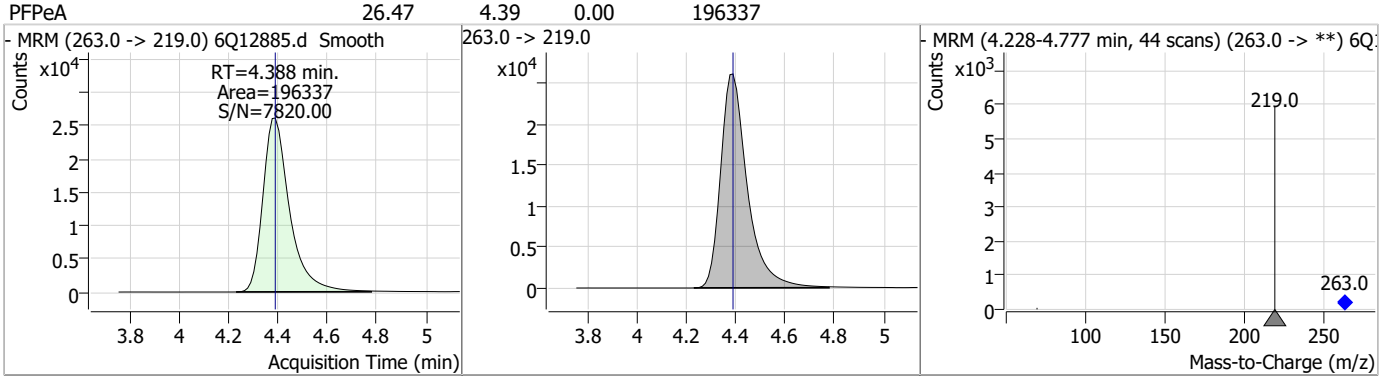
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	64.66	3.84	0.00	23558	241.0 -> 117.0	13.5	7.4	22.2



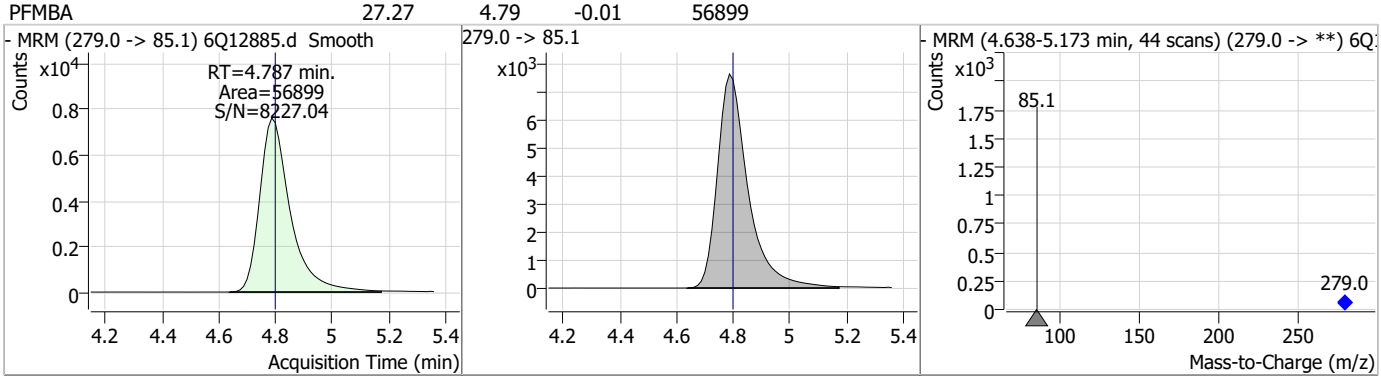
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.77	4.37	-0.01	35131				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.47	4.39	0.00	196337				

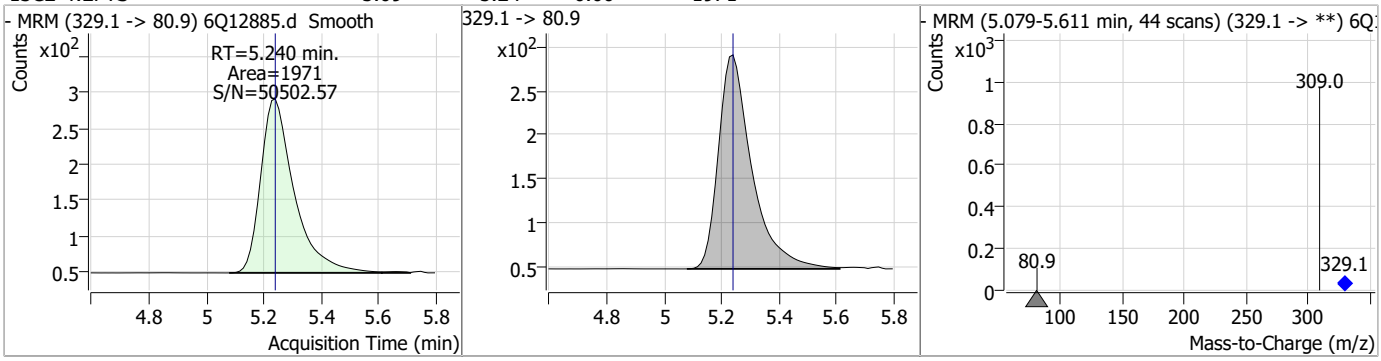


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	27.27	4.79	-0.01	56899				

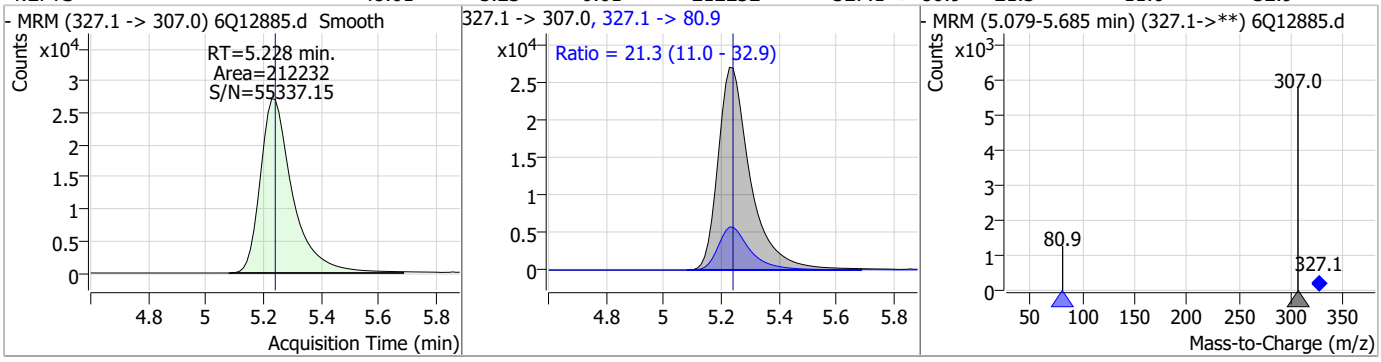


Perfluorinated Compounds by LC/MS/MS

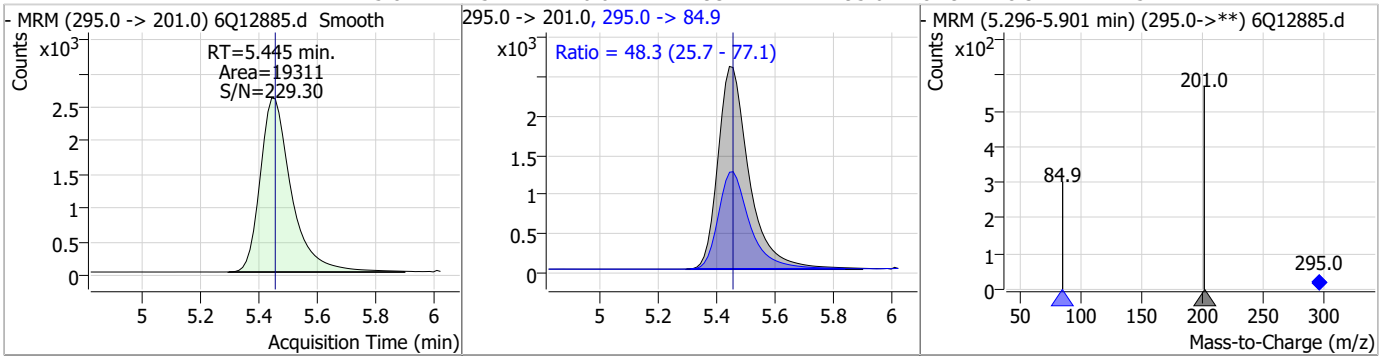
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.09	5.24	0.00	1971				



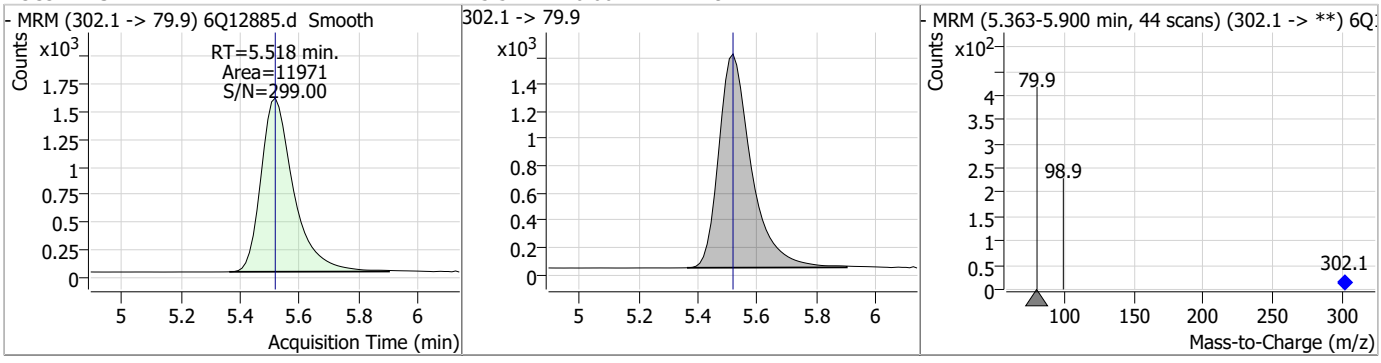
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	48.01	5.23	-0.01	212232	327.1 -> 80.9	21.3	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	25.87	5.44	-0.01	19311	295.0 -> 84.9	48.3	25.7	77.1

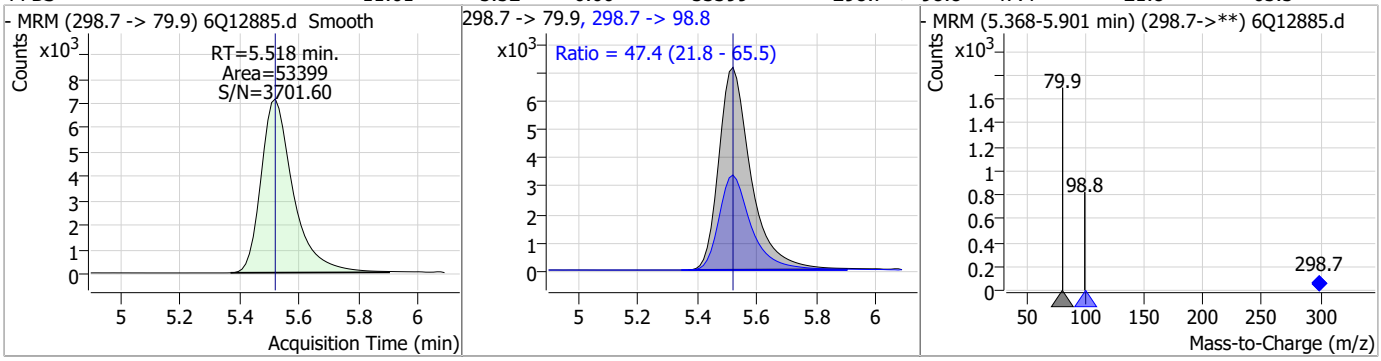


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.47	5.52	0.00	11971				

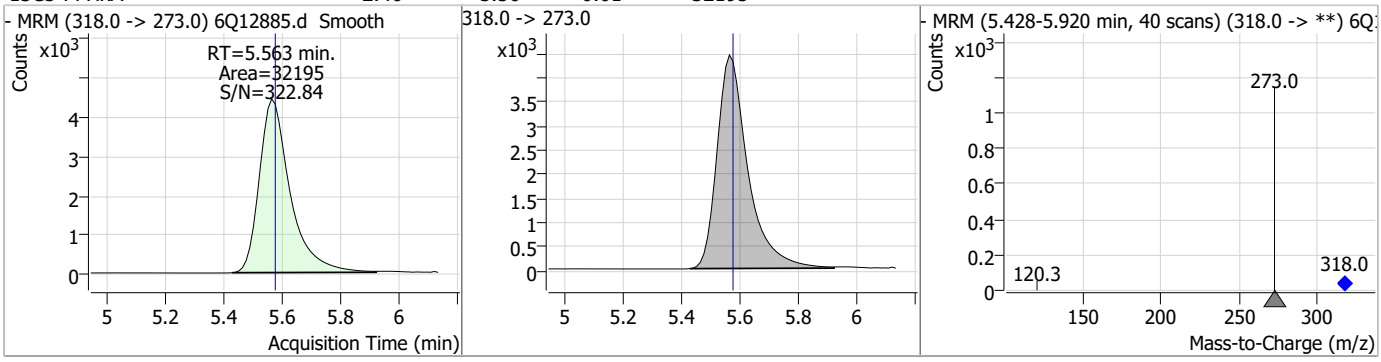


Perfluorinated Compounds by LC/MS/MS

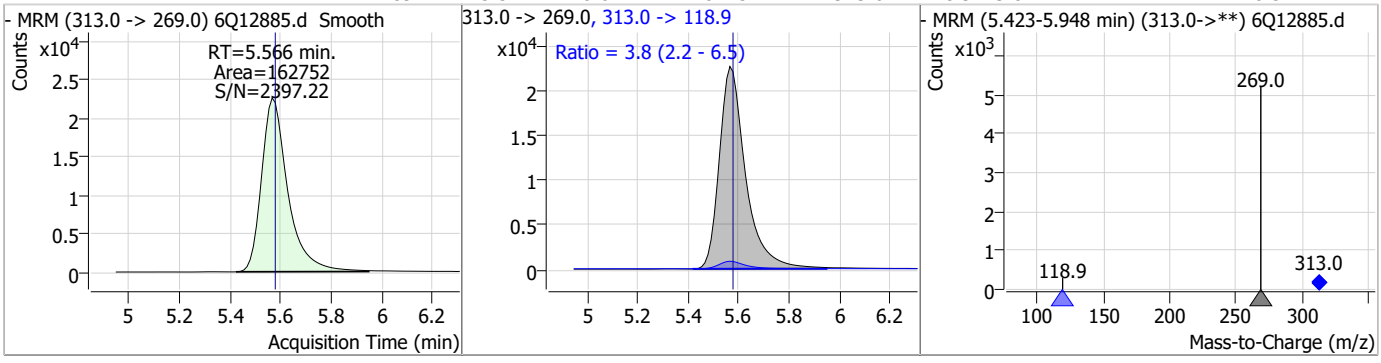
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.61	5.52	0.00	53399	298.7 -> 98.8	47.4	21.8	65.5



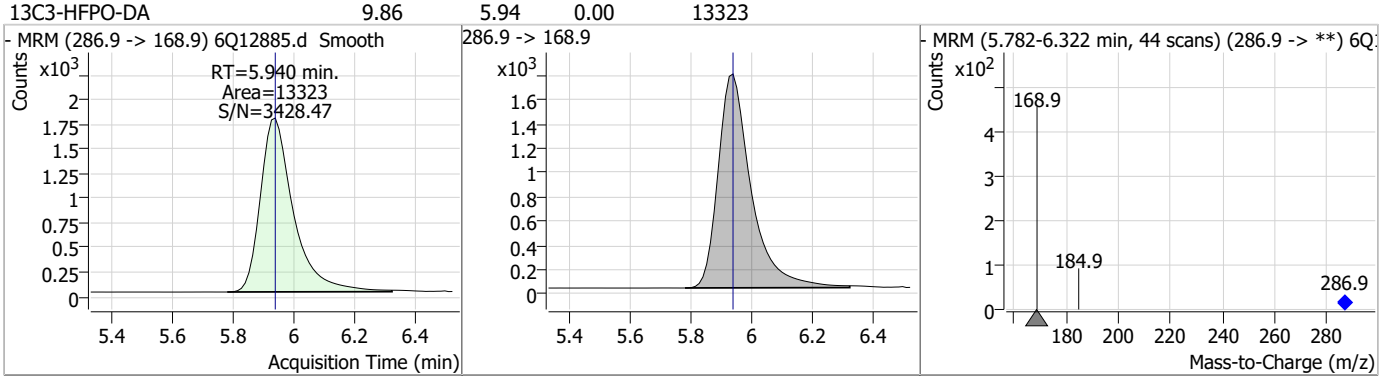
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.56	-0.01	32195				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.89	5.57	-0.01	162752	313.0 -> 118.9	3.8	2.2	6.5

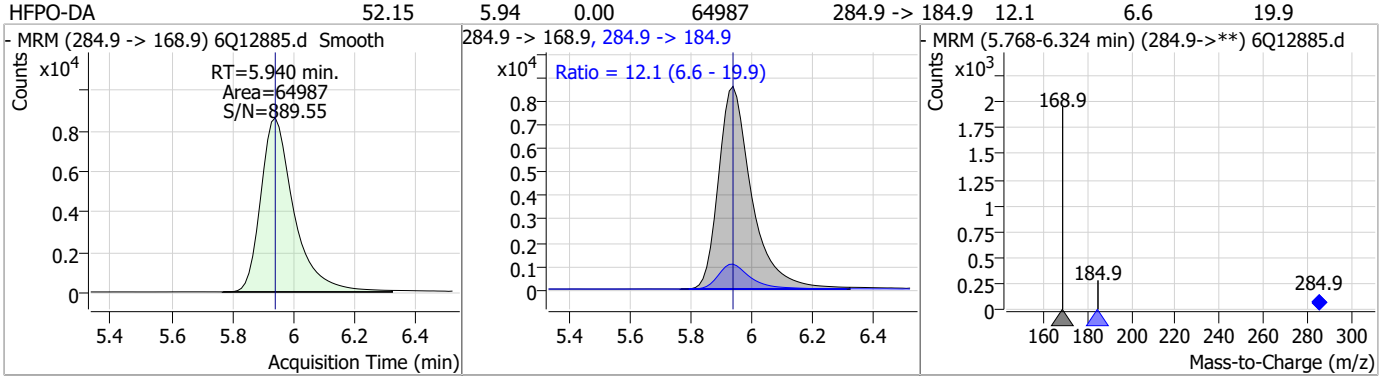


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.86	5.94	0.00	13323				

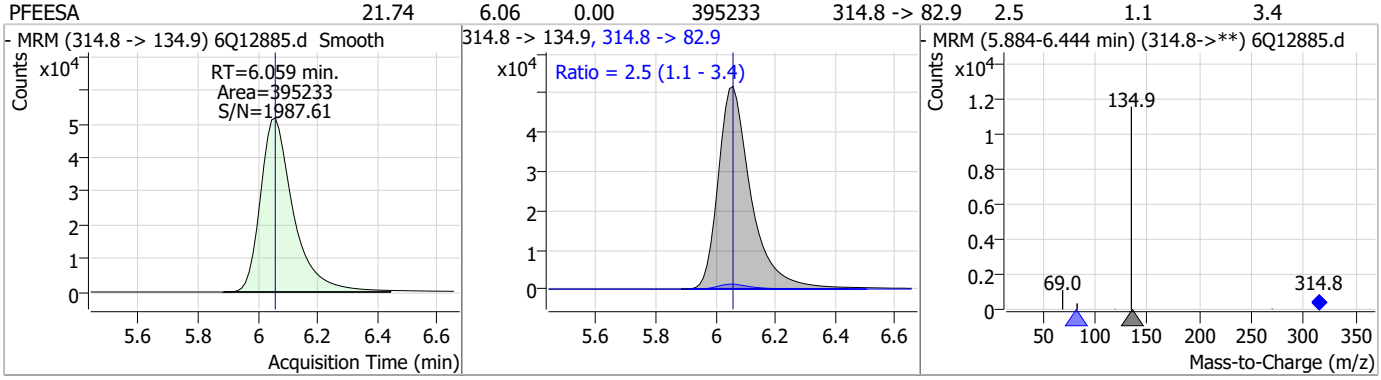


Perfluorinated Compounds by LC/MS/MS

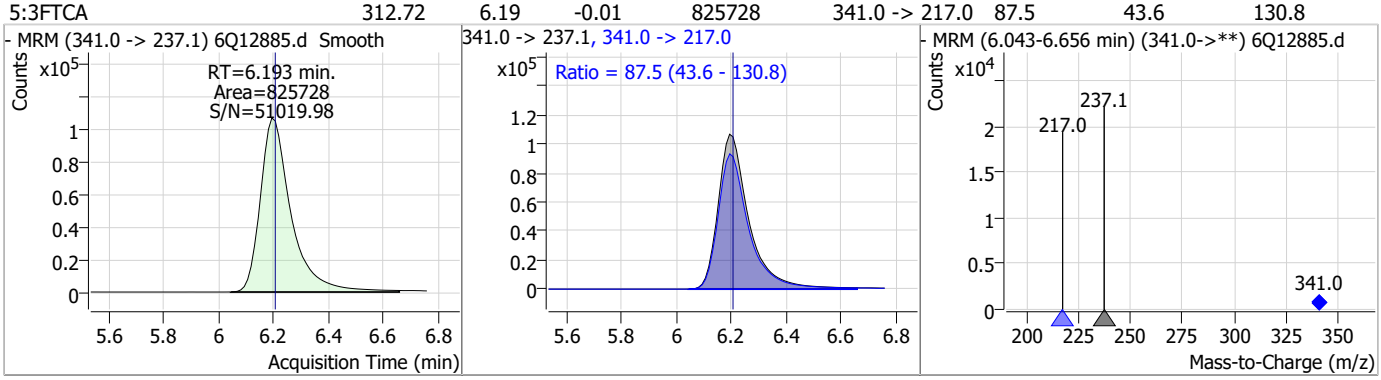
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	52.15	5.94	0.00	64987	284.9 -> 184.9	12.1	6.6	19.9



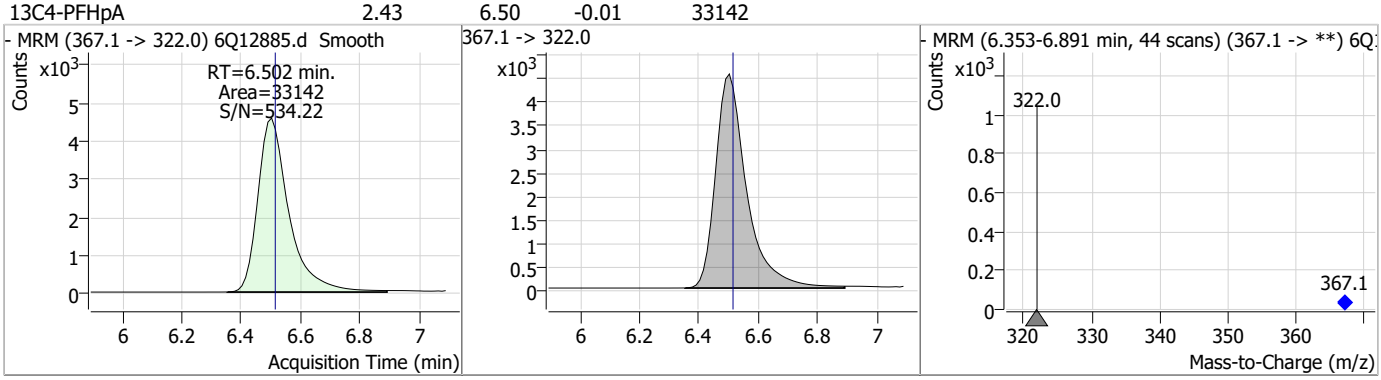
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	21.74	6.06	0.00	395233	314.8 -> 82.9	2.5	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	312.72	6.19	-0.01	825728	341.0 -> 217.0	87.5	43.6	130.8

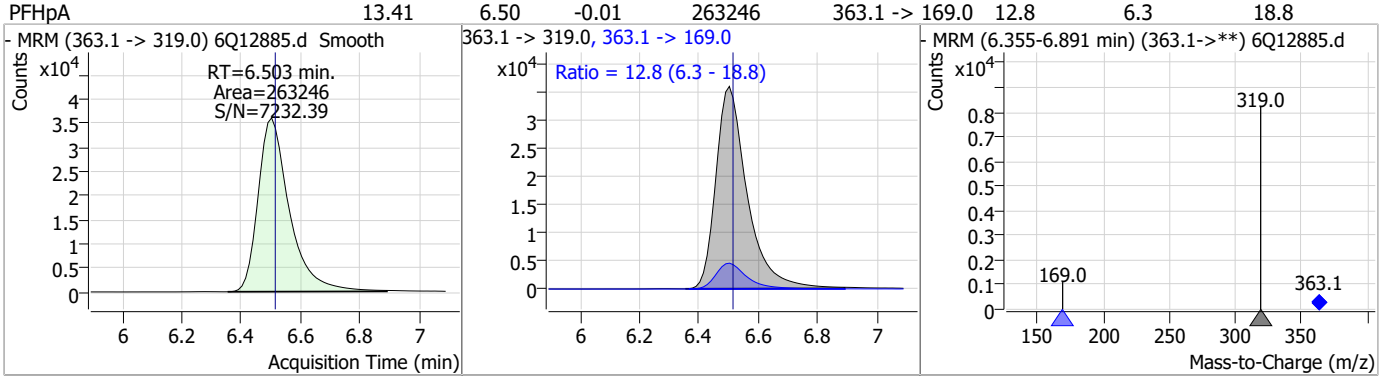


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.43	6.50	-0.01	33142				

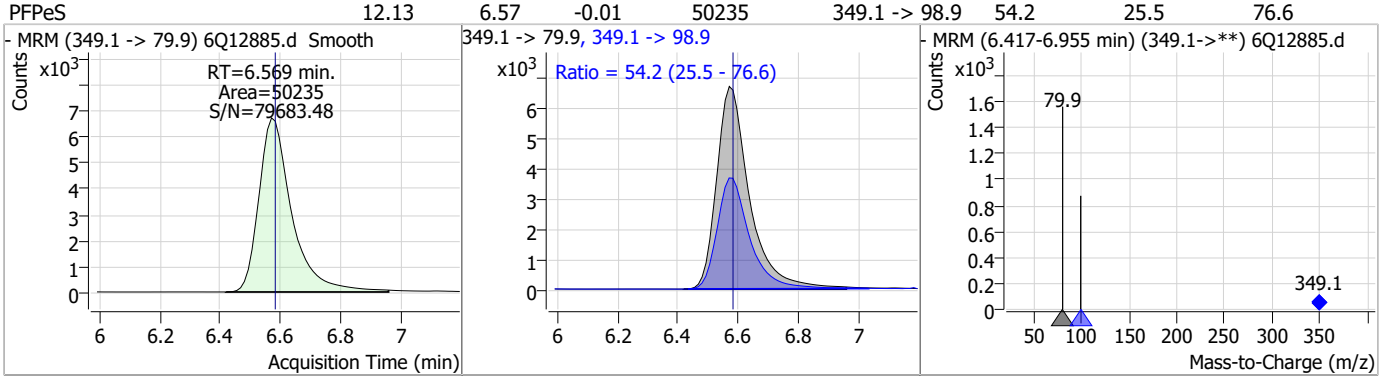


Perfluorinated Compounds by LC/MS/MS

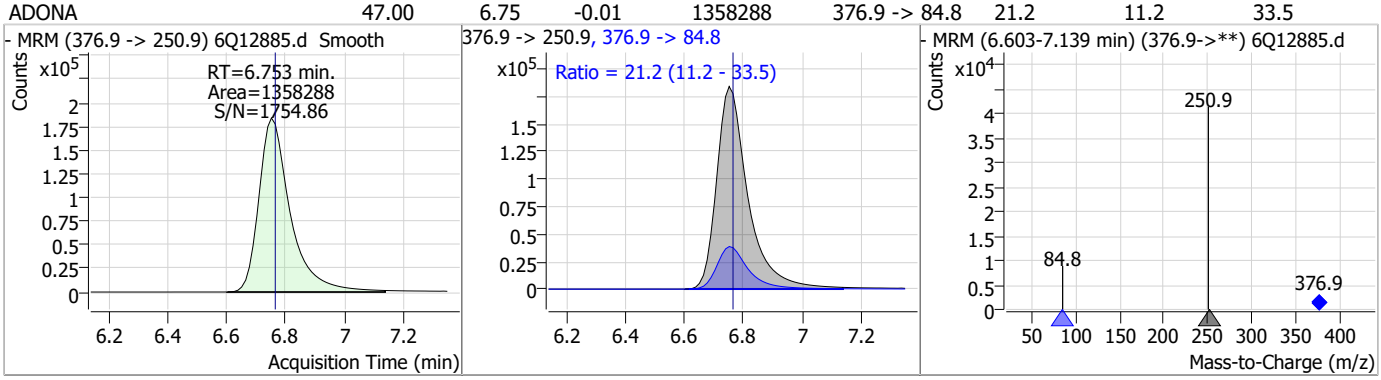
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.41	6.50	-0.01	263246	363.1 -> 169.0	12.8	6.3	18.8



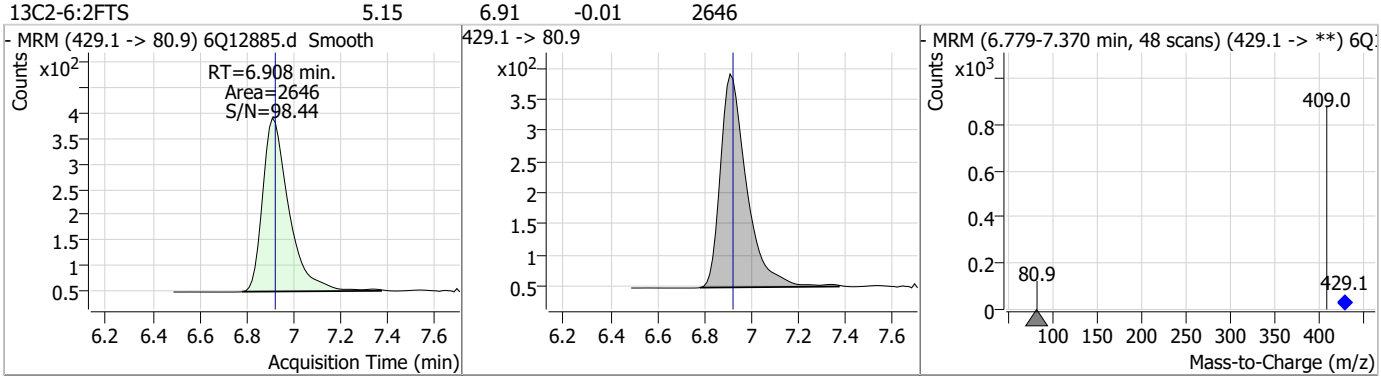
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	12.13	6.57	-0.01	50235	349.1 -> 98.9	54.2	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	47.00	6.75	-0.01	1358288	376.9 -> 84.8	21.2	11.2	33.5

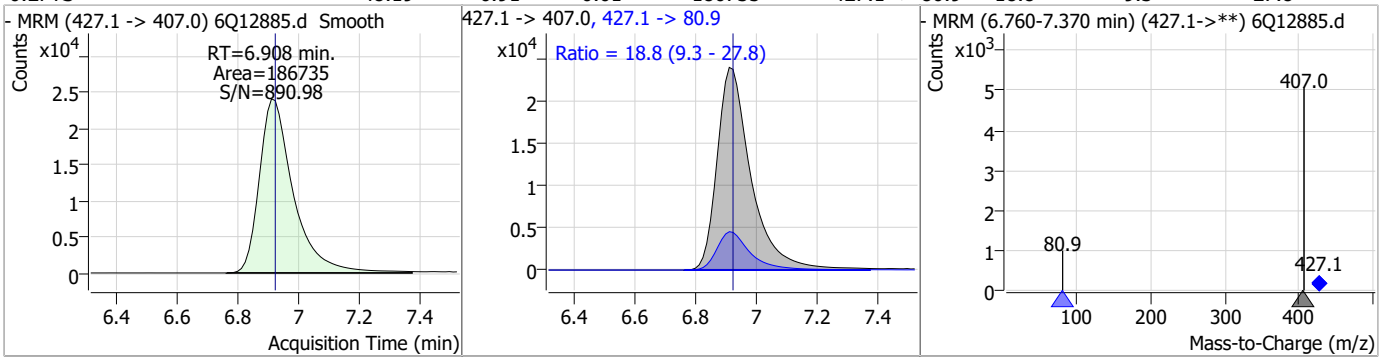


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.15	6.91	-0.01	2646				

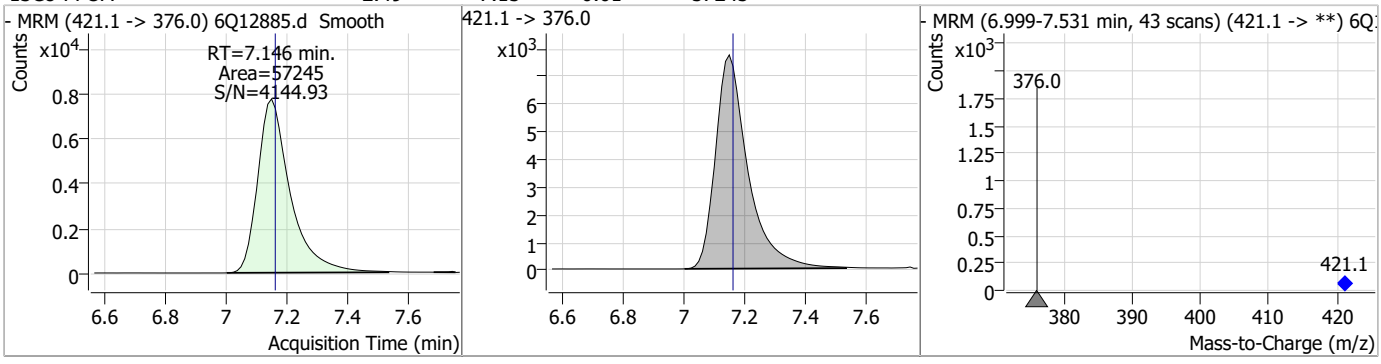


Perfluorinated Compounds by LC/MS/MS

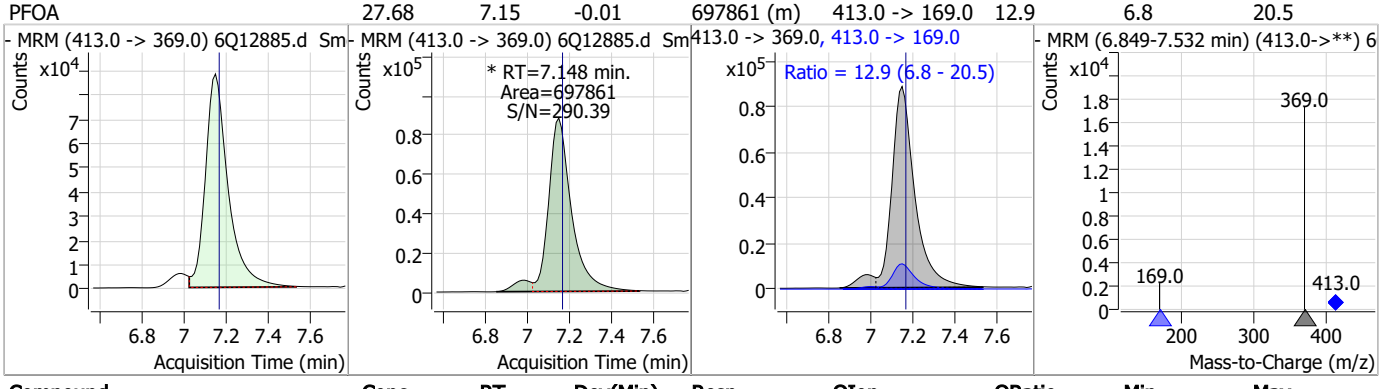
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	48.19	6.91	-0.01	186735	427.1 -> 80.9	18.8	9.3	27.8



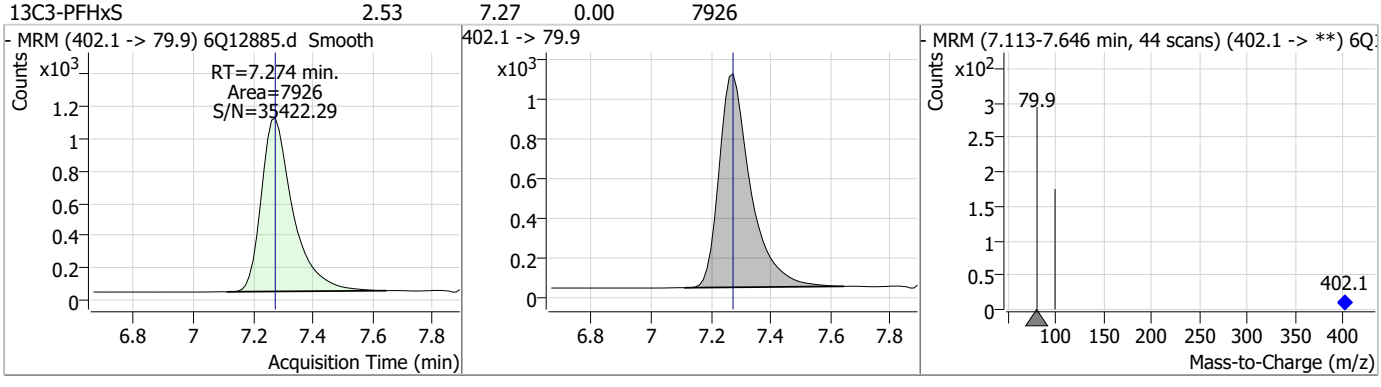
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.49	7.15	-0.01	57245				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	27.68	7.15	-0.01	697861 (m)	413.0 -> 169.0	12.9	6.8	20.5

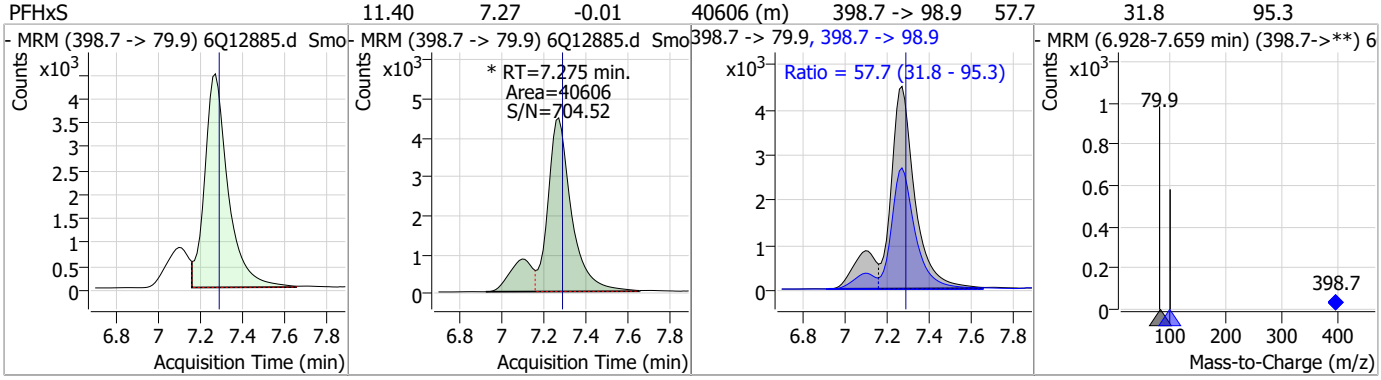


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.53	7.27	0.00	7926				

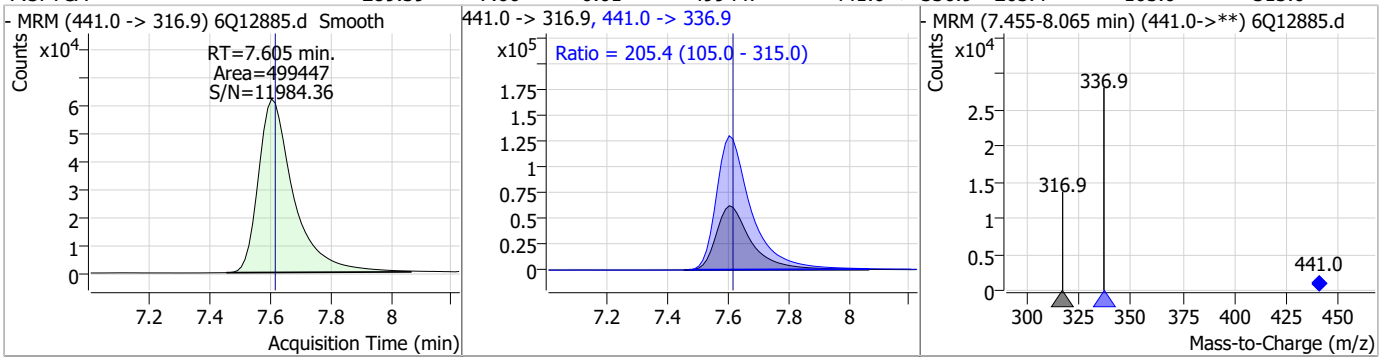


Perfluorinated Compounds by LC/MS/MS

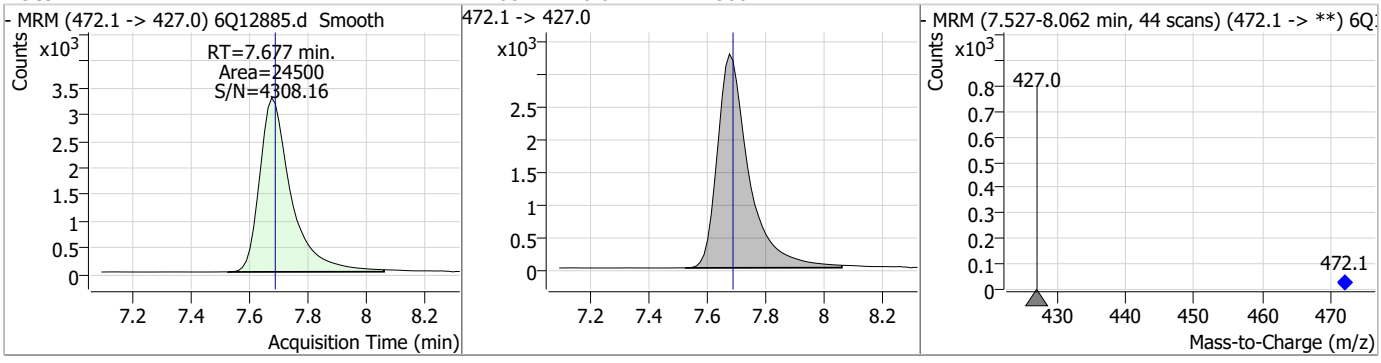
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.40	7.27	-0.01	40606 (m)	398.7 -> 98.9	57.7	31.8	95.3



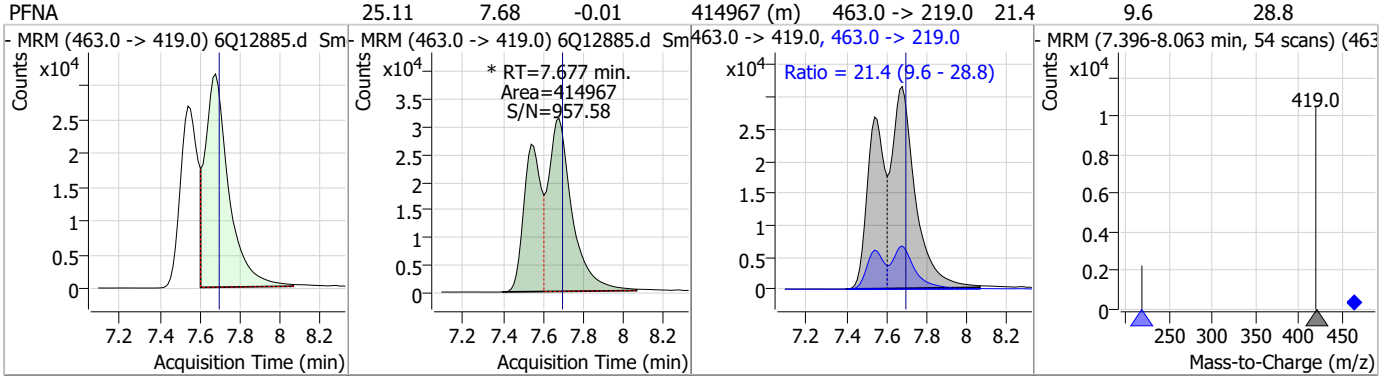
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	289.39	7.60	-0.01	499447	441.0 -> 336.9	205.4	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.27	7.68	-0.01	24500				

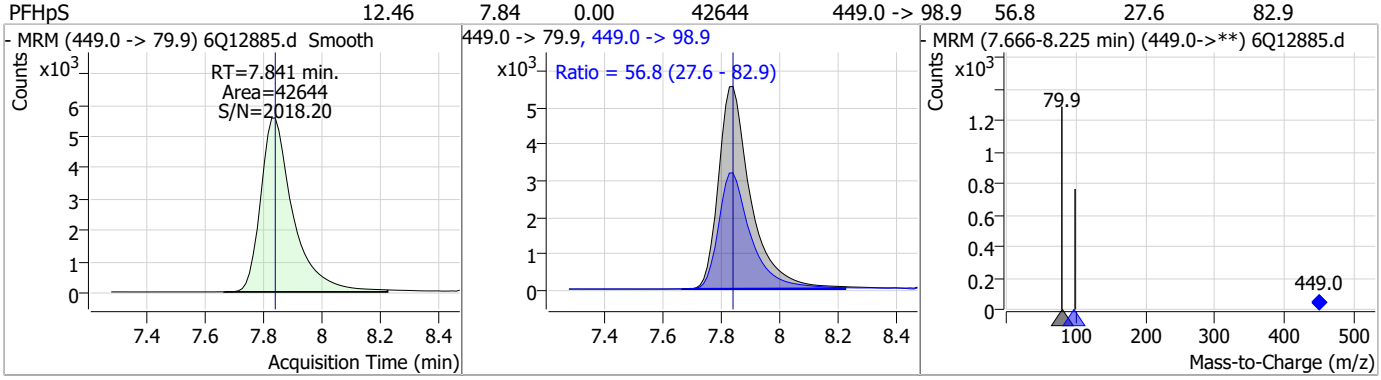


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.11	7.68	-0.01	414967 (m)	463.0 -> 219.0	21.4	9.6	28.8

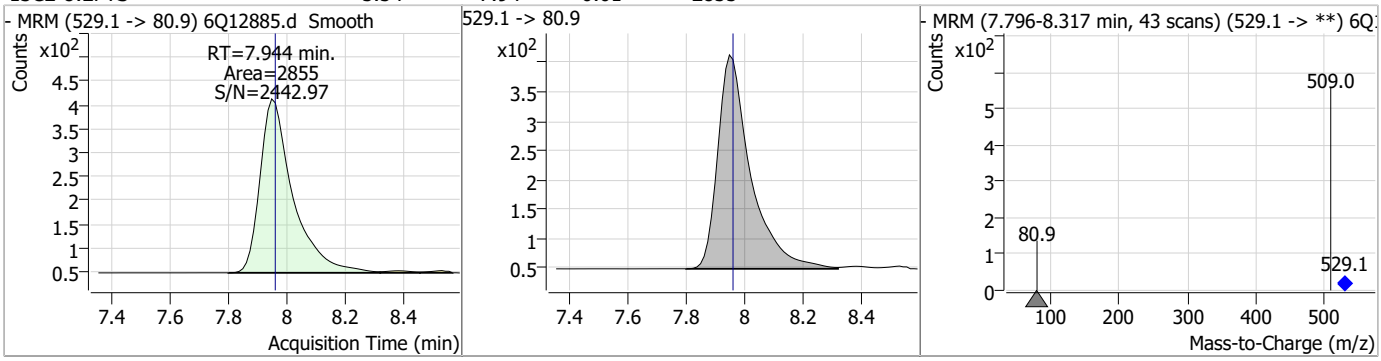


Perfluorinated Compounds by LC/MS/MS

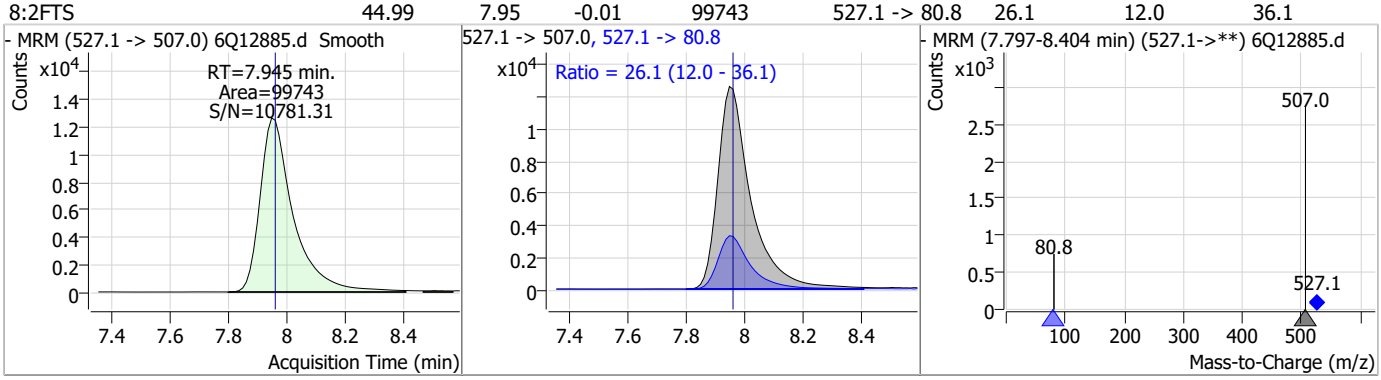
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.46	7.84	0.00	42644	449.0 -> 98.9	56.8	27.6	82.9



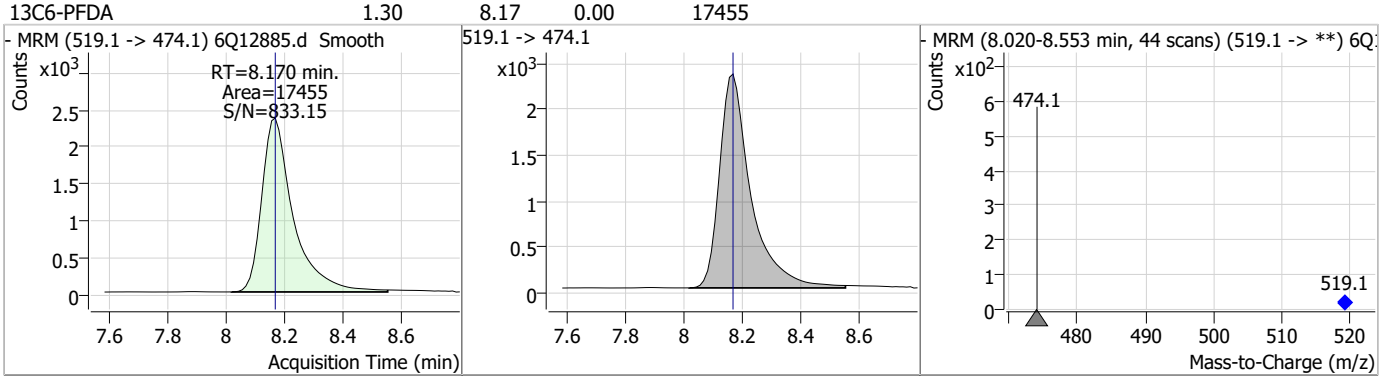
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.54	7.94	-0.01	2855				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	44.99	7.95	-0.01	99743	527.1 -> 80.8	26.1	12.0	36.1

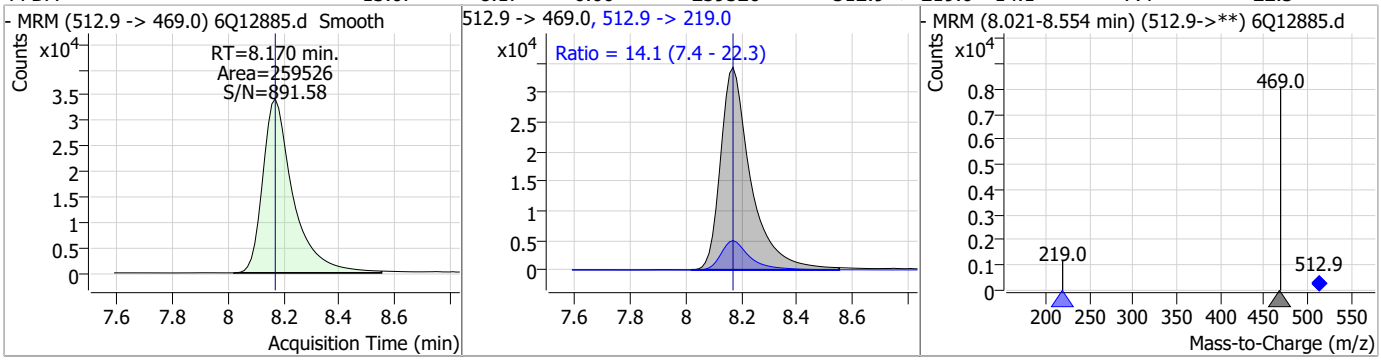


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.30	8.17	0.00	17455				

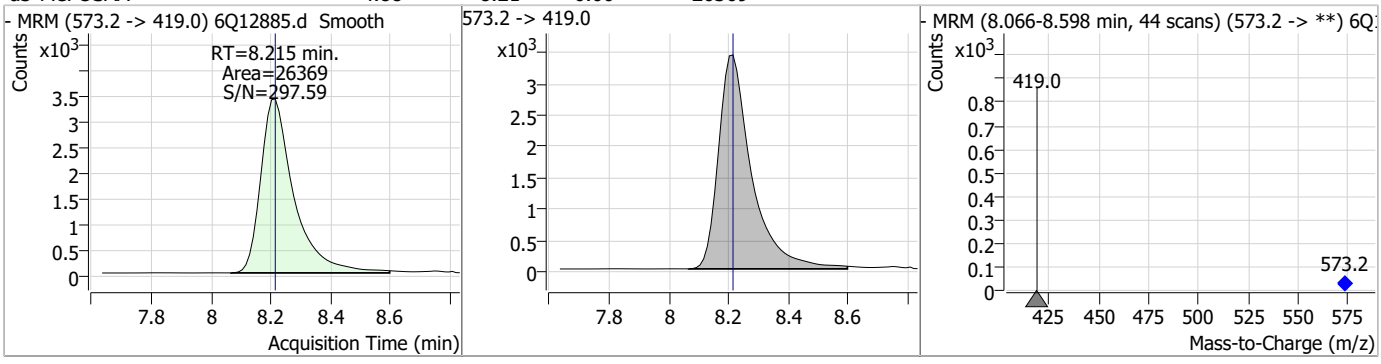


Perfluorinated Compounds by LC/MS/MS

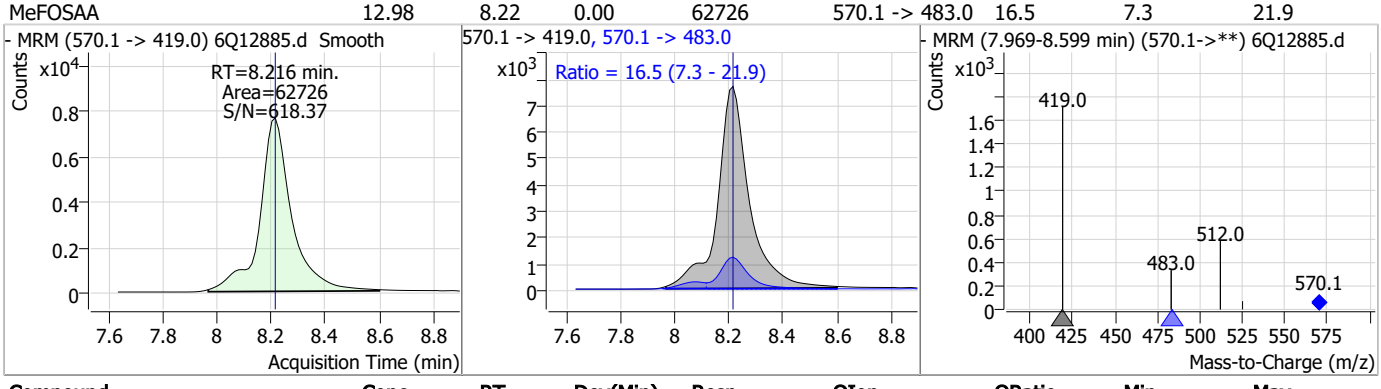
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.07	8.17	0.00	259526	512.9 -> 219.0	14.1	7.4	22.3



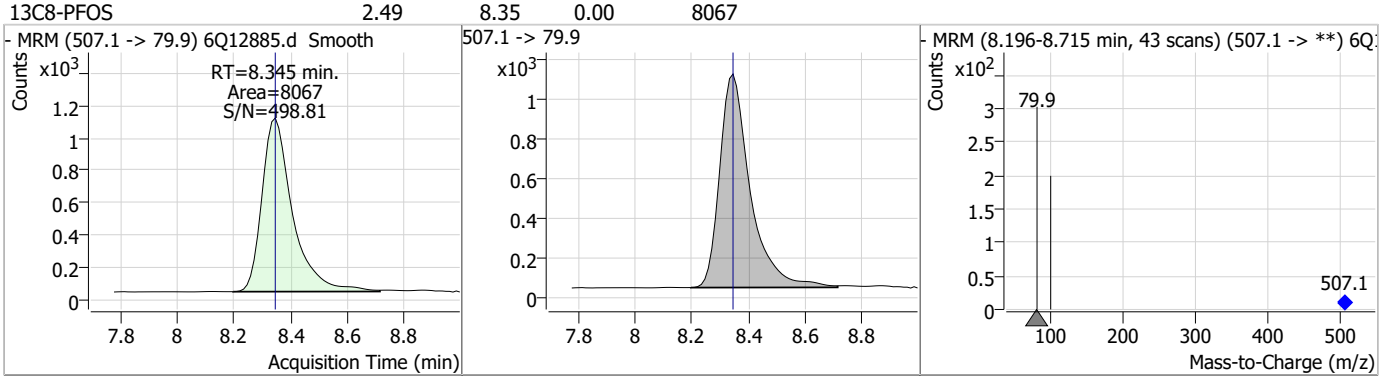
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.88	8.21	0.00	26369				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.98	8.22	0.00	62726	570.1 -> 483.0	16.5	7.3	21.9

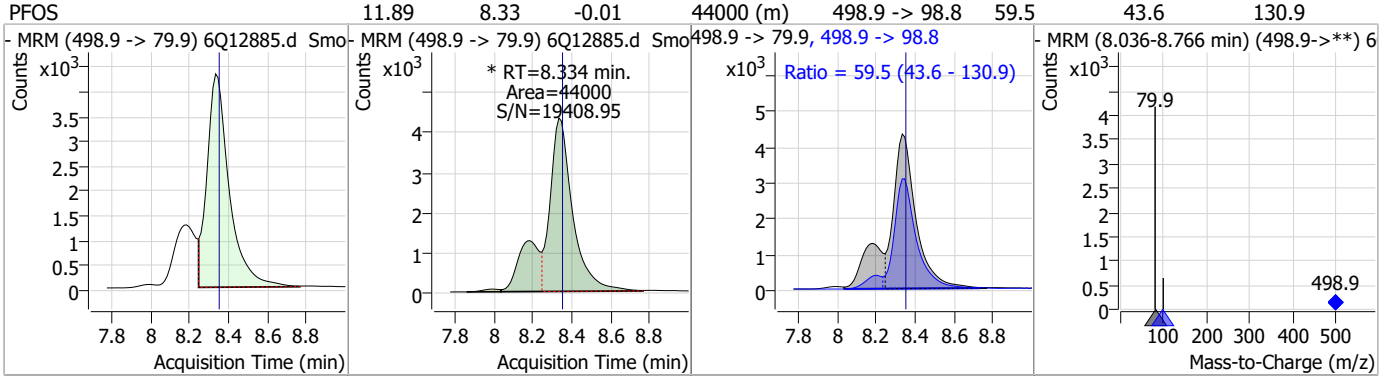


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.35	0.00	8067				

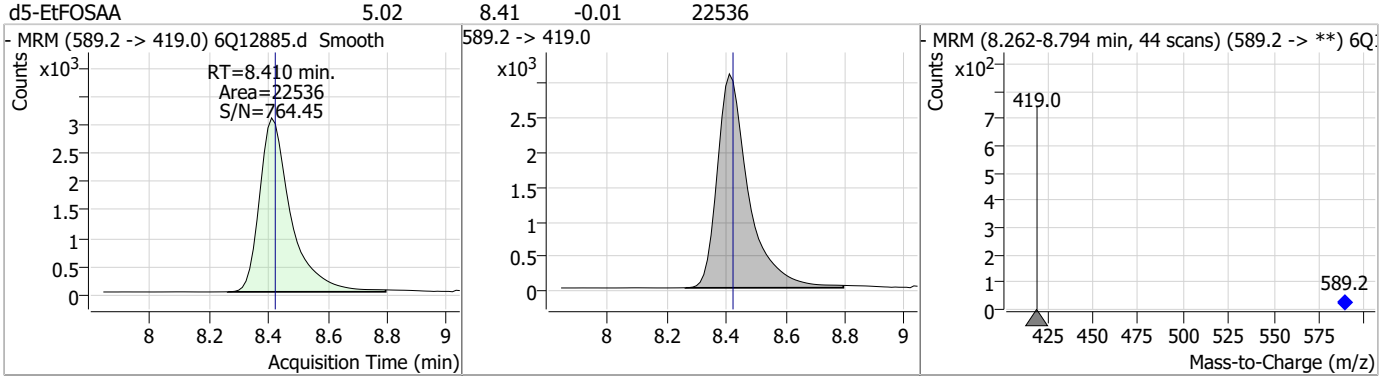


Perfluorinated Compounds by LC/MS/MS

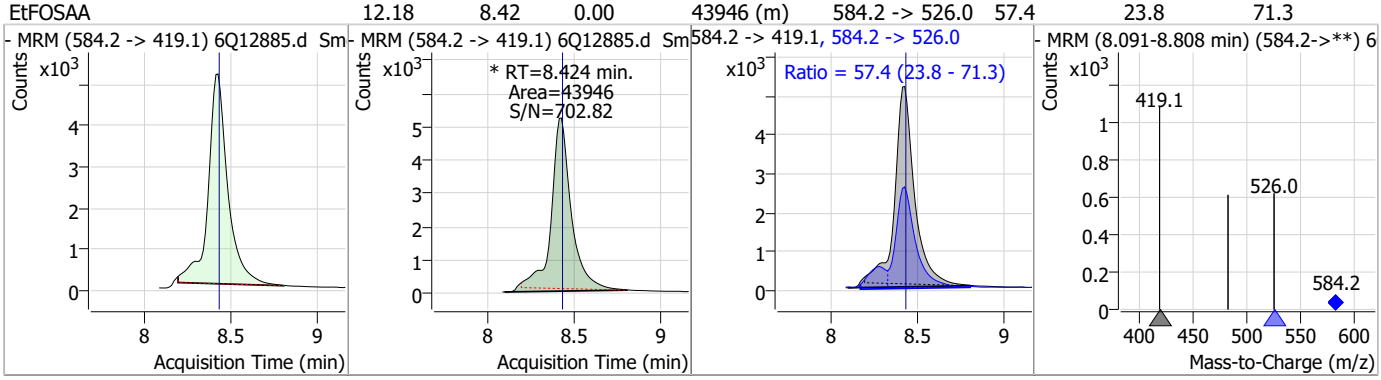
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.89	8.33	-0.01	44000 (m)	498.9 -> 98.8	59.5	43.6	130.9



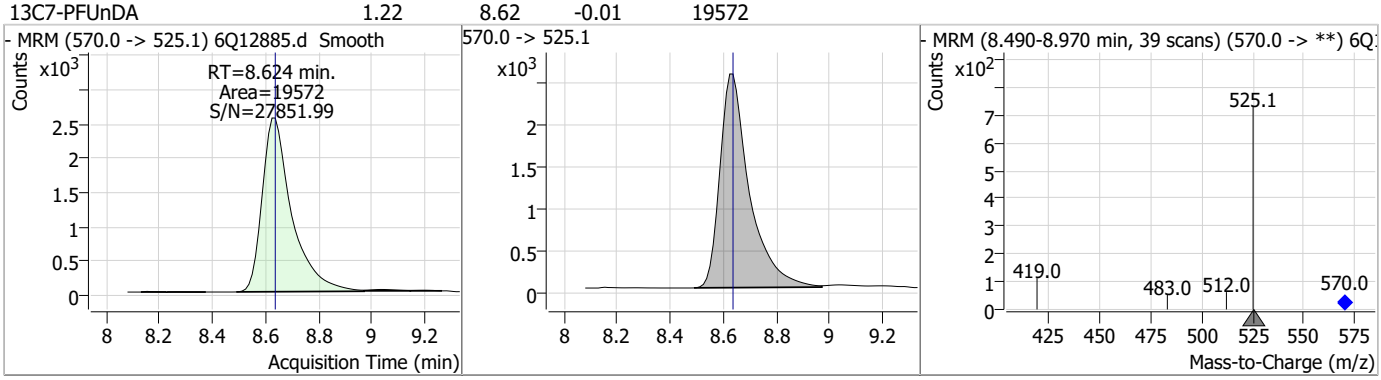
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.02	8.41	-0.01	22536				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.18	8.42	0.00	43946 (m)	584.2 -> 526.0	57.4	23.8	71.3

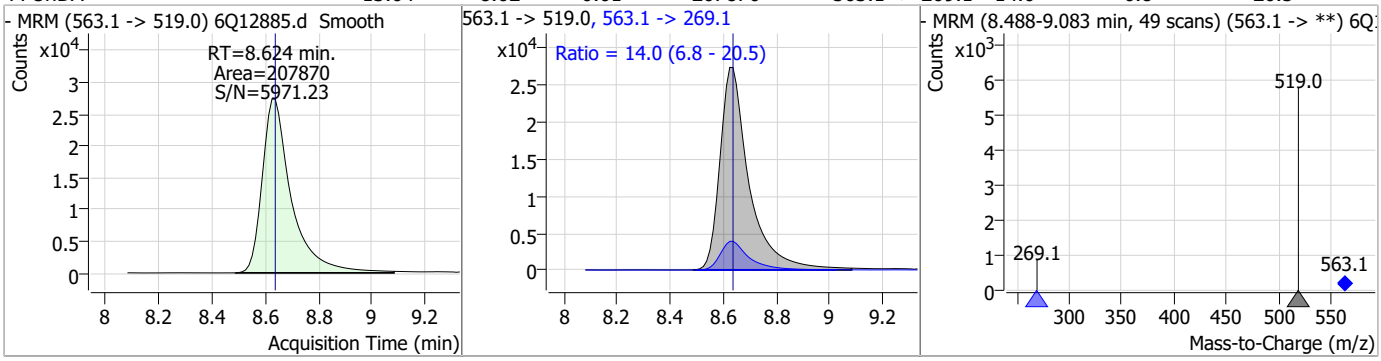


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.62	-0.01	19572				

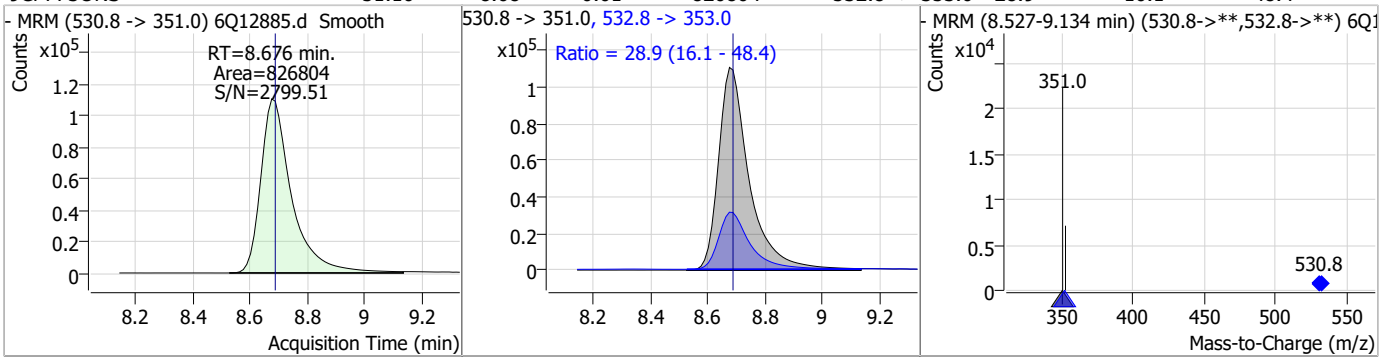


Perfluorinated Compounds by LC/MS/MS

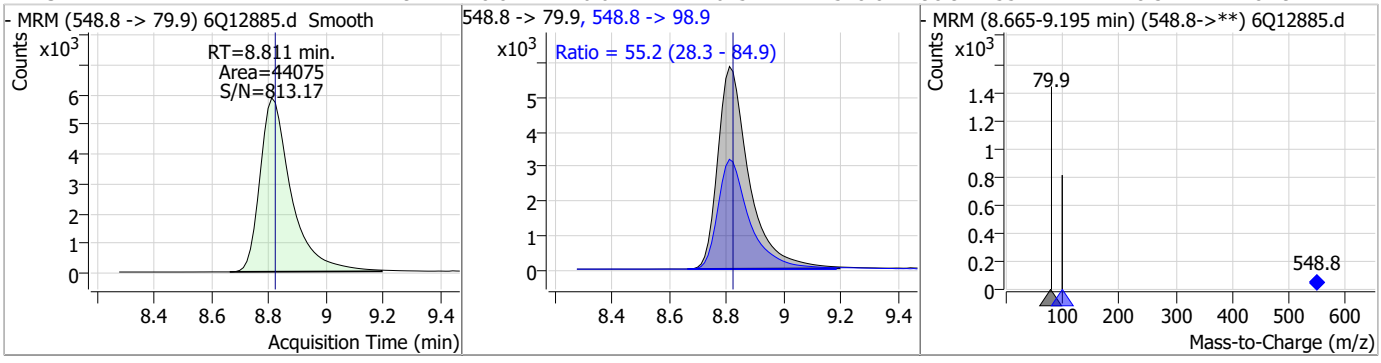
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.64	8.62	-0.01	207870	563.1 -> 269.1	14.0	6.8	20.5



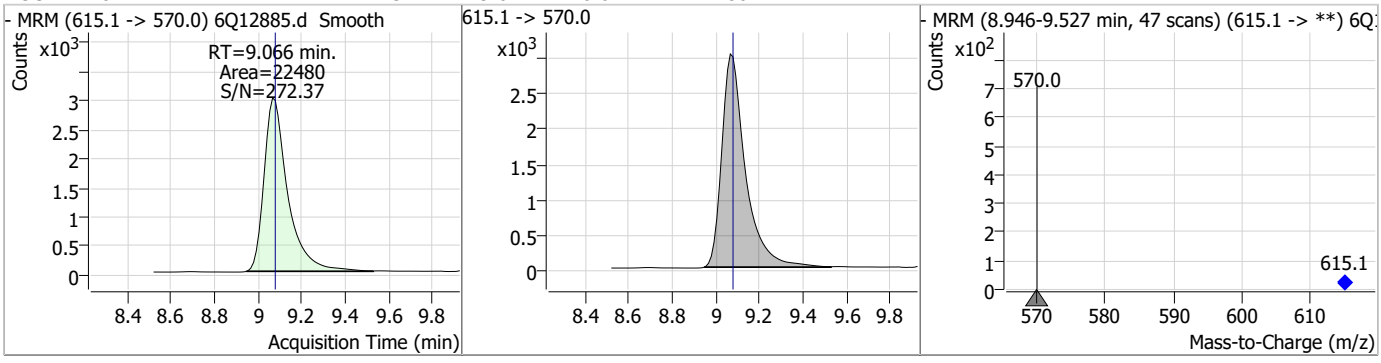
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	51.16	8.68	-0.01	826804	532.8 -> 353.0	28.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.29	8.81	-0.01	44075	548.8 -> 98.9	55.2	28.3	84.9

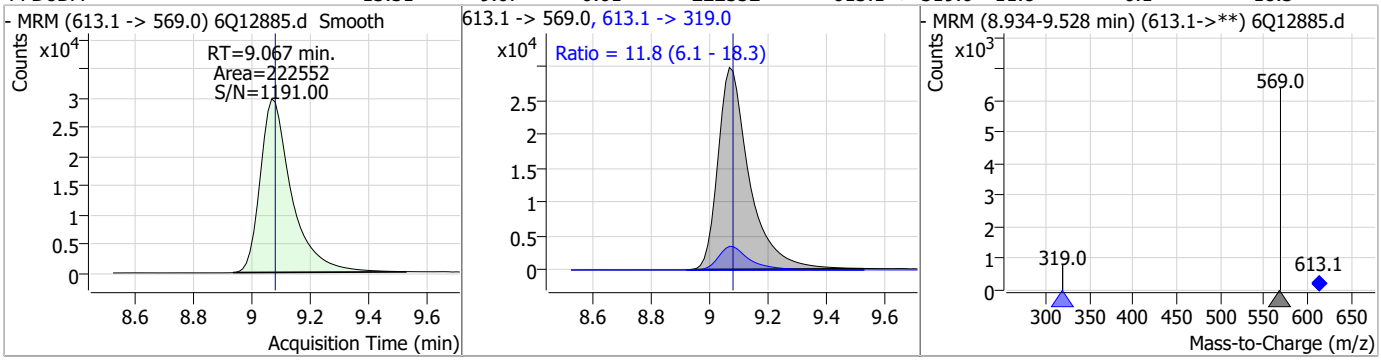


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	9.07	-0.01	22480				

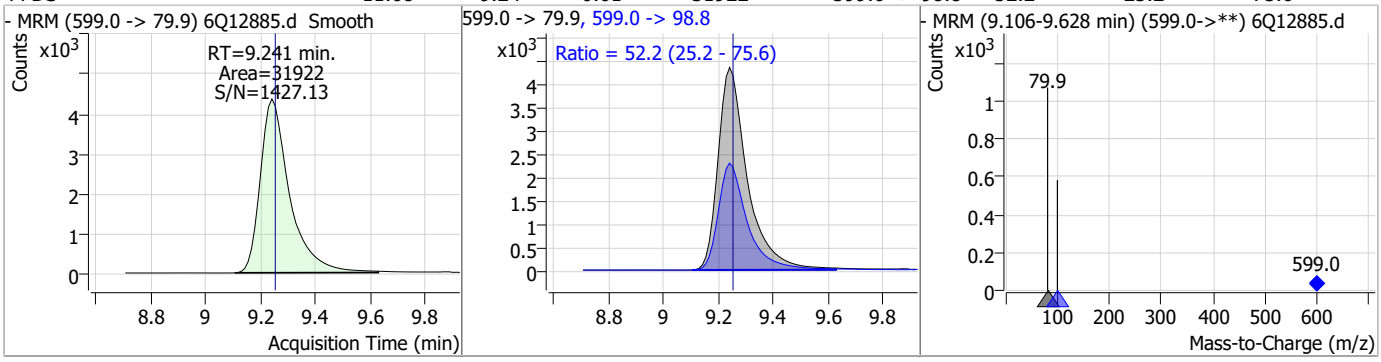


Perfluorinated Compounds by LC/MS/MS

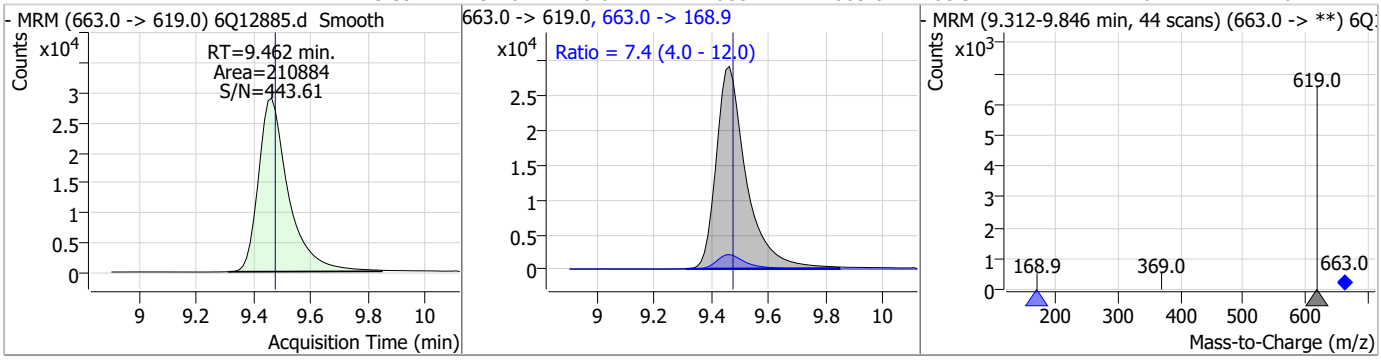
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	13.51	9.07	-0.01	222552	613.1 -> 319.0	11.8	6.1	18.3



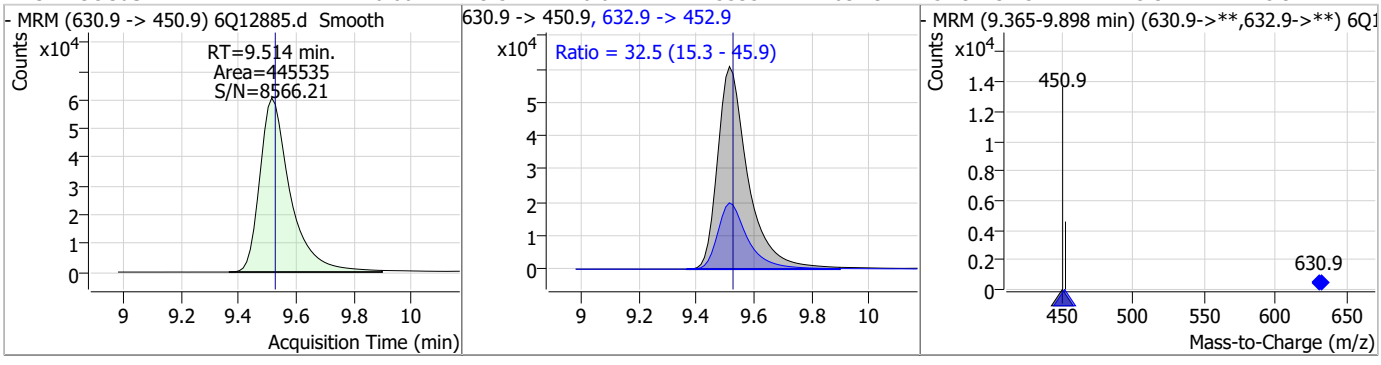
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	11.68	9.24	-0.01	31922	599.0 -> 98.8	52.2	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	13.39	9.46	-0.01	210884	663.0 -> 168.9	7.4	4.0	12.0

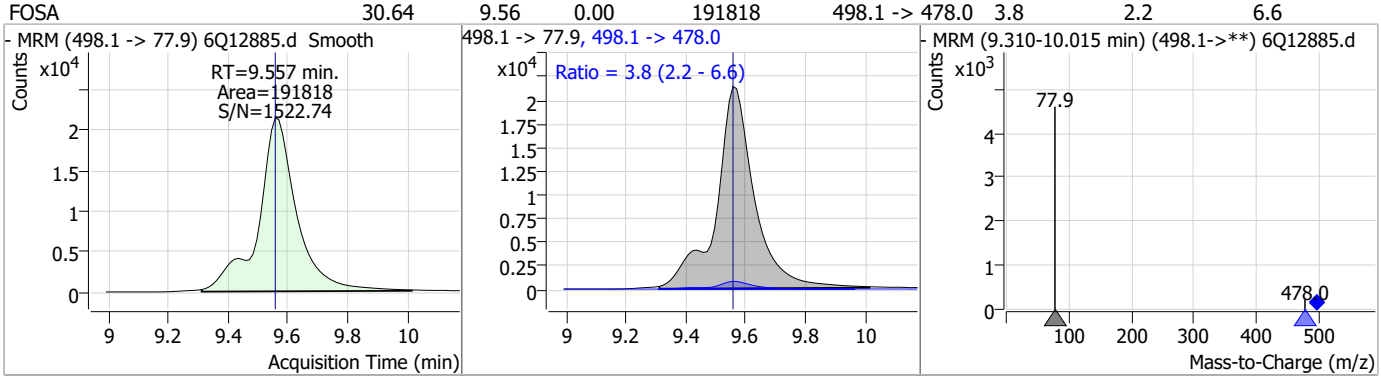


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	46.60	9.51	-0.01	445535	632.9 -> 452.9	32.5	15.3	45.9

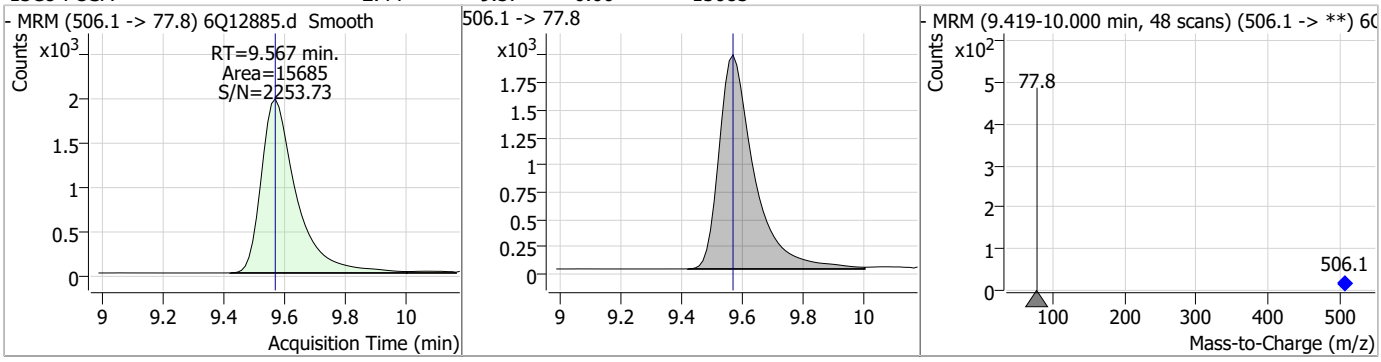


Perfluorinated Compounds by LC/MS/MS

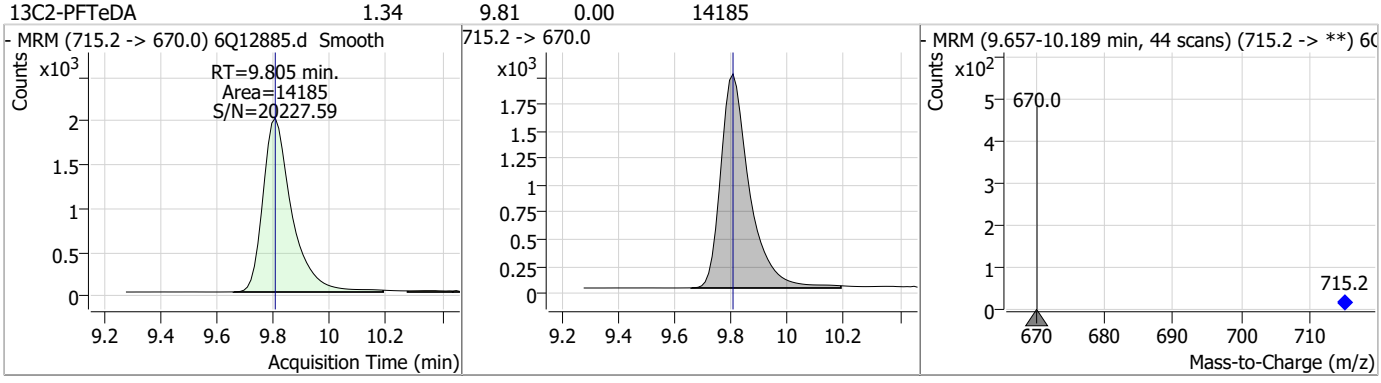
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.64	9.56	0.00	191818	498.1 -> 478.0	3.8	2.2	6.6



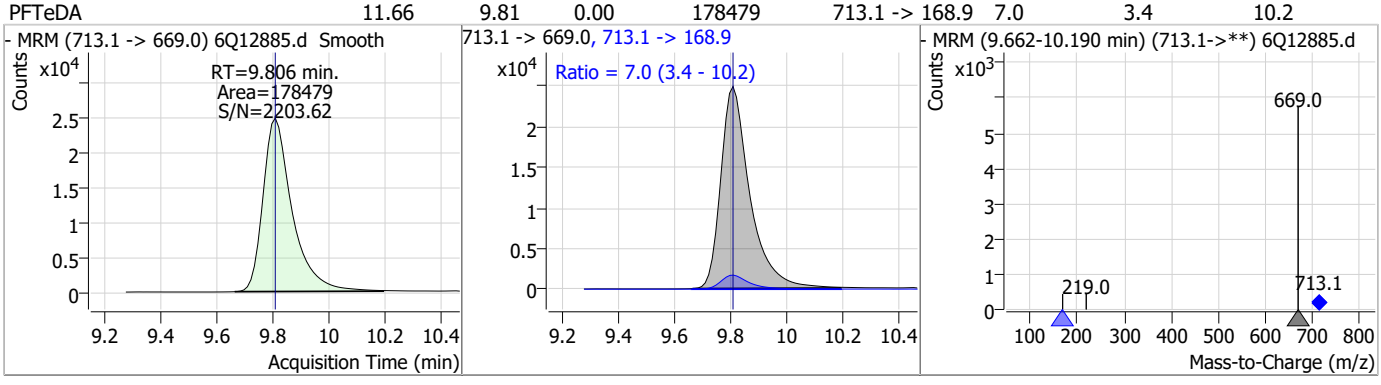
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.44	9.57	0.00	15685				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.34	9.81	0.00	14185				

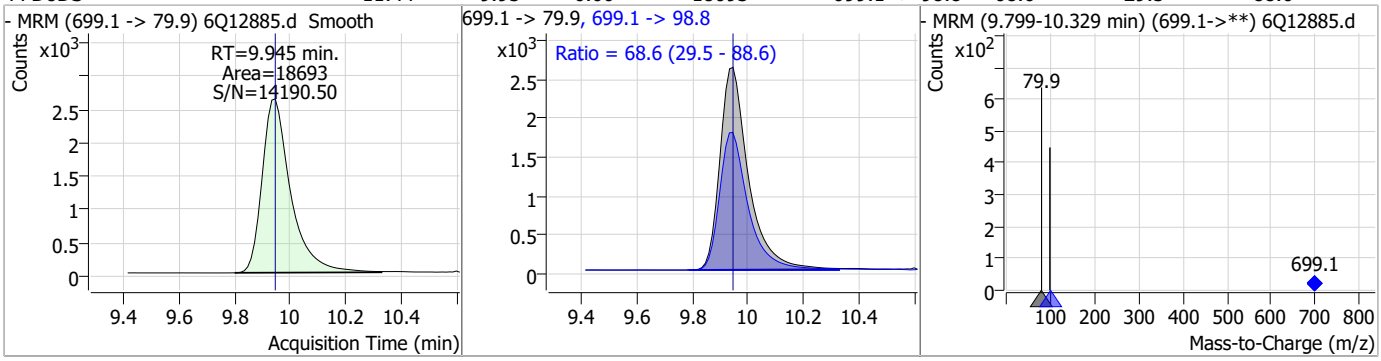


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	11.66	9.81	0.00	178479	713.1 -> 168.9	7.0	3.4	10.2

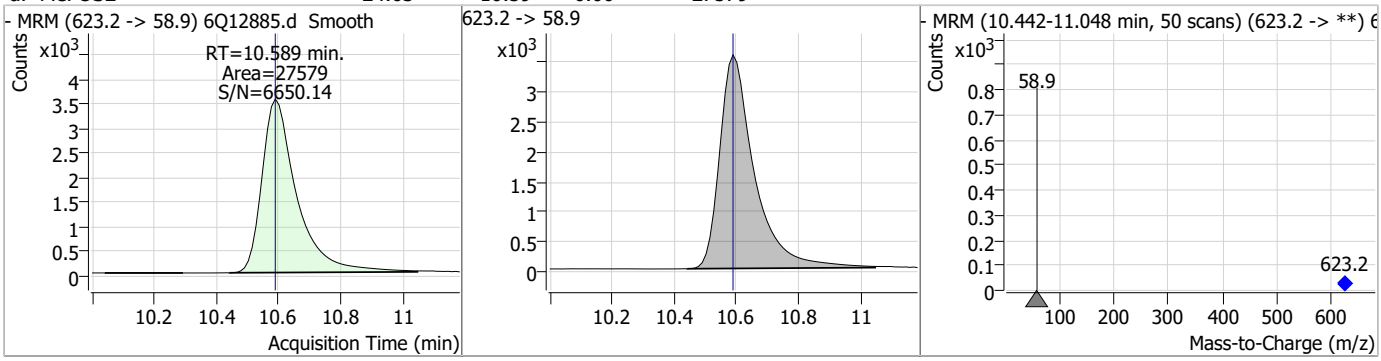


Perfluorinated Compounds by LC/MS/MS

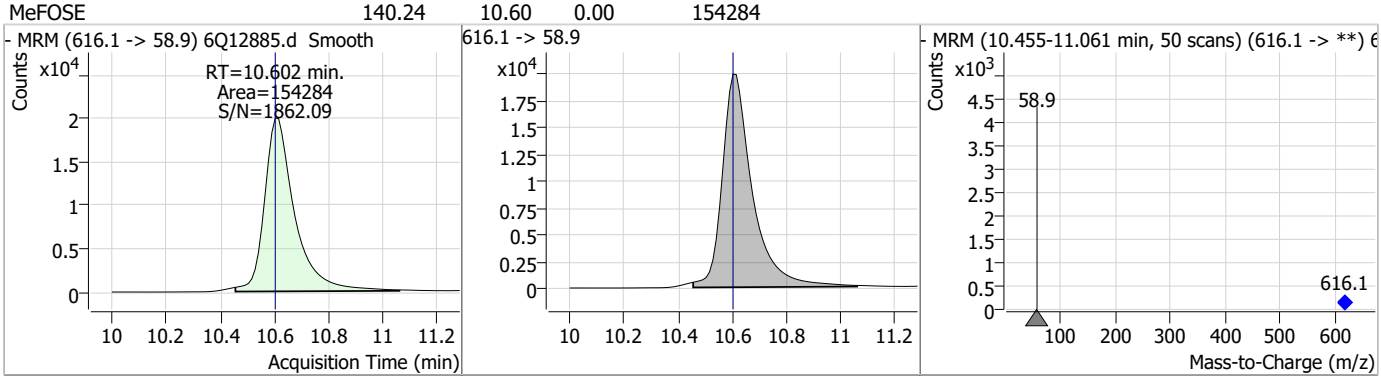
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	11.44	9.95	0.00	18693	699.1 -> 98.8	68.6	29.5	88.6



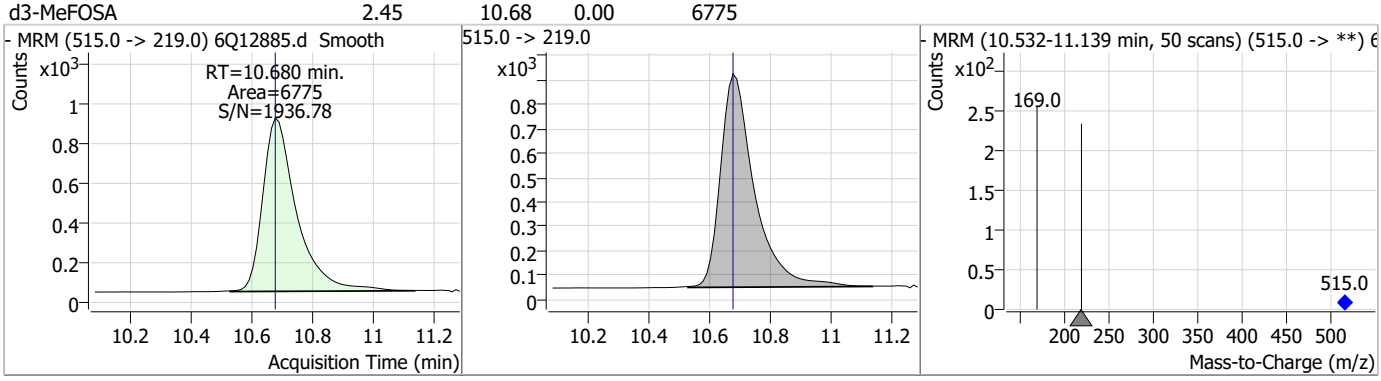
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.63	10.59	0.00	27579				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	140.24	10.60	0.00	154284				

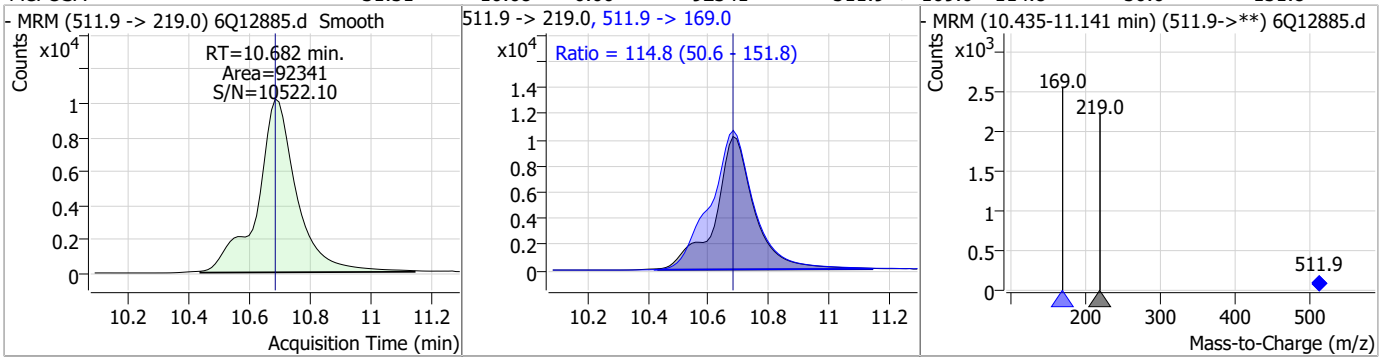


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.68	0.00	6775				

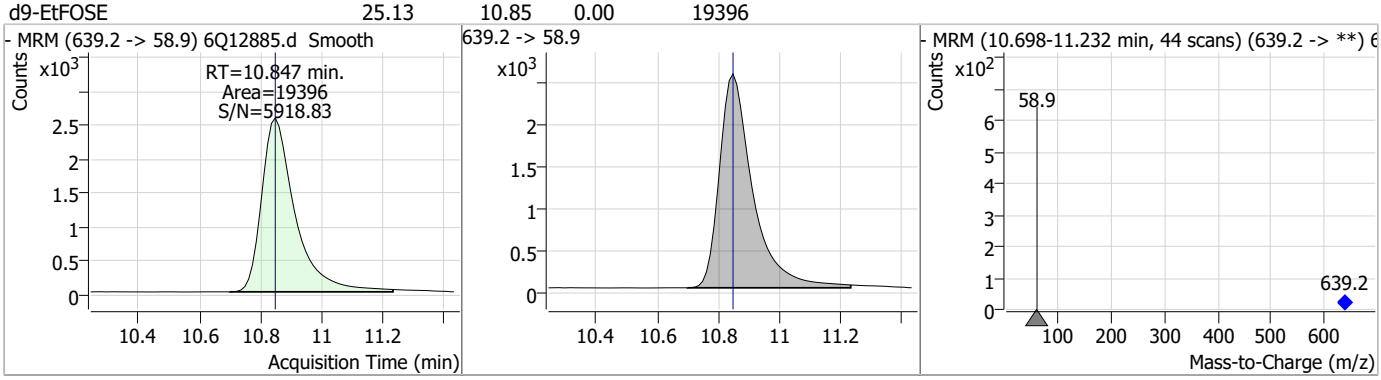


Perfluorinated Compounds by LC/MS/MS

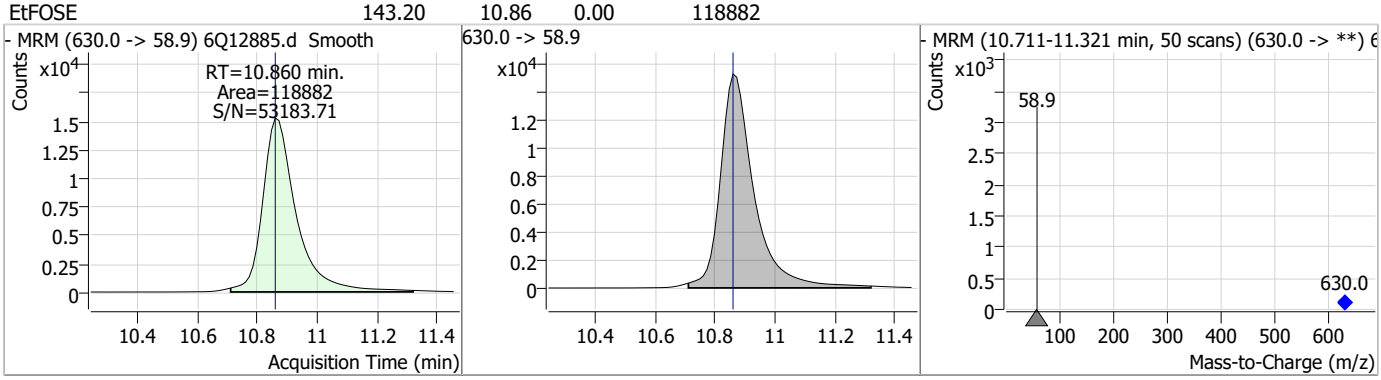
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	31.51	10.68	0.00	92341	511.9 -> 169.0	114.8	50.6	151.8



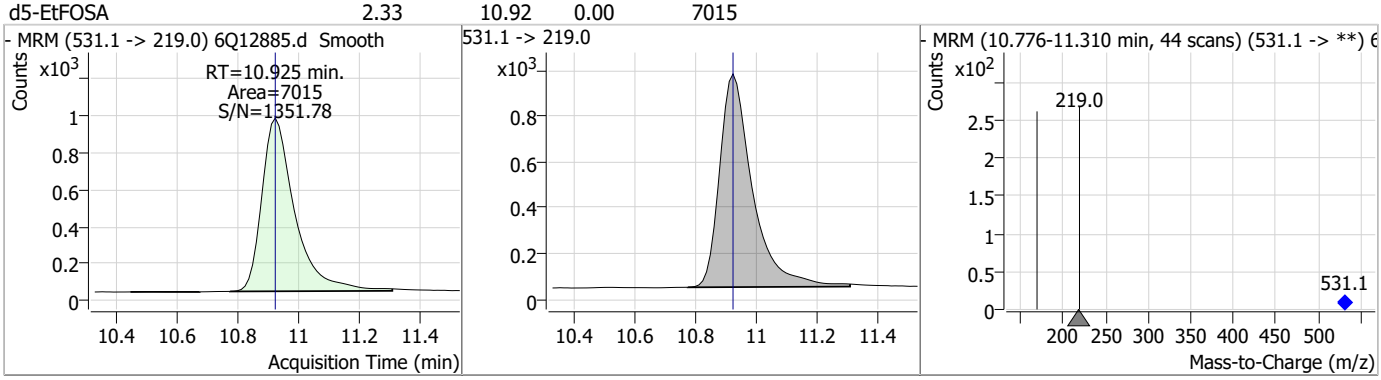
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.13	10.85	0.00	19396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	143.20	10.86	0.00	118882				

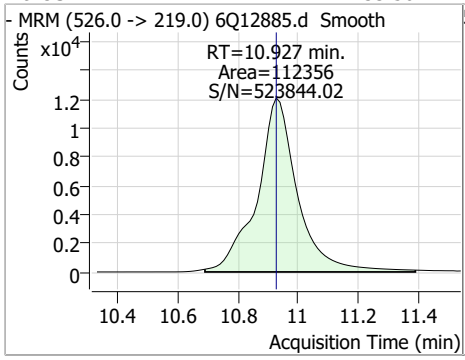


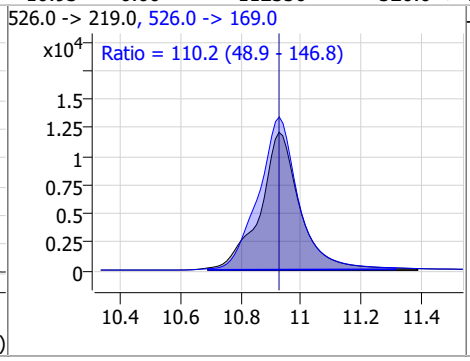
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.92	0.00	7015				

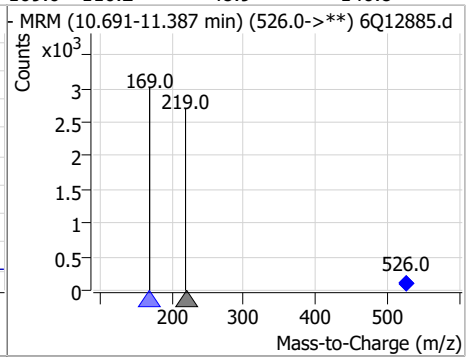


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	33.56	10.93	0.00	112356	526.0 -> 169.0	110.2	48.9	146.8







7.6.4

7

Manual Integration Approval Summary

Sample Number:	S6Q198-RT	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12885.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 10:16	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS Q6
MS Model	G6495B
MS Instrument Serial	SG1752D103
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	30 January 2023 11:45:11
File Path	D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.84E+0 [R] (Torr); 2.93E-5 [H] (Torr)

Source Parameters

Parameter	**Negative**
Gas Temp (°C)	220
Gas Flow (l/min)	14
Nebulizer (psi)	20
Capillary (V)	3000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	11

QQQ Check Tune Report

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Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	0.70	0.78	0.08	Pass	79980
302.00	301.95	-0.05	Pass	0.70	0.74	0.04	Pass	474779
601.98	601.97	-0.01	Pass	0.70	0.70	0.00	Pass	2207267
1033.99	1033.89	-0.10	Pass	0.70	0.76	0.06	Pass	547405
1633.95	1633.90	-0.05	Pass	0.70	0.81	0.11	Pass	312655
2233.91	2233.90	-0.01	Pass	0.70	0.75	0.05	Pass	72207

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	60369
112.99	112.95	-0.04	Pass	0.70	0.70	0.00	Pass	85414
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	338144
601.98	602.01	0.03	Pass	0.70	0.67	-0.03	Pass	1732819
1033.99	1033.92	-0.07	Pass	0.70	0.72	0.02	Pass	776077
1633.95	1633.91	-0.04	Pass	0.70	0.74	0.04	Pass	786552
2233.91	2233.84	-0.07	Pass	0.70	0.78	0.08	Pass	168005

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.96	-0.03	Pass	1.20	1.47	0.27	Pass	101053
302.00	301.98	-0.02	Pass	1.20	1.55	0.35	Pass	671153
601.98	601.88	-0.10	Pass	1.20	1.57	0.37	Pass	3115923
1033.99	1033.82	-0.17	Pass	1.20	1.63	0.43	Pass	795986
1633.95	1633.83	-0.12	Pass	1.20	1.38	0.18	Pass	531980
2233.91	2233.81	-0.10	Pass	1.20	1.21	0.01	Pass	137935

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	1.20	1.08	-0.12	Pass	90381
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	139617
302.00	302.03	0.03	Pass	1.20	1.00	-0.20	Pass	670106
601.98	601.98	0.00	Pass	1.20	1.32	0.12	Pass	3095385
1033.99	1033.98	-0.01	Pass	1.20	1.43	0.23	Pass	1697938
1633.95	1633.88	-0.07	Pass	1.20	1.47	0.27	Pass	1992575
2233.91	2233.85	-0.06	Pass	1.20	1.31	0.11	Pass	578469

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	2.50	2.73	0.23	Pass	118951
302.00	301.84	-0.16	Pass	2.50	2.87	0.37	Pass	740775
601.98	601.68	-0.30	Pass	2.50	2.86	0.36	Pass	4197725
1033.99	1033.76	-0.23	Pass	2.50	2.66	0.16	Pass	1481977
1633.95	1633.76	-0.19	Pass	2.50	2.67	0.17	Pass	1117275
2233.91	2233.57	-0.34	Pass	2.50	2.45	-0.05	Pass	419484

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	2.50	2.46	-0.04	Pass	110565
112.99	112.98	-0.01	Pass	2.50	2.58	0.08	Pass	177647
302.00	301.98	-0.02	Pass	2.50	2.58	0.08	Pass	789350
601.98	601.95	-0.03	Pass	2.50	2.69	0.19	Pass	4593649
1033.99	1033.91	-0.08	Pass	2.50	2.98	0.48	Pass	3299810
1633.95	1633.97	0.02	Pass	2.50	2.73	0.23	Pass	3398287
2233.91	2233.77	-0.14	Pass	2.50	2.50	0.00	Pass	1335289

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12723.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 5:51:17 PM
Sample Name	:	ic196-1
Vial	:	P1-A2
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	75677	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39050	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35228	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	35062	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66602	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27605	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18891	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22795	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24517	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14260	1.25	µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17010	2.50	µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13615	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8417	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8616	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2340	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3069	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2912	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29710	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24344	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30414	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20284	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7884	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7168	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10948	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34538	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6617	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	76742	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26145	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32069	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34127	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2340	5.44	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3069	5.38	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2912	5.08	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24517	1.23	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14260	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13615	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8417	2.42	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C4-PFBA	2.975	216.8 -> 171.9	75677	9.87 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C4-PFHpA	6.502	367.1 -> 322.0	35062	2.49 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C5-PFHxA	5.563	318.0 -> 273.0	35228	2.61 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	39050	5.13 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C6-PFDA	8.170	519.1 -> 474.1	18891	1.30 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22795	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C8-FOSA	9.555	506.1 -> 77.8	17010	2.39 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C8-PFOA	7.146	421.1 -> 376.0	66602	2.60 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%		
13C8-PFOS	8.345	507.1 -> 79.9	8616	2.39 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C9-PFNA	7.677	472.1 -> 427.0	27605	1.22 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29710	4.95 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.11 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7168	2.33 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24344	4.89 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	30414	24.47 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	20284	23.68 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	7884	2.36 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	3927	0.75 µg/L		98
		327.1 -> 80.9	826			
6:2FTS	6.908	427.1 -> 407.0	3528	0.78 µg/L		95
		427.1 -> 80.9	742			
8:2FTS	7.945	527.1 -> 507.0	2183	0.97 µg/L		97
		527.1 -> 80.8	495			
EtFOSAA	8.424	584.2 -> 419.1	884	0.23 µg/L	m	93
		584.2 -> 526.0	377			
FOSA	9.557	498.1 -> 77.9	1482	0.22 µg/L		95
		498.1 -> 478.0	39			
MeFOSAA	8.216	570.1 -> 419.0	1150	0.21 µg/L	m	99
		570.1 -> 483.0	171			
PFBA	2.982	212.8 -> 168.9	1378	0.82 µg/L		100
PFBS	5.518	298.7 -> 79.9	980	0.19 µg/L		98
		298.7 -> 98.8	443			
PFDA	8.170	512.9 -> 469.0	4295	0.20 µg/L		99
		512.9 -> 219.0	625			
PFDoDA	9.079	613.1 -> 569.0	4264	0.24 µg/L		94
		613.1 -> 319.0	428			
PFDS	9.241	599.0 -> 79.9	685	0.23 µg/L		87

Perfluorinated Compounds by LC/MS/MS

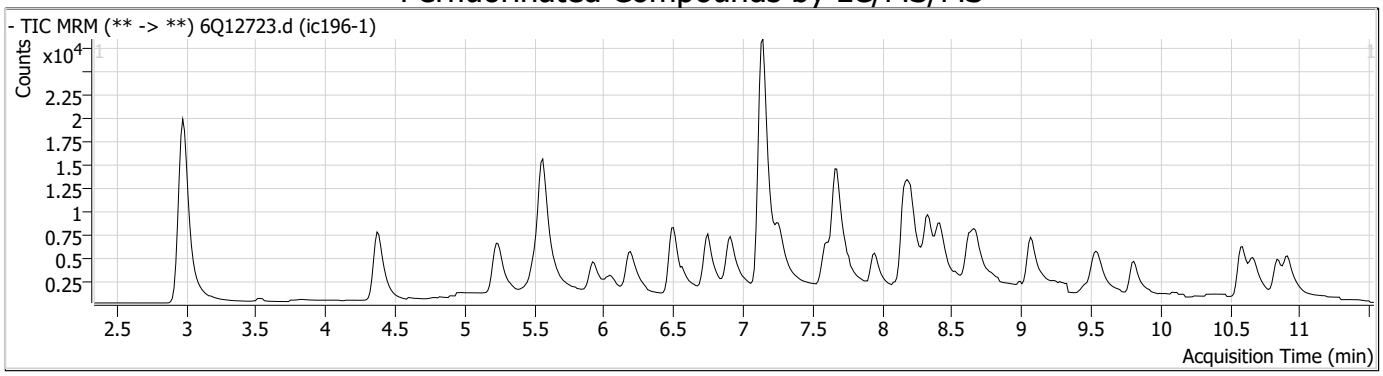
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	283				
PFHpA	6.503	363.1 -> 319.0	4629	0.22	µg/L		97
		363.1 -> 169.0	637				
PFHpS	7.841	449.0 -> 79.9	690	0.19	µg/L		82
		449.0 -> 98.9	473				
PFHxA	5.566	313.0 -> 269.0	3024	0.22	µg/L		98
		313.0 -> 118.9	150				
PFHxS	7.275	398.7 -> 79.9	729	0.19	µg/L	m	88
		398.7 -> 98.9	397				
PFNA	7.677	463.0 -> 419.0	4075	0.22	µg/L		98
		463.0 -> 219.0	741				
PFNS	8.811	548.8 -> 79.9	732	0.19	µg/L		89
		548.8 -> 98.9	476				
PFOA	7.148	413.0 -> 369.0	5822	0.20	µg/L		98
		413.0 -> 169.0	829				
PFOS	8.334	498.9 -> 79.9	760	0.19	µg/L	m	77
		498.9 -> 98.8	503				
PFPeA	4.388	263.0 -> 219.0	3404	0.41	µg/L		100
PFPeS	6.581	349.1 -> 79.9	916	0.21	µg/L		95
		349.1 -> 98.9	500				
PFTeDA	9.806	713.1 -> 669.0	3198	0.21	µg/L		98
		713.1 -> 168.9	238				
PFTrDA	9.462	663.0 -> 619.0	3530	0.21	µg/L		98
		663.0 -> 168.9	303				
PFUnDA	8.637	563.1 -> 519.0	3697	0.21	µg/L		100
		563.1 -> 269.1	501				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	8030	0.79	µg/L		95
		632.9 -> 452.9	2679				
9Cl-PF3ONS	8.688	530.8 -> 351.0	12870	0.75	µg/L		96
		532.8 -> 353.0	3839				
ADONA	6.753	376.9 -> 250.9	25071	0.82	µg/L		97
		376.9 -> 84.8	5287				
HFPO-DA	5.940	284.9 -> 168.9	969	0.73	µg/L		94
		284.9 -> 184.9	106				
3:3FTCA	3.841	241.0 -> 177.0	392	0.97	µg/L		100
		241.0 -> 117.0	58				
5:3FTCA	6.193	341.0 -> 237.1	13499	4.67	µg/L		94
		341.0 -> 217.0	12556				
7:3FTCA	7.605	441.0 -> 316.9	9740	5.16	µg/L		78
		441.0 -> 336.9	17111				
EtFOSA	10.927	526.0 -> 219.0	759	0.20	µg/L		97
		526.0 -> 169.0	718				
EtFOSE	10.860	630.0 -> 58.9	1847	2.13	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	581	0.19	µg/L		81
		511.9 -> 169.0	697				
MeFOSE	10.602	616.1 -> 58.9	2552	2.10	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	371	0.21	µg/L		96
		699.1 -> 98.8	208				
NFDHA	5.445	295.0 -> 201.0	349	0.43	µg/L		98
		295.0 -> 84.9	185				
PFMBA	4.800	279.0 -> 85.1	941	0.41	µg/L		100
PFMPA	3.541	229.0 -> 84.9	905	0.41	µg/L		100
PFEESA	6.059	314.8 -> 134.9	7201	0.36	µg/L		98
		314.8 -> 82.9	125				

= Qualifier out of range, m = manually integrated, + = Area summed

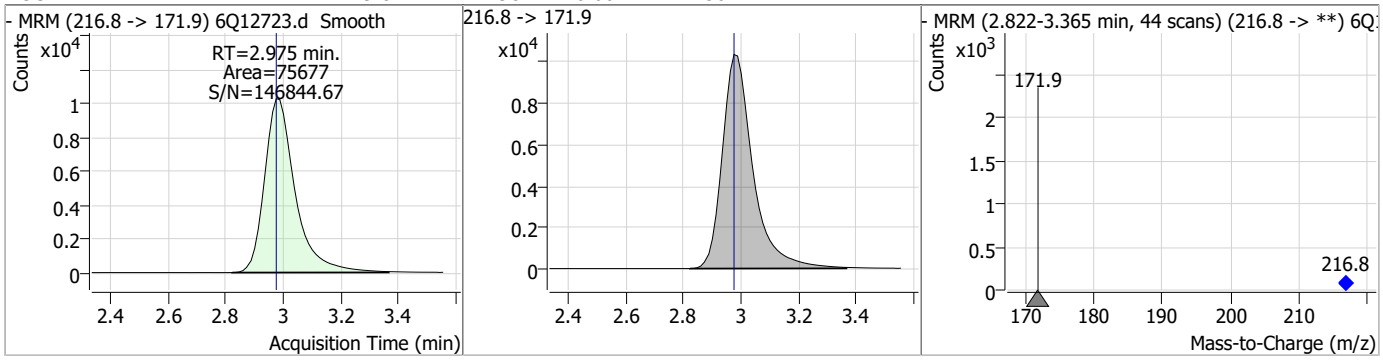
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

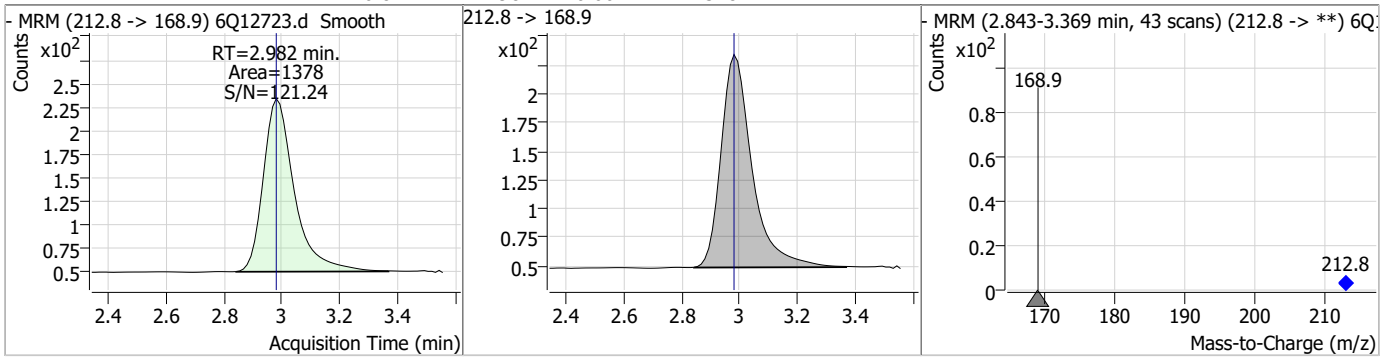
Perfluorinated Compounds by LC/MS/MS



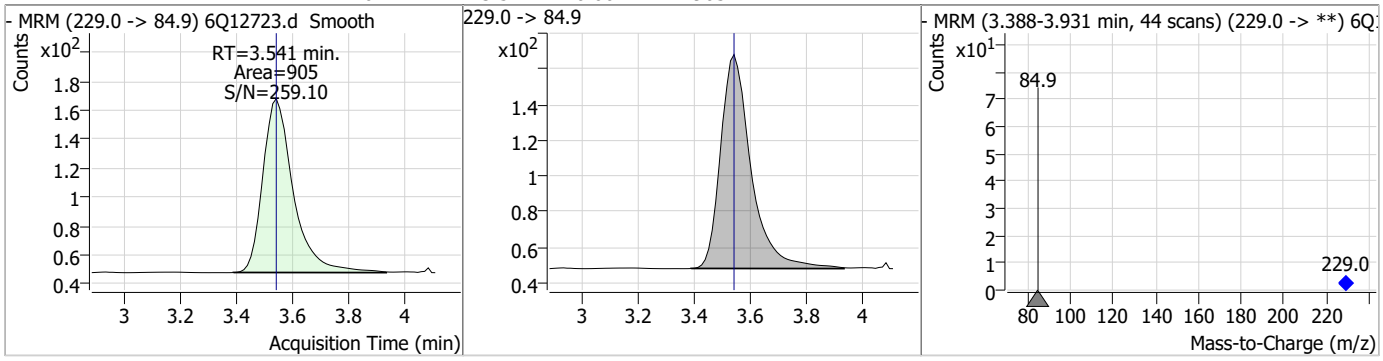
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.87	2.98	0.00	75677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.82	2.98	0.00	1378				

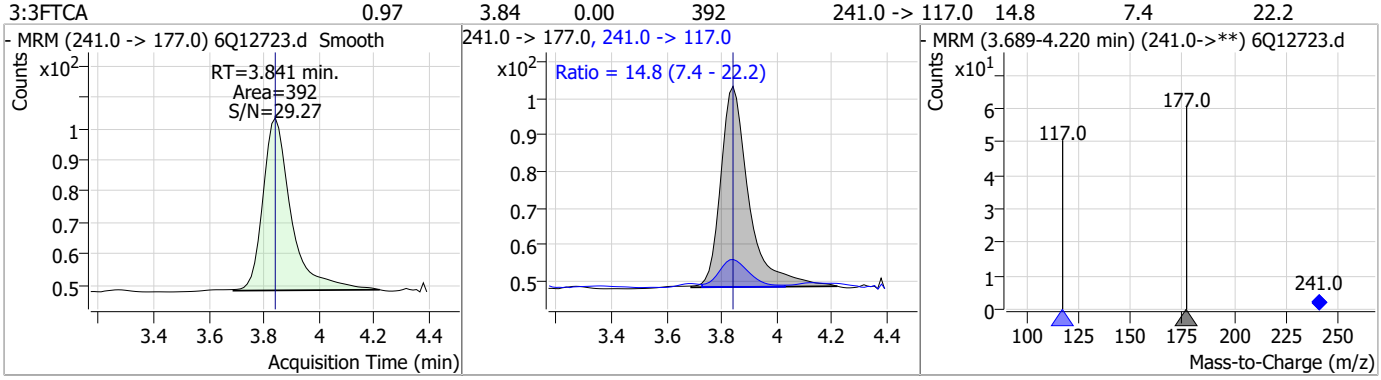


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.41	3.54	0.00	905				

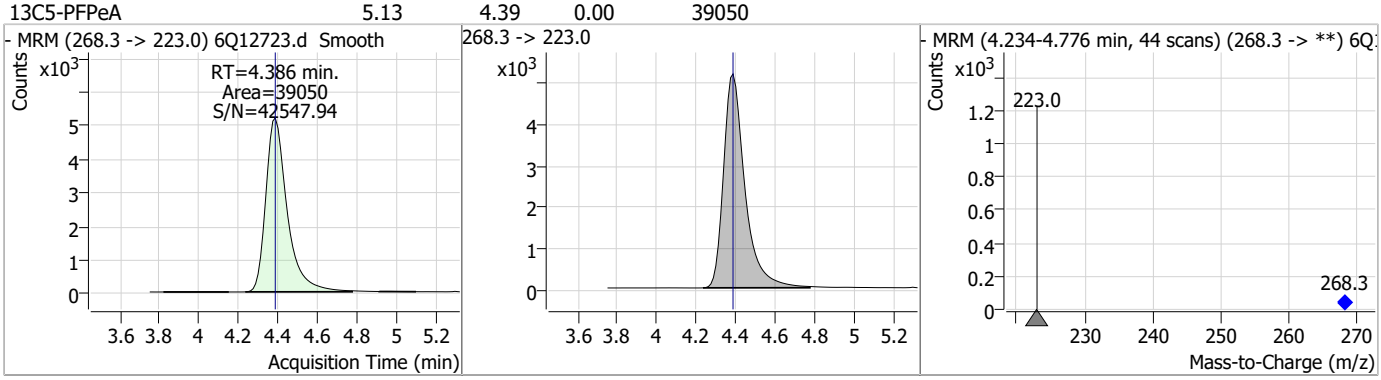


Perfluorinated Compounds by LC/MS/MS

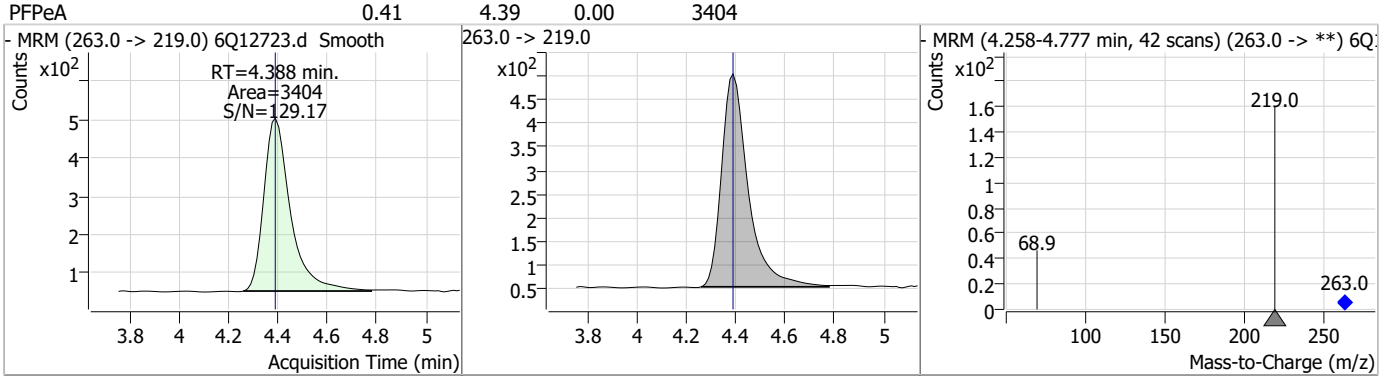
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.97	3.84	0.00	392	241.0 -> 117.0	14.8	7.4	22.2



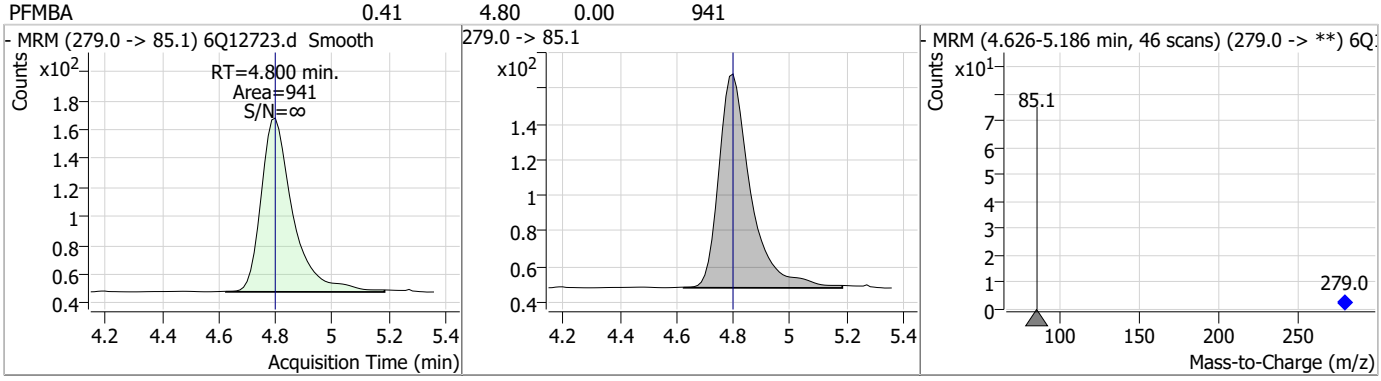
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.13	4.39	0.00	39050				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.41	4.39	0.00	3404				

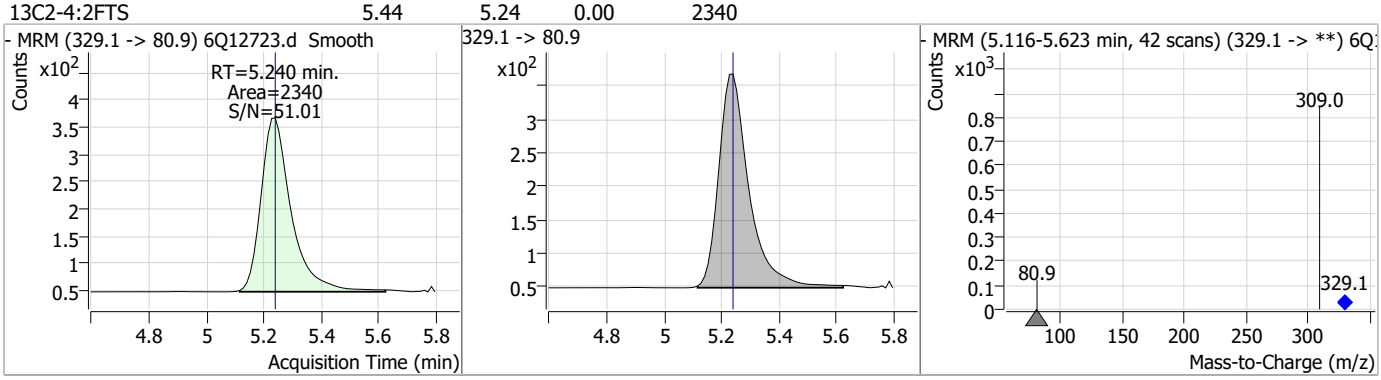


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.41	4.80	0.00	941				

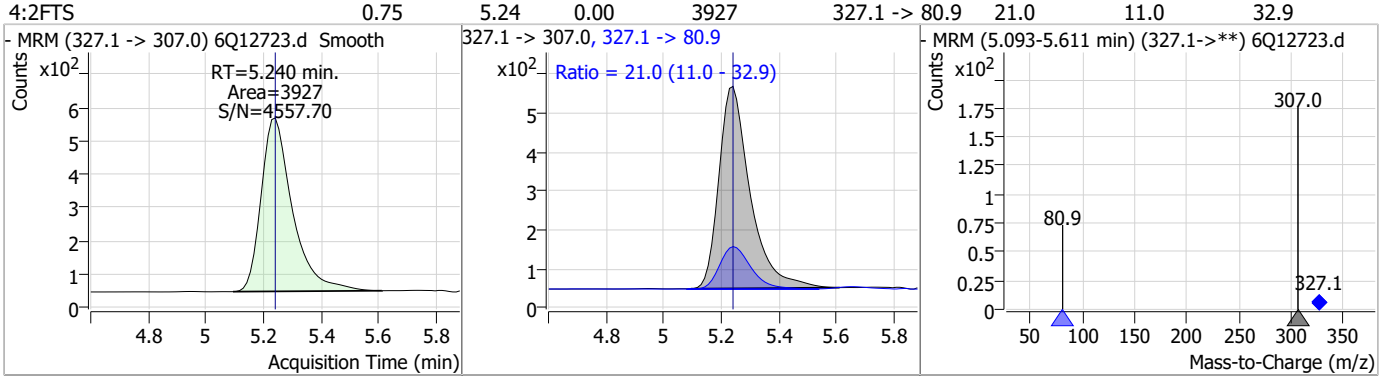


Perfluorinated Compounds by LC/MS/MS

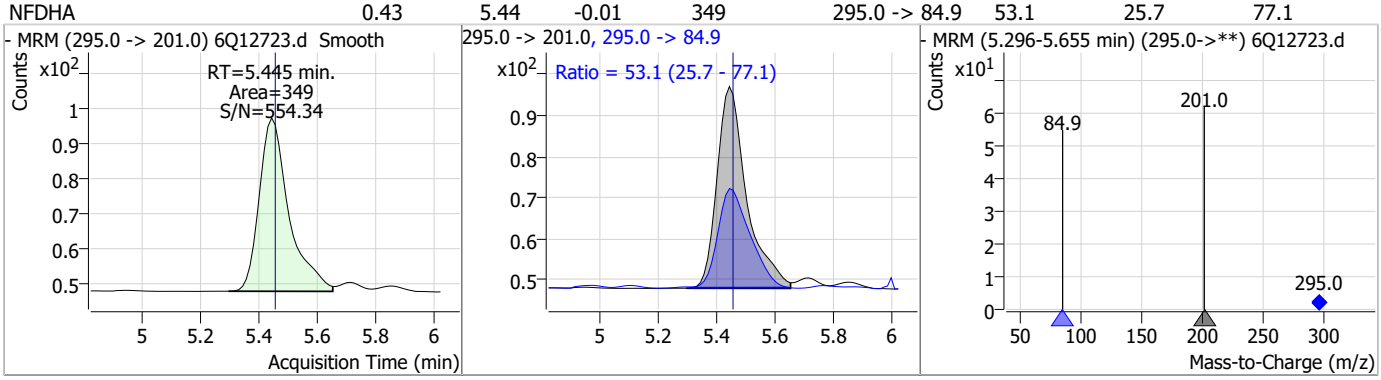
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.44	5.24	0.00	2340				



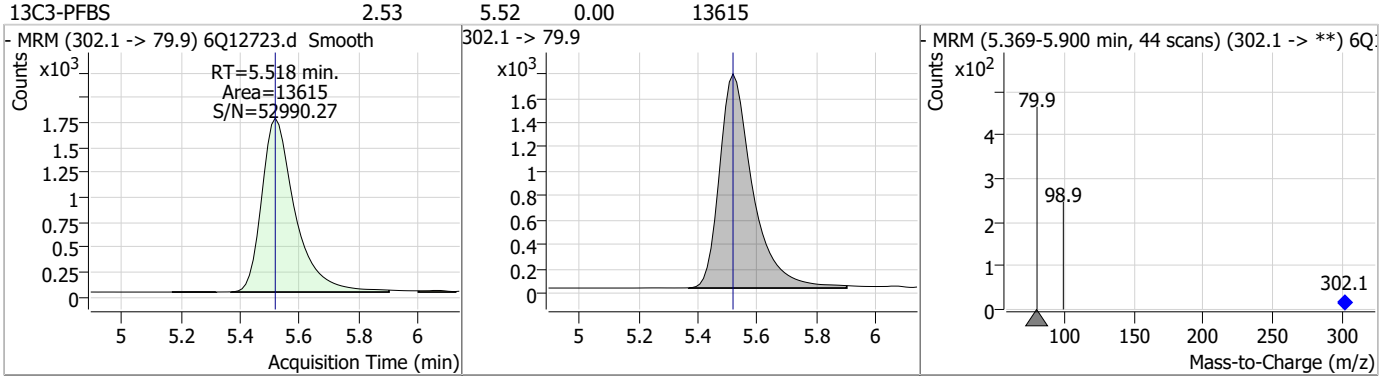
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.75	5.24	0.00	3927	327.1 -> 80.9	21.0	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.43	5.44	-0.01	349	295.0 -> 84.9	53.1	25.7	77.1

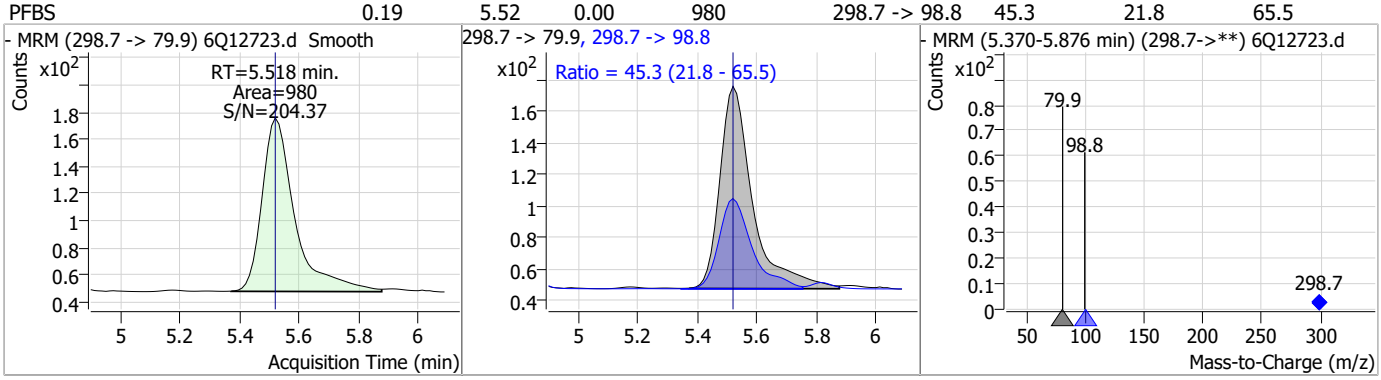


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.53	5.52	0.00	13615				

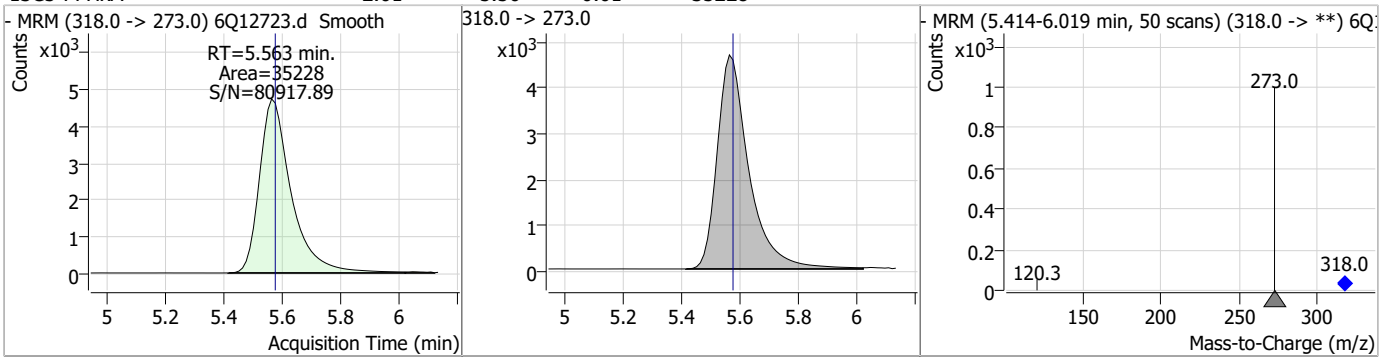


Perfluorinated Compounds by LC/MS/MS

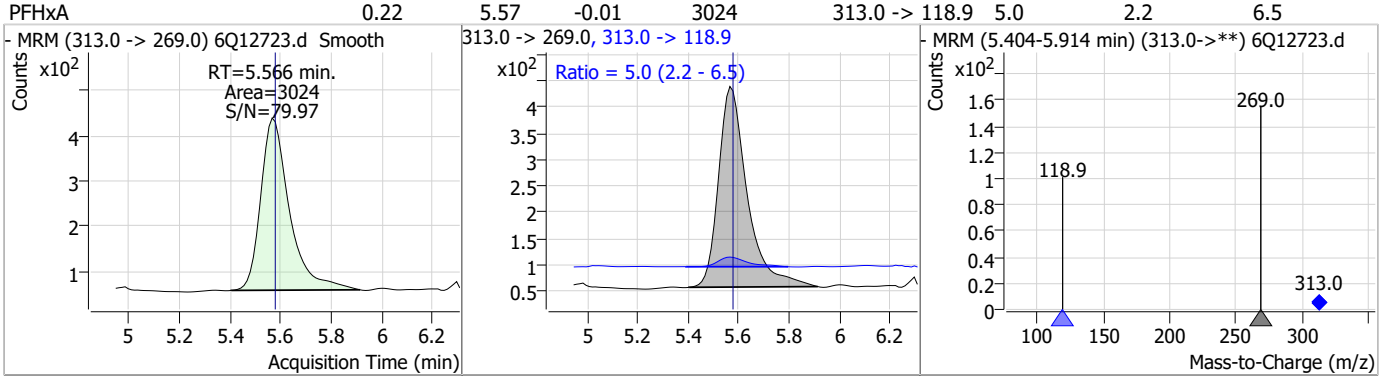
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.52	0.00	980	298.7 -> 98.8	45.3	21.8	65.5



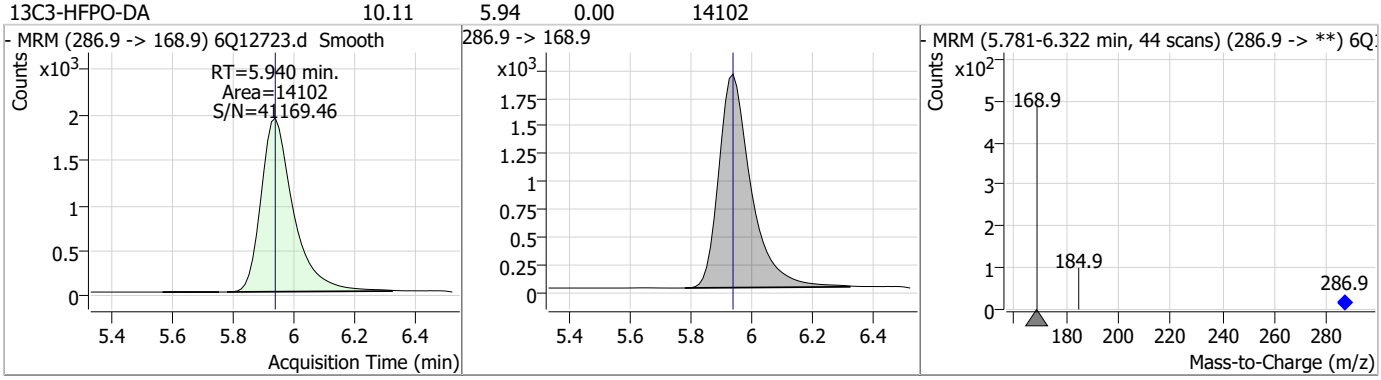
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.56	-0.01	35228				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.22	5.57	-0.01	3024	313.0 -> 118.9	5.0	2.2	6.5

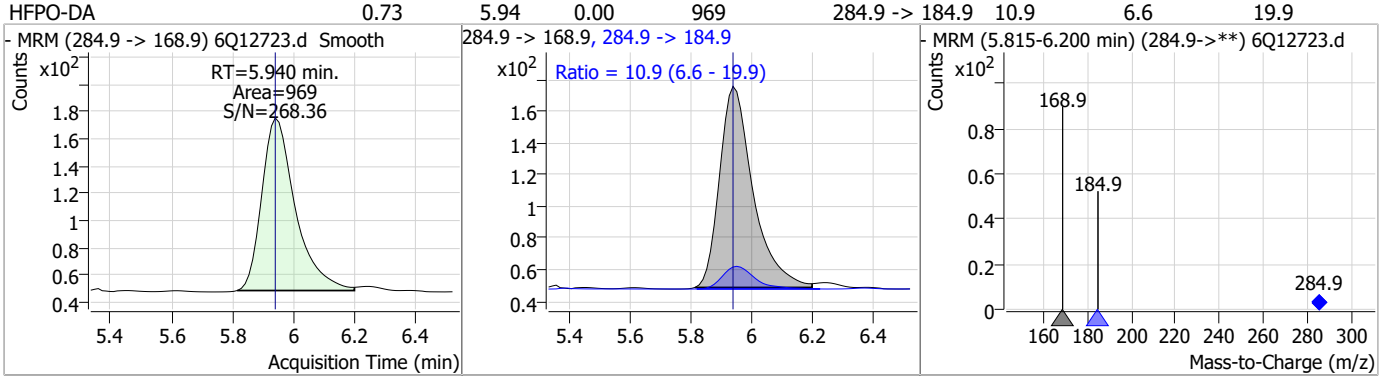


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.11	5.94	0.00	14102				

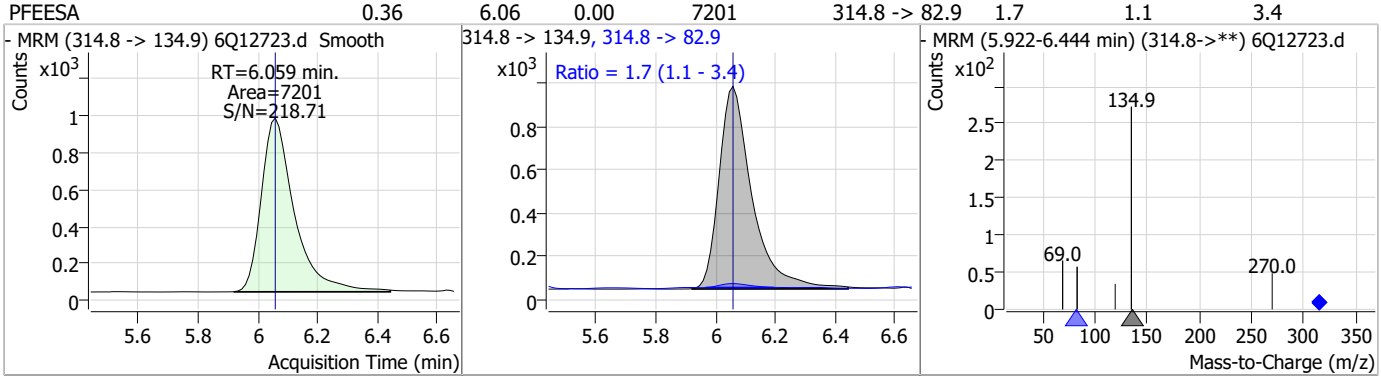


Perfluorinated Compounds by LC/MS/MS

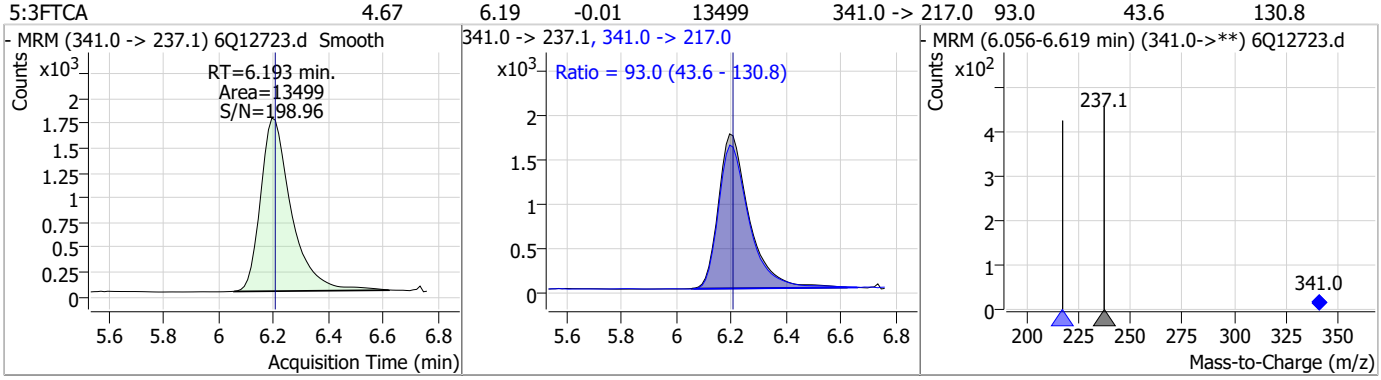
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.73	5.94	0.00	969	284.9 -> 184.9	10.9	6.6	19.9



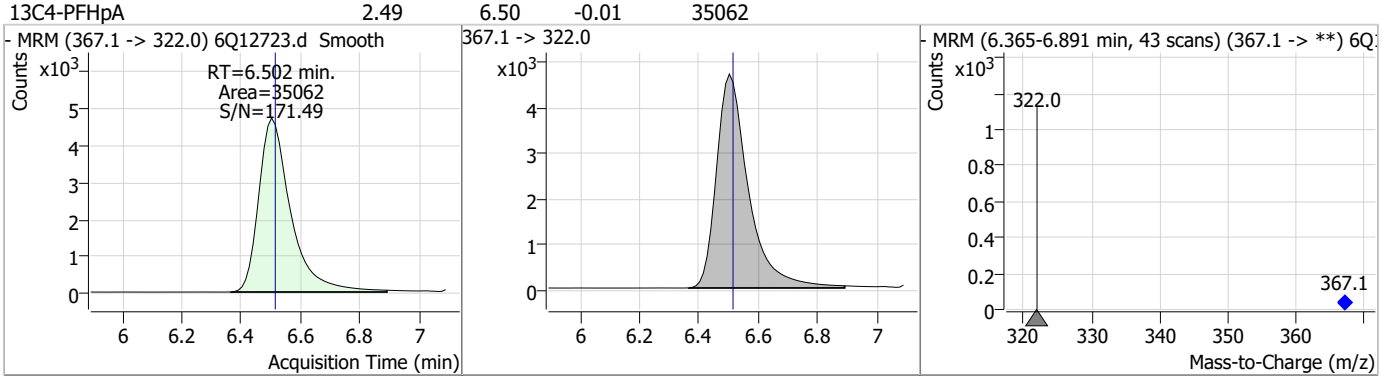
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.06	0.00	7201	314.8 -> 82.9	1.7	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.67	6.19	-0.01	13499	341.0 -> 217.0	93.0	43.6	130.8

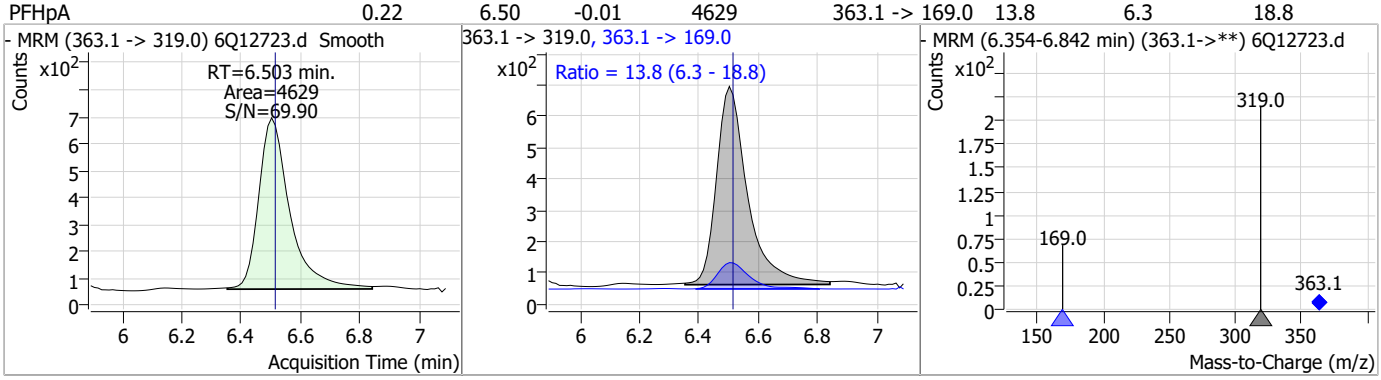


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.50	-0.01	35062				

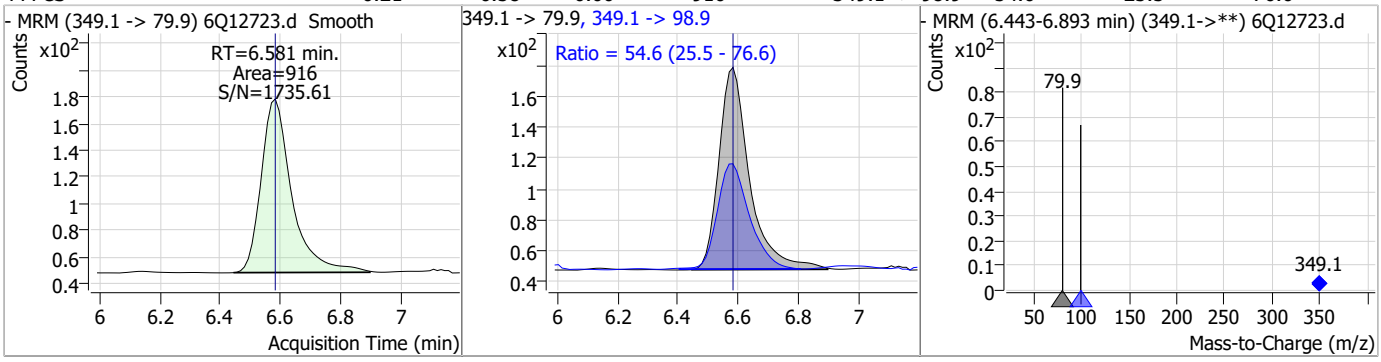


Perfluorinated Compounds by LC/MS/MS

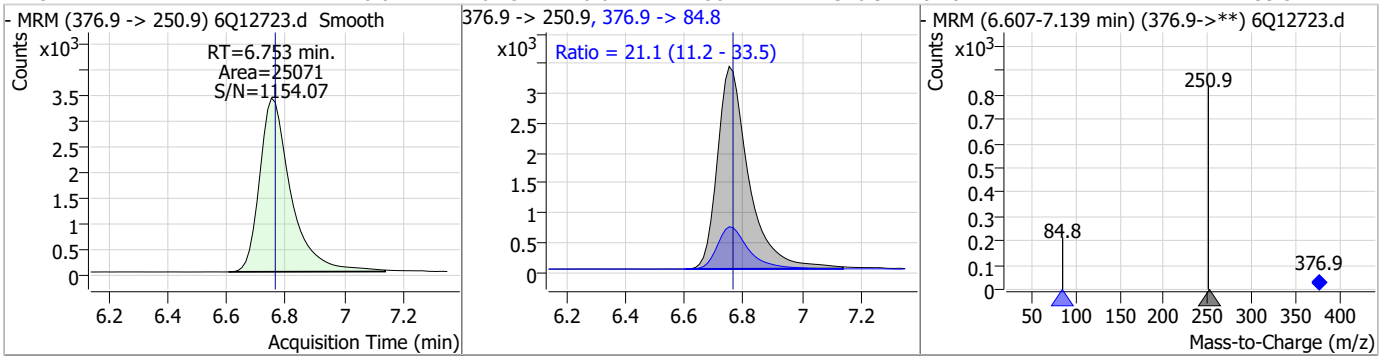
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.22	6.50	-0.01	4629	363.1 -> 169.0	13.8	6.3	18.8



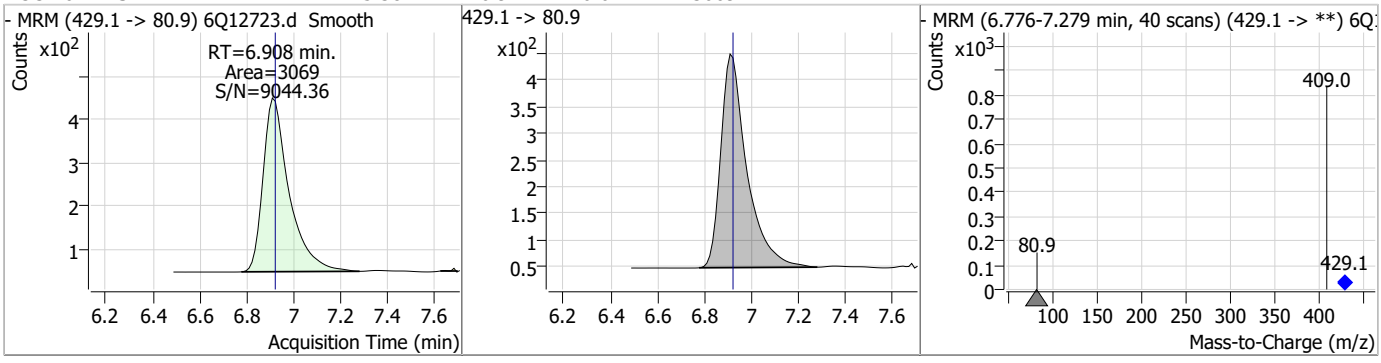
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.21	6.58	0.00	916	349.1 -> 98.9	54.6	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.82	6.75	-0.01	25071	376.9 -> 84.8	21.1	11.2	33.5

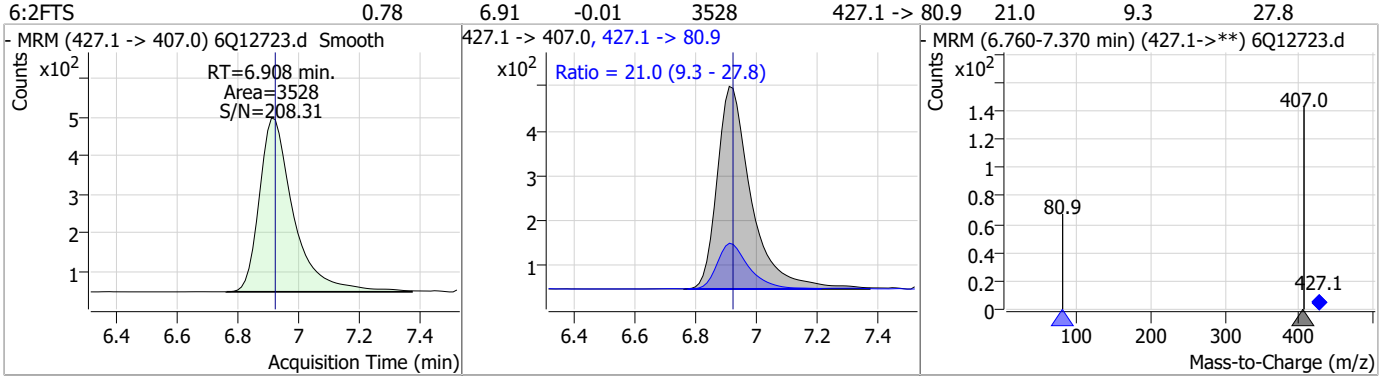


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.38	6.91	-0.01	3069				

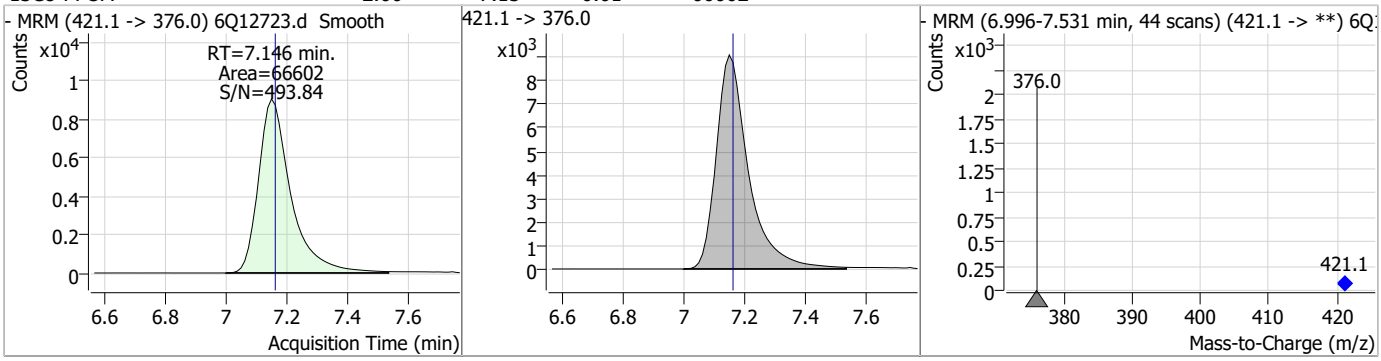


Perfluorinated Compounds by LC/MS/MS

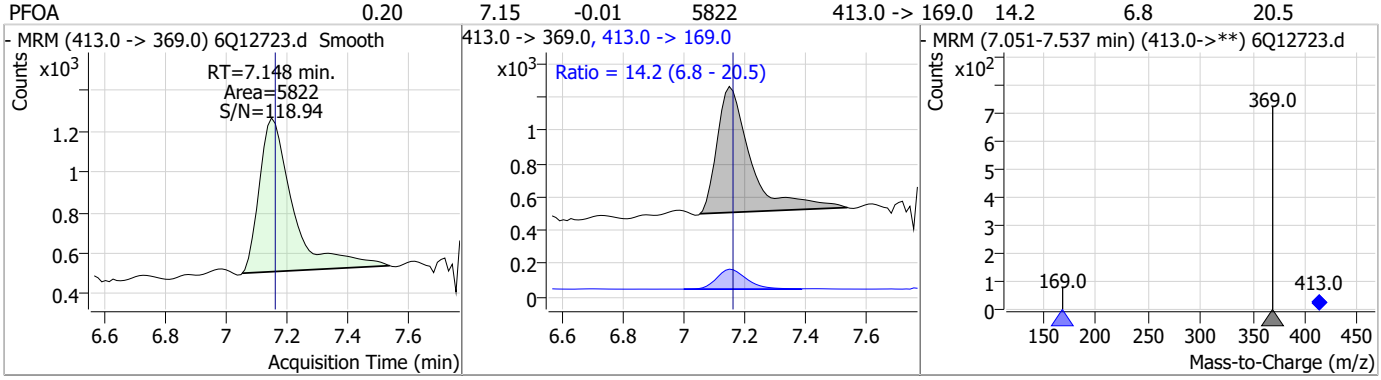
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.78	6.91	-0.01	3528	427.1 -> 80.9	21.0	9.3	27.8



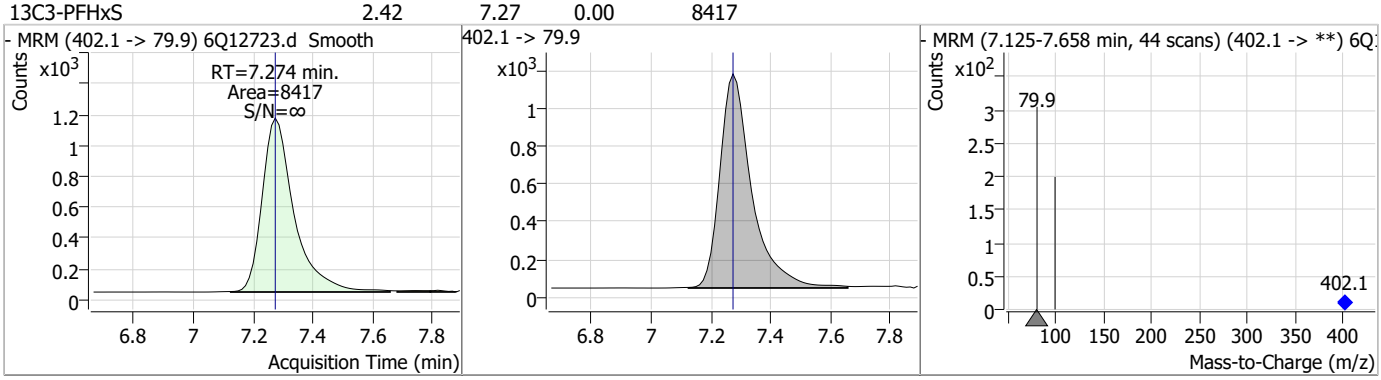
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.60	7.15	-0.01	66602				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.20	7.15	-0.01	5822	413.0 -> 169.0	14.2	6.8	20.5

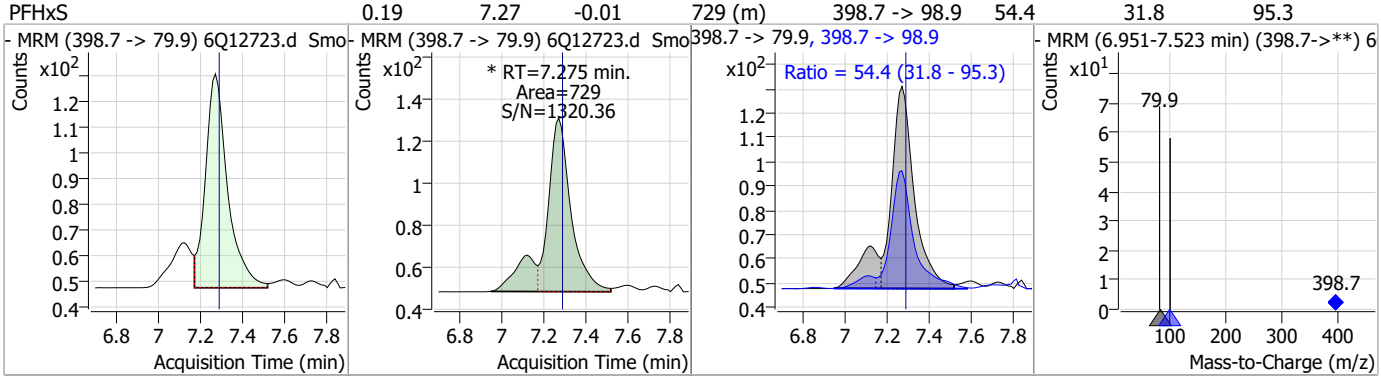


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.42	7.27	0.00	8417				

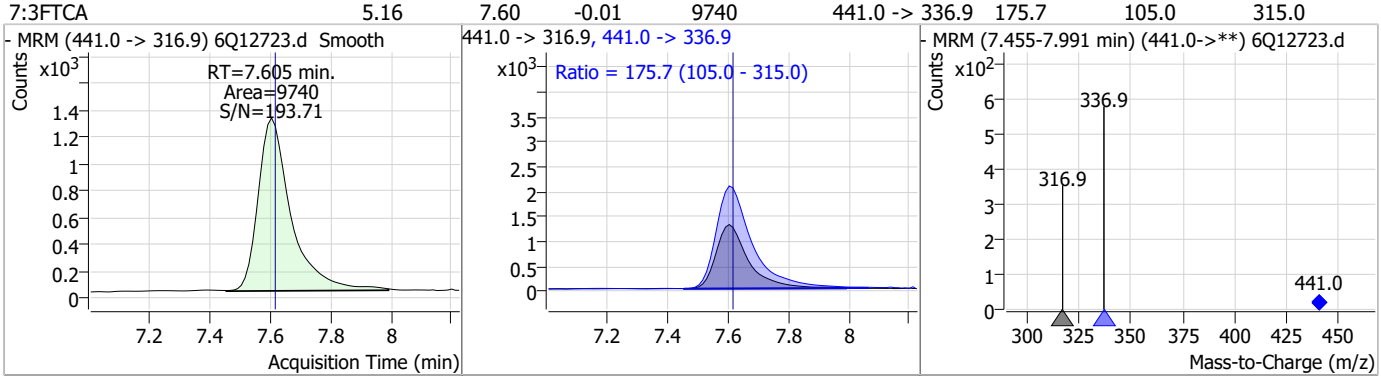


Perfluorinated Compounds by LC/MS/MS

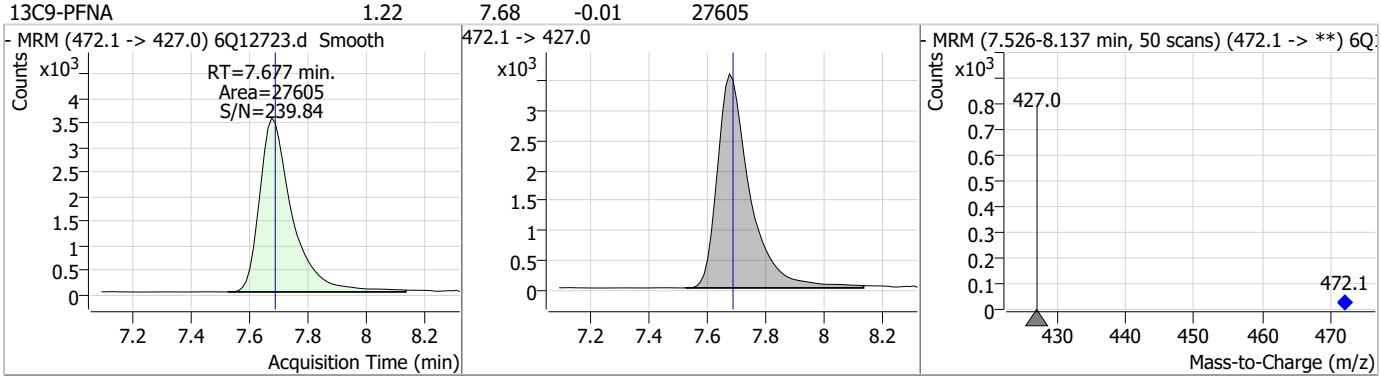
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.19	7.27	-0.01	729 (m)	398.7 -> 98.9	54.4	31.8	95.3



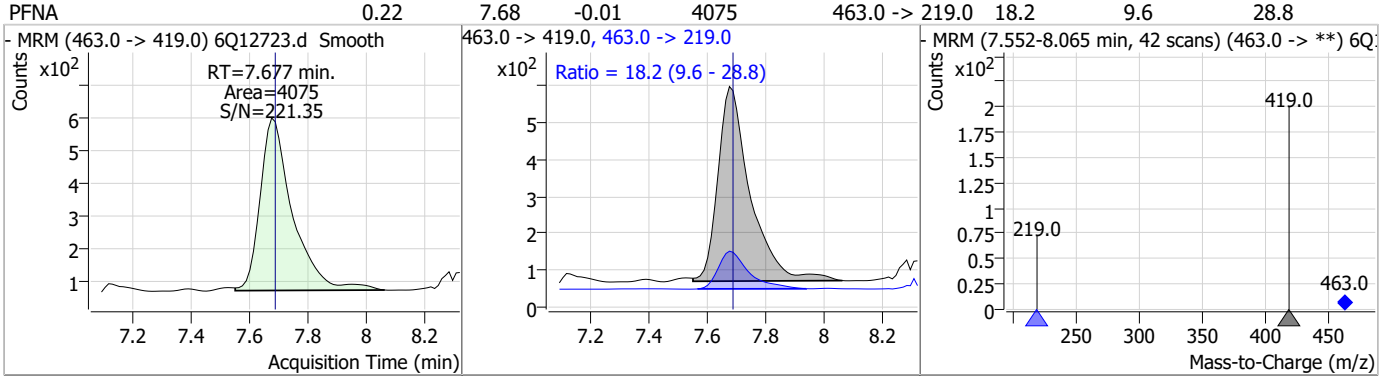
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.16	7.60	-0.01	9740	441.0 -> 336.9	175.7	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.22	7.68	-0.01	27605				

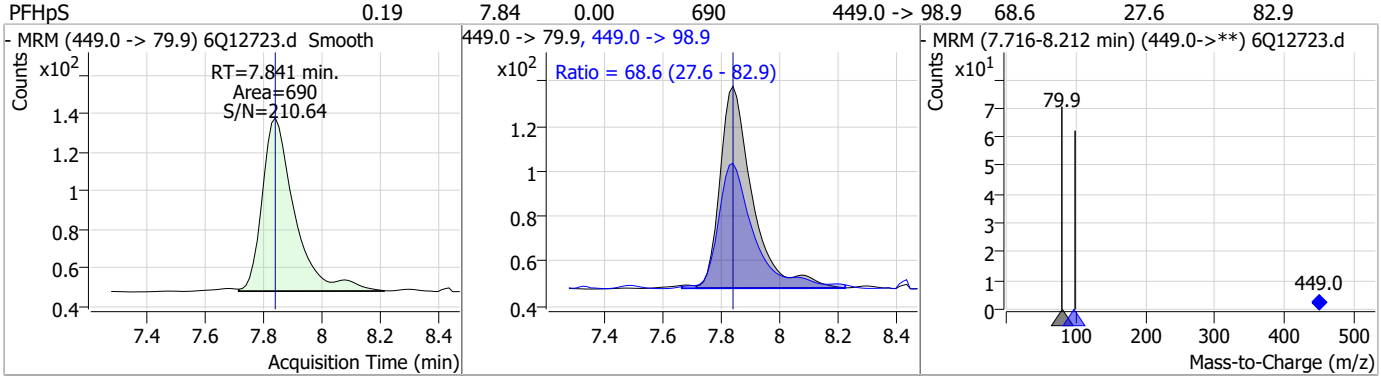


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.22	7.68	-0.01	4075	463.0 -> 219.0	18.2	9.6	28.8

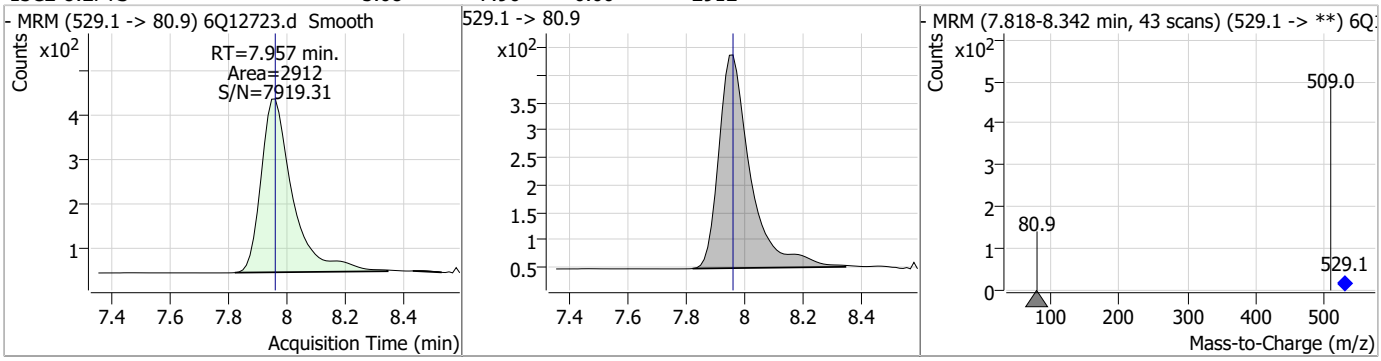


Perfluorinated Compounds by LC/MS/MS

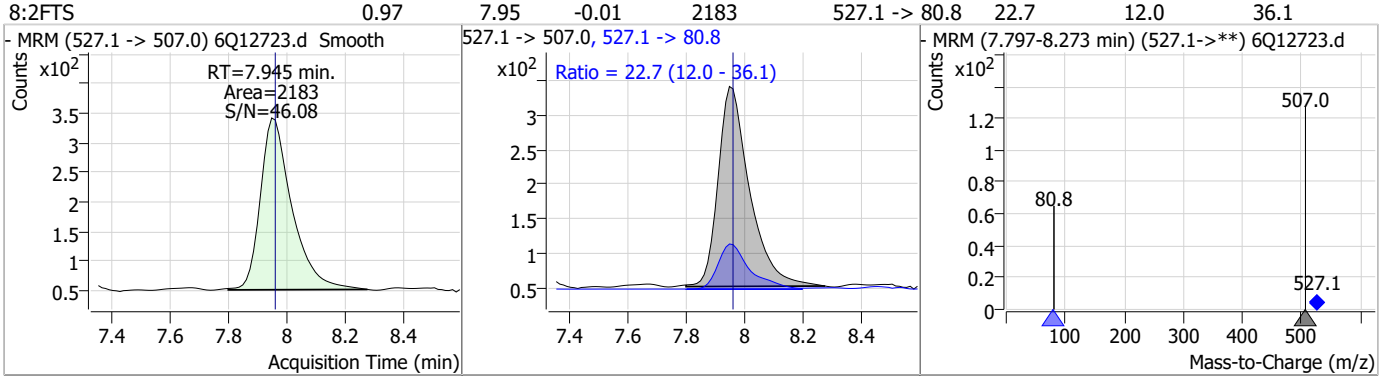
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.19	7.84	0.00	690	449.0 -> 98.9	68.6	27.6	82.9



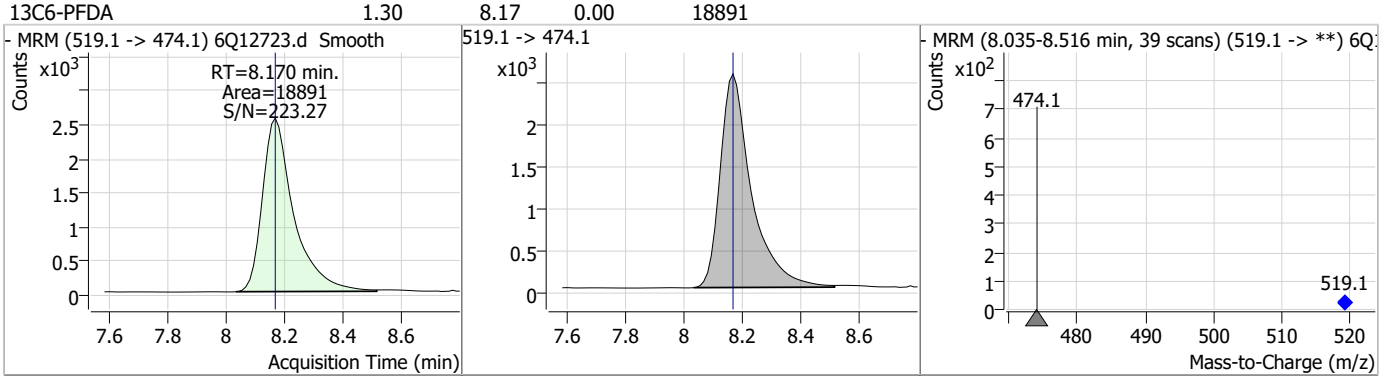
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.08	7.96	0.00	2912				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.97	7.95	-0.01	2183	527.1 -> 80.8	22.7	12.0	36.1

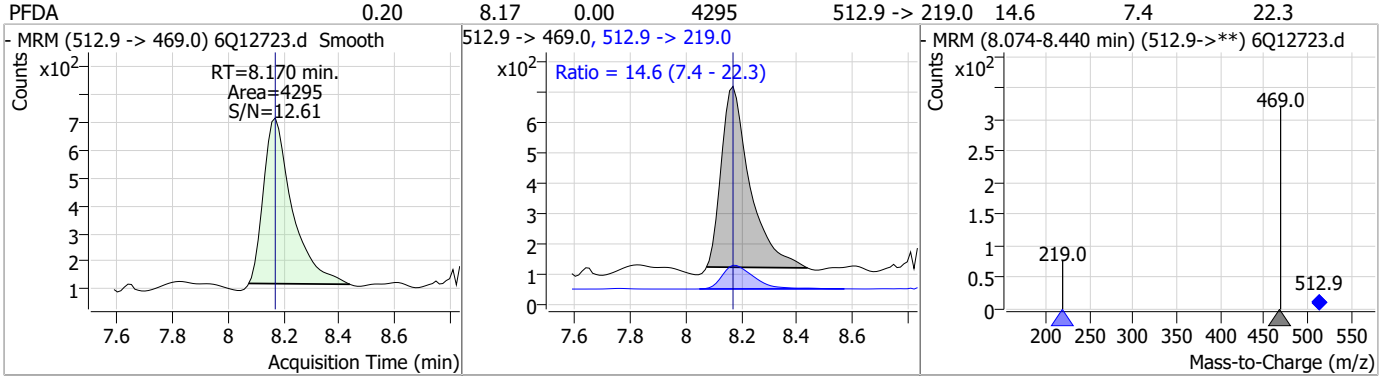


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.30	8.17	0.00	18891				

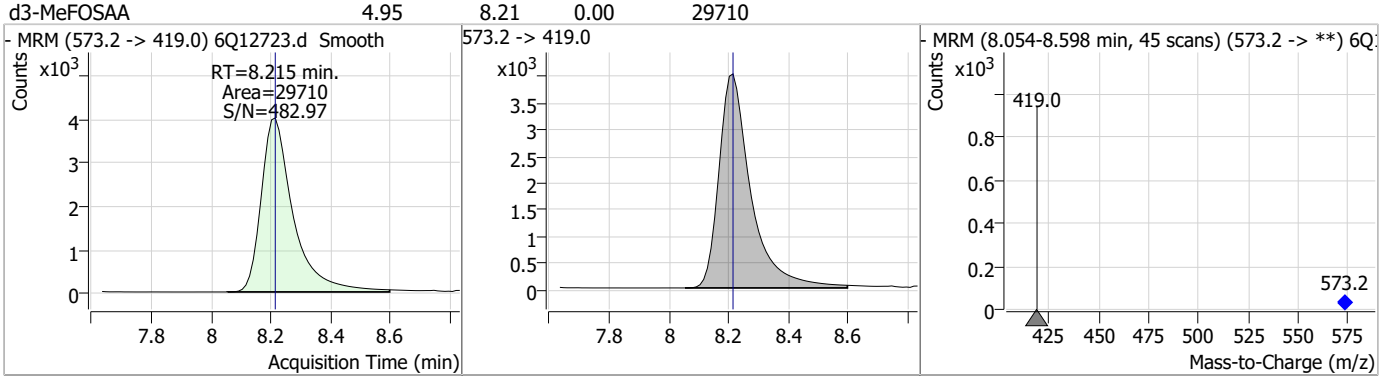


Perfluorinated Compounds by LC/MS/MS

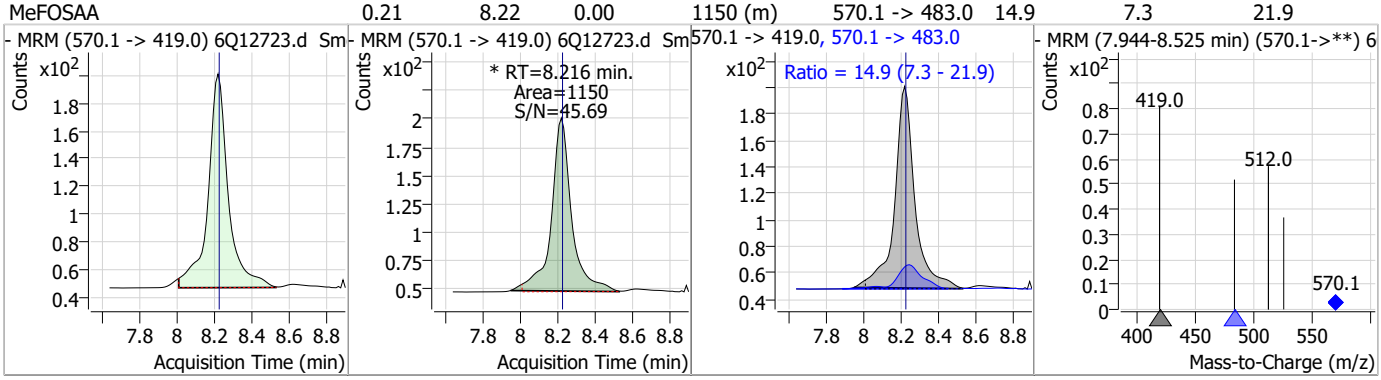
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.17	0.00	4295	512.9 -> 219.0	14.6	7.4	22.3



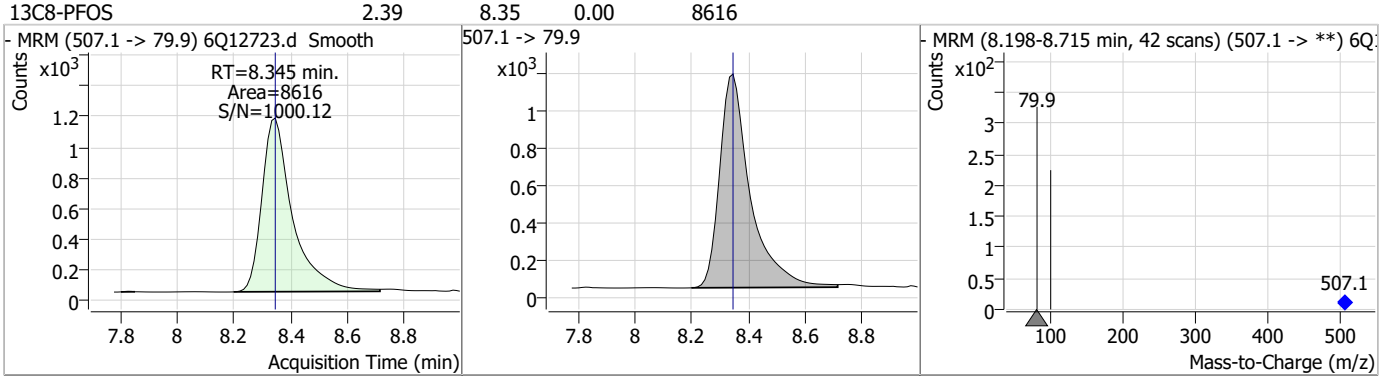
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.21	0.00	29710				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.22	0.00	1150 (m)	570.1 -> 483.0	14.9	7.3	21.9

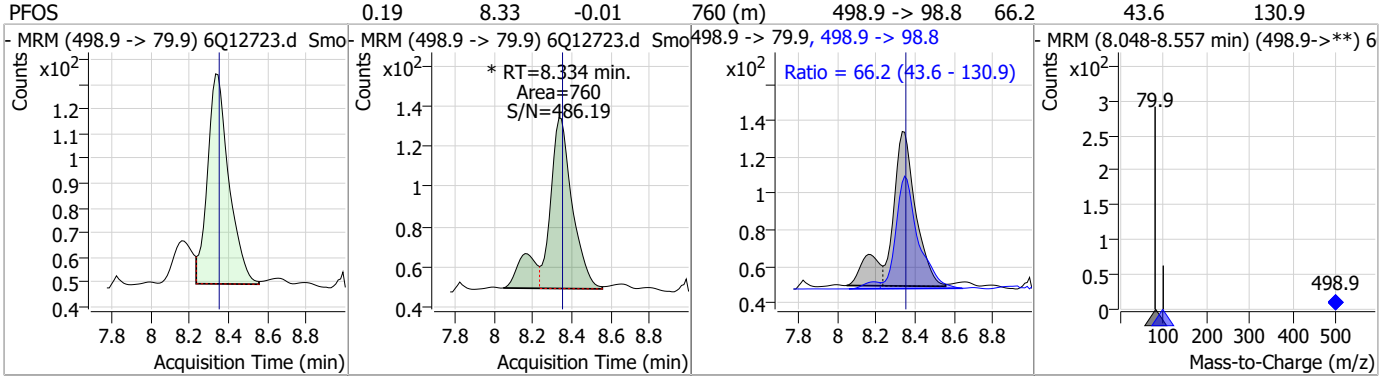


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.39	8.35	0.00	8616				

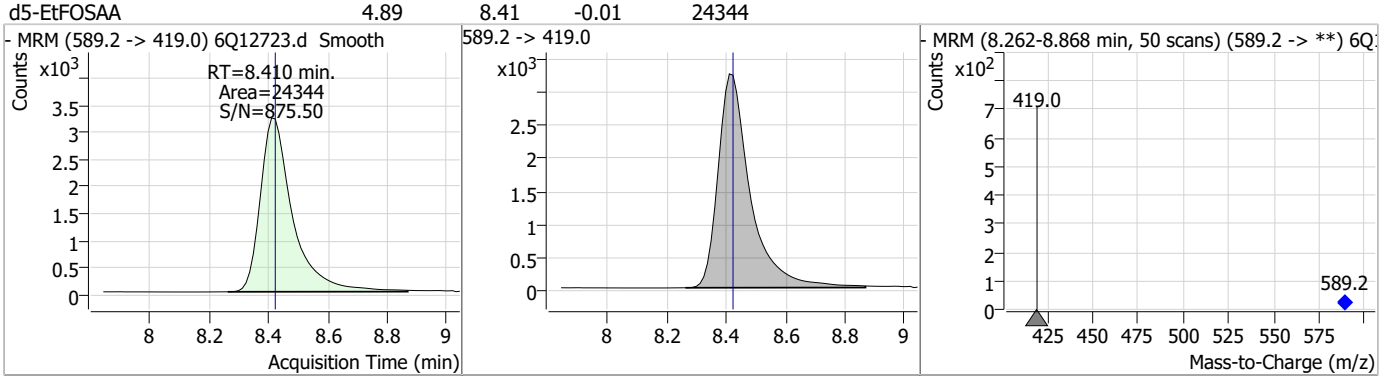


Perfluorinated Compounds by LC/MS/MS

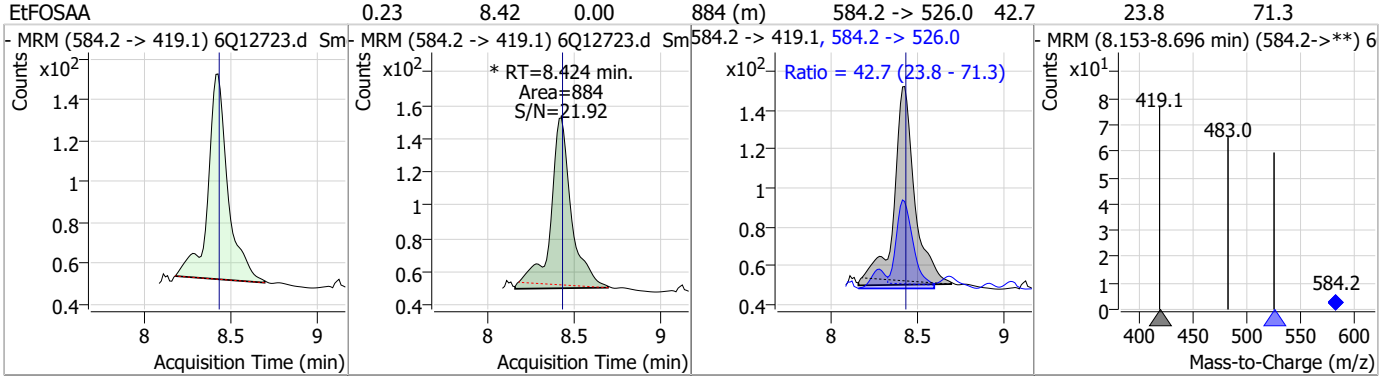
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.19	8.33	-0.01	760 (m)	498.9 -> 98.8	66.2	43.6	130.9



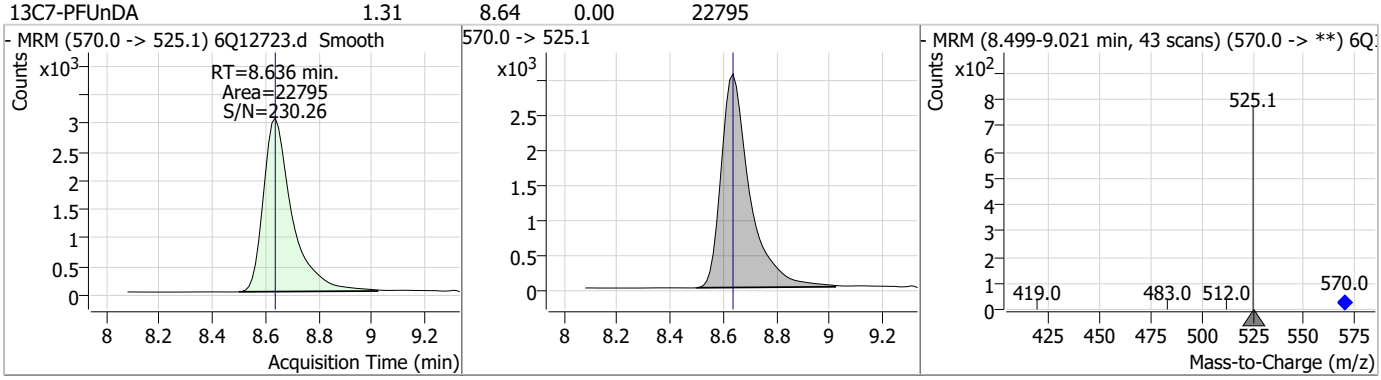
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.89	8.41	-0.01	24344				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.23	8.42	0.00	884 (m)	584.2 -> 526.0	42.7	23.8	71.3

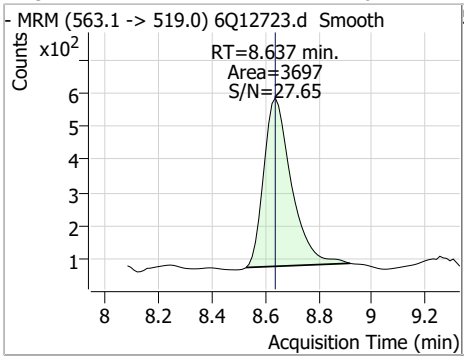


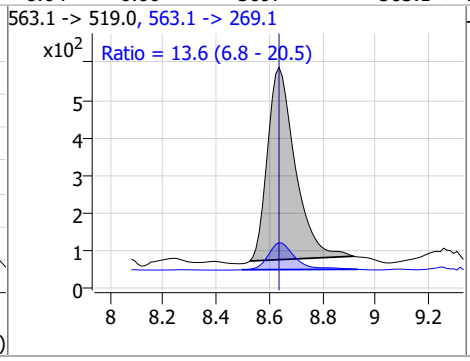
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	22795				

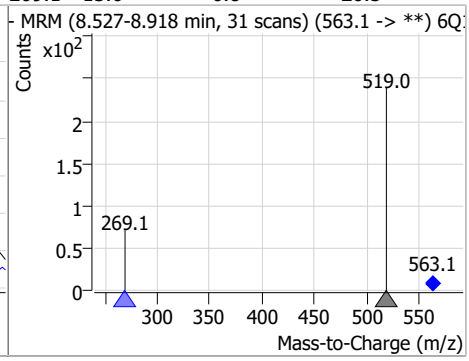


Perfluorinated Compounds by LC/MS/MS

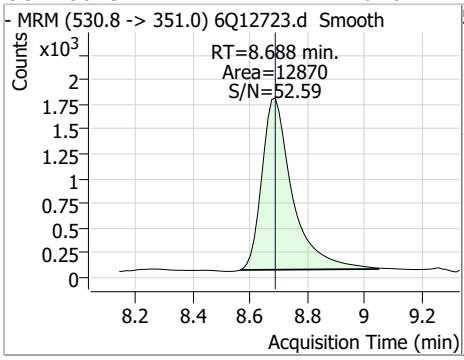
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.21	8.64	0.00	3697	563.1 -> 269.1	13.6	6.8	20.5

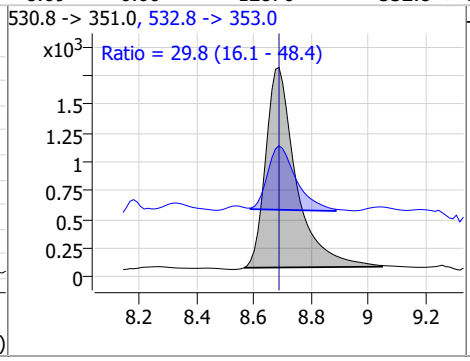


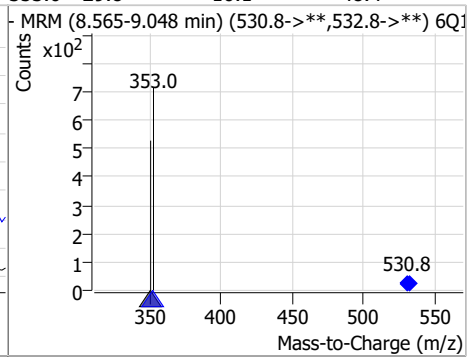




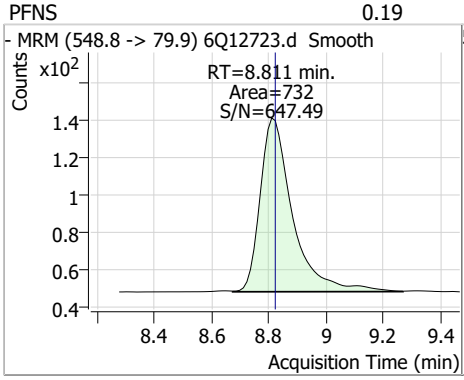
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.75	8.69	0.00	12870	532.8 -> 353.0	29.8	16.1	48.4

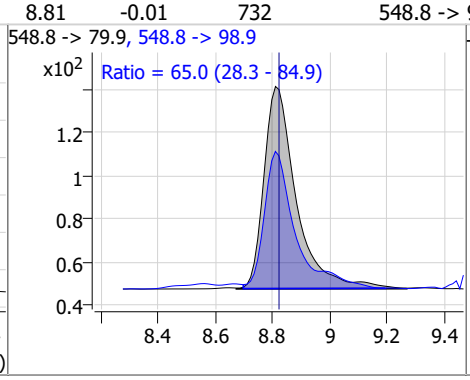


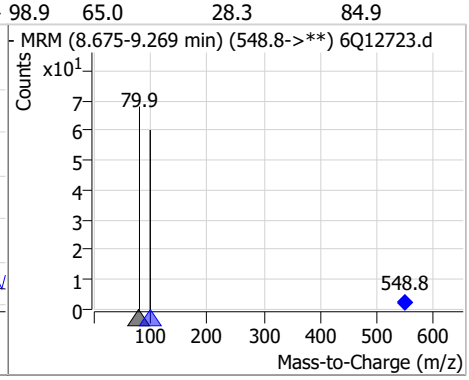




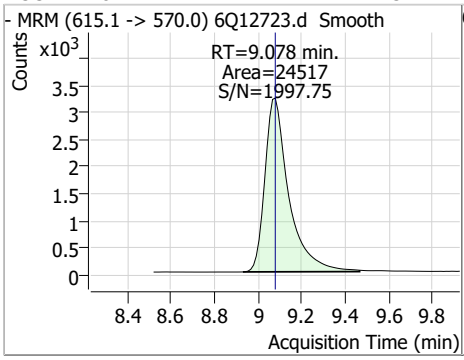
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.19	8.81	-0.01	732	548.8 -> 98.9	65.0	28.3	84.9

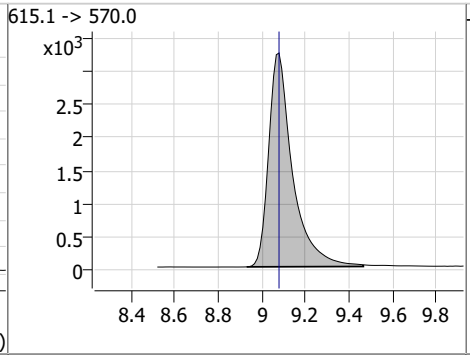


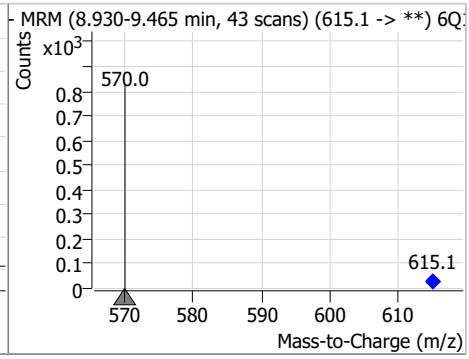




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	9.08	0.00	24517				

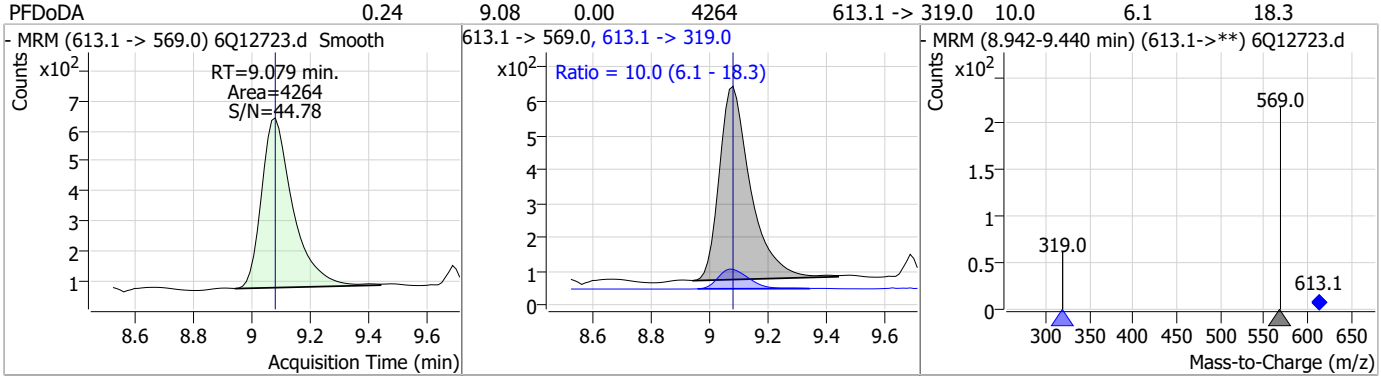




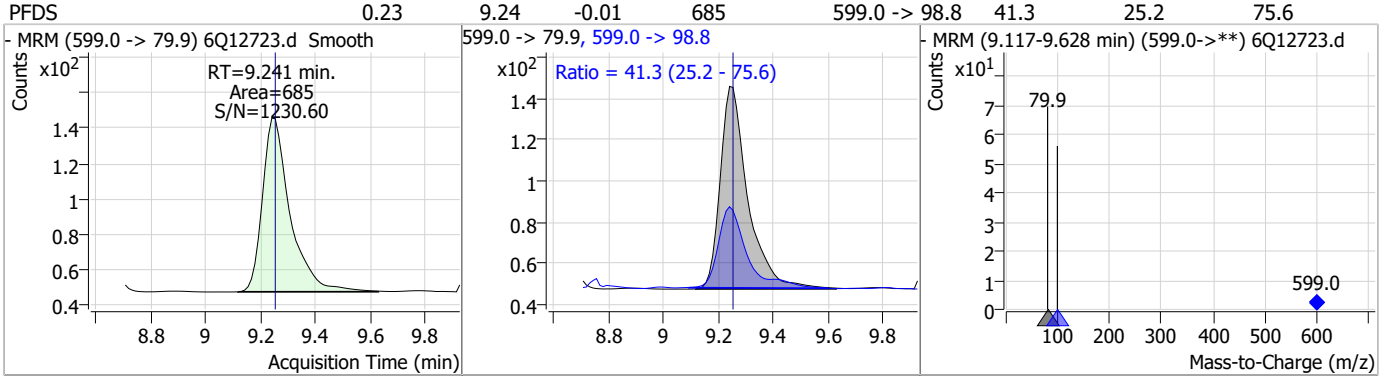


Perfluorinated Compounds by LC/MS/MS

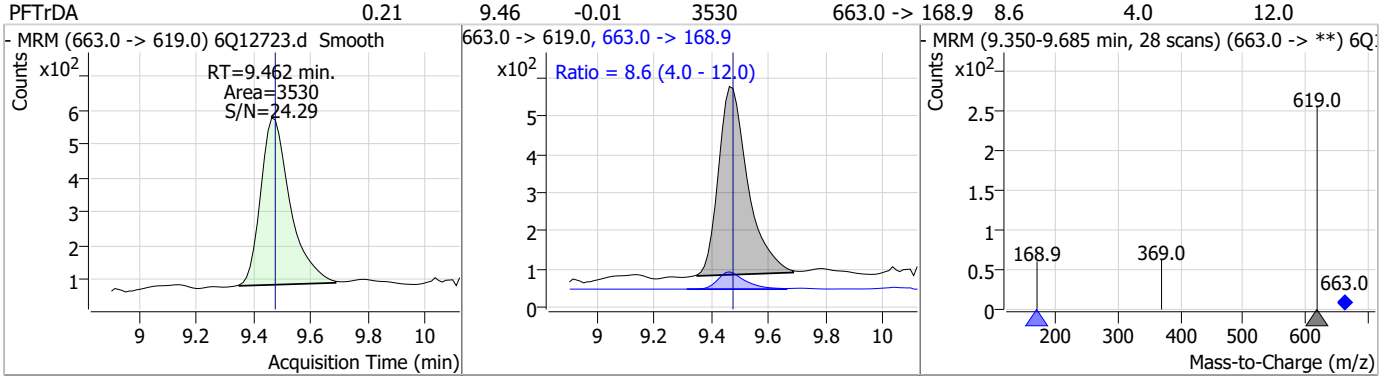
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.24	9.08	0.00	4264	613.1 -> 319.0	10.0	6.1	18.3



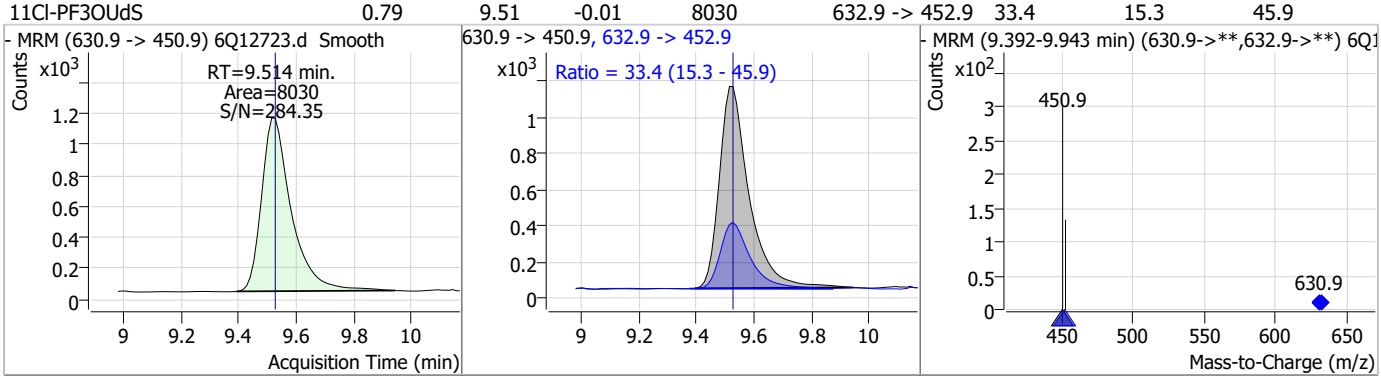
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.23	9.24	-0.01	685	599.0 -> 98.8	41.3	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.21	9.46	-0.01	3530	663.0 -> 168.9	8.6	4.0	12.0

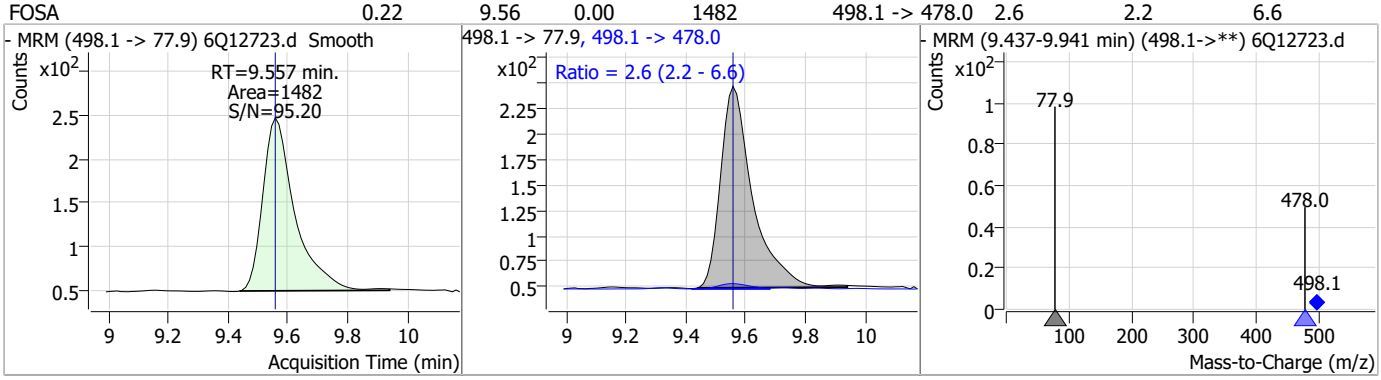


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.79	9.51	-0.01	8030	632.9 -> 452.9	33.4	15.3	45.9

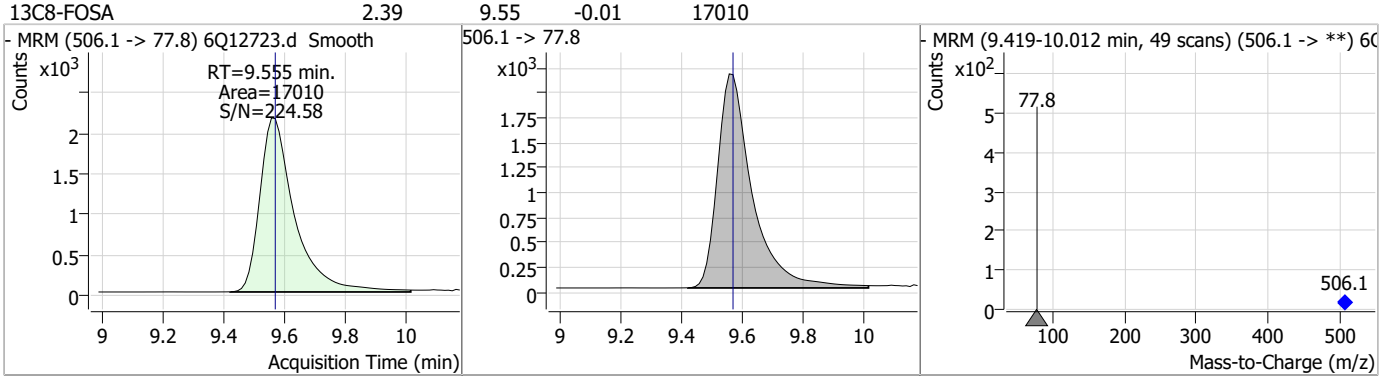


Perfluorinated Compounds by LC/MS/MS

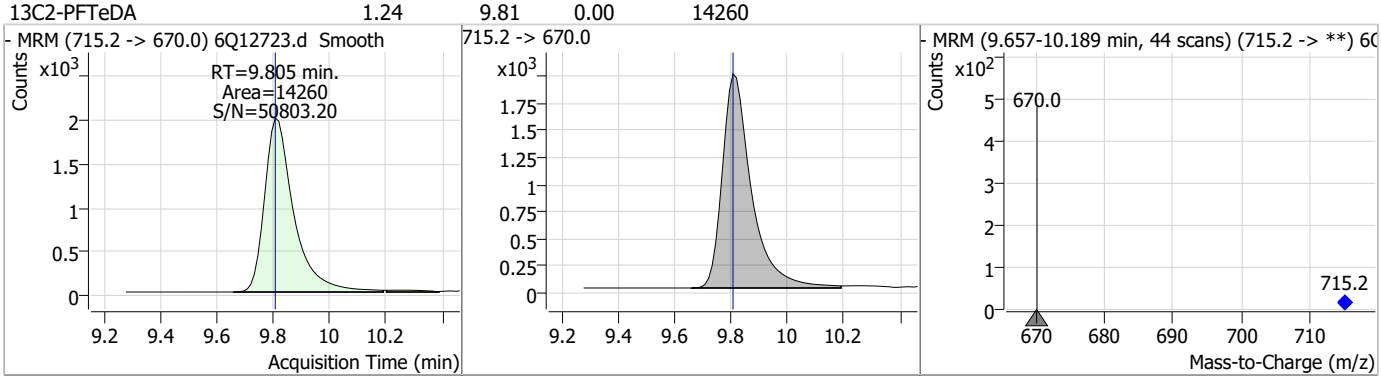
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.22	9.56	0.00	1482	498.1 -> 478.0	2.6	2.2	6.6



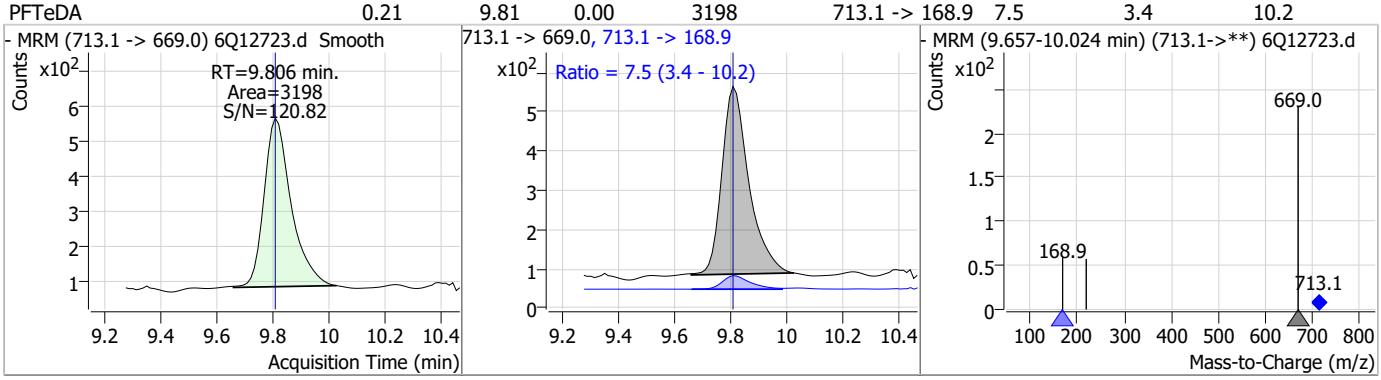
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.39	9.55	-0.01	17010				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.81	0.00	14260				

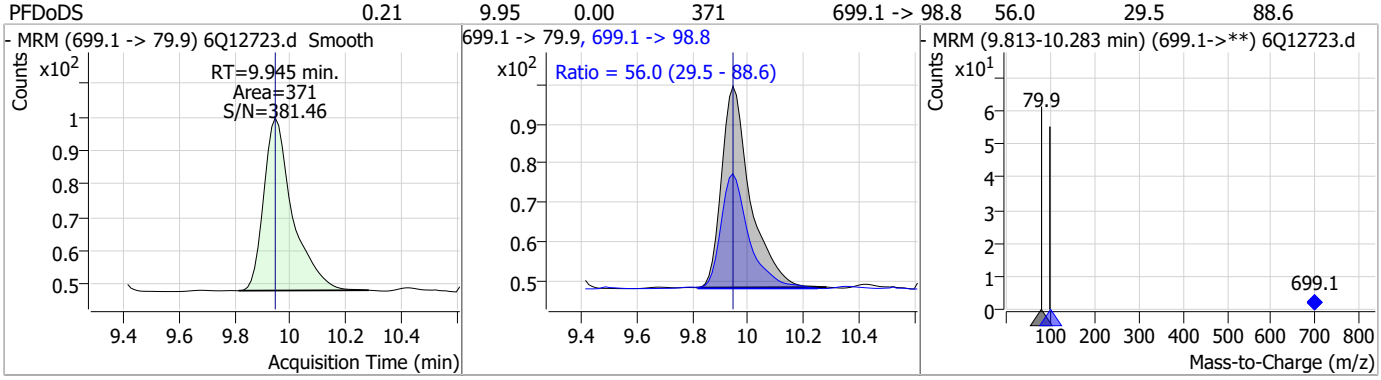


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.21	9.81	0.00	3198	713.1 -> 168.9	7.5	3.4	10.2

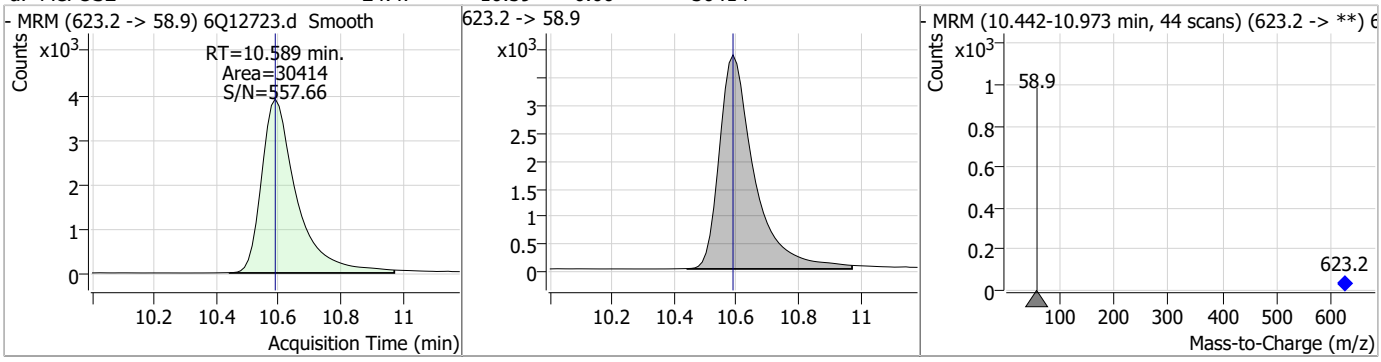


Perfluorinated Compounds by LC/MS/MS

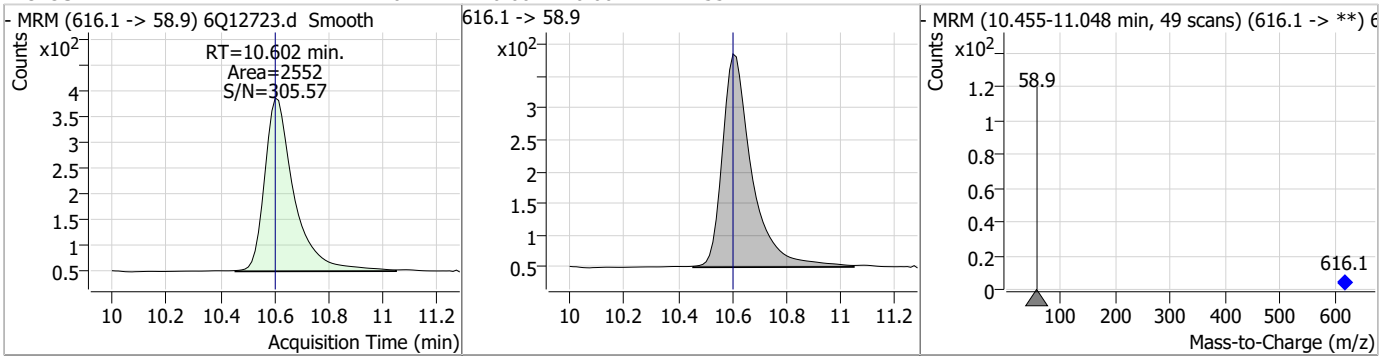
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.21	9.95	0.00	371	699.1 -> 98.8	56.0	29.5	88.6



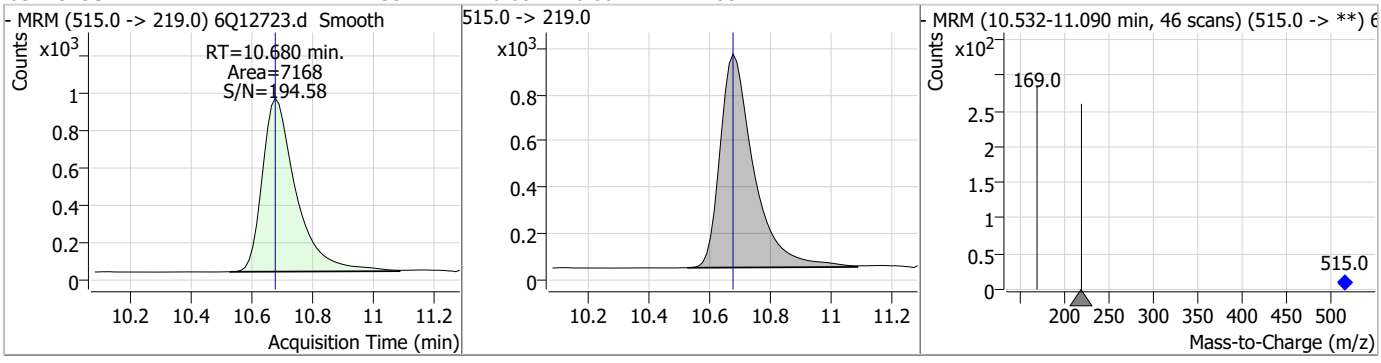
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.47	10.59	0.00	30414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.10	10.60	0.00	2552				

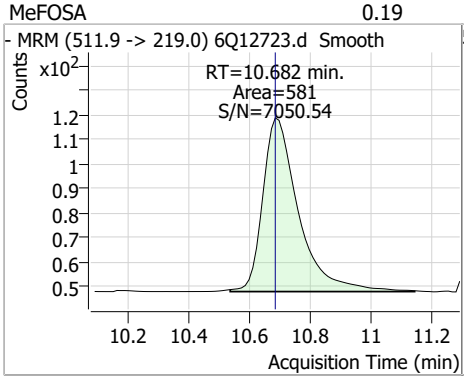


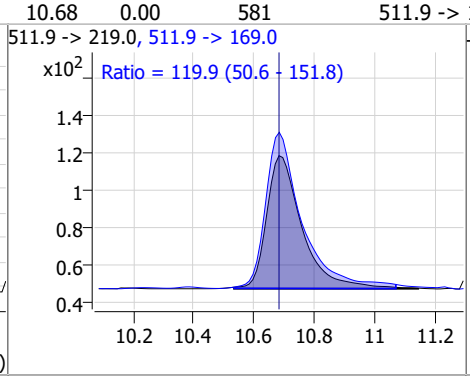
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	10.68	0.00	7168				

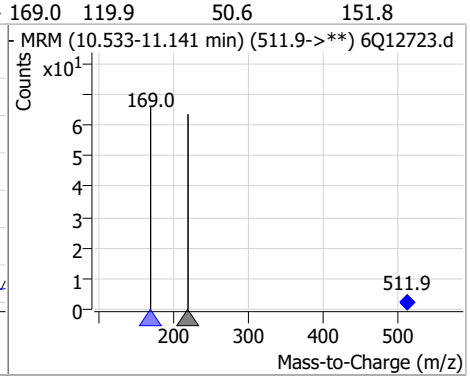


Perfluorinated Compounds by LC/MS/MS

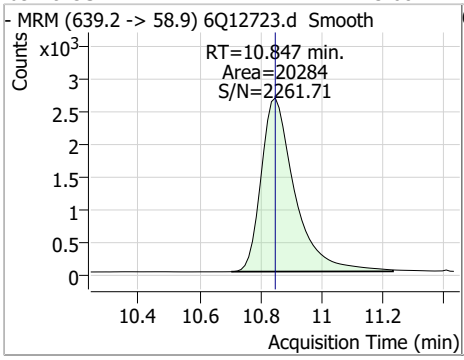
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.19	10.68	0.00	581	511.9 -> 169.0	119.9	50.6	151.8

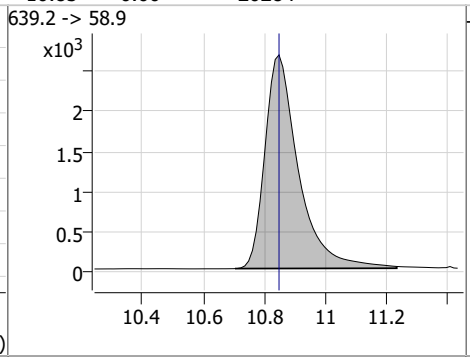


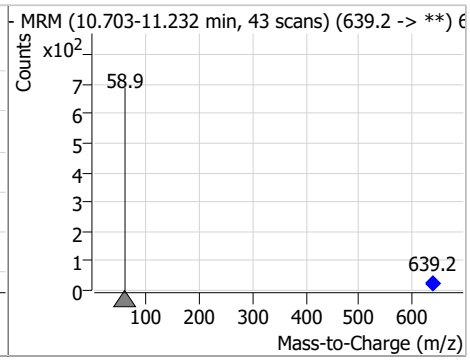




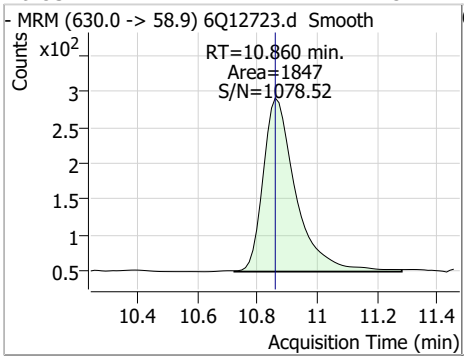
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.68	10.85	0.00	20284				

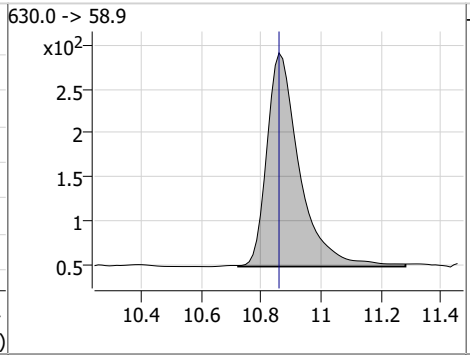


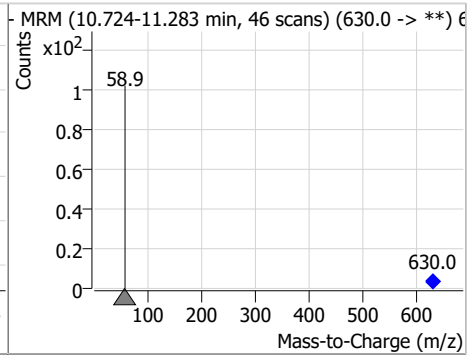




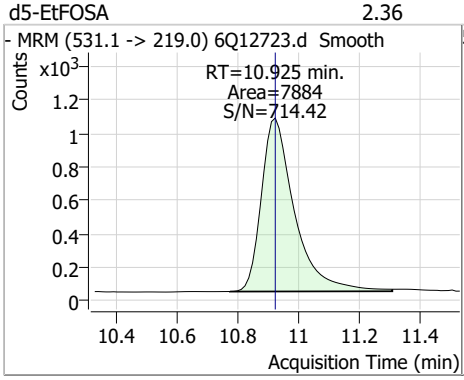
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.13	10.86	0.00	1847				

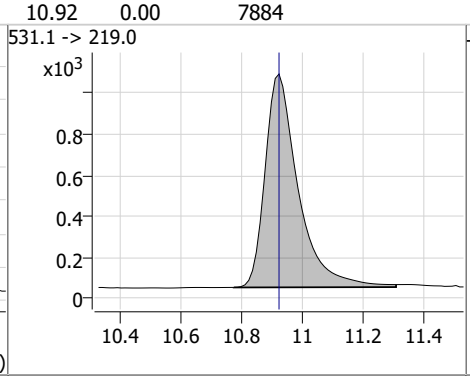


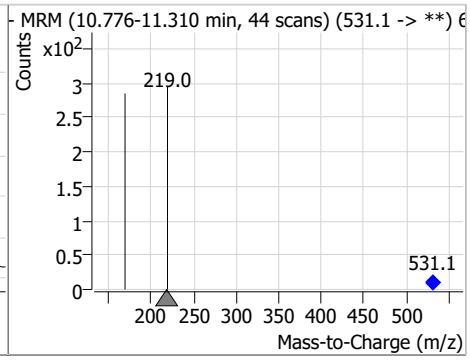




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.36	10.92	0.00	7884				

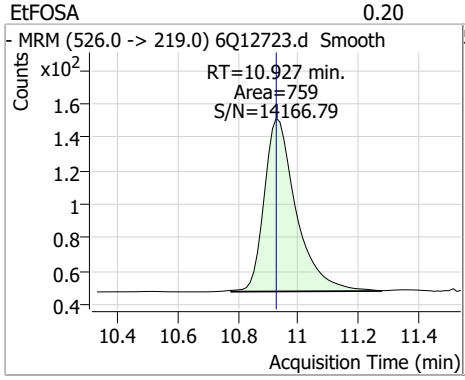


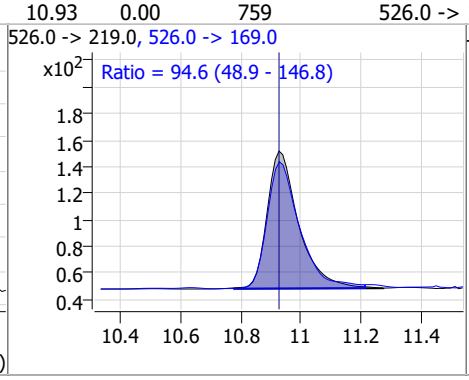


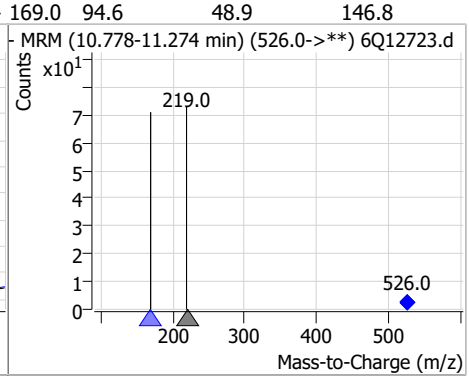


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.20	10.93	0.00	759	526.0 -> 169.0	94.6	48.9	146.8







7.7.2

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12723.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 17:51	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12724.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 6:05:15 PM
Sample Name	:	ic196-2
Vial	:	P1-A3
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	78086	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38504	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	34292	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36977	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66521	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27324	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18971	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22956	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26106	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14787	1.25	µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18196	2.50	µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14165	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8560	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9131	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2443	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3066	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3165	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31720	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21587	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7866	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7013	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10490	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35150	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6634	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	80205	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29014	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33308	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	36223	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2443	5.66	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3066	5.36	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3165	5.51	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26106	1.18	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14787	1.16	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C3-PFBS	5.518	302.1 -> 79.9	14165	2.62	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8560	2.45	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C4-PFBA	2.975	216.8 -> 171.9	78086	10.01 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C4-PFHpA	6.502	367.1 -> 322.0	36977	2.47 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C5-PFHxA	5.563	318.0 -> 273.0	34292	2.39 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C5-PFPeA	4.386	268.3 -> 223.0	38504	4.77 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C6-PFDA	8.170	519.1 -> 474.1	18971	1.18 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22956	1.19 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C8-FOSA	9.555	506.1 -> 77.8	18196	2.66 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C8-PFOA	7.146	421.1 -> 376.0	66521	2.48 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-PFOS	8.345	507.1 -> 79.9	9131	2.65 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C9-PFNA	7.677	472.1 -> 427.0	27324	1.17 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.32 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.06 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7013	2.38 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
d7-MeFOSE	10.589	623.2 -> 58.9	31720	26.63 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	21587	26.30 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
d5-EtFOSA	10.925	531.1 -> 219.0	7866	2.46 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	10547	1.93 µg/L		97
		327.1 -> 80.9	2172			
6:2FTS	6.921	427.1 -> 407.0	8812	1.96 µg/L		96
		427.1 -> 80.9	1792			
8:2FTS	7.958	527.1 -> 507.0	4639	1.89 µg/L		99
		527.1 -> 80.8	1146			
EtFOSAA	8.424	584.2 -> 419.1	1853	0.48 µg/L	m	88
		584.2 -> 526.0	1031			
FOSA	9.557	498.1 -> 77.9	3580	0.49 µg/L		95
		498.1 -> 478.0	97			
MeFOSAA	8.216	570.1 -> 419.0	2538	0.45 µg/L	m	90
		570.1 -> 483.0	480			
PFBA	2.982	212.8 -> 168.9	3414	1.96 µg/L		100
PFBS	5.518	298.7 -> 79.9	2497	0.46 µg/L		99
		298.7 -> 98.8	1071			
PFDA	8.170	512.9 -> 469.0	11002	0.51 µg/L		96
		512.9 -> 219.0	1437			
PFDoDA	9.067	613.1 -> 569.0	8860	0.46 µg/L		98
		613.1 -> 319.0	1024			
PFDS	9.241	599.0 -> 79.9	1391	0.45 µg/L		94

Perfluorinated Compounds by LC/MS/MS

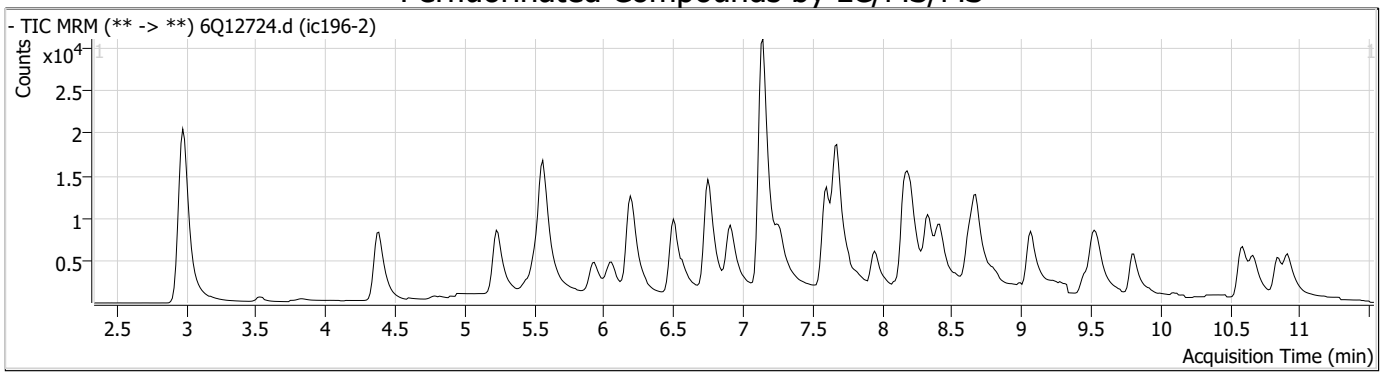
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	763				
PFHpA	6.503	363.1 -> 319.0	10870	0.50	µg/L		94
		363.1 -> 169.0	1606				
PFHpS	7.841	449.0 -> 79.9	1684	0.43	µg/L		83
		449.0 -> 98.9	1134				
PFHxA	5.566	313.0 -> 269.0	6725	0.50	µg/L		96
		313.0 -> 118.9	211				
PFHxS	7.275	398.7 -> 79.9	1850	0.48	µg/L	m	94
		398.7 -> 98.9	1096				
PFNA	7.677	463.0 -> 419.0	9636	0.52	µg/L		97
		463.0 -> 219.0	1994				
PFNS	8.811	548.8 -> 79.9	1926	0.47	µg/L		98
		548.8 -> 98.9	1055				
PFOA	7.148	413.0 -> 369.0	15254	0.52	µg/L		96
		413.0 -> 169.0	1827				
PFOS	8.347	498.9 -> 79.9	2082	0.50	µg/L	m	66
		498.9 -> 98.8	1164				
PFPeA	4.388	263.0 -> 219.0	8303	1.02	µg/L		100
PFPeS	6.581	349.1 -> 79.9	2175	0.49	µg/L		98
		349.1 -> 98.9	1074				
PFTeDA	9.806	713.1 -> 669.0	8315	0.52	µg/L		100
		713.1 -> 168.9	554				
PFTrDA	9.462	663.0 -> 619.0	9765	0.53	µg/L		98
		663.0 -> 168.9	722				
PFUnDA	8.637	563.1 -> 519.0	9095	0.51	µg/L		96
		563.1 -> 269.1	1410				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	19562	1.83	µg/L		98
		632.9 -> 452.9	6227				
9Cl-PF3ONS	8.688	530.8 -> 351.0	32502	1.80	µg/L		98
		532.8 -> 353.0	10930				
ADONA	6.766	376.9 -> 250.9	58756	1.82	µg/L		98
		376.9 -> 84.8	12405				
HFPO-DA	5.940	284.9 -> 168.9	2807	2.02	µg/L		99
		284.9 -> 184.9	386				
3:3FTCA	3.841	241.0 -> 177.0	968	2.43	µg/L		99
		241.0 -> 117.0	141				
5:3FTCA	6.206	341.0 -> 237.1	35953	12.78	µg/L		99
		341.0 -> 217.0	30944				
7:3FTCA	7.605	441.0 -> 316.9	24409	13.28	µg/L		84
		441.0 -> 336.9	45143				
EtFOSA	10.927	526.0 -> 219.0	1917	0.51	µg/L		97
		526.0 -> 169.0	1936				
EtFOSE	10.860	630.0 -> 58.9	4431	4.80	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	1637	0.54	µg/L		99
		511.9 -> 169.0	1674				
MeFOSE	10.602	616.1 -> 58.9	6073	4.80	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	803	0.43	µg/L		86
		699.1 -> 98.8	562				
NFDHA	5.457	295.0 -> 201.0	877	1.10	µg/L		94
		295.0 -> 84.9	412				
PFMBA	4.800	279.0 -> 85.1	2271	0.99	µg/L		100
PFMPA	3.541	229.0 -> 84.9	2190	1.01	µg/L		100
PFEESA	6.059	314.8 -> 134.9	16903	0.87	µg/L		100
		314.8 -> 82.9	401				

= Qualifier out of range, m = manually integrated, + = Area summed

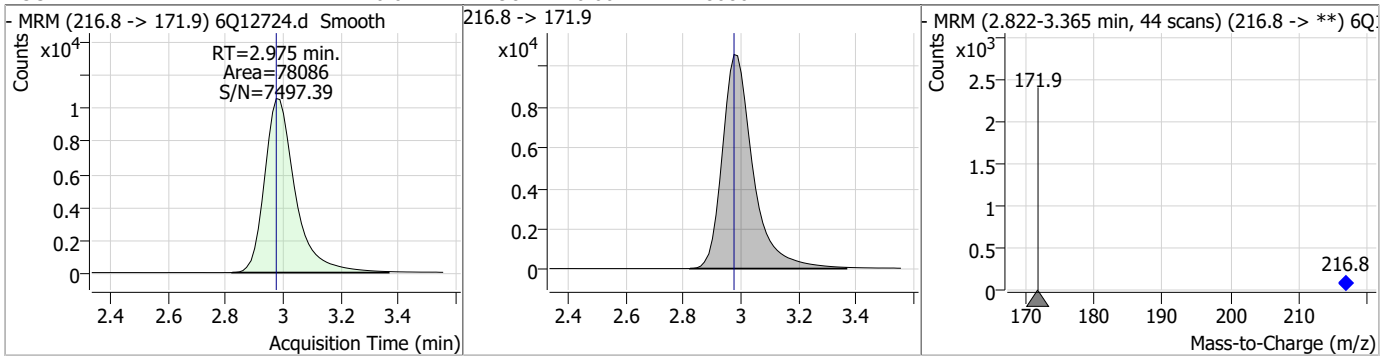
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

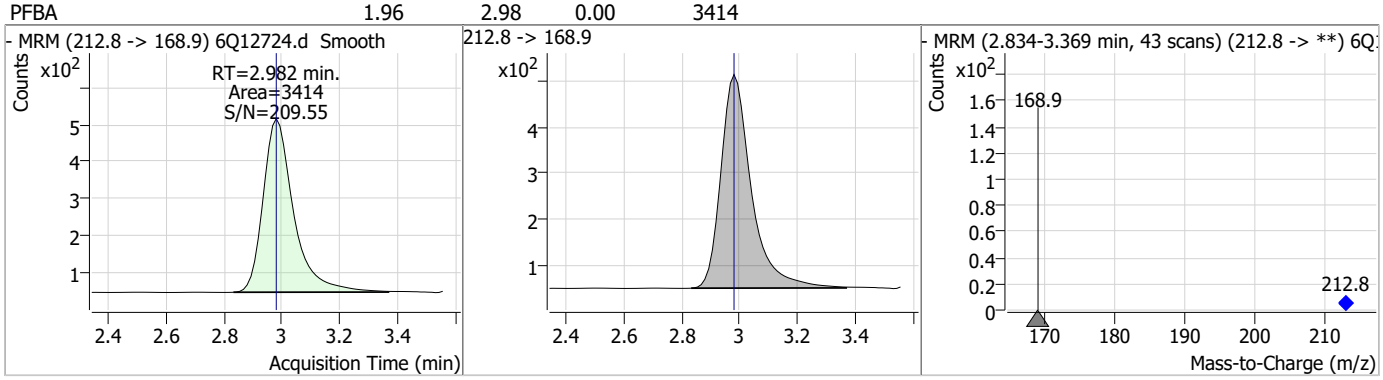
Perfluorinated Compounds by LC/MS/MS



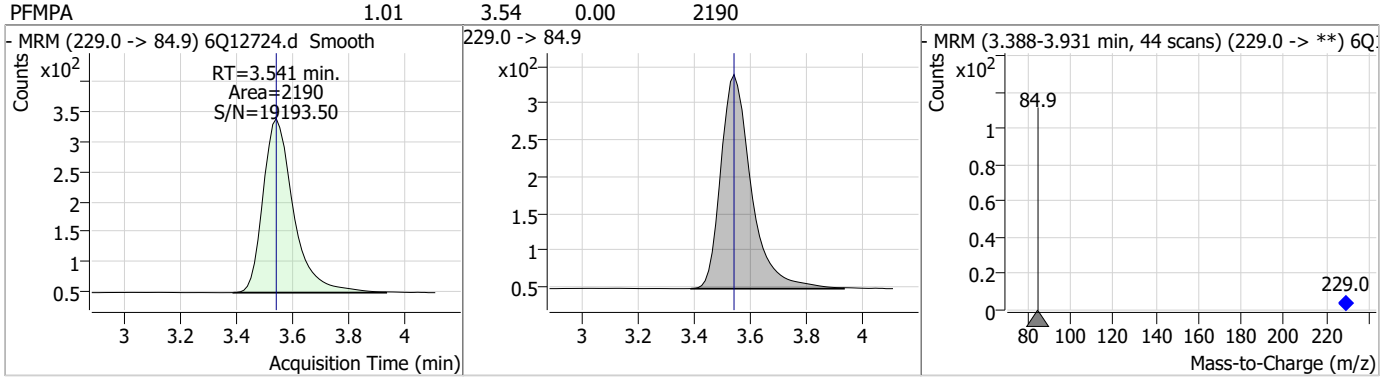
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.01	2.98	0.00	78086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.96	2.98	0.00	3414				

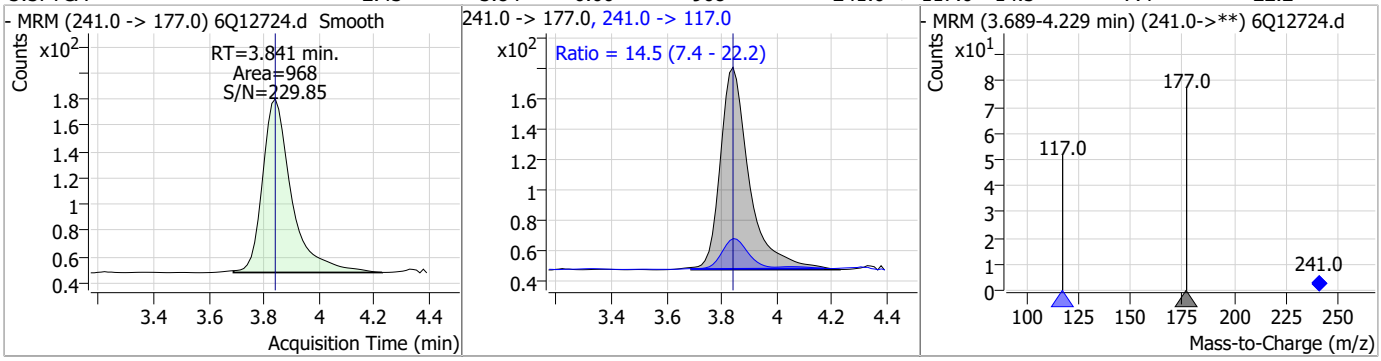


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.01	3.54	0.00	2190				

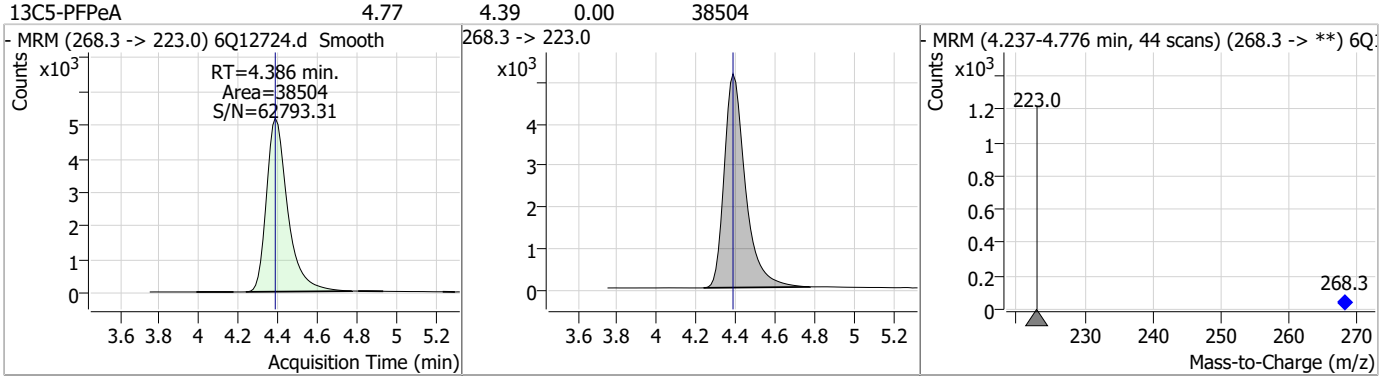


Perfluorinated Compounds by LC/MS/MS

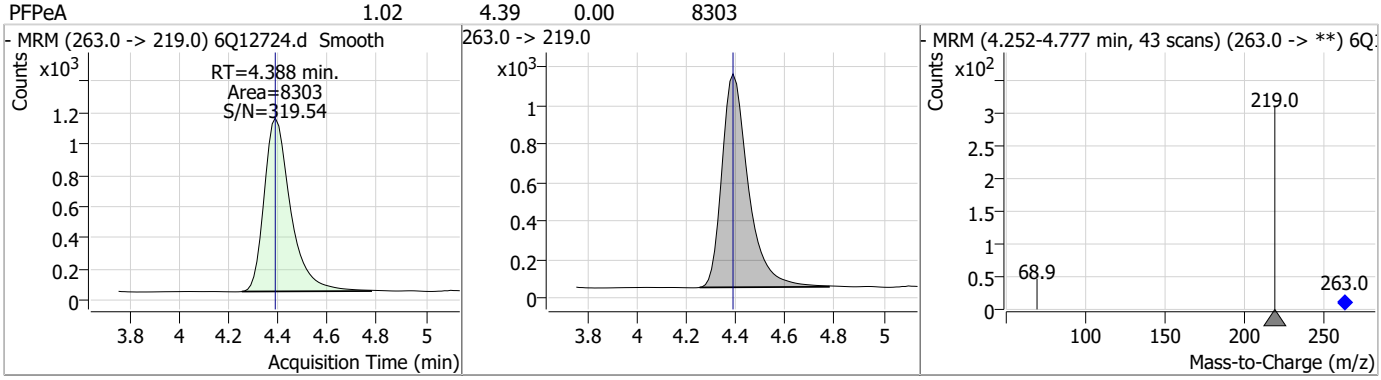
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.43	3.84	0.00	968	241.0 -> 117.0	14.5	7.4	22.2



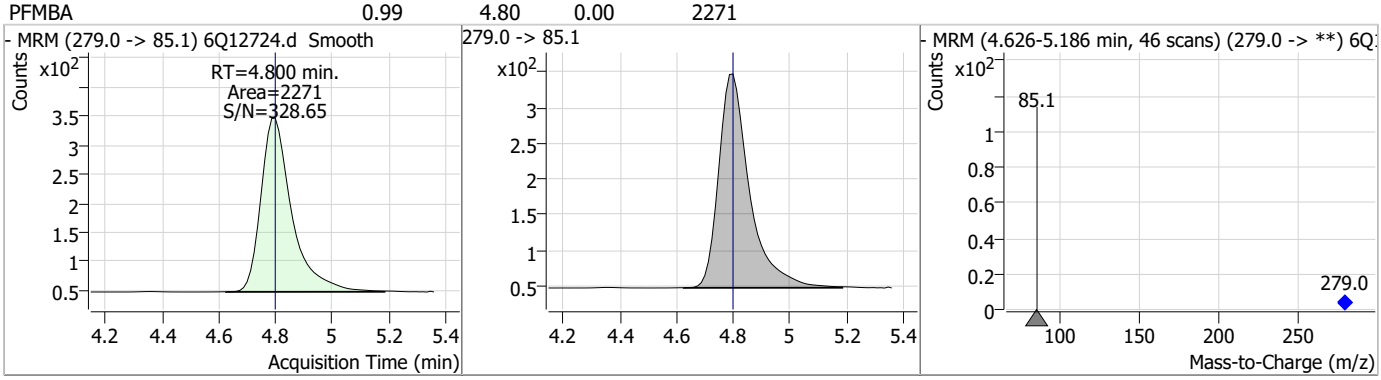
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.77	4.39	0.00	38504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.02	4.39	0.00	8303				

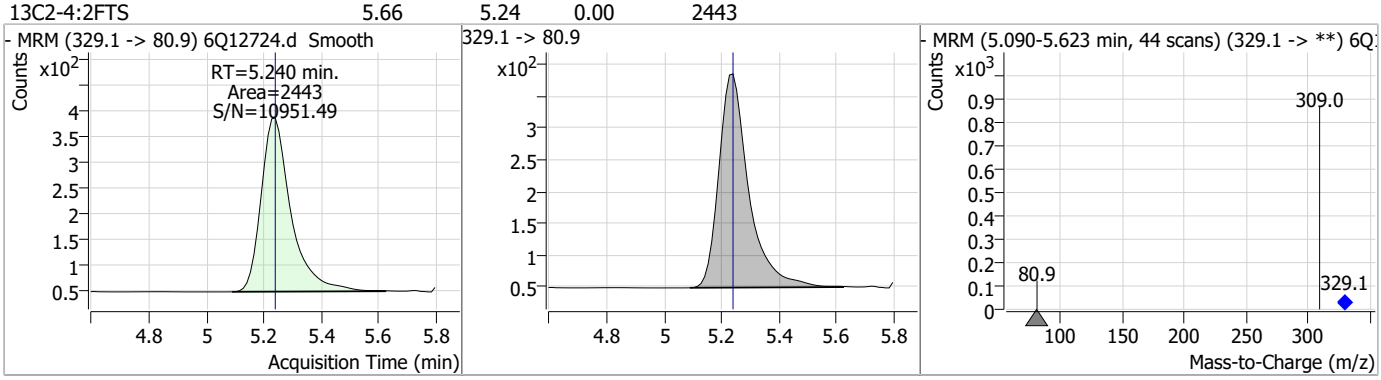


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.99	4.80	0.00	2271				

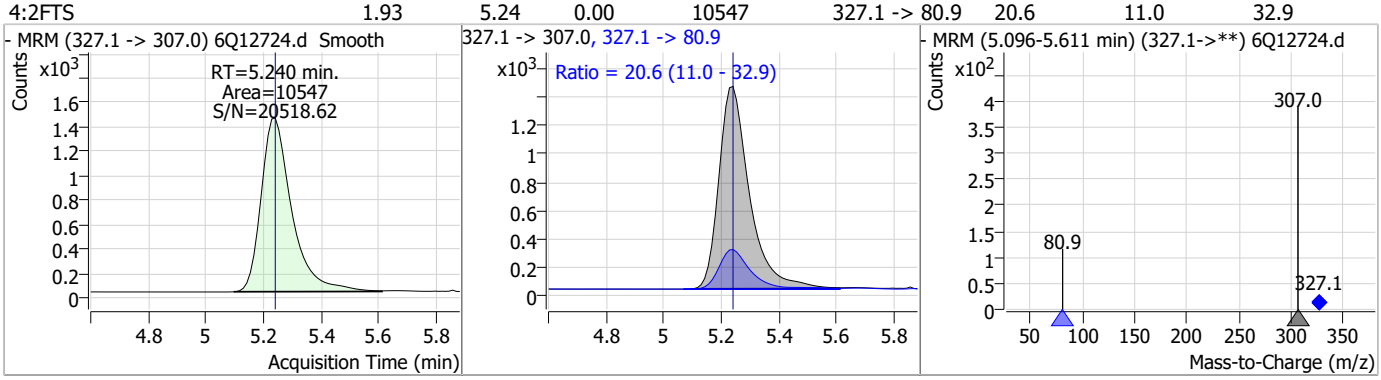


Perfluorinated Compounds by LC/MS/MS

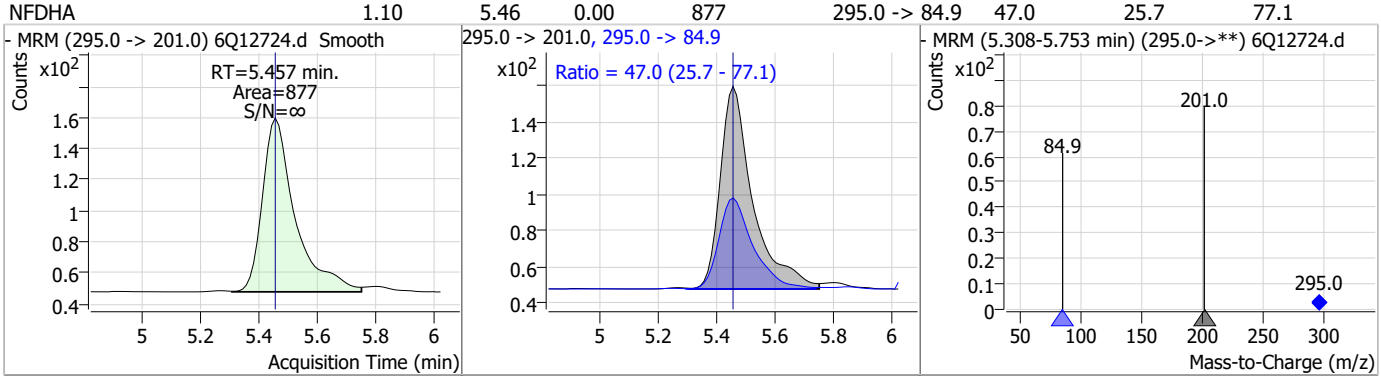
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.66	5.24	0.00	2443				



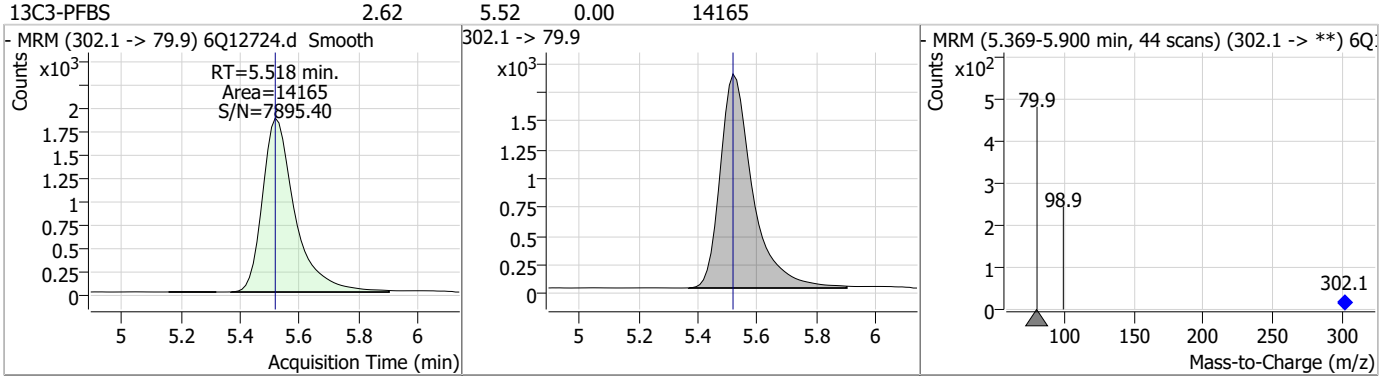
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.93	5.24	0.00	10547	327.1 -> 80.9	20.6	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.10	5.46	0.00	877	295.0 -> 84.9	47.0	25.7	77.1

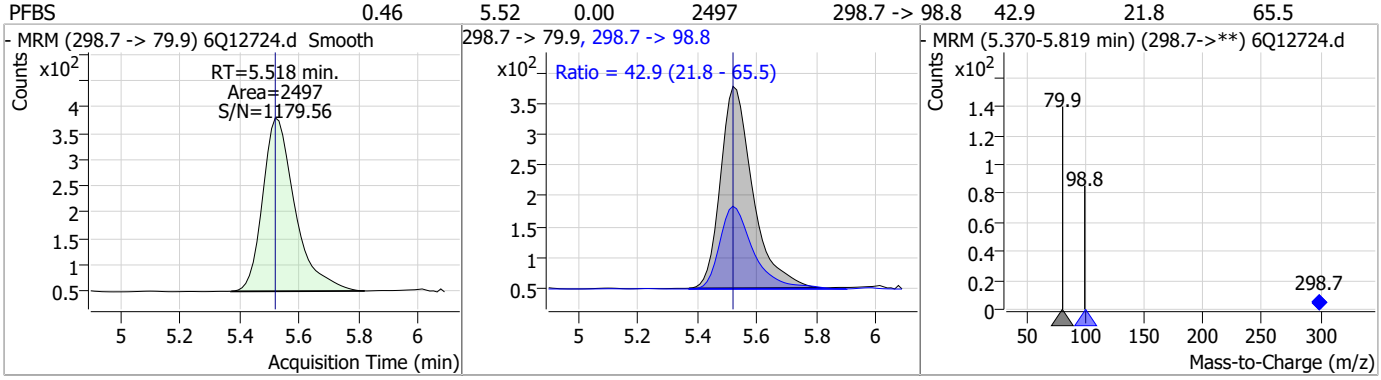


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.62	5.52	0.00	14165				

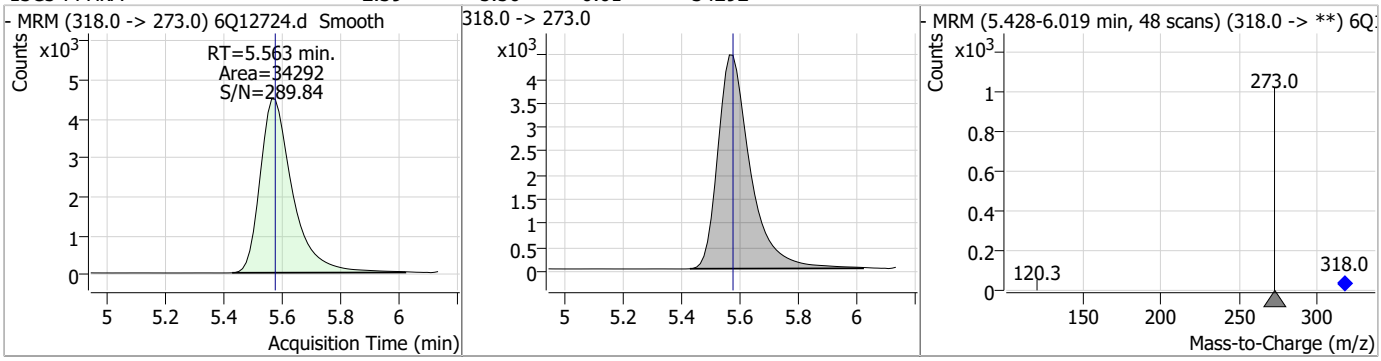


Perfluorinated Compounds by LC/MS/MS

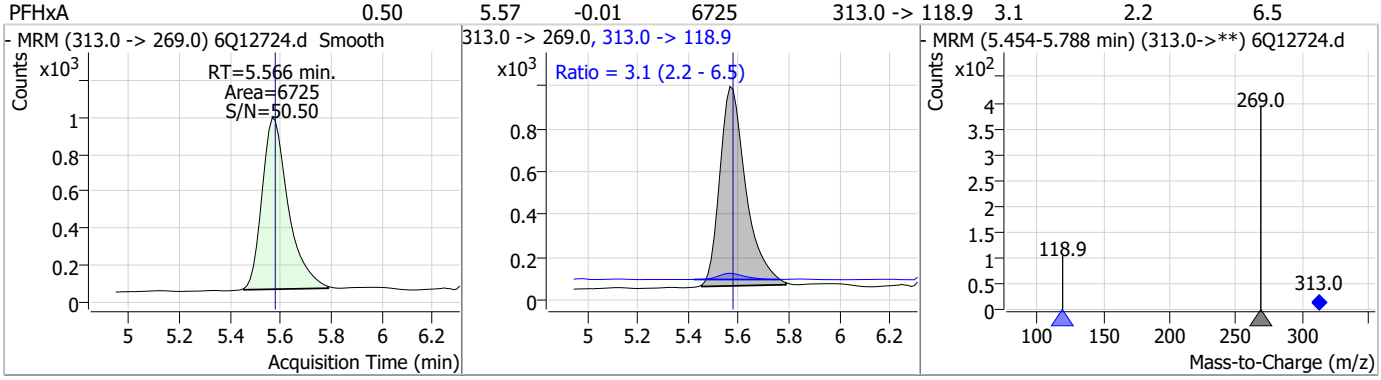
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.46	5.52	0.00	2497	298.7 -> 98.8	42.9	21.8	65.5



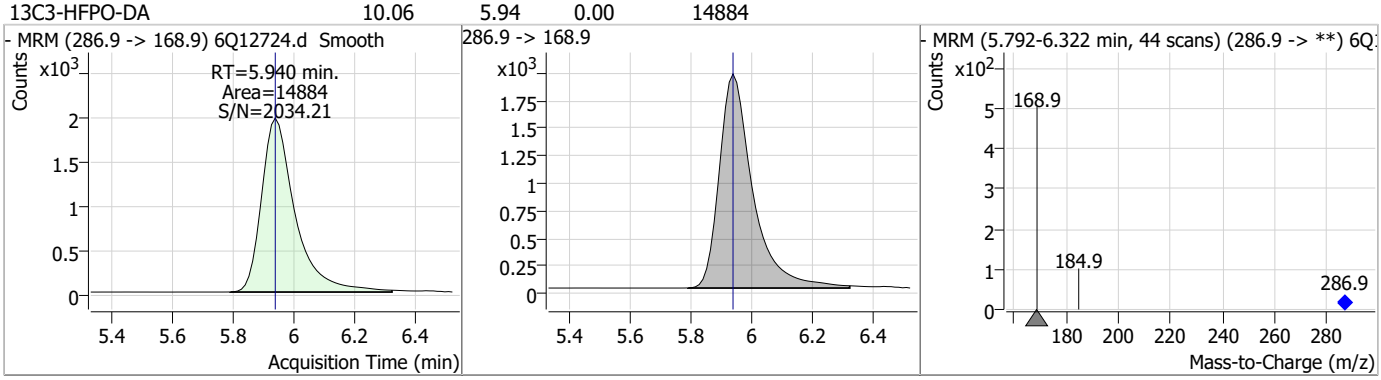
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.56	-0.01	34292				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.50	5.57	-0.01	6725	313.0 -> 118.9	3.1	2.2	6.5

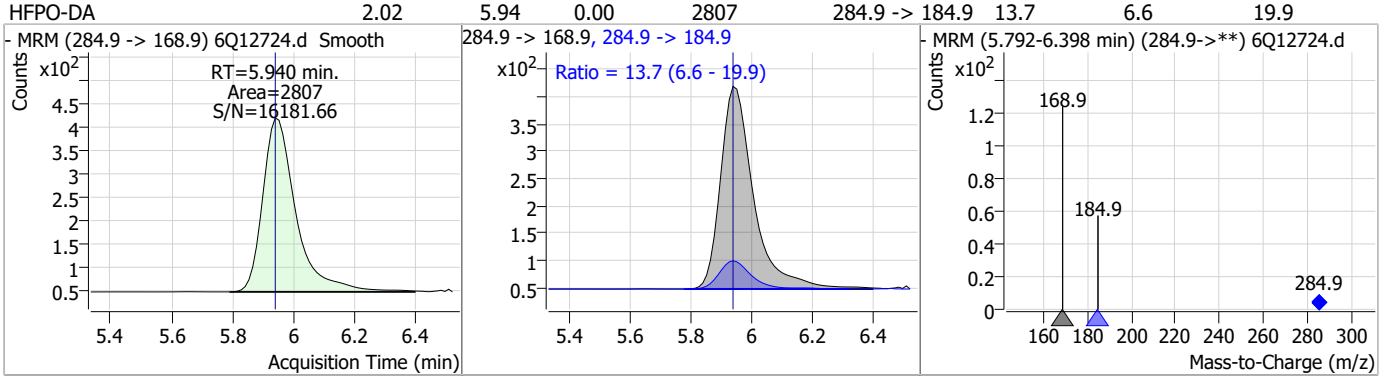


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.06	5.94	0.00	14884				

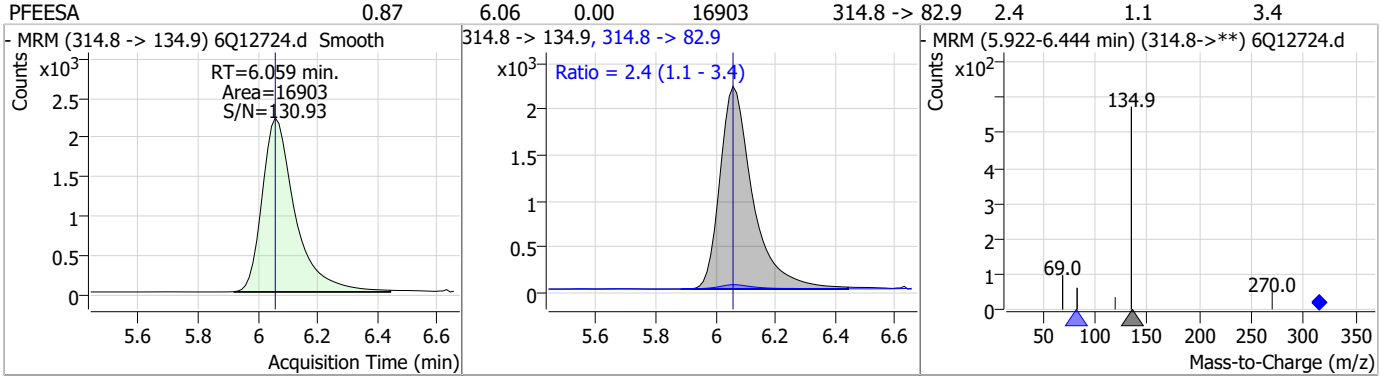


Perfluorinated Compounds by LC/MS/MS

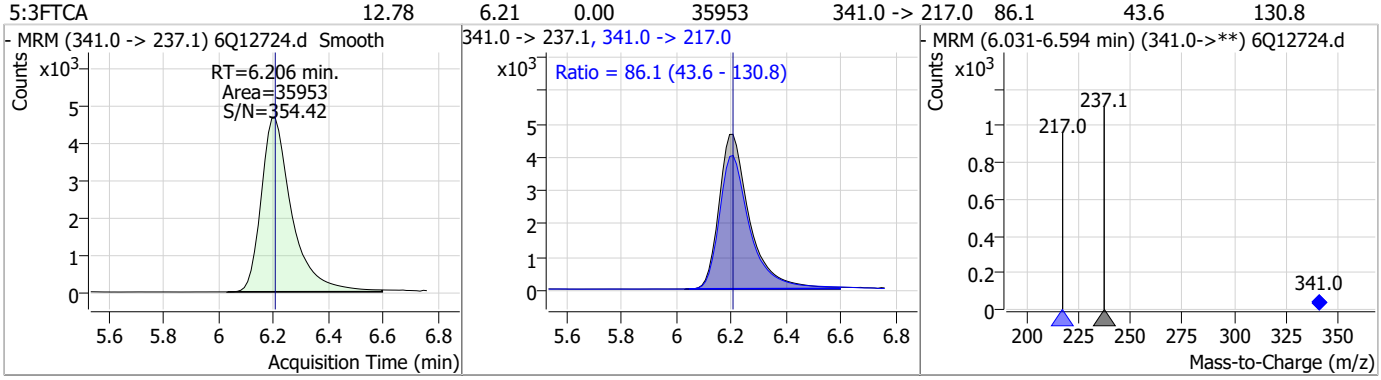
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.02	5.94	0.00	2807	284.9 -> 184.9	13.7	6.6	19.9



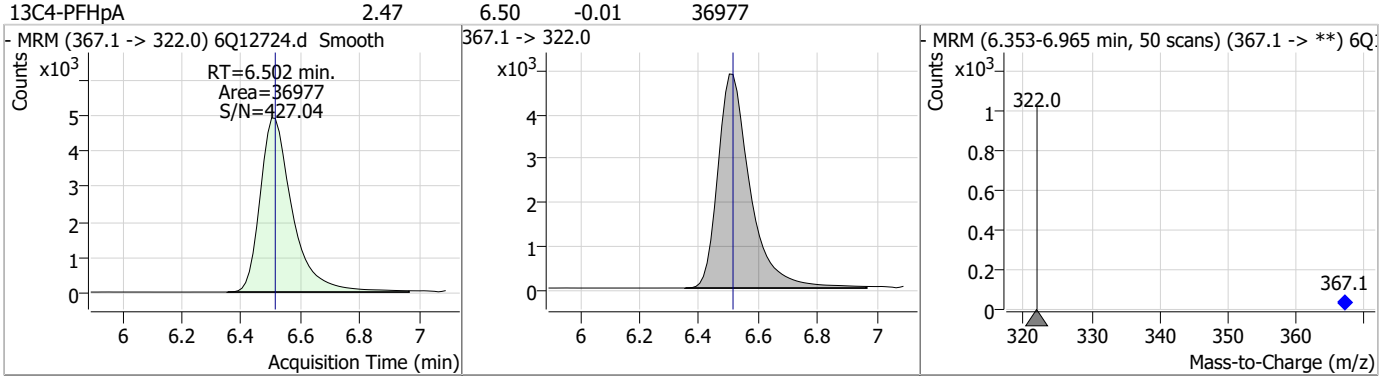
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.87	6.06	0.00	16903	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	12.78	6.21	0.00	35953	341.0 -> 217.0	86.1	43.6	130.8

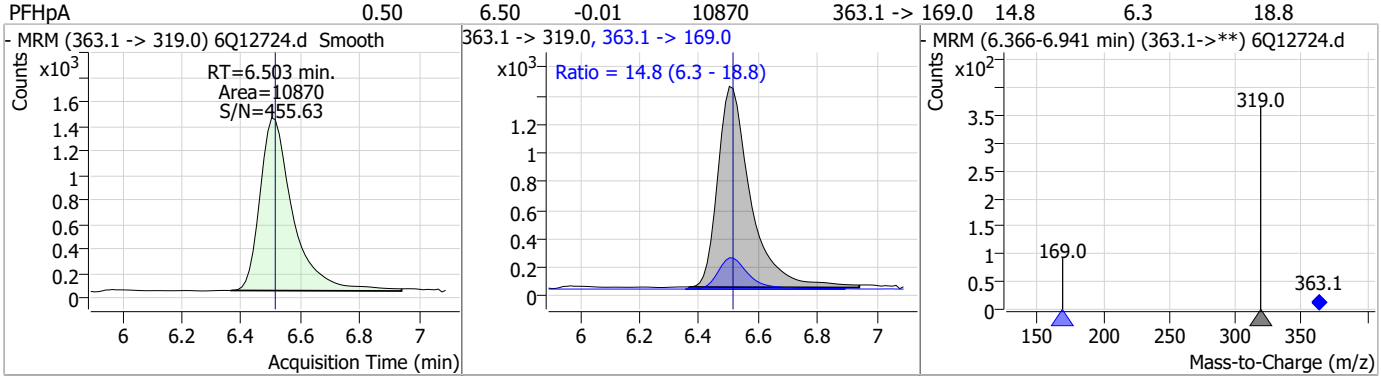


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.50	-0.01	36977				

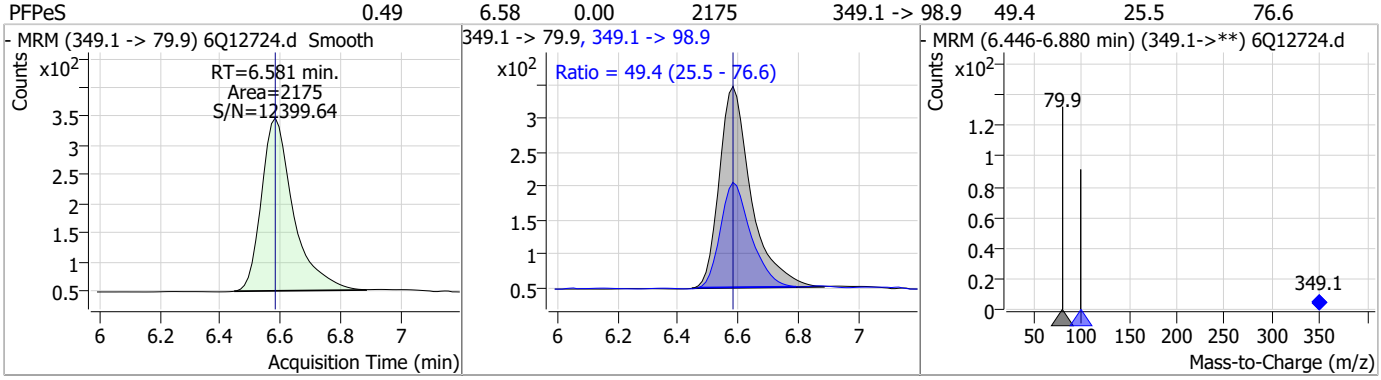


Perfluorinated Compounds by LC/MS/MS

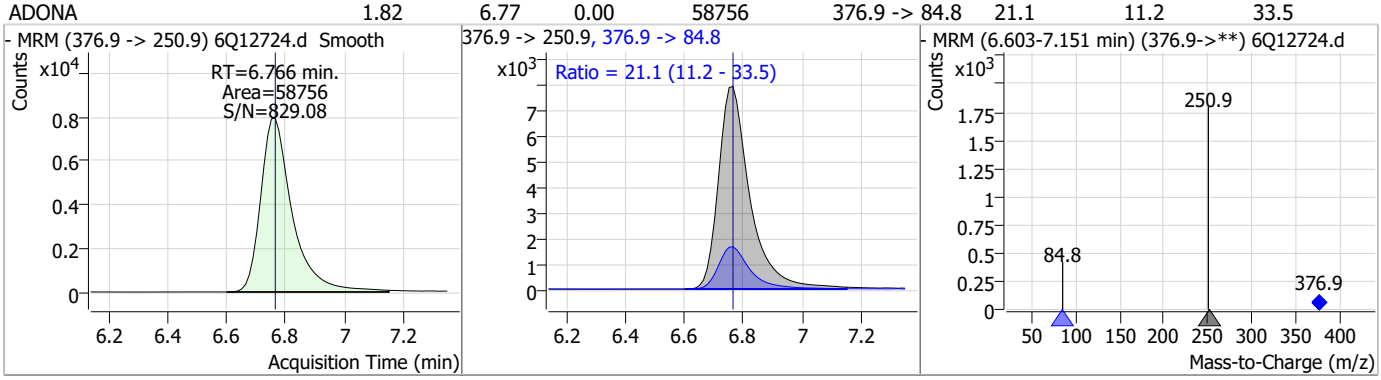
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.50	6.50	-0.01	10870	363.1 -> 169.0	14.8	6.3	18.8



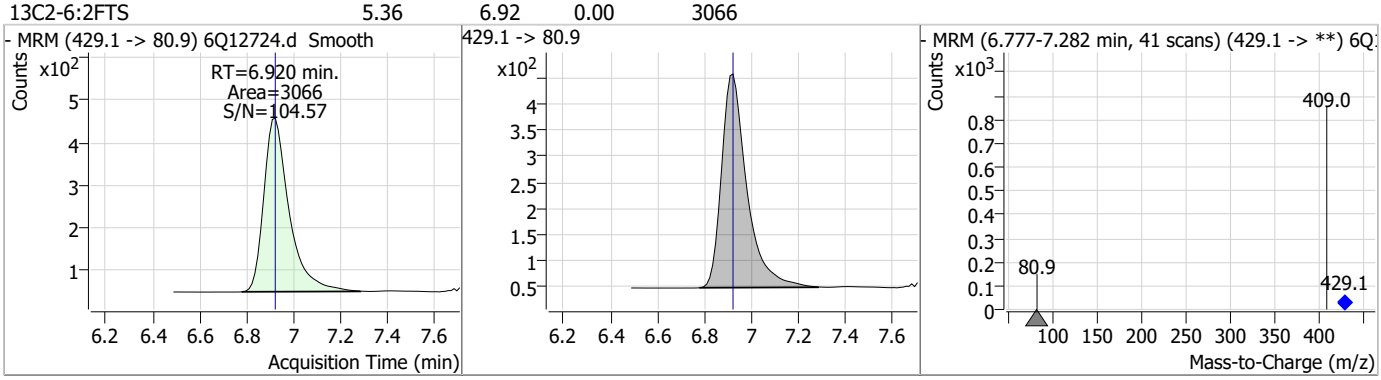
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.49	6.58	0.00	2175	349.1 -> 98.9	49.4	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.82	6.77	0.00	58756	376.9 -> 84.8	21.1	11.2	33.5

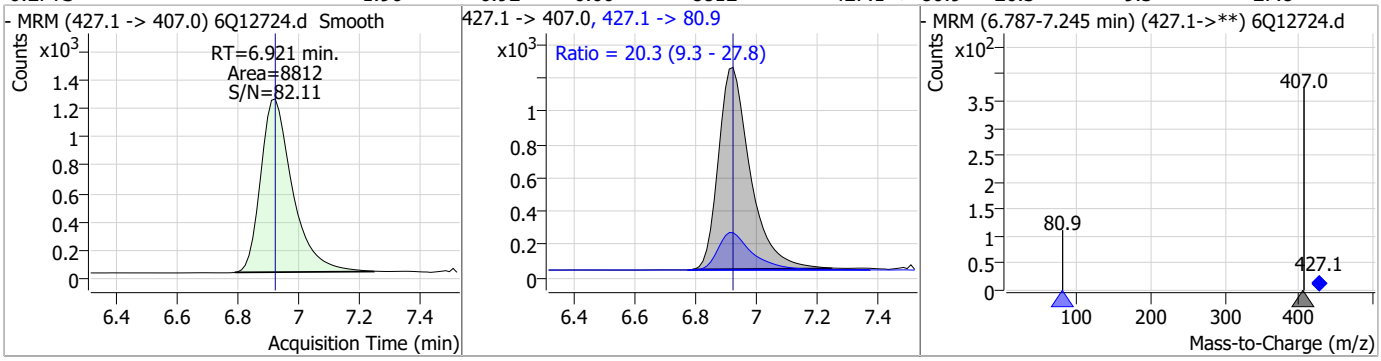


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.36	6.92	0.00	3066				

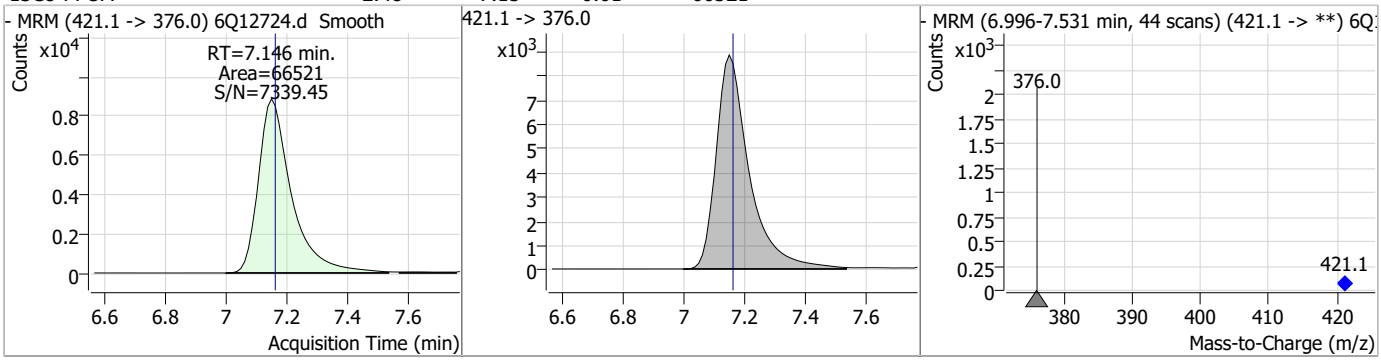


Perfluorinated Compounds by LC/MS/MS

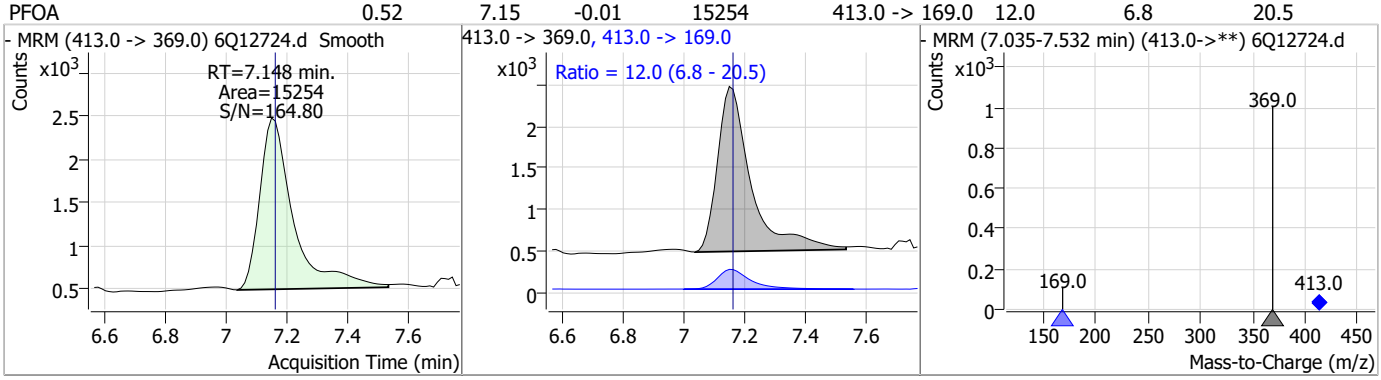
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.96	6.92	0.00	8812	427.1 -> 80.9	20.3	9.3	27.8



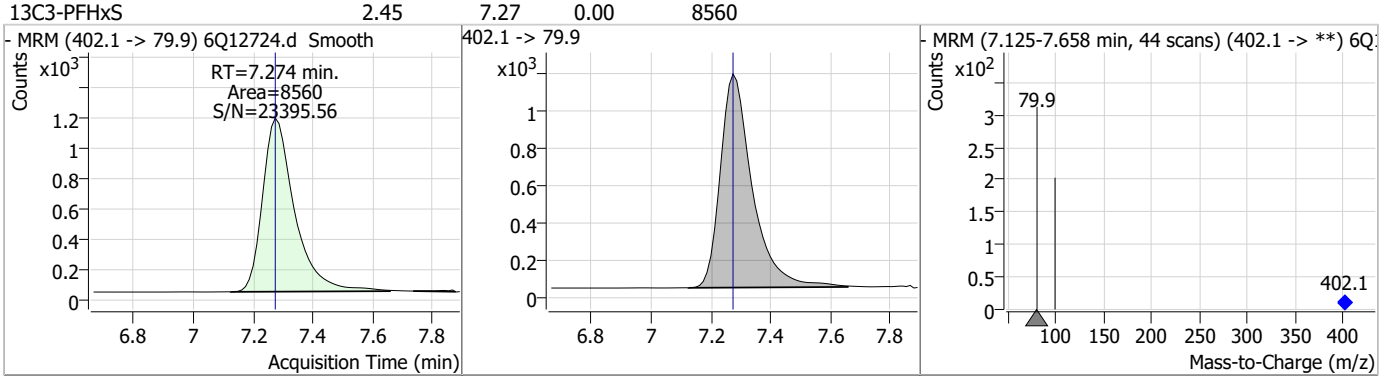
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.48	7.15	-0.01	66521				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.52	7.15	-0.01	15254	413.0 -> 169.0	12.0	6.8	20.5

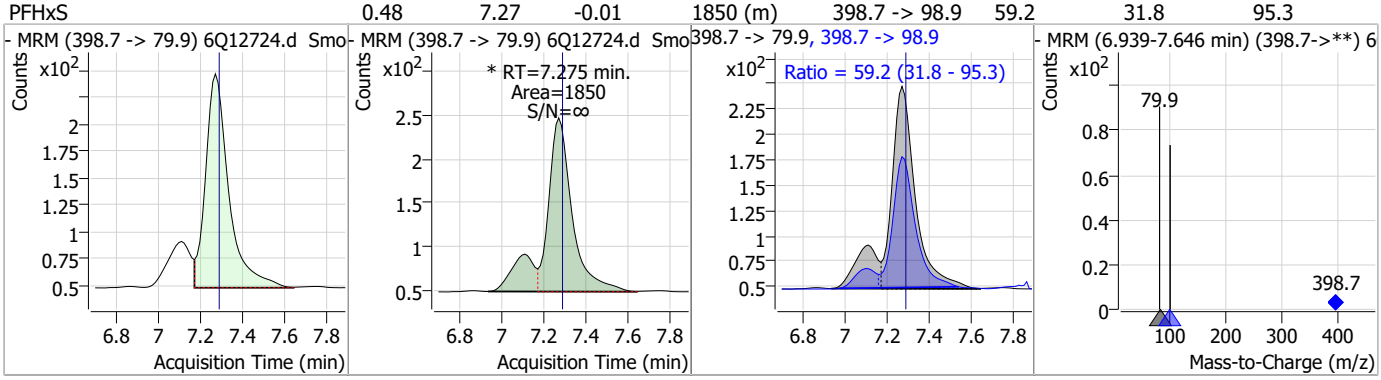


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.45	7.27	0.00	8560				

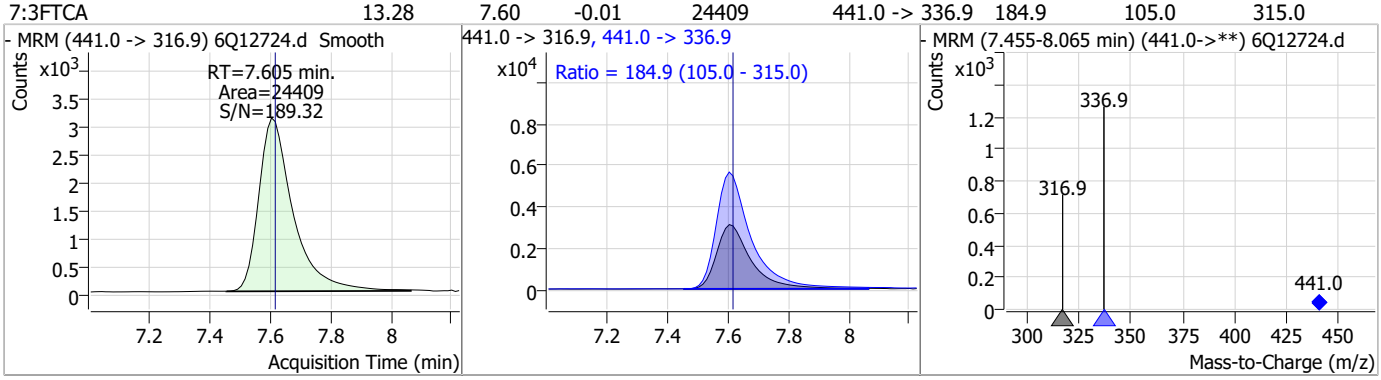


Perfluorinated Compounds by LC/MS/SMS

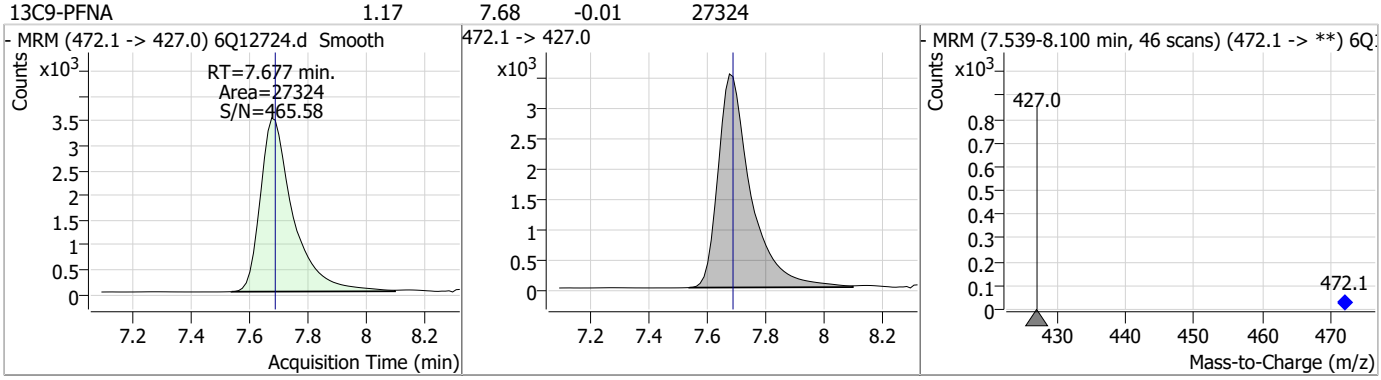
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.48	7.27	-0.01	1850 (m)	398.7 -> 98.9	59.2	31.8	95.3



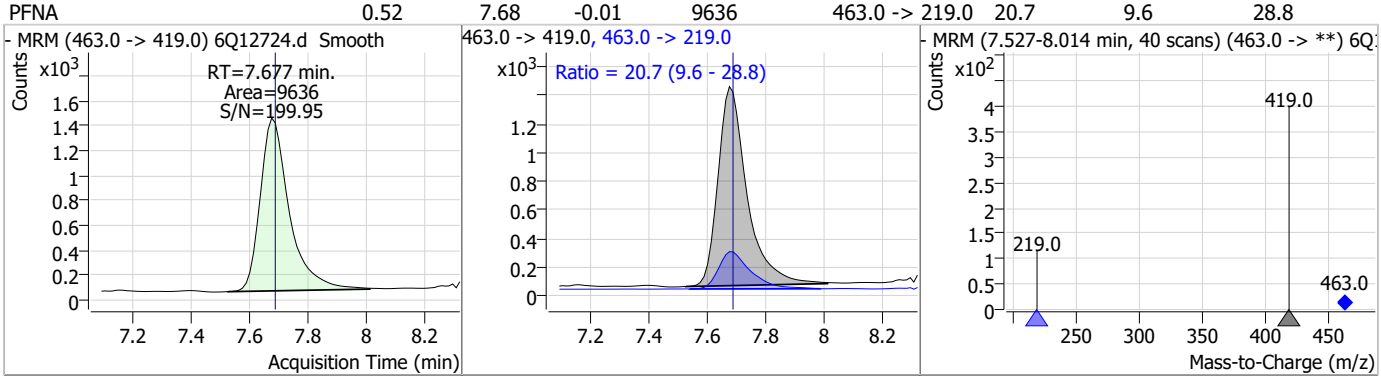
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	13.28	7.60	-0.01	24409	441.0 -> 336.9	184.9	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.17	7.68	-0.01	27324				

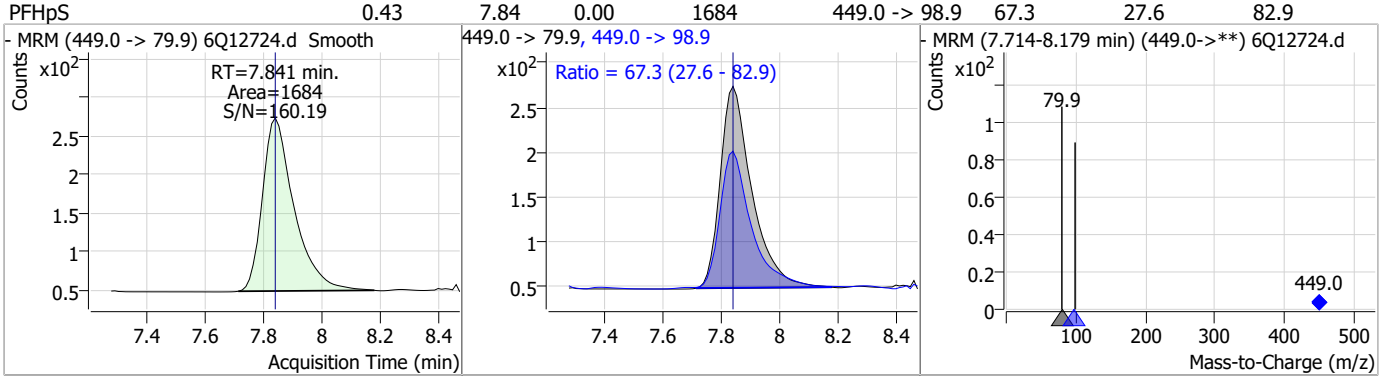


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.52	7.68	-0.01	9636	463.0 -> 219.0	20.7	9.6	28.8

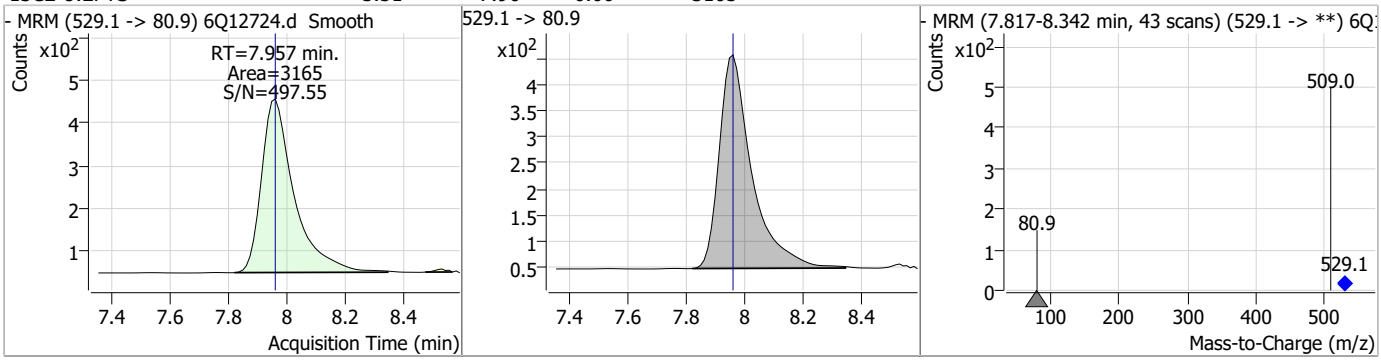


Perfluorinated Compounds by LC/MS/MS

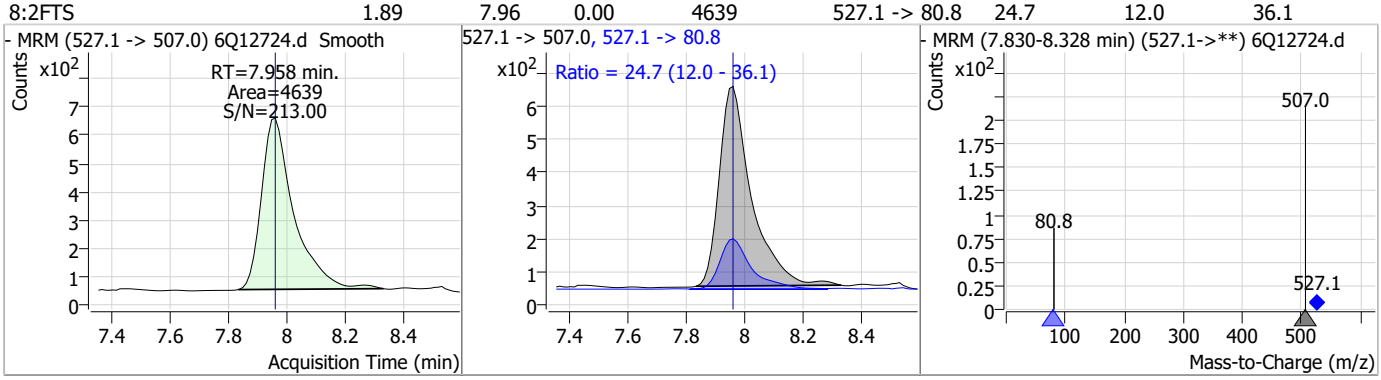
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.43	7.84	0.00	1684	449.0 -> 98.9	67.3	27.6	82.9



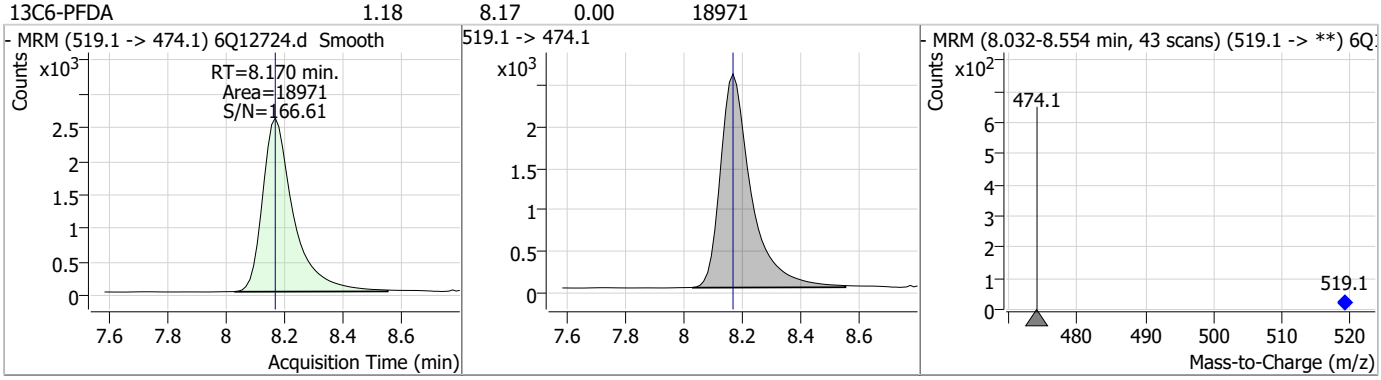
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.51	7.96	0.00	3165				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.89	7.96	0.00	4639	527.1 -> 80.8	24.7	12.0	36.1

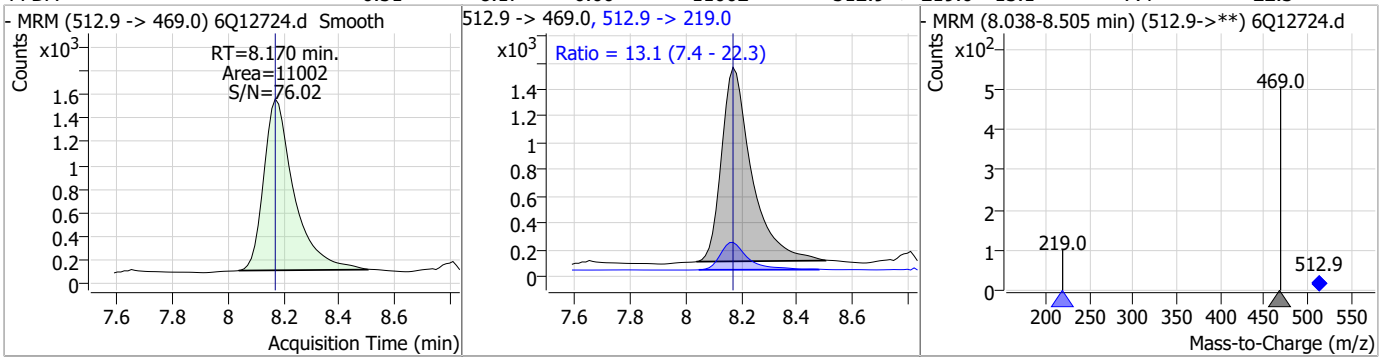


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.18	8.17	0.00	18971				

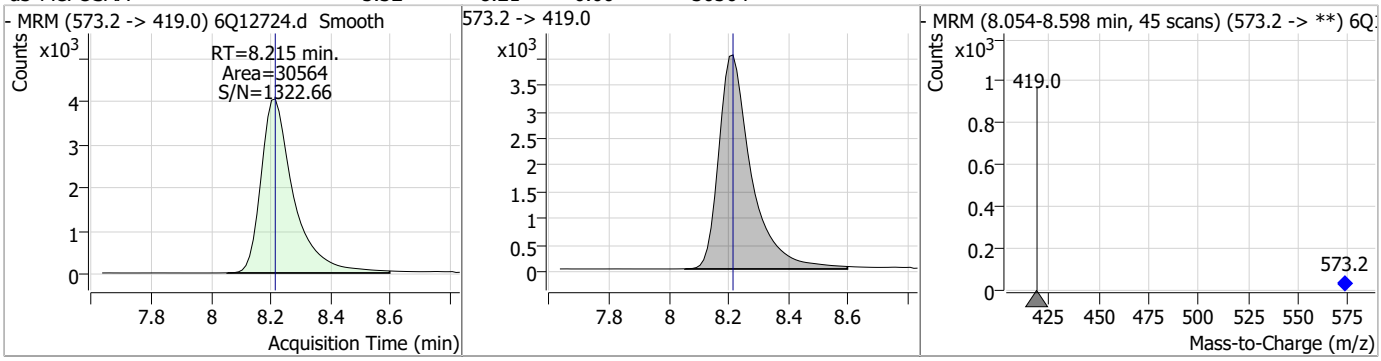


Perfluorinated Compounds by LC/MS/MS

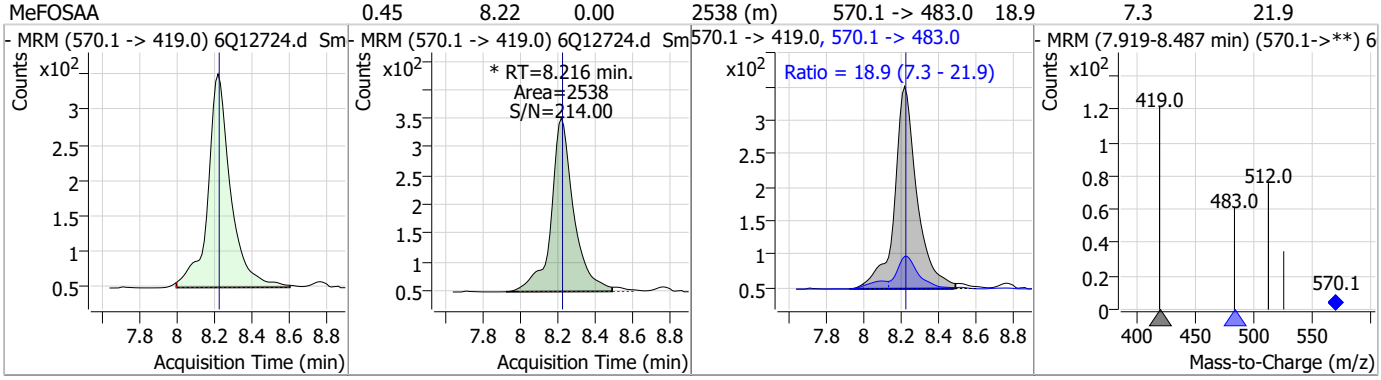
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.51	8.17	0.00	11002	512.9 -> 219.0	13.1	7.4	22.3



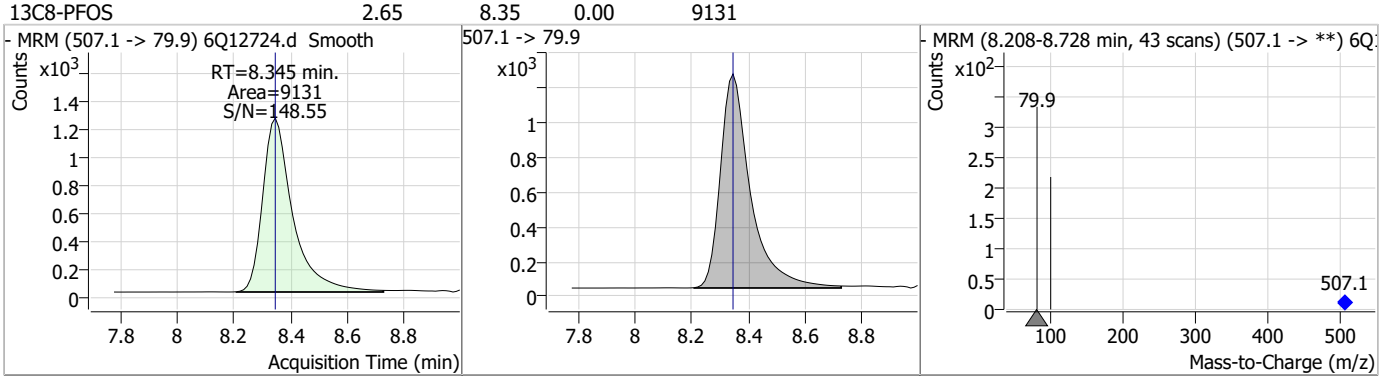
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.32	8.21	0.00	30564				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.45	8.22	0.00	2538 (m)	570.1 -> 483.0	18.9	7.3	21.9

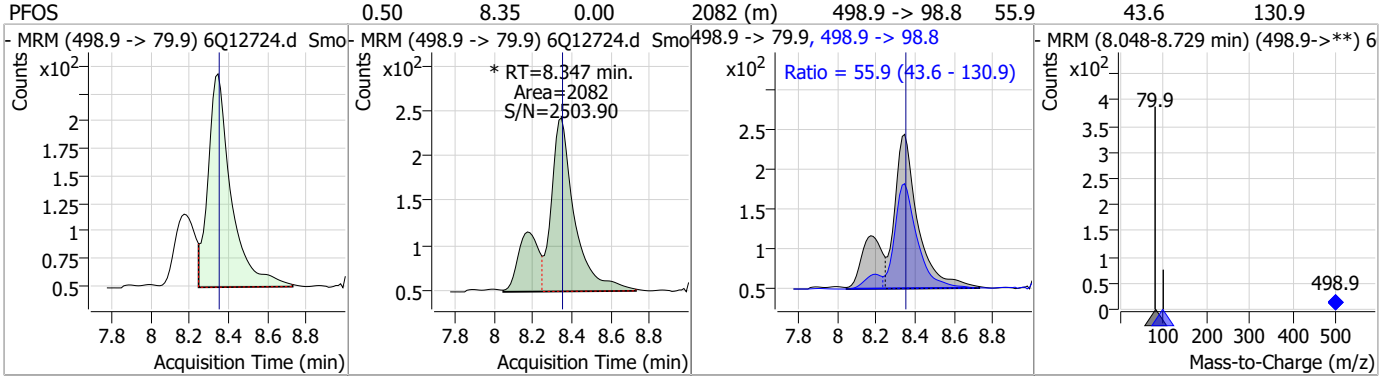


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.65	8.35	0.00	9131				

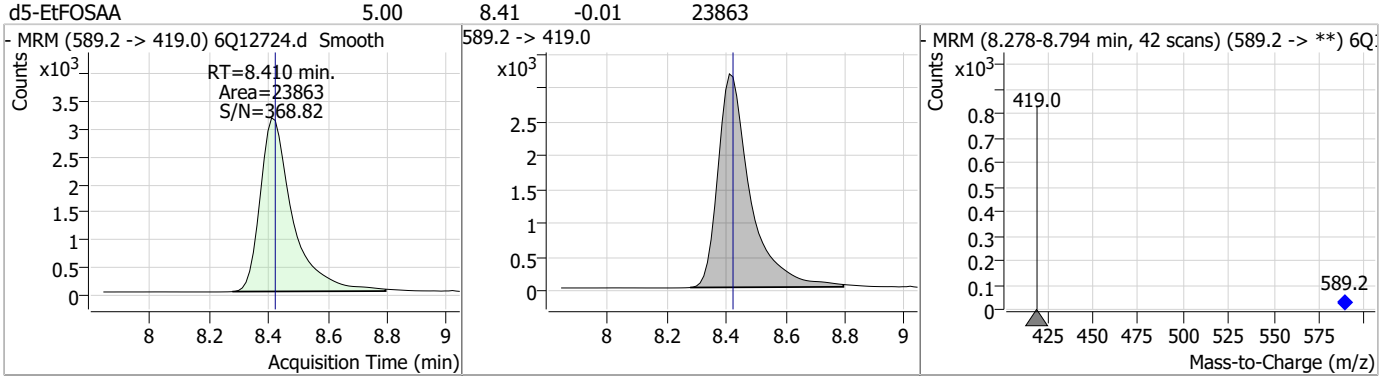


Perfluorinated Compounds by LC/MS/MS

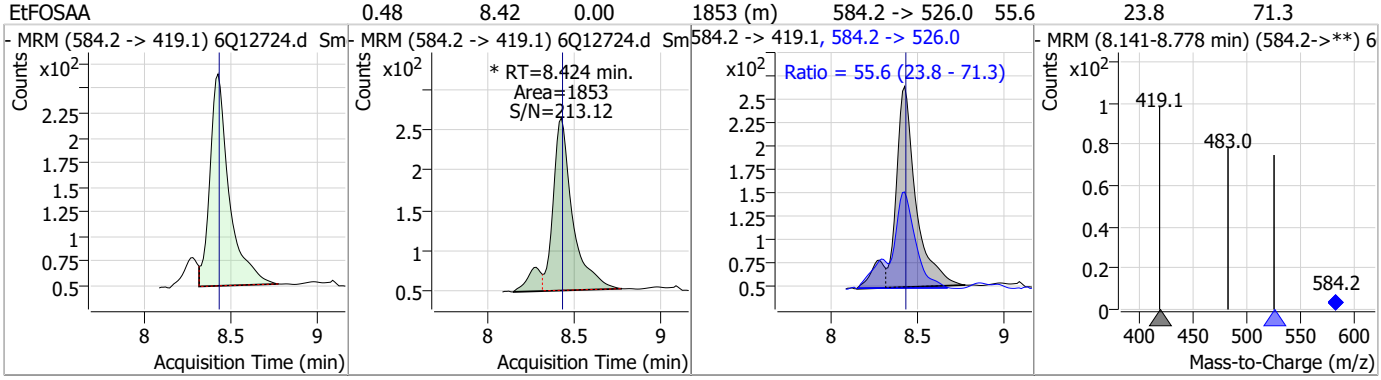
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	8.35	0.00	2082 (m)	498.9 -> 98.8	55.9	43.6	130.9



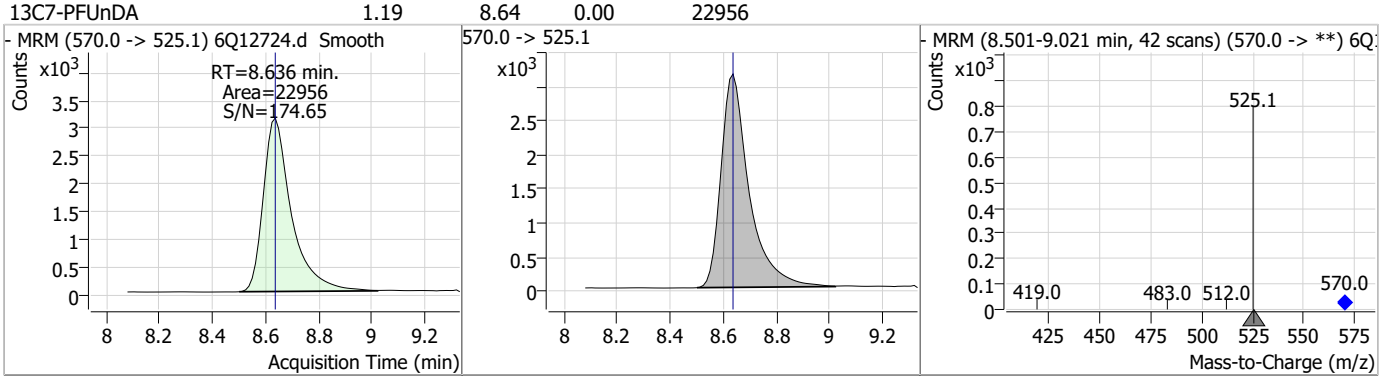
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.00	8.41	-0.01	23863				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.48	8.42	0.00	1853 (m)	584.2 -> 526.0	55.6	23.8	71.3

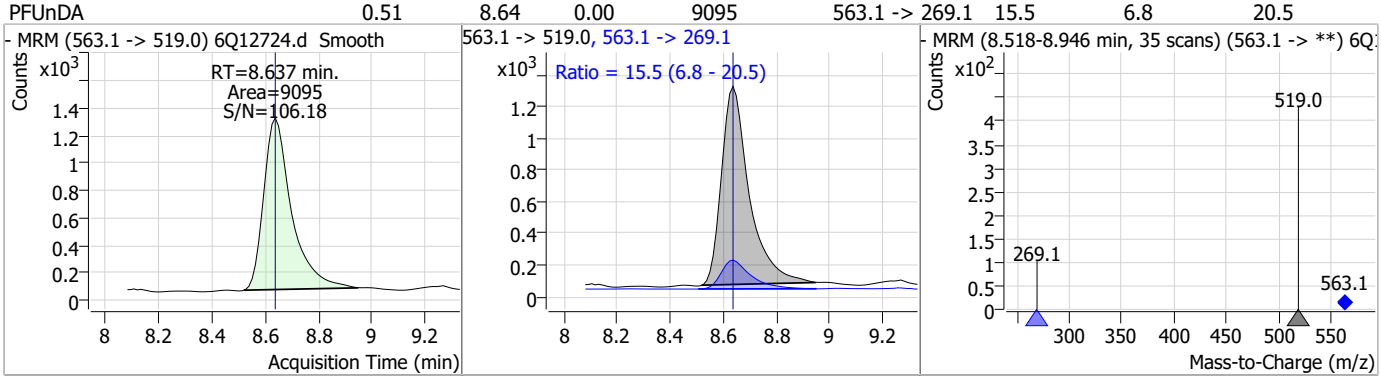


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.19	8.64	0.00	22956				

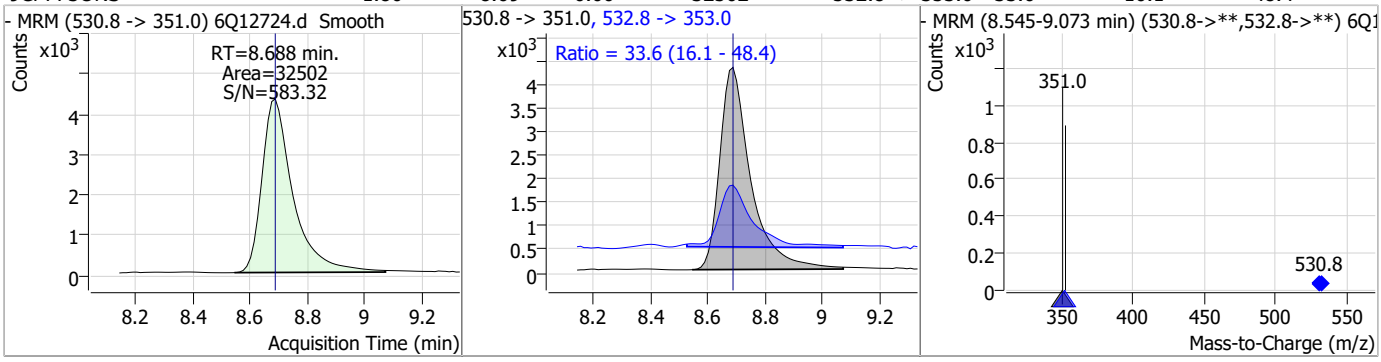


Perfluorinated Compounds by LC/MS/MS

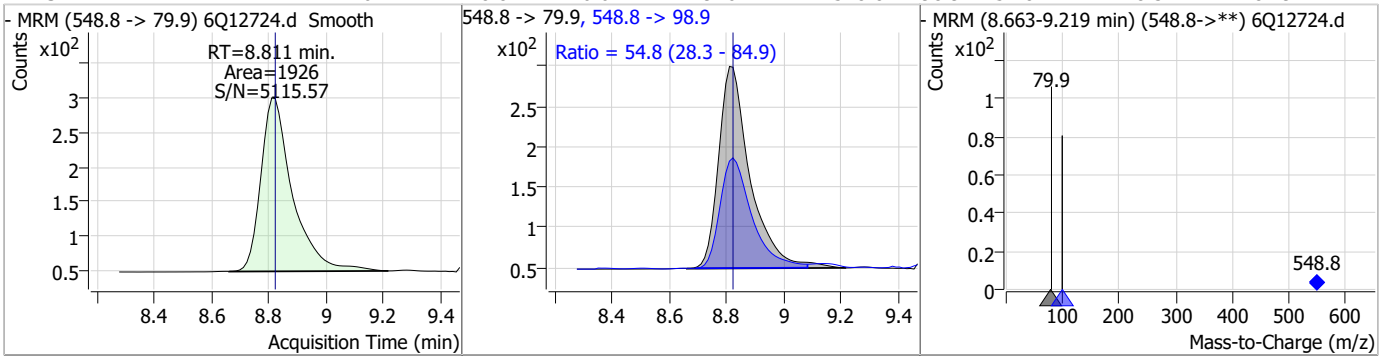
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.51	8.64	0.00	9095	563.1 -> 269.1	15.5	6.8	20.5



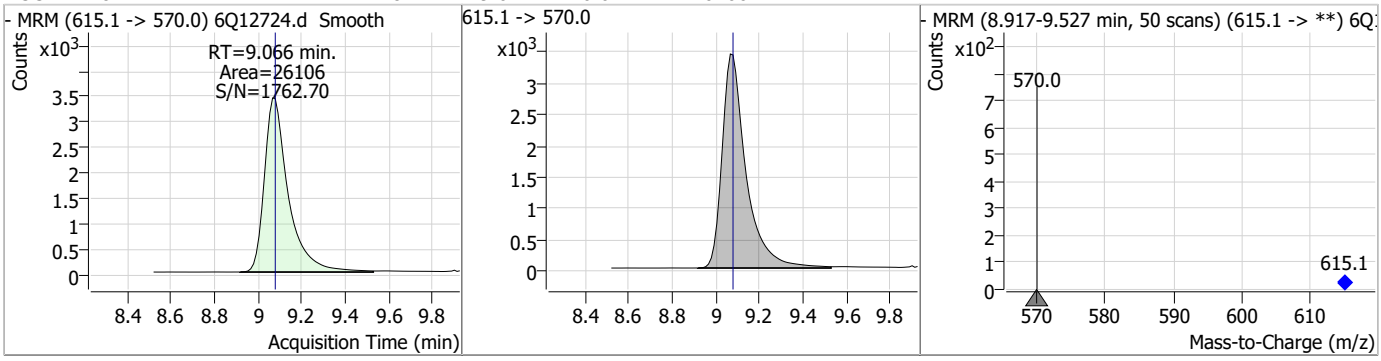
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.80	8.69	0.00	32502	532.8 -> 353.0	33.6	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.47	8.81	-0.01	1926	548.8 -> 98.9	54.8	28.3	84.9

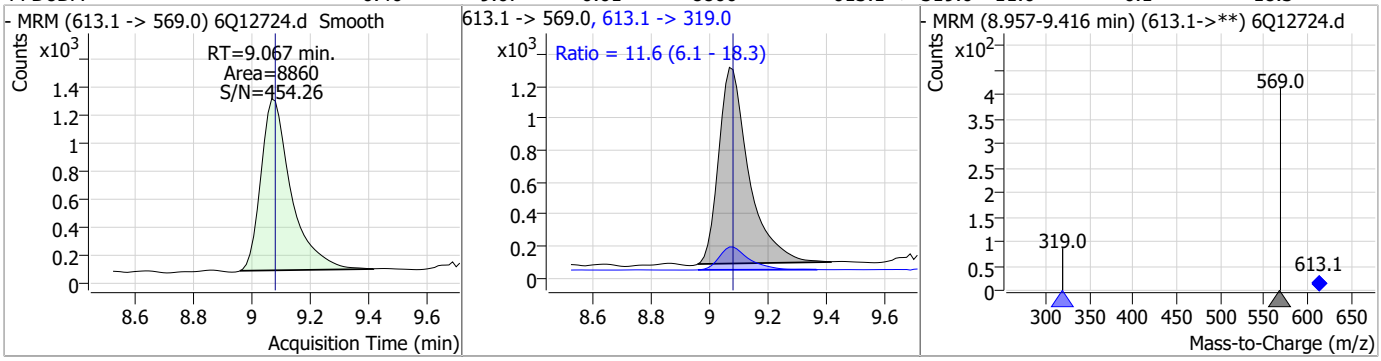


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.18	9.07	-0.01	26106				

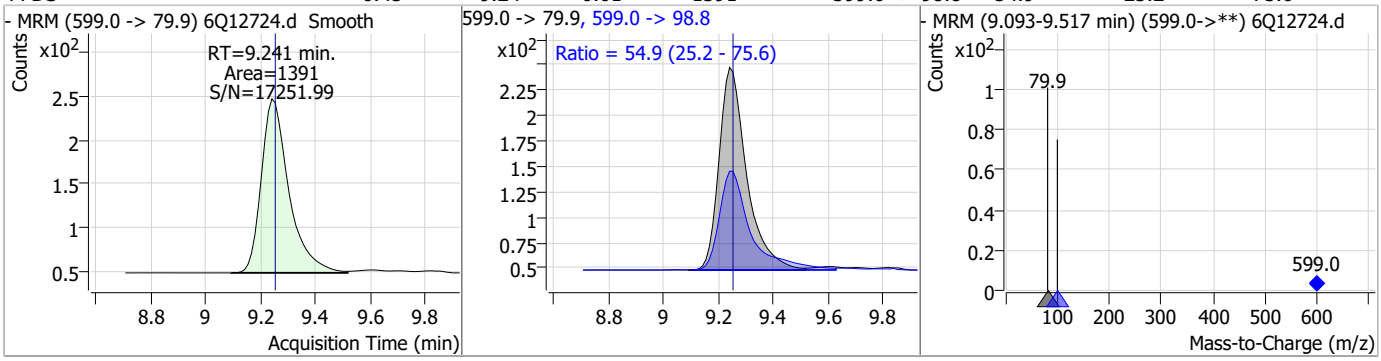


Perfluorinated Compounds by LC/MS/MS

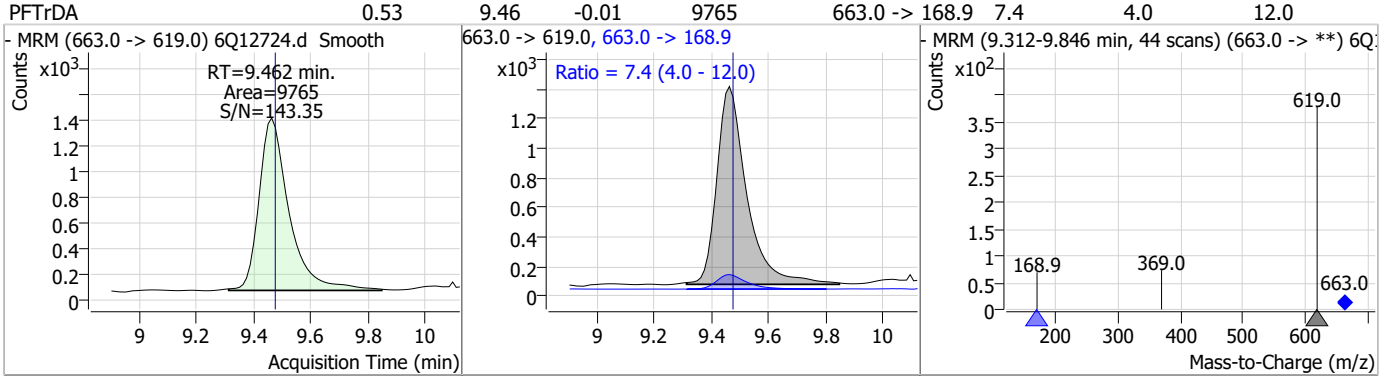
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.46	9.07	-0.01	8860	613.1 -> 319.0	11.6	6.1	18.3



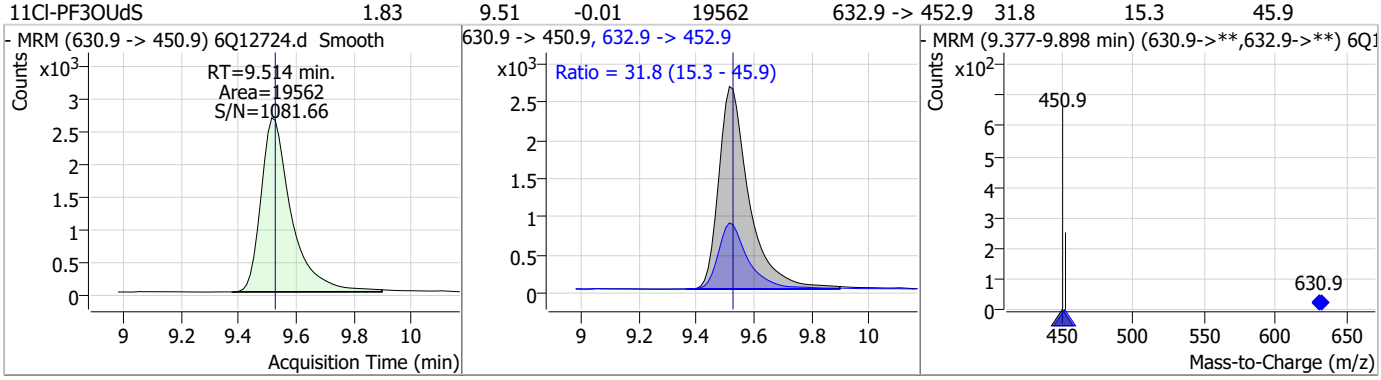
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.45	9.24	-0.01	1391	599.0 -> 98.8	54.9	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.53	9.46	-0.01	9765	663.0 -> 168.9	7.4	4.0	12.0

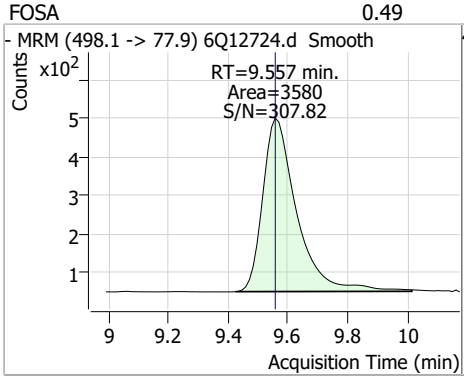


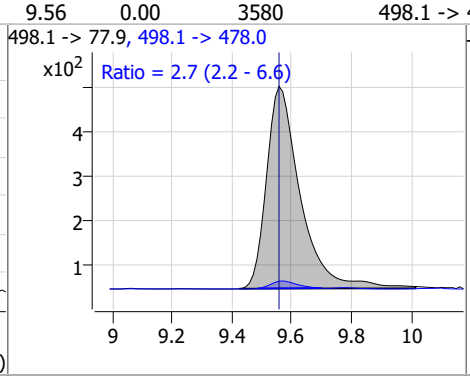
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.83	9.51	-0.01	19562	632.9 -> 452.9	31.8	15.3	45.9

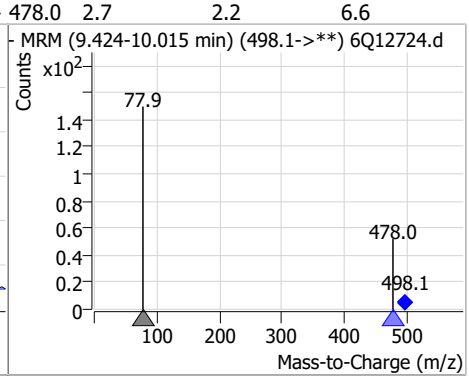


Perfluorinated Compounds by LC/MS/MS

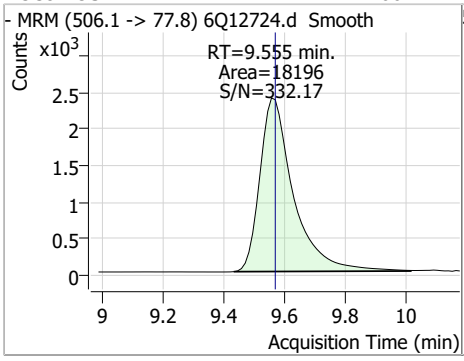
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.49	9.56	0.00	3580	498.1 -> 478.0	2.7	2.2	6.6

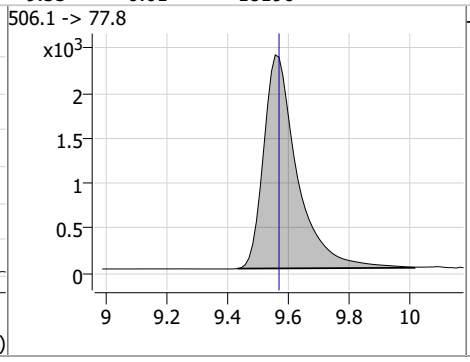


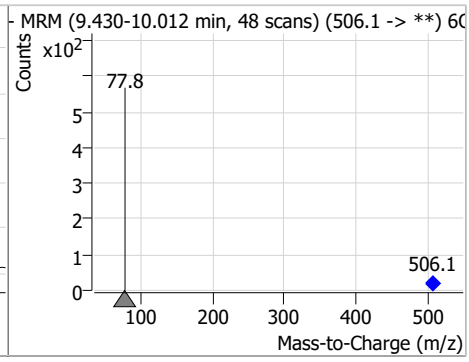




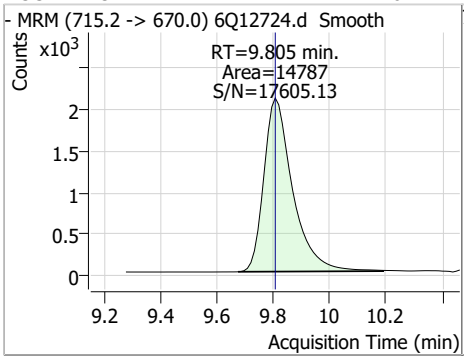
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.66	9.55	-0.01	18196				

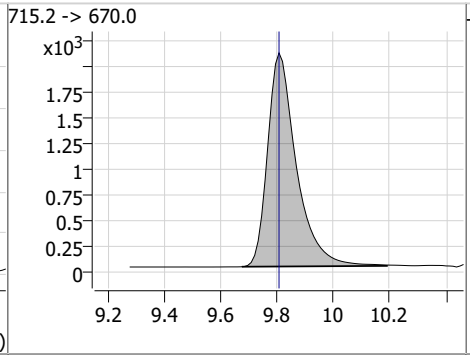


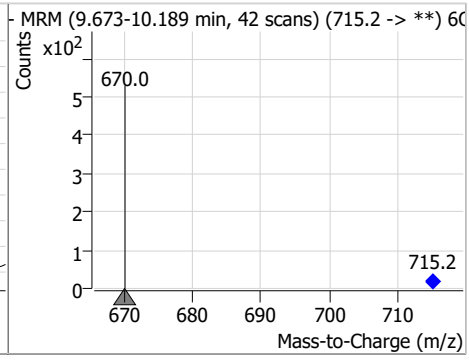




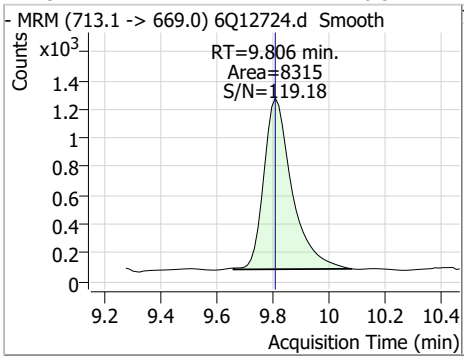
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.81	0.00	14787				

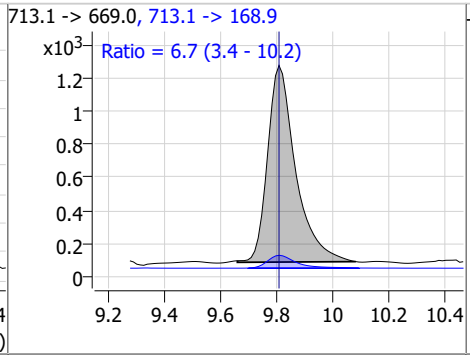


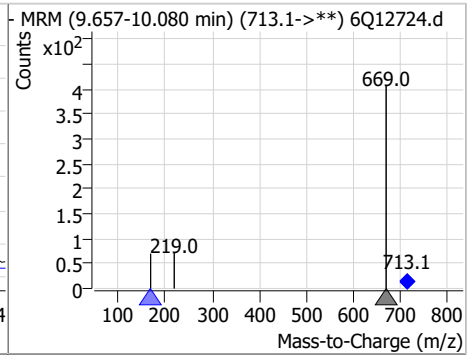




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.52	9.81	0.00	8315	713.1 -> 168.9	6.7	3.4	10.2

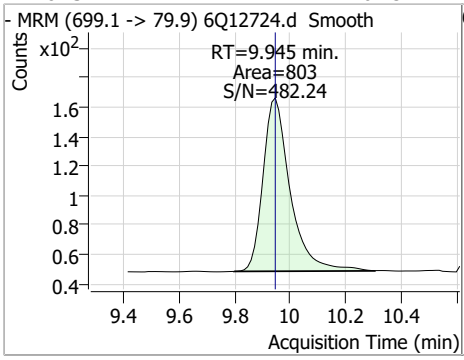


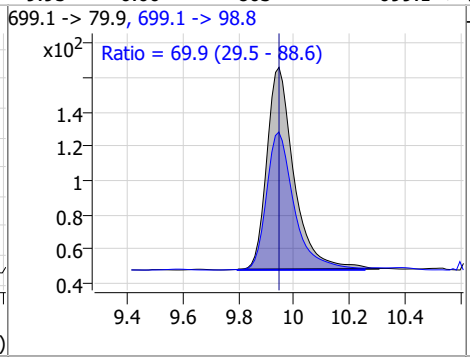


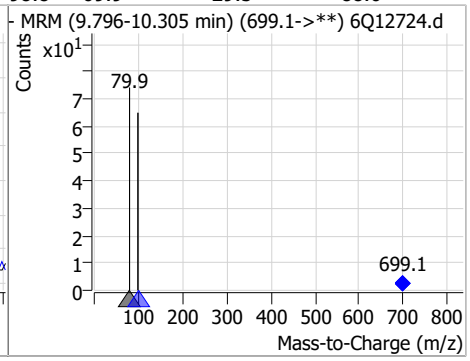


Perfluorinated Compounds by LC/MS/MS

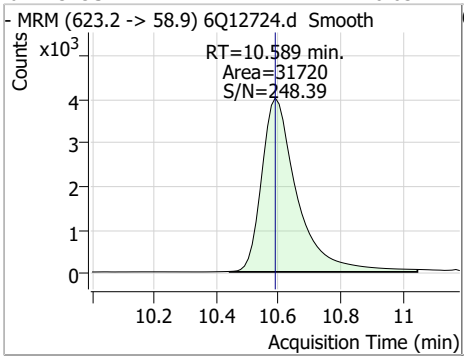
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.43	9.95	0.00	803	699.1 -> 98.8	69.9	29.5	88.6

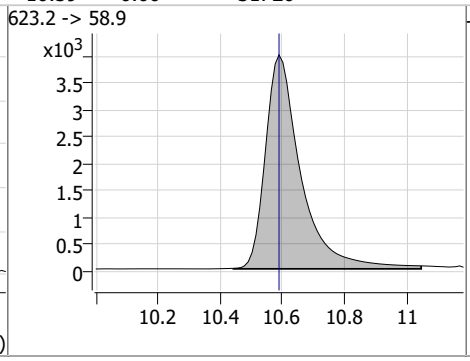


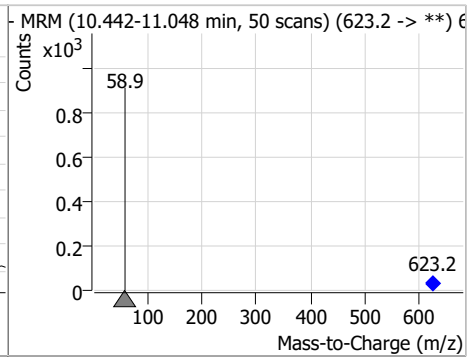




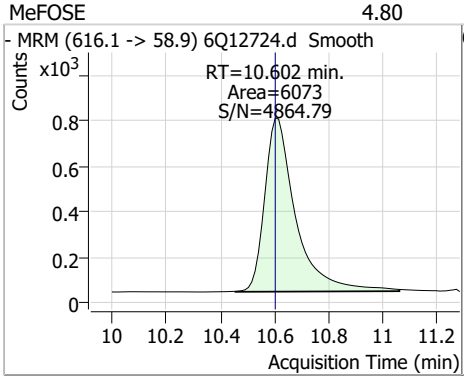
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.63	10.59	0.00	31720				

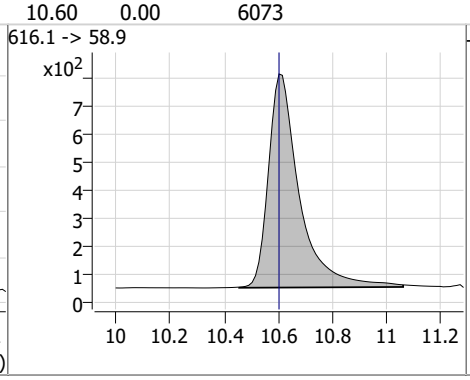


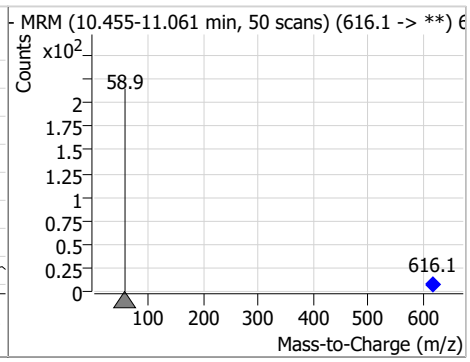




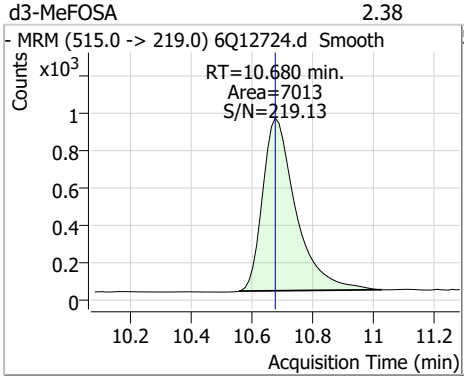
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	4.80	10.60	0.00	6073				

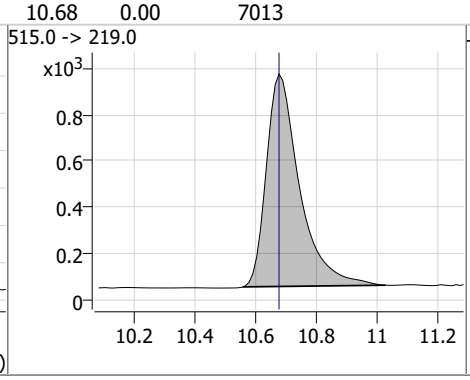


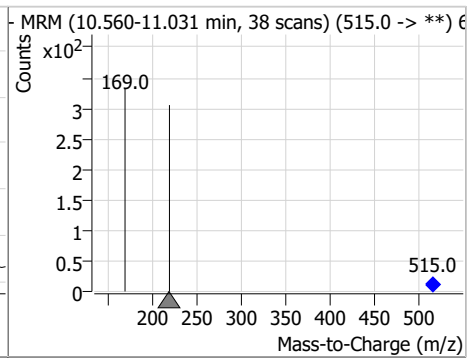




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.68	0.00	7013				

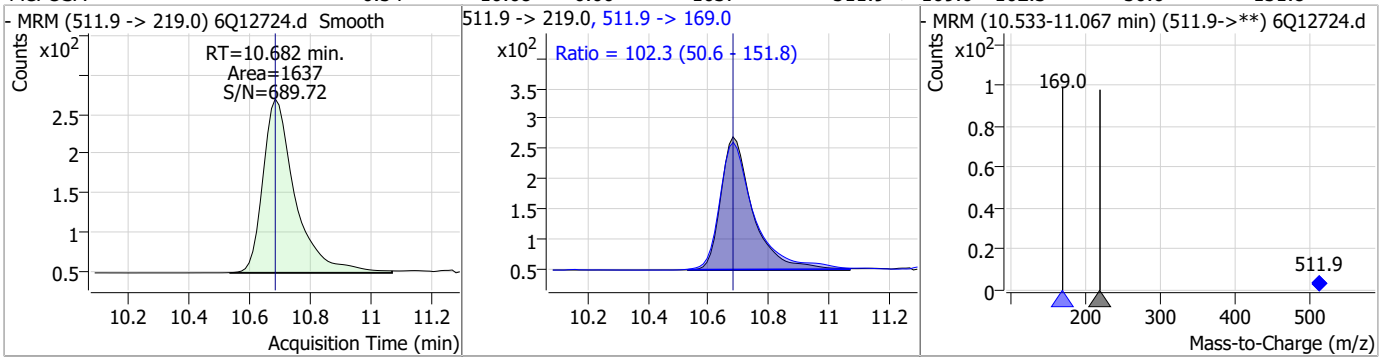




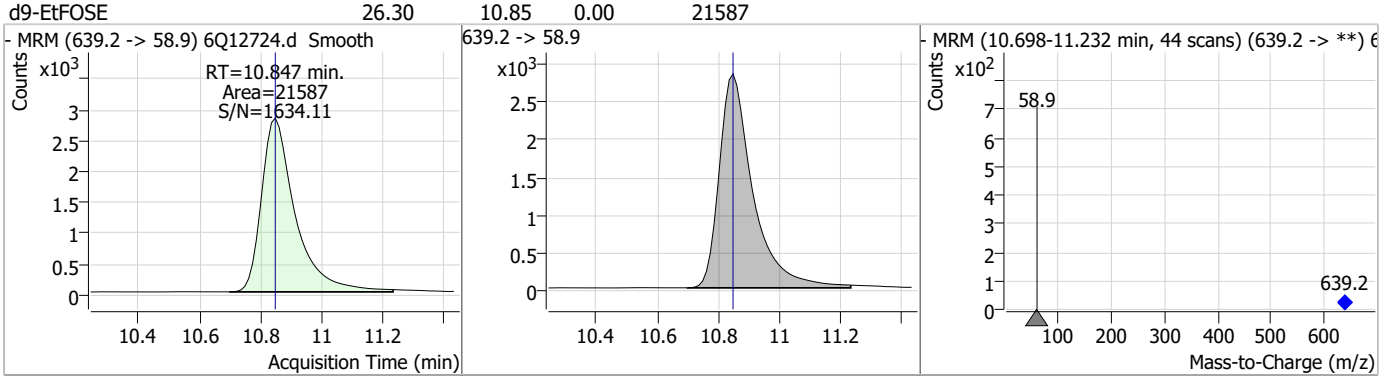


Perfluorinated Compounds by LC/MS/MS

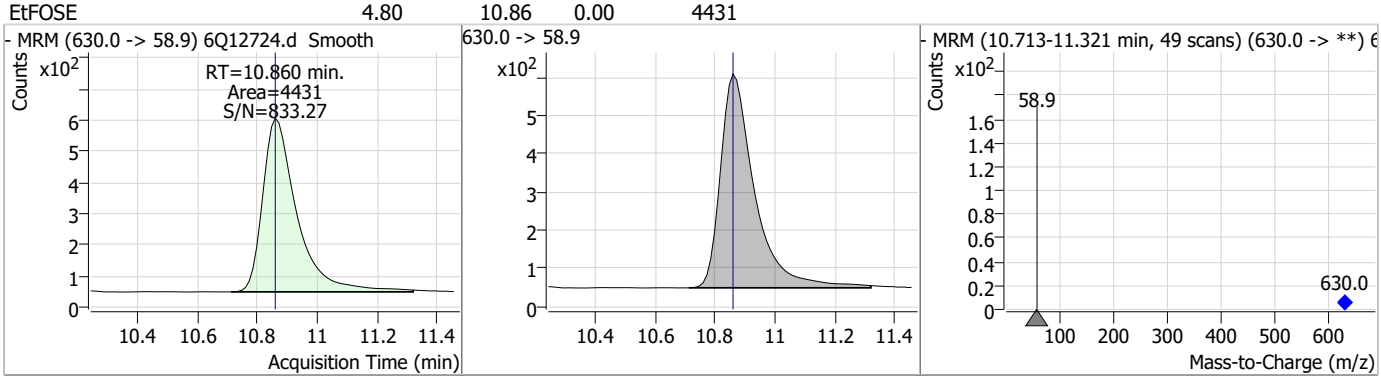
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.54	10.68	0.00	1637	511.9 -> 169.0	102.3	50.6	151.8



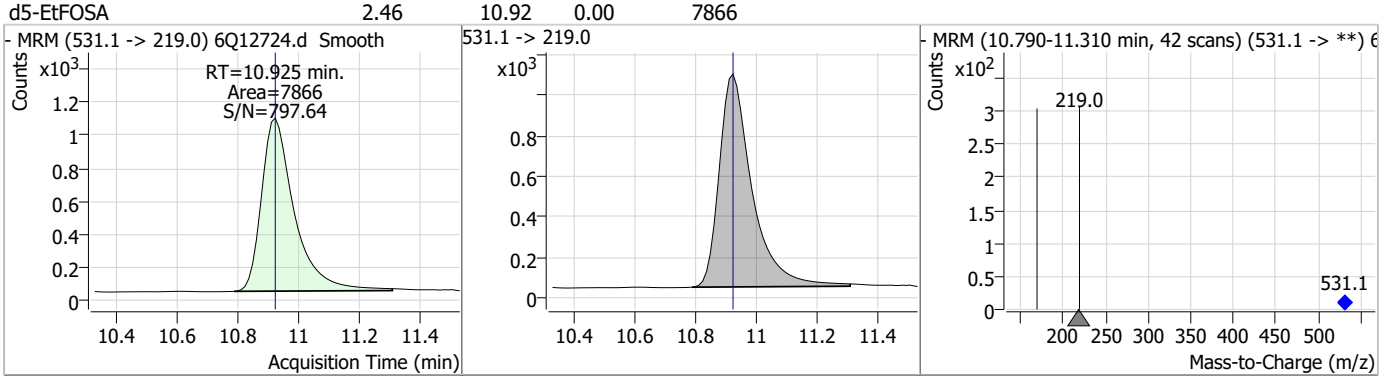
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.30	10.85	0.00	21587				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	4.80	10.86	0.00	4431				

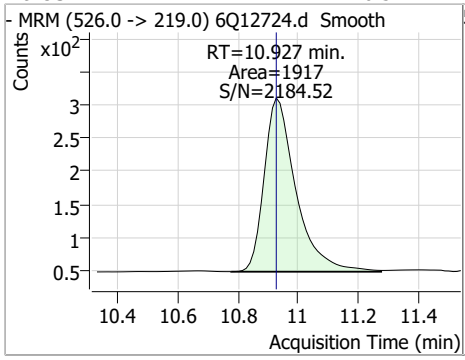


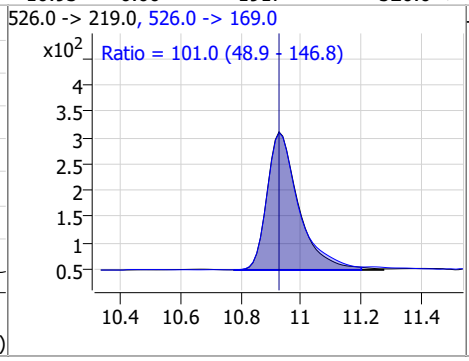
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.92	0.00	7866				

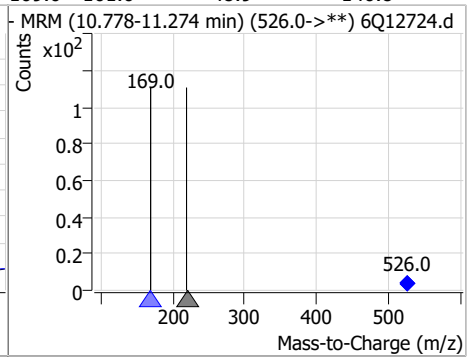


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.51	10.93	0.00	1917	526.0 -> 169.0	101.0	48.9	146.8







7.7.3

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12724.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 18:05	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12725.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 6:19:14 PM
Sample Name	:	ic196-3
Vial	:	P1-A4
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	83559	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	42864	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	37432	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	39421	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	69413	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	31229	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	20644	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	25039	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	28131	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15794	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18922	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	15041	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9290	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8852	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2701	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3398	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3416	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30910	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23303	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	33495	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	23099	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8605	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7700	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11388	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	37478	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7219	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	85517	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29078	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32956	1.25	µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	36195	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2701	5.75	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3398	5.46	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3416	5.46	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	28131	1.27	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15794	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C3-PFBS	5.518	302.1 -> 79.9	15041	2.56	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9290	2.45	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C4-PFBA	2.975	216.8 -> 171.9	83559	10.05 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	39421	2.64 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C5-PFHxA	5.563	318.0 -> 273.0	37432	2.61 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C5-PFPeA	4.386	268.3 -> 223.0	42864	5.31 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
13C6-PFDA	8.170	519.1 -> 474.1	20644	1.28 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C7-PFUnDA	8.636	570.0 -> 525.1	25039	1.29 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C8-FOSA	9.567	506.1 -> 77.8	18922	2.55 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C8-PFOA	7.146	421.1 -> 376.0	69413	2.43 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C8-PFOS	8.345	507.1 -> 79.9	8852	2.36 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C9-PFNA	7.677	472.1 -> 427.0	31229	1.35 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30910	4.95 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.55 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	7700	2.41 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23303	4.50 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%		
d7-MeFOSE	10.589	623.2 -> 58.9	33495	25.90 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
d9-EtFOSE	10.847	639.2 -> 58.9	23099	25.92 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	8605	2.48 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	25354	4.19 µg/L		99
		327.1 -> 80.9	5722			
6:2FTS	6.921	427.1 -> 407.0	21779	4.38 µg/L		95
		427.1 -> 80.9	4518			
8:2FTS	7.958	527.1 -> 507.0	12521	4.72 µg/L		100
		527.1 -> 80.8	3021			
EtFOSAA	8.424	584.2 -> 419.1	4998	1.34 µg/L	m	94
		584.2 -> 526.0	2590			
FOSA	9.557	498.1 -> 77.9	8967	1.19 µg/L		98
		498.1 -> 478.0	344			
MeFOSAA	8.216	570.1 -> 419.0	6523	1.15 µg/L	#m	80
		570.1 -> 483.0	1493			
PFBA	2.982	212.8 -> 168.9	8618	4.62 µg/L		100
PFBS	5.518	298.7 -> 79.9	5820	1.01 µg/L		94
		298.7 -> 98.8	2777			
PFDA	8.170	512.9 -> 469.0	28617	1.22 µg/L		99
		512.9 -> 219.0	4136			
PFDoDA	9.079	613.1 -> 569.0	24613	1.19 µg/L		98
		613.1 -> 319.0	2855			
PFDS	9.253	599.0 -> 79.9	3526	1.18 µg/L		99

Perfluorinated Compounds by LC/MS/MS

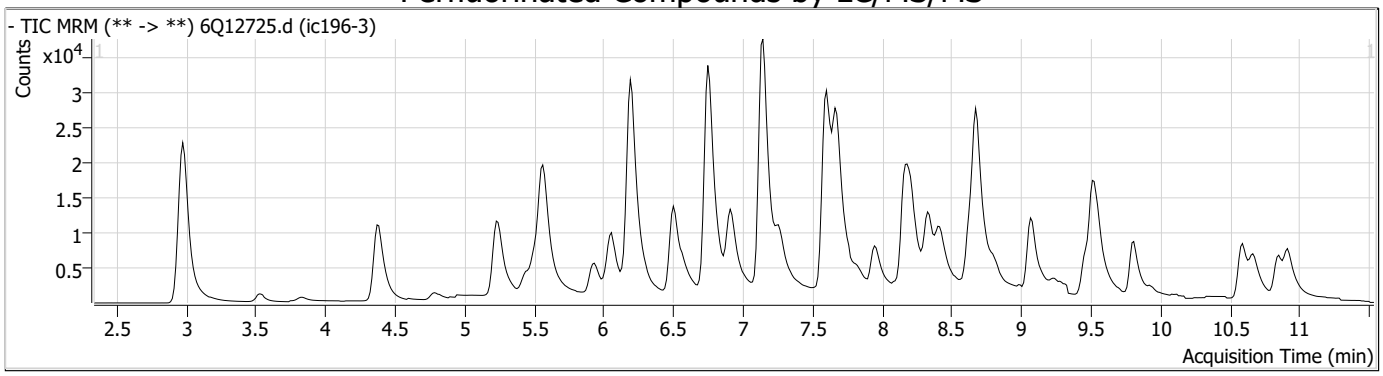
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	1810				
PFHpA	6.515	363.1 -> 319.0	26544	1.14	µg/L		93
		363.1 -> 169.0	4025				
PFHpS	7.841	449.0 -> 79.9	4490	1.20	µg/L		93
		449.0 -> 98.9	2722				
PFHxA	5.578	313.0 -> 269.0	17365	1.18	µg/L		98
		313.0 -> 118.9	629				
PFHxS	7.275	398.7 -> 79.9	4961	1.19	µg/L	m	87
		398.7 -> 98.9	2645				
PFNA	7.677	463.0 -> 419.0	23103	1.10	µg/L		99
		463.0 -> 219.0	4361				
PFNS	8.824	548.8 -> 79.9	4844	1.23	µg/L		96
		548.8 -> 98.9	2900				
PFOA	7.148	413.0 -> 369.0	39836	1.30	µg/L		96
		413.0 -> 169.0	4706				
PFOS	8.347	498.9 -> 79.9	4883	1.20	µg/L	m	71
		498.9 -> 98.8	2939				
PFPeA	4.388	263.0 -> 219.0	20749	2.29	µg/L		100
PFPeS	6.581	349.1 -> 79.9	5740	1.18	µg/L		98
		349.1 -> 98.9	3022				
PFTeDA	9.806	713.1 -> 669.0	21121	1.24	µg/L		100
		713.1 -> 168.9	1459				
PFTrDA	9.462	663.0 -> 619.0	24628	1.25	µg/L		99
		663.0 -> 168.9	2051				
PFUnDA	8.637	563.1 -> 519.0	22690	1.16	µg/L		99
		563.1 -> 269.1	3238				
11Cl-PF3OUdS	9.526	630.9 -> 450.9	50683	4.53	µg/L		99
		632.9 -> 452.9	15719				
9Cl-PF3ONS	8.688	530.8 -> 351.0	89556	4.73	µg/L		93
		532.8 -> 353.0	25272				
ADONA	6.766	376.9 -> 250.9	147183	4.35	µg/L		100
		376.9 -> 84.8	33121				
HFPO-DA	5.940	284.9 -> 168.9	6847	4.69	µg/L		99
		284.9 -> 184.9	927				
3:3FTCA	3.841	241.0 -> 177.0	2515	5.66	µg/L		98
		241.0 -> 117.0	348				
5:3FTCA	6.206	341.0 -> 237.1	93751	30.54	µg/L		98
		341.0 -> 217.0	79652				
7:3FTCA	7.605	441.0 -> 316.9	57548	28.68	µg/L		96
		441.0 -> 336.9	117369				
EtFOSA	10.927	526.0 -> 219.0	4943	1.20	µg/L		99
		526.0 -> 169.0	4800				
EtFOSE	10.860	630.0 -> 58.9	10828	10.95	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	4230	1.27	µg/L		91
		511.9 -> 169.0	3878				
MeFOSE	10.602	616.1 -> 58.9	14079	10.54	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	2404	1.34	µg/L		98
		699.1 -> 98.8	1389				
NFDHA	5.457	295.0 -> 201.0	1954	2.25	µg/L		97
		295.0 -> 84.9	1043				
PFMBA	4.800	279.0 -> 85.1	5881	2.31	µg/L		100
PFMPA	3.541	229.0 -> 84.9	5607	2.32	µg/L		100
PFEESA	6.059	314.8 -> 134.9	42639	2.02	µg/L		99
		314.8 -> 82.9	1082				

= Qualifier out of range, m = manually integrated, + = Area summed

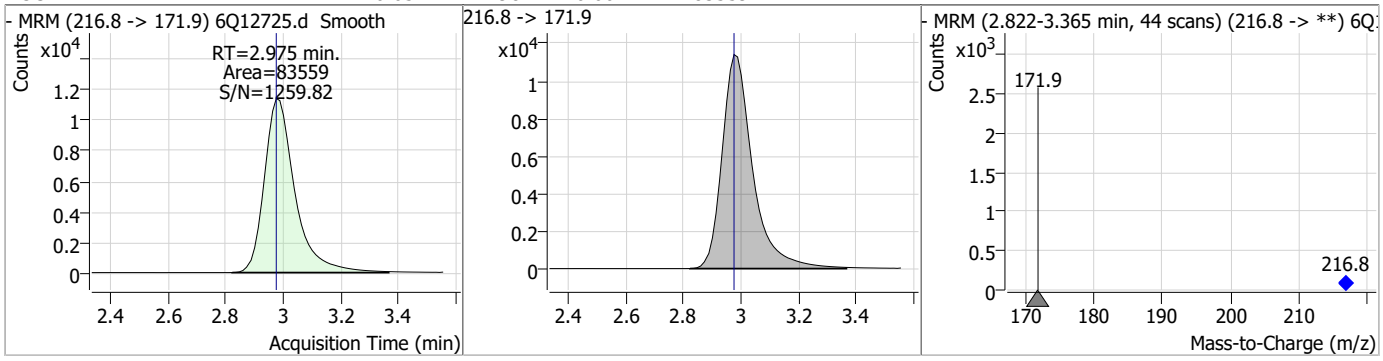
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

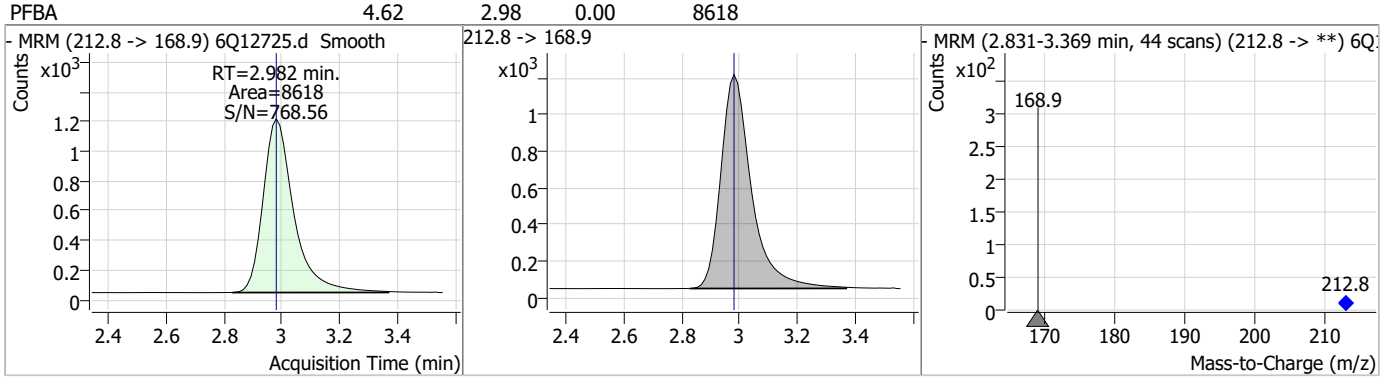
Perfluorinated Compounds by LC/MS/MS



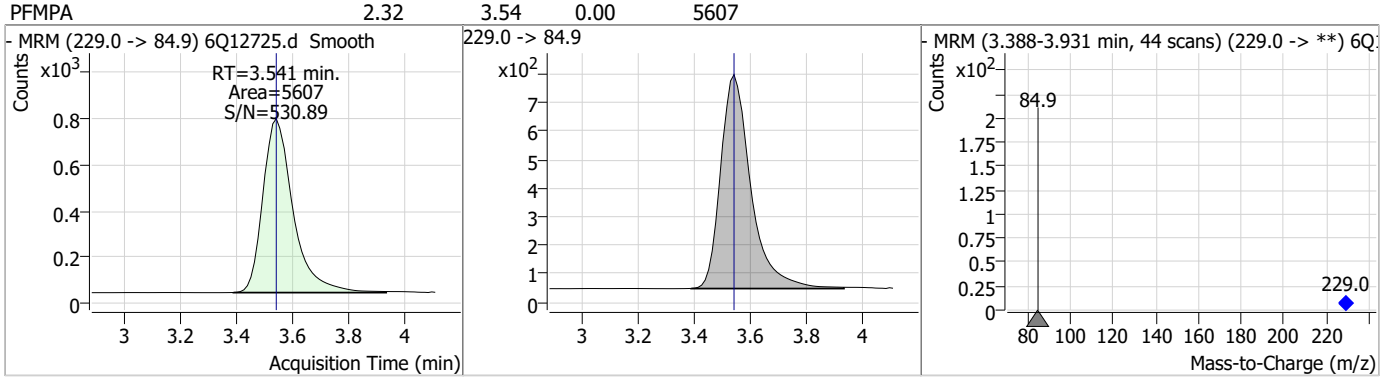
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.05	2.98	0.00	83559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.62	2.98	0.00	8618				

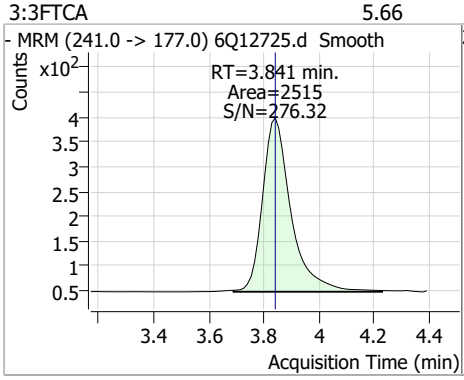


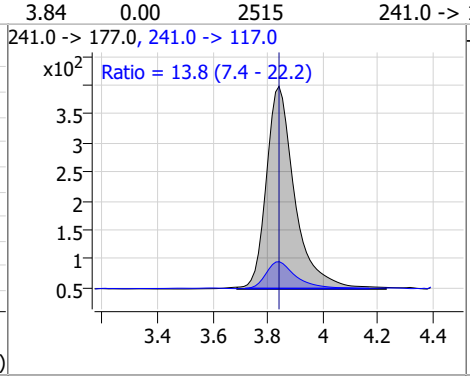
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.32	3.54	0.00	5607				

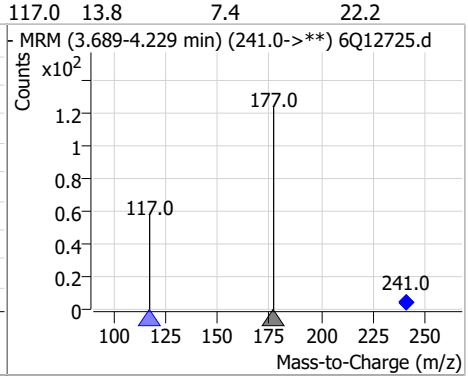


Perfluorinated Compounds by LC/MS/MS

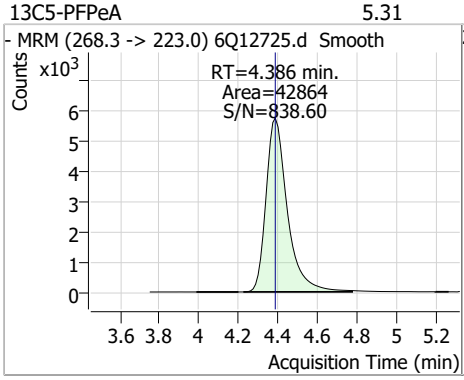
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	5.66	3.84	0.00	2515	241.0 -> 117.0	13.8	7.4	22.2

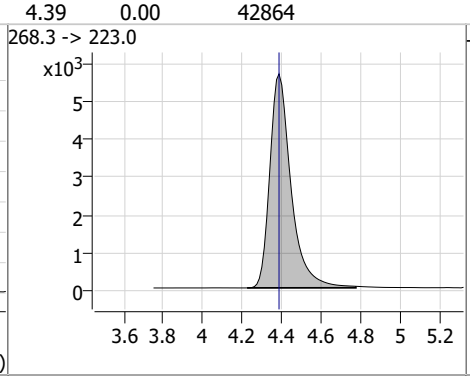


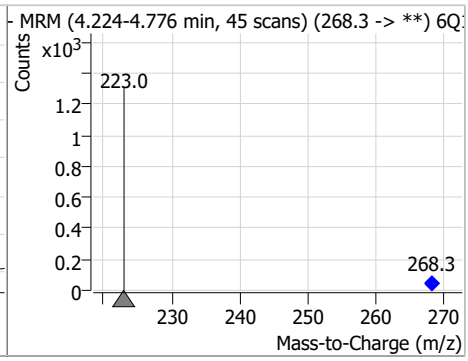




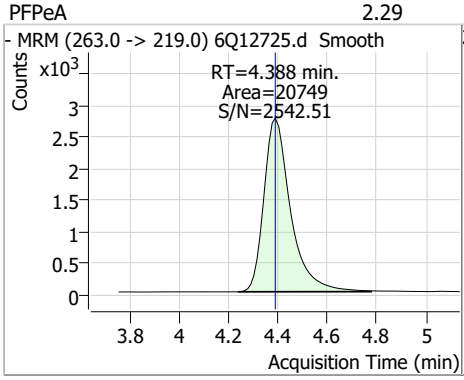
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.31	4.39	0.00	42864				

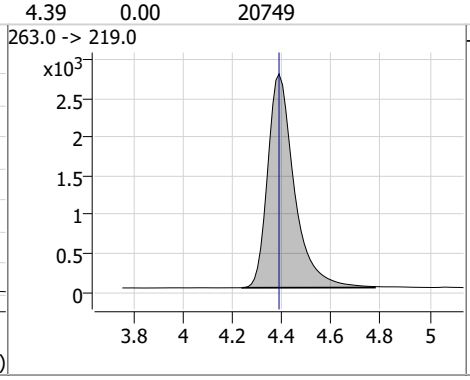


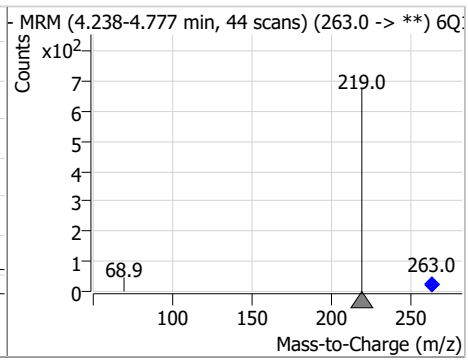




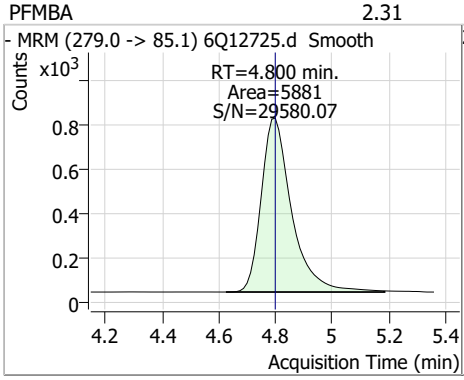
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.29	4.39	0.00	20749				

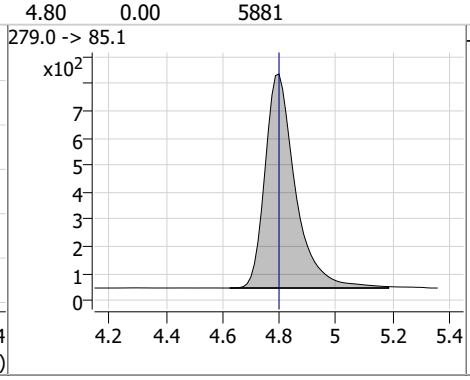


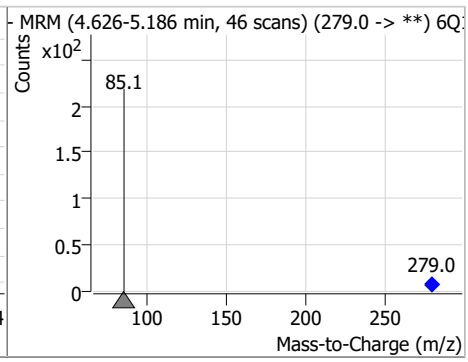




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.31	4.80	0.00	5881				

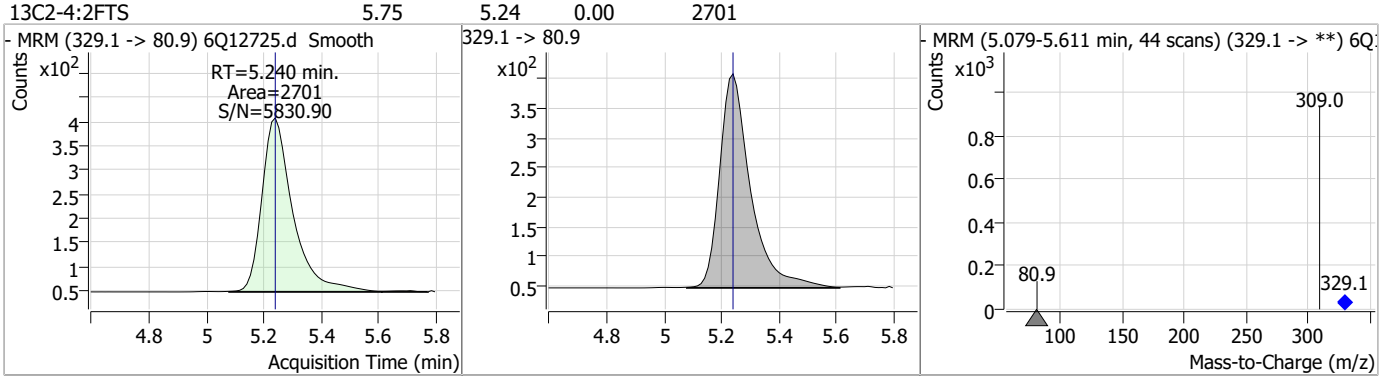




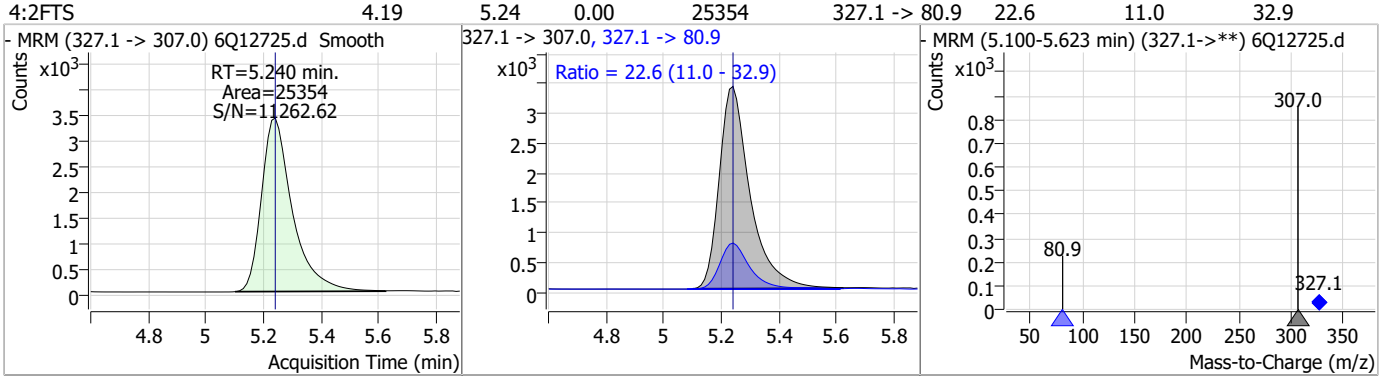


Perfluorinated Compounds by LC/MS/MS

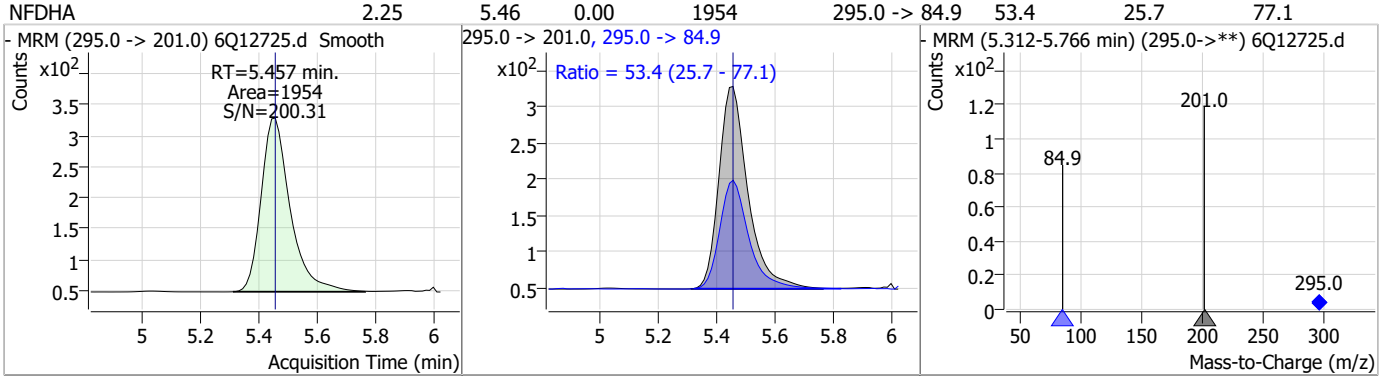
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.75	5.24	0.00	2701				



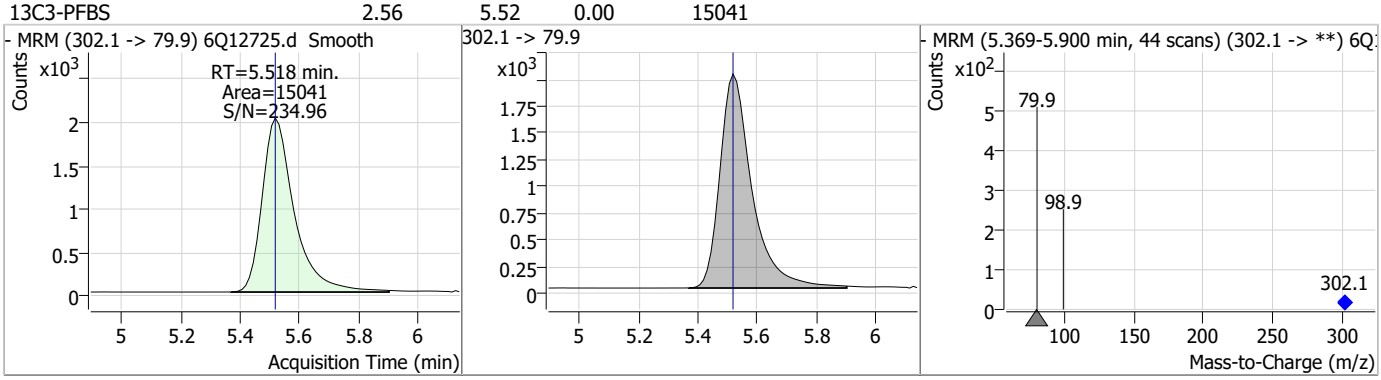
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	4.19	5.24	0.00	25354	327.1 -> 80.9	22.6	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	2.25	5.46	0.00	1954	295.0 -> 84.9	53.4	25.7	77.1

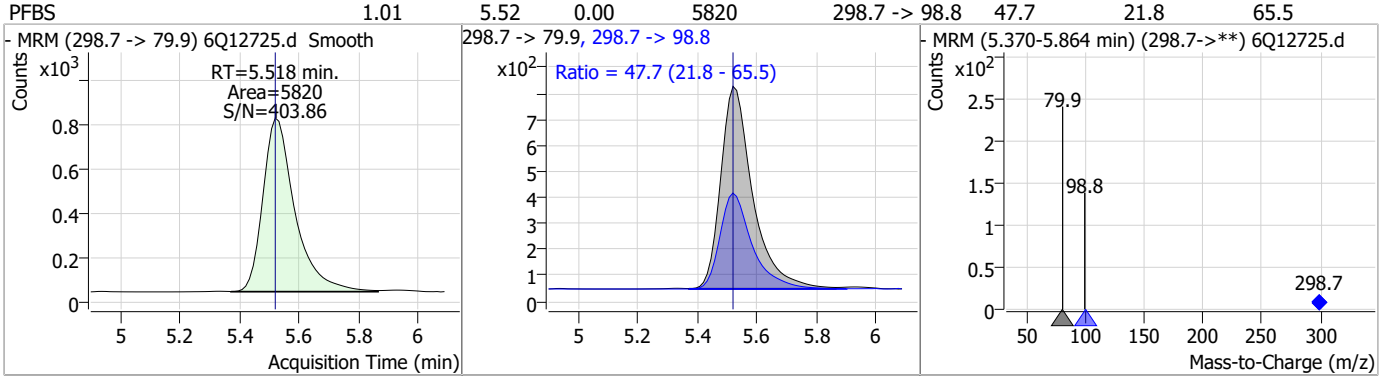


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.56	5.52	0.00	15041				

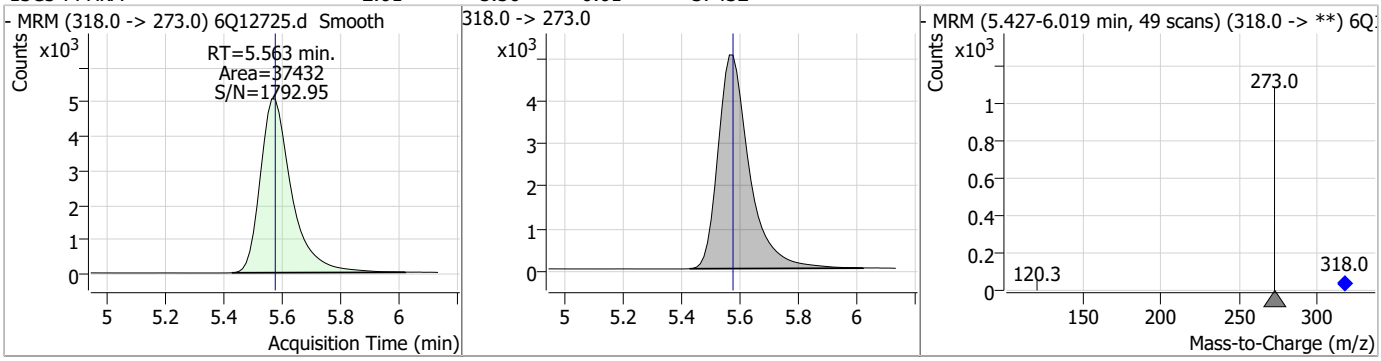


Perfluorinated Compounds by LC/MS/MS

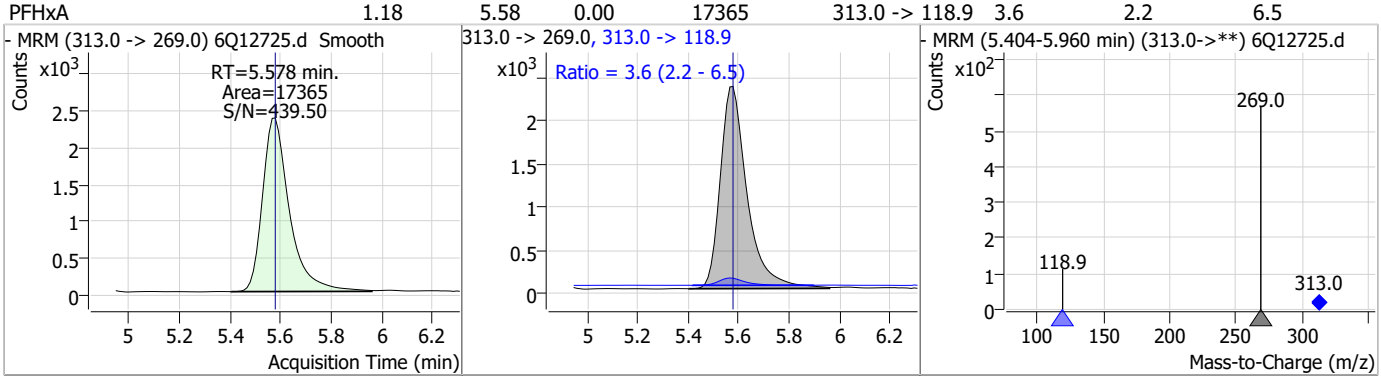
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.01	5.52	0.00	5820	298.7 -> 98.8	47.7	21.8	65.5



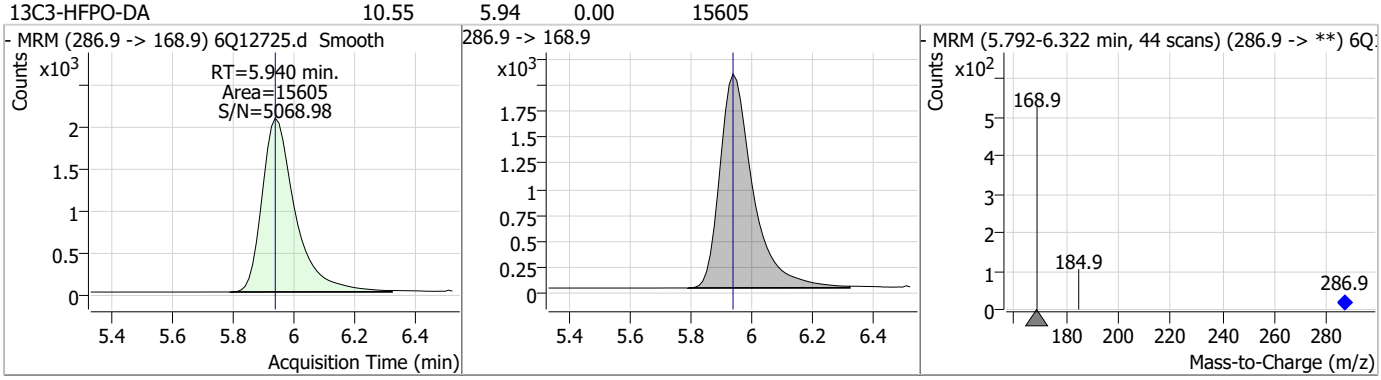
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.56	-0.01	37432				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.18	5.58	0.00	17365	313.0 -> 118.9	3.6	2.2	6.5

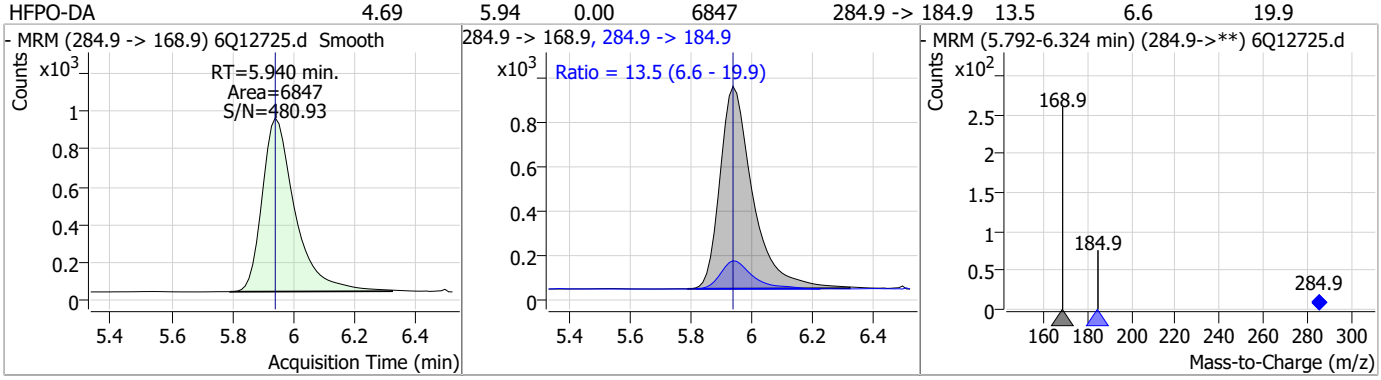


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.55	5.94	0.00	15605				

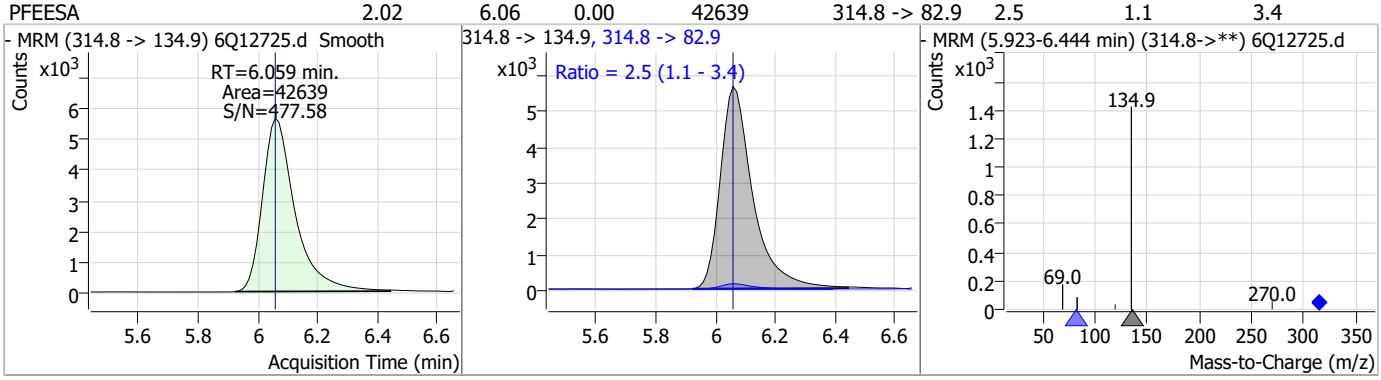


Perfluorinated Compounds by LC/MS/MS

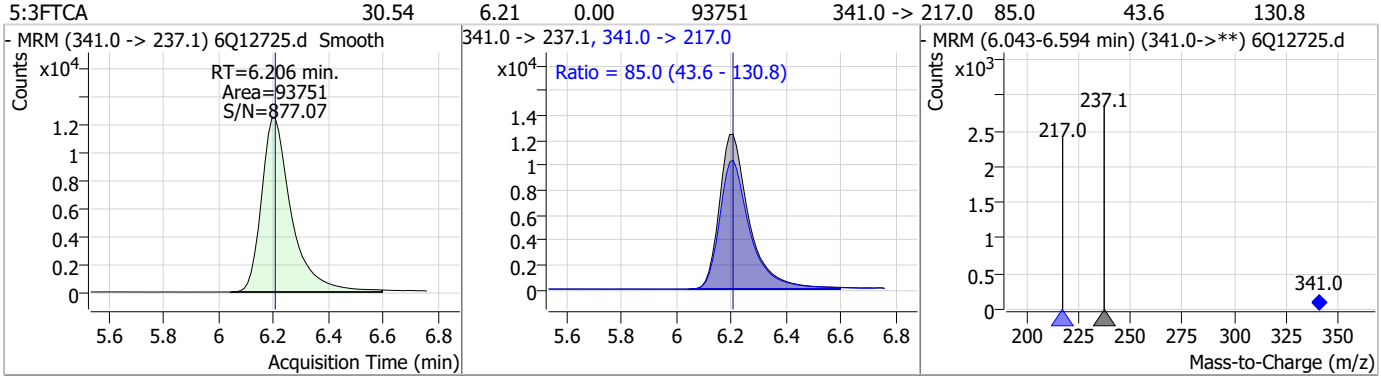
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.69	5.94	0.00	6847	284.9 -> 184.9	13.5	6.6	19.9



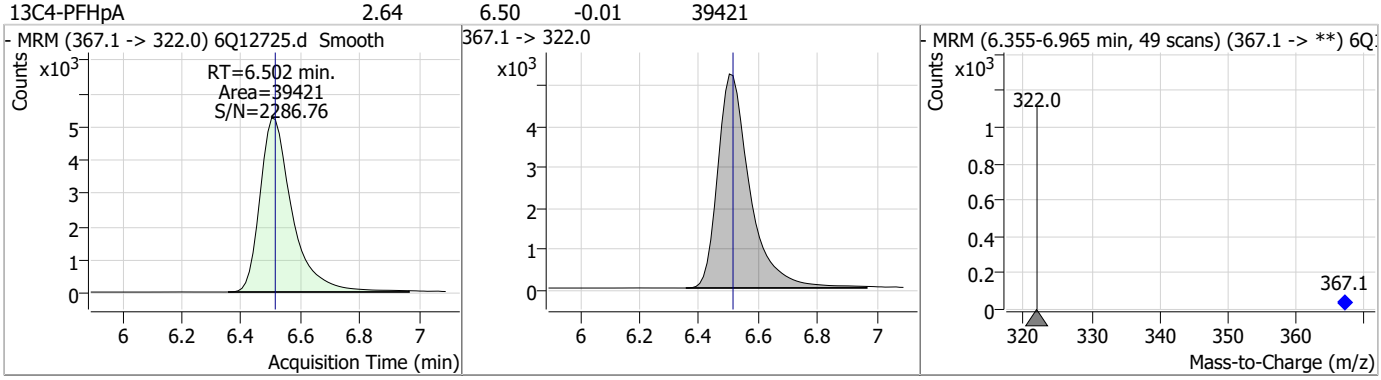
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.02	6.06	0.00	42639	314.8 -> 82.9	2.5	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	30.54	6.21	0.00	93751	341.0 -> 217.0	85.0	43.6	130.8

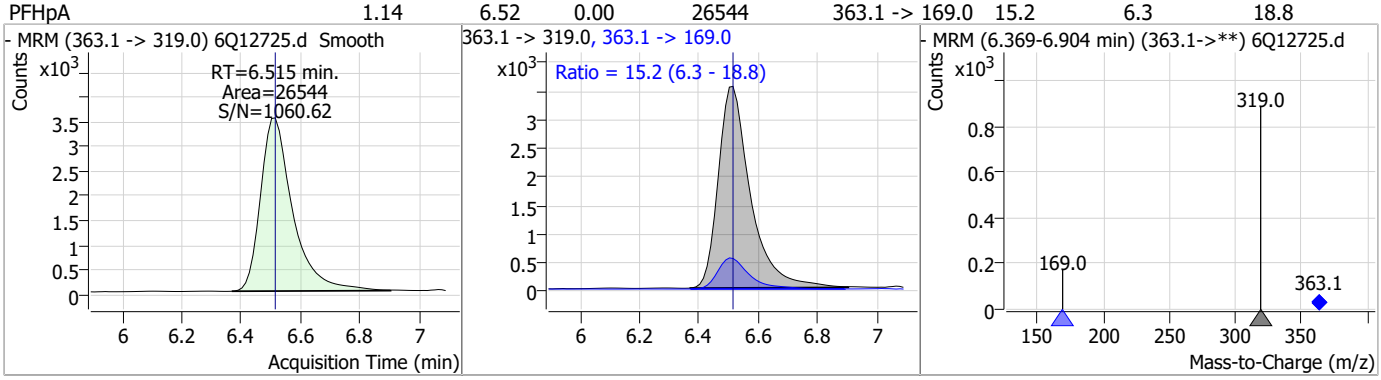


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.64	6.50	-0.01	39421				

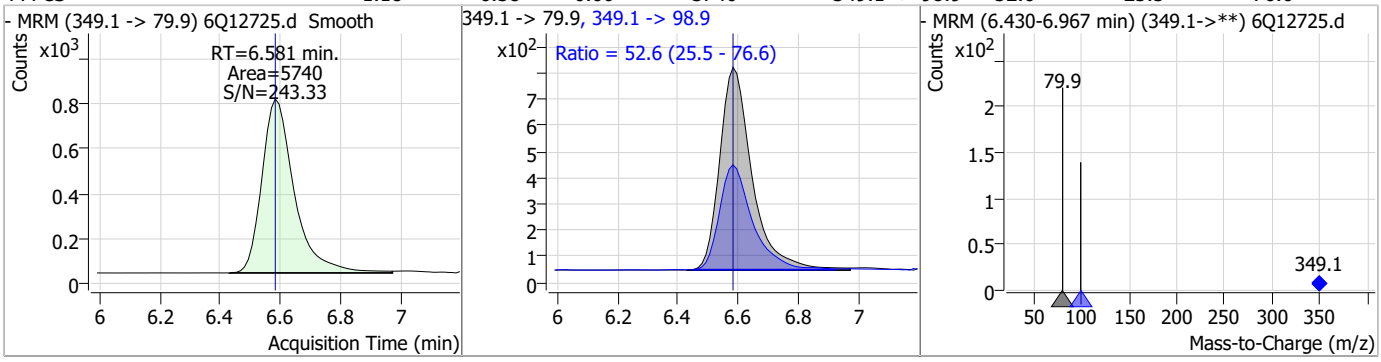


Perfluorinated Compounds by LC/MS/MS

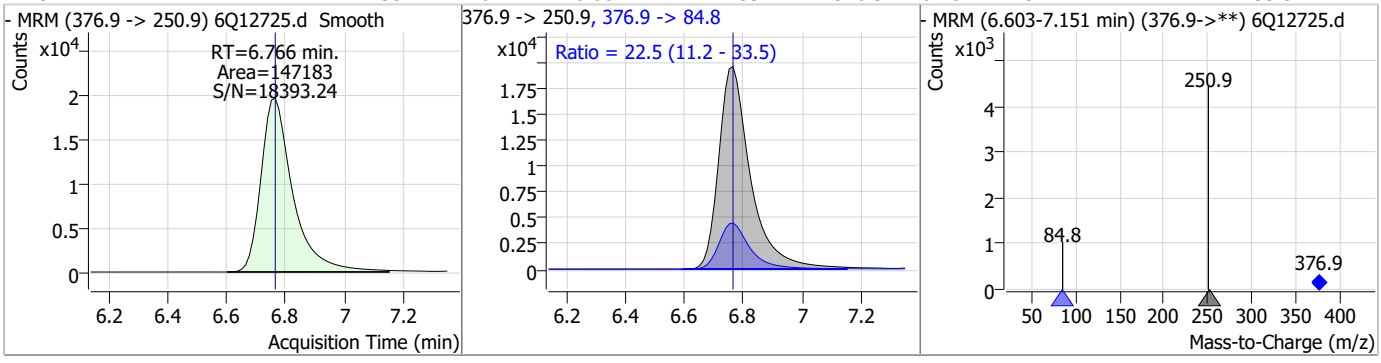
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.14	6.52	0.00	26544	363.1 -> 169.0	15.2	6.3	18.8



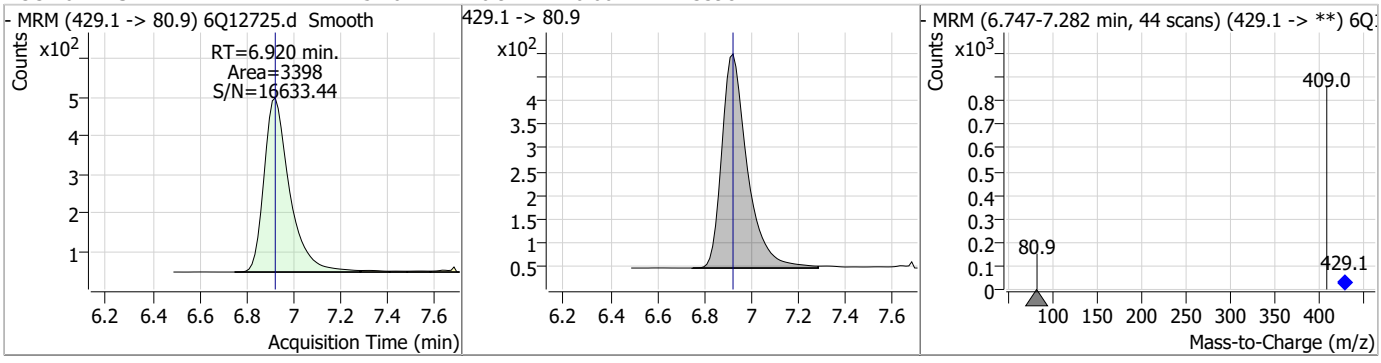
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.18	6.58	0.00	5740	349.1 -> 98.9	52.6	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.35	6.77	0.00	147183	376.9 -> 84.8	22.5	11.2	33.5

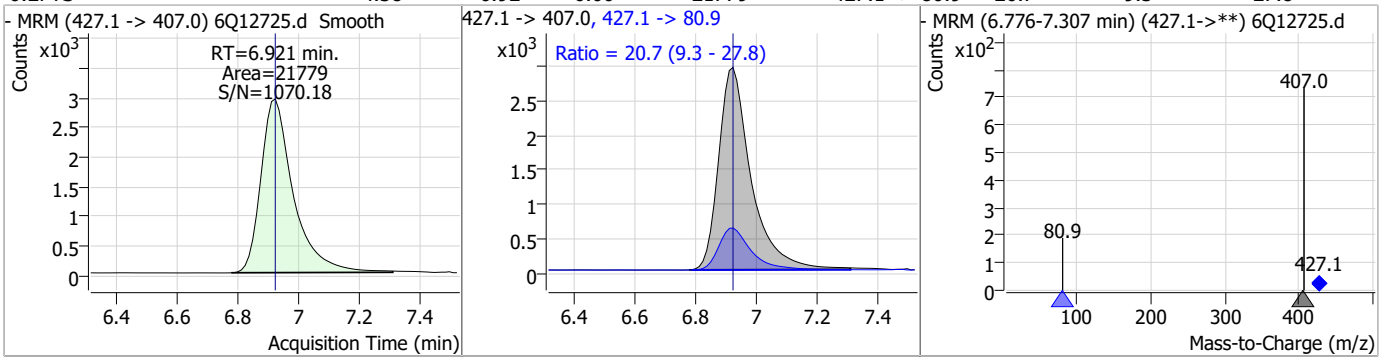


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.46	6.92	0.00	3398				

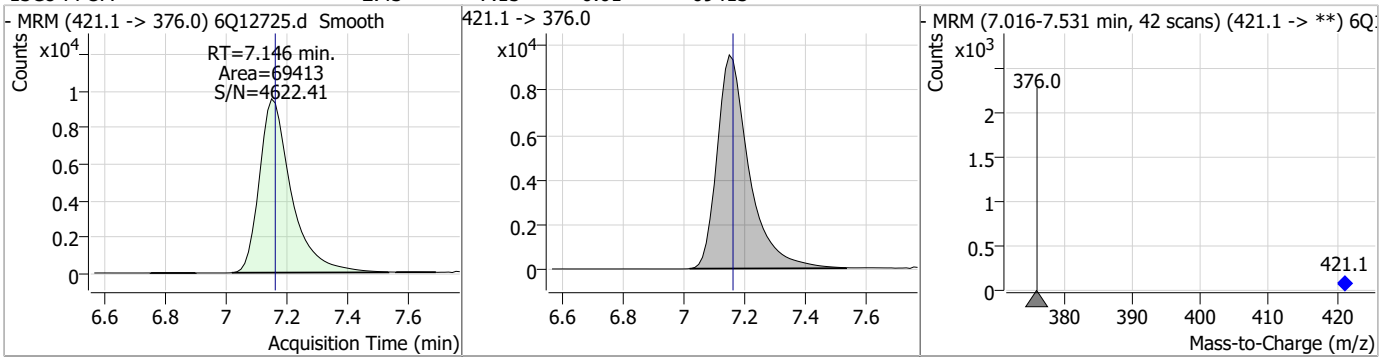


Perfluorinated Compounds by LC/MS/MS

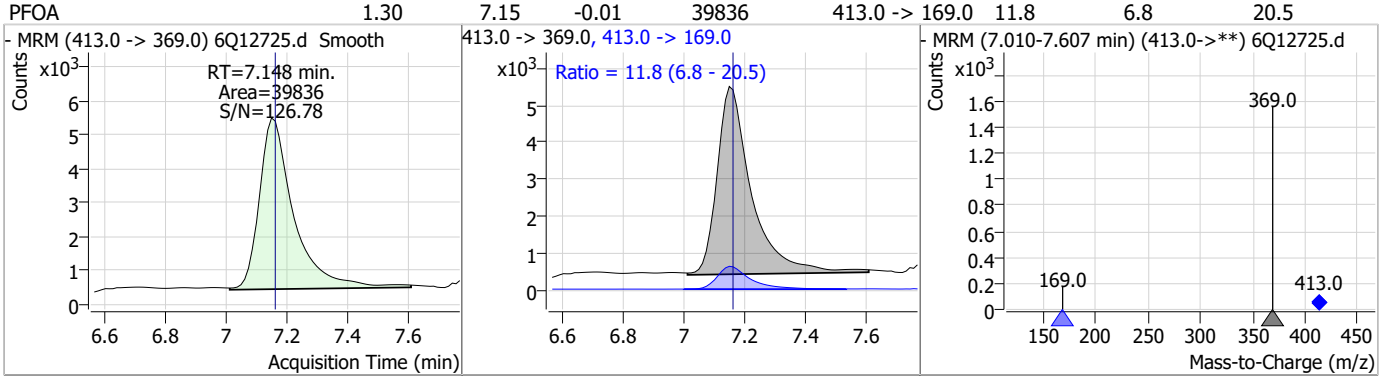
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	4.38	6.92	0.00	21779	427.1 -> 80.9	20.7	9.3	27.8



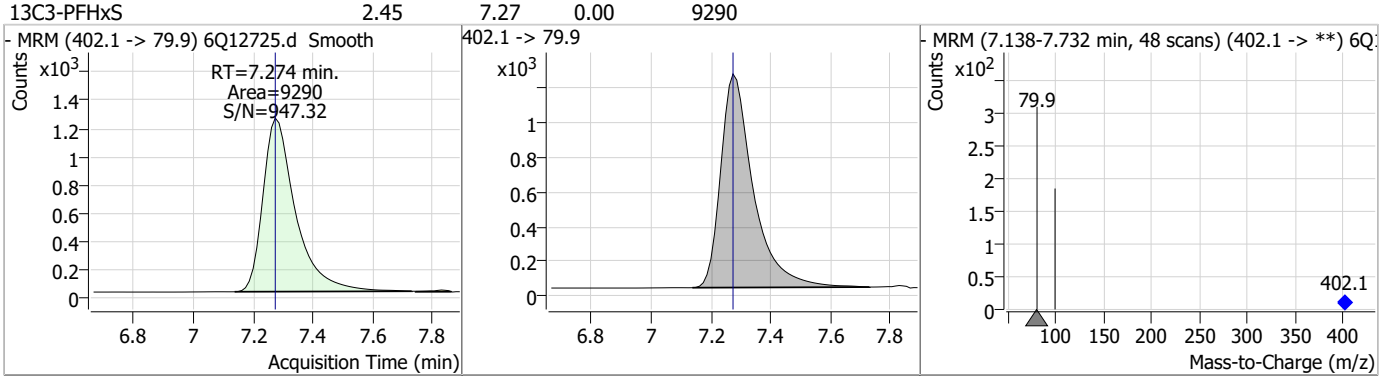
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.43	7.15	-0.01	69413				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.30	7.15	-0.01	39836	413.0 -> 169.0	11.8	6.8	20.5

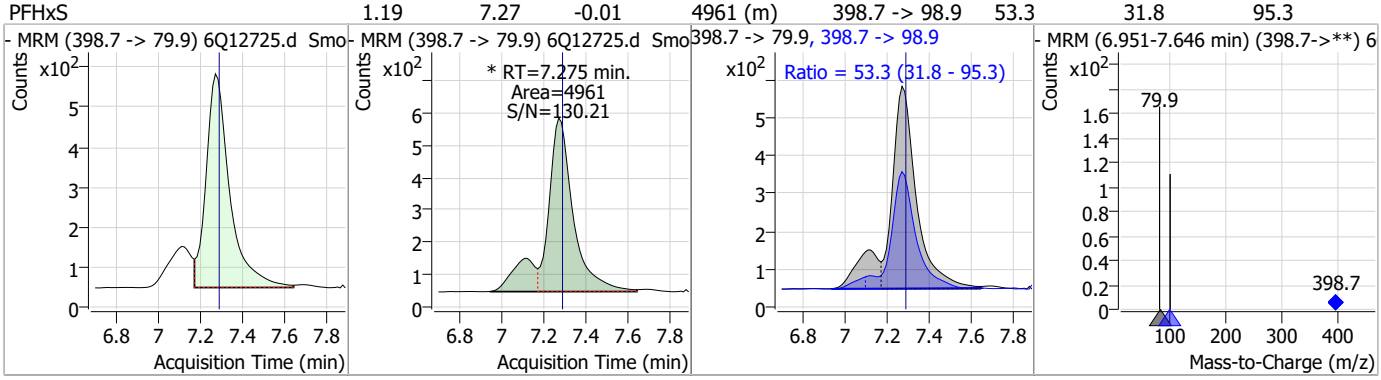


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.45	7.27	0.00	9290				

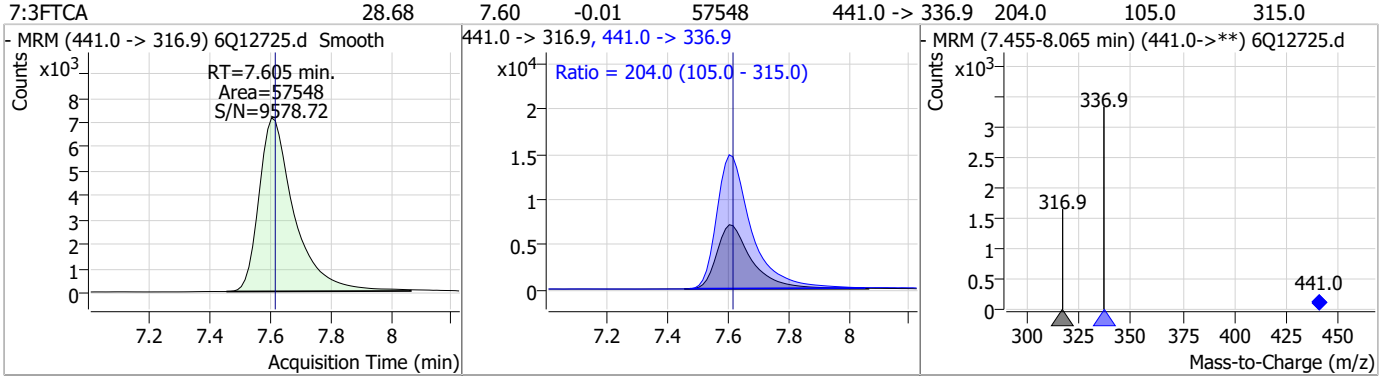


Perfluorinated Compounds by LC/MS/MS

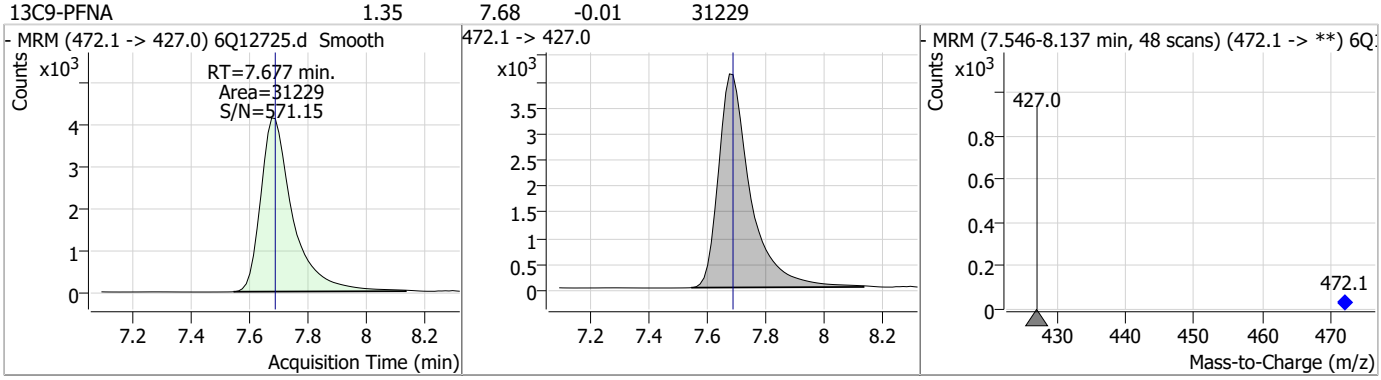
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.19	7.27	-0.01	4961 (m)	398.7 -> 98.9	53.3	31.8	95.3



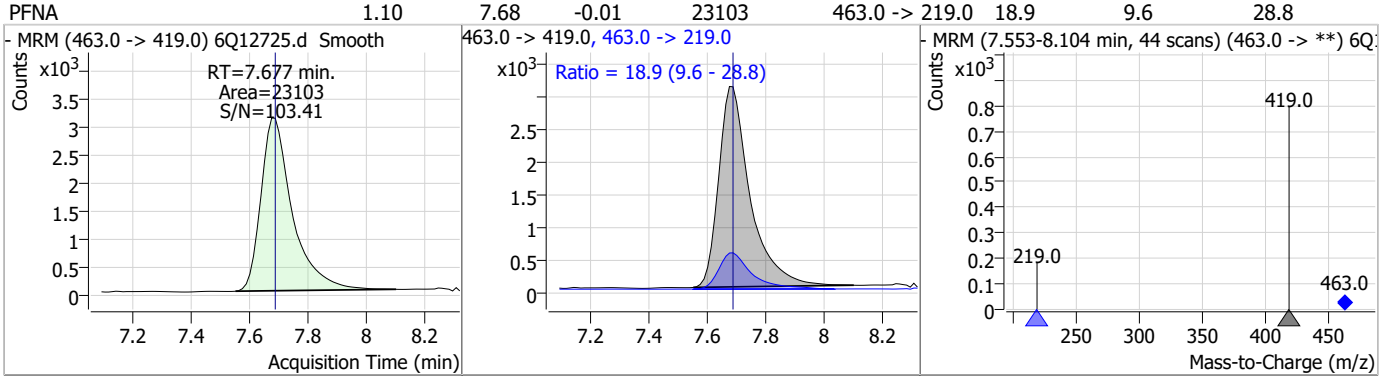
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	28.68	7.60	-0.01	57548	441.0 -> 336.9	204.0	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.35	7.68	-0.01	31229				

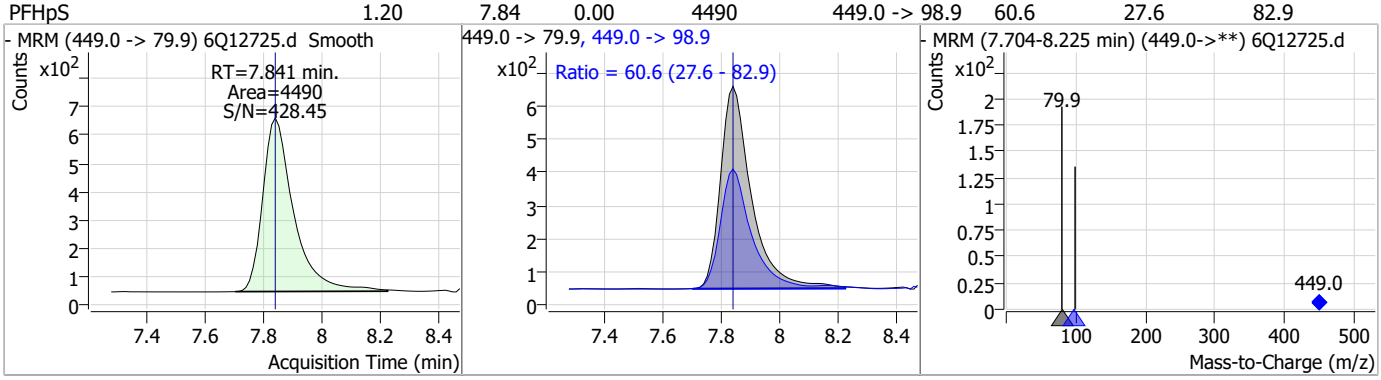


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.10	7.68	-0.01	23103	463.0 -> 219.0	18.9	9.6	28.8

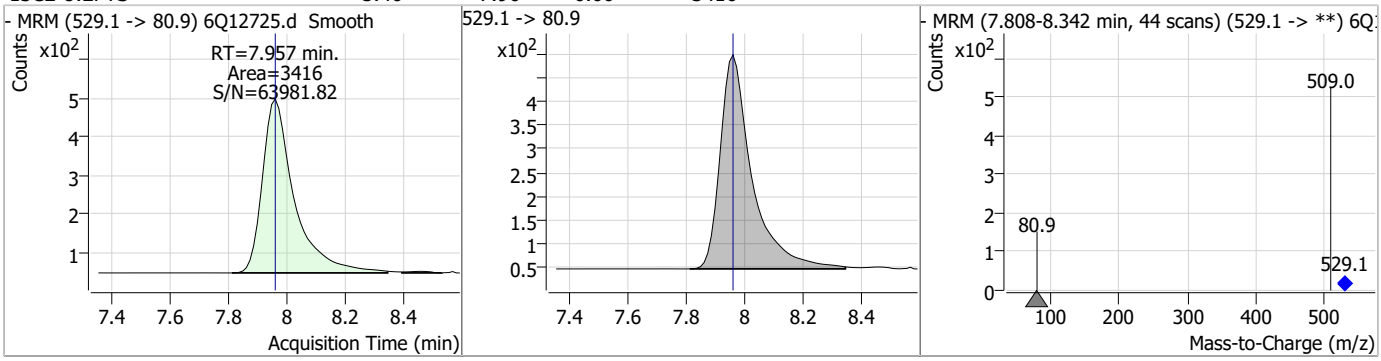


Perfluorinated Compounds by LC/MS/MS

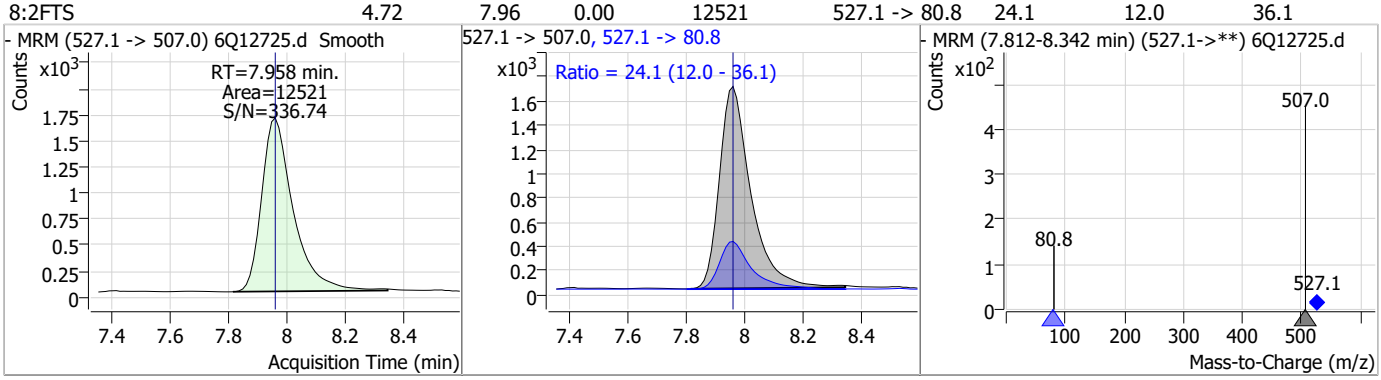
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.20	7.84	0.00	4490	449.0 -> 98.9	60.6	27.6	82.9



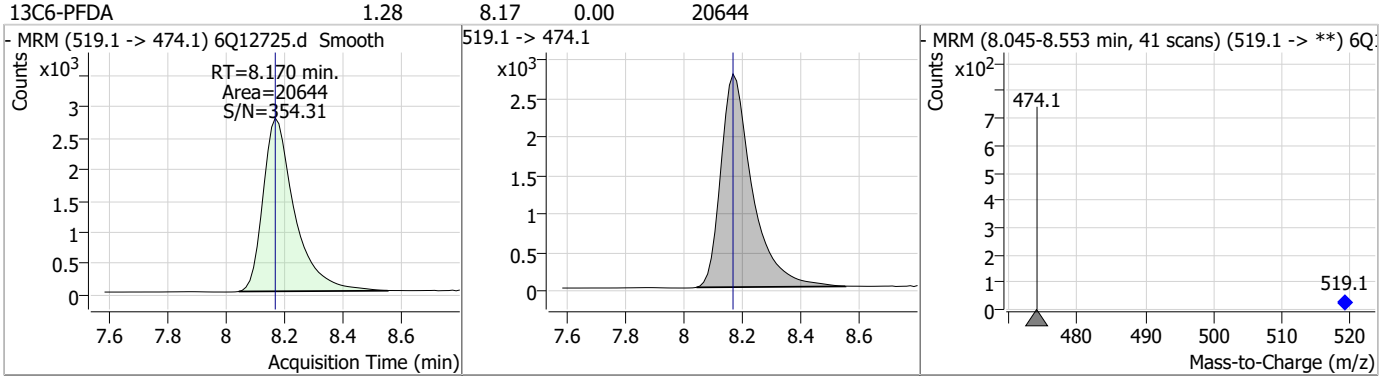
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.46	7.96	0.00	3416				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	4.72	7.96	0.00	12521	527.1 -> 80.8	24.1	12.0	36.1

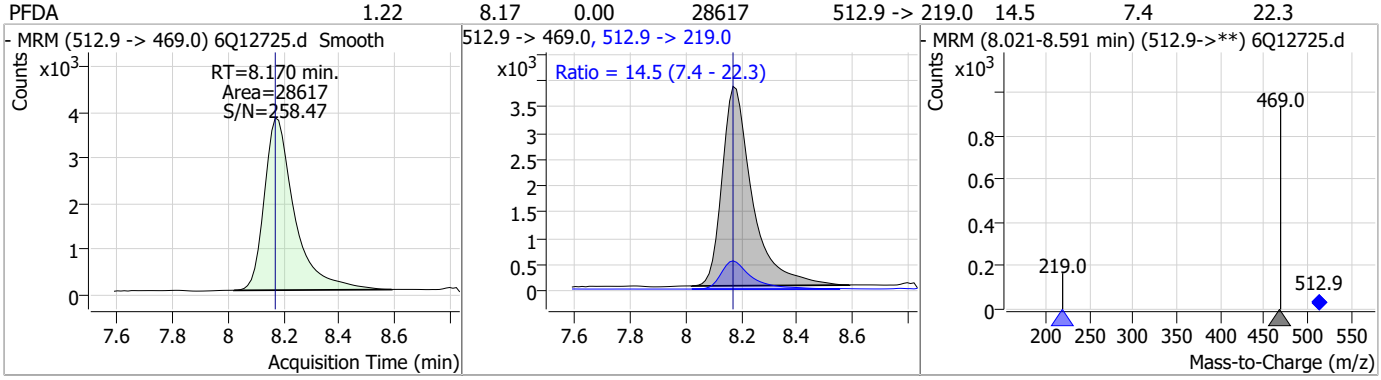


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.28	8.17	0.00	20644				

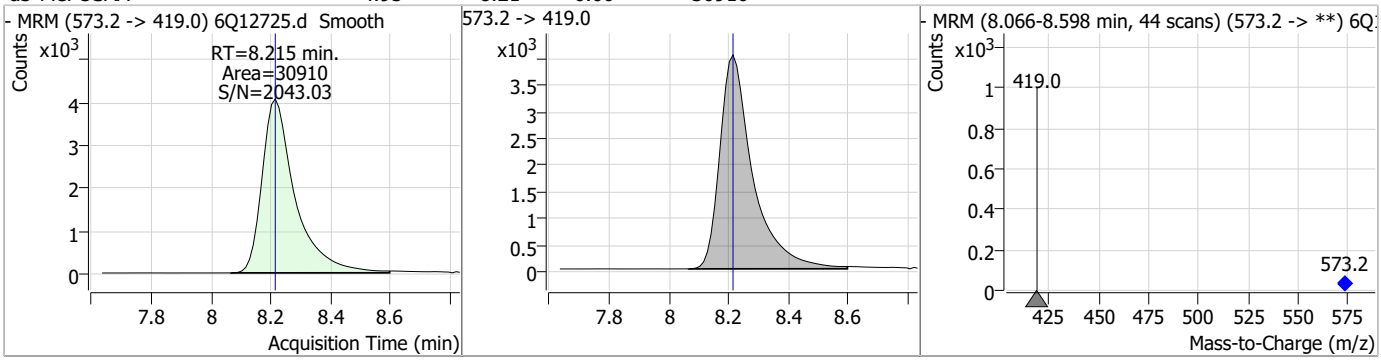


Perfluorinated Compounds by LC/MS/MS

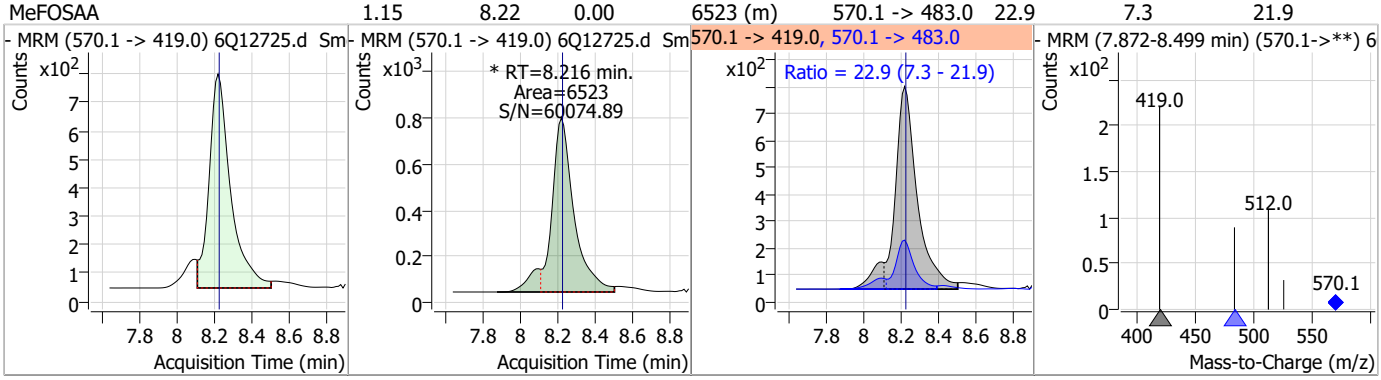
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.22	8.17	0.00	28617	512.9 -> 219.0	14.5	7.4	22.3



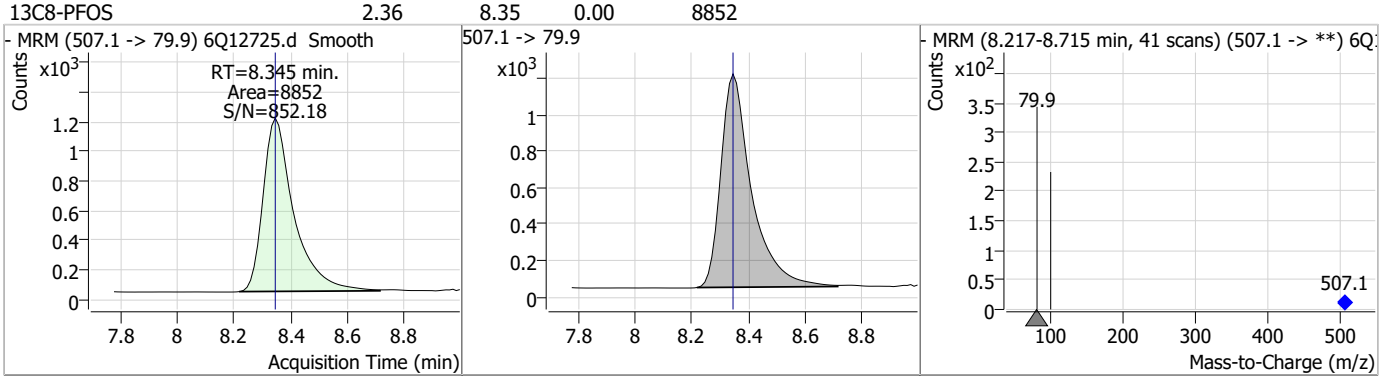
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.21	0.00	30910				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.15	8.22	0.00	6523 (m)	570.1 -> 483.0	22.9	7.3	21.9

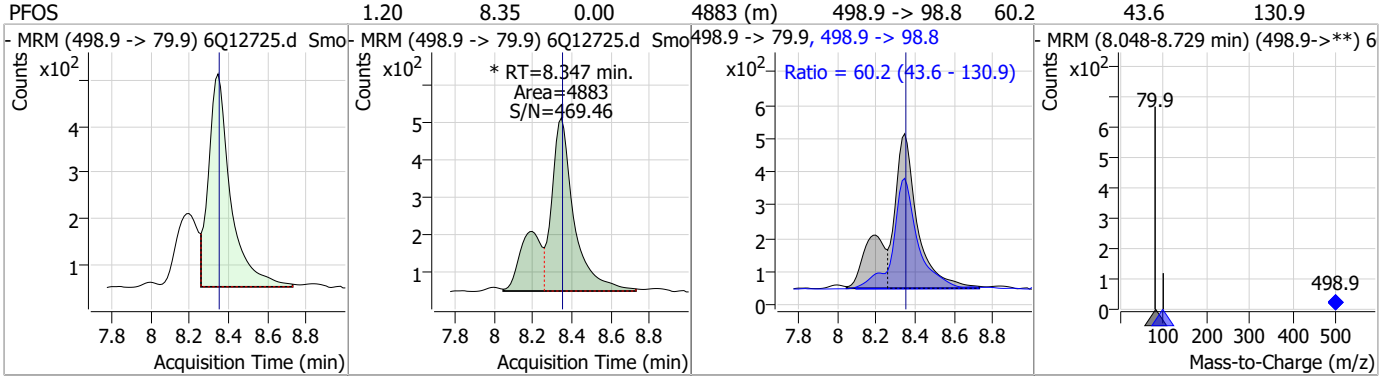


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.36	8.35	0.00	8852				

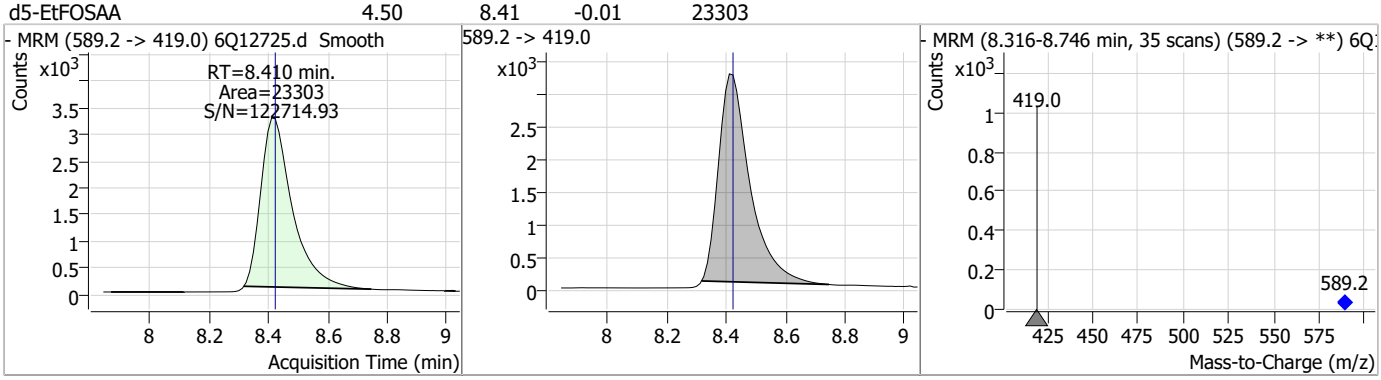


Perfluorinated Compounds by LC/MS/MS

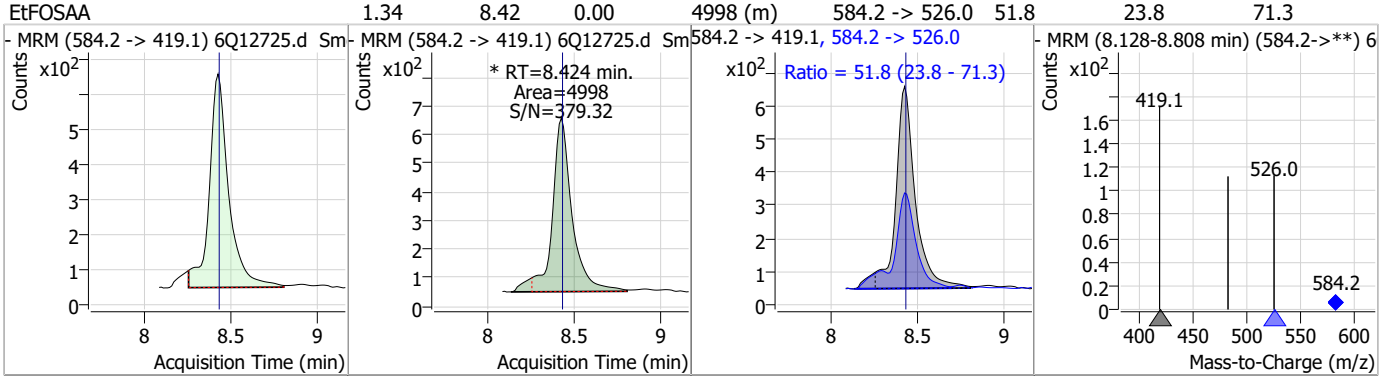
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.20	8.35	0.00	4883 (m)	498.9 -> 98.8	60.2	43.6	130.9



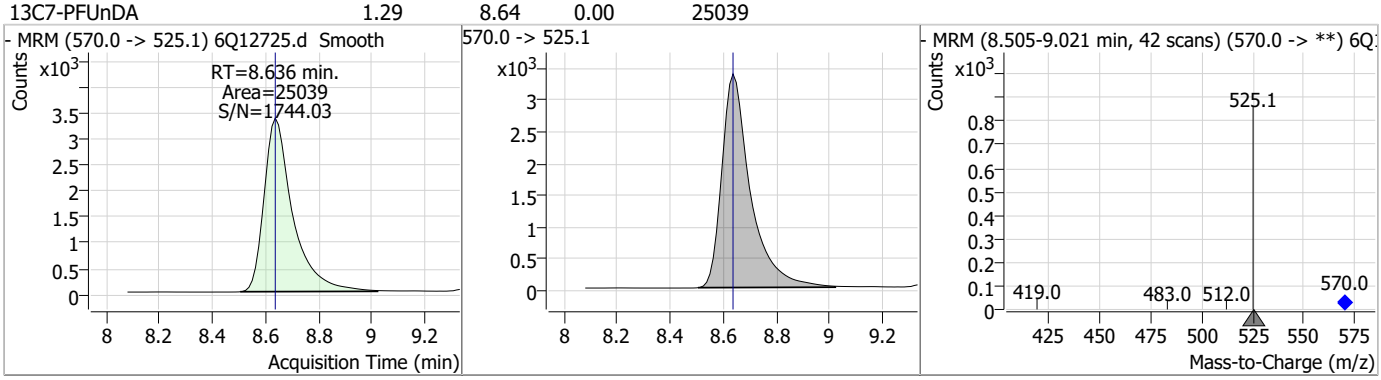
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.50	8.41	-0.01	23303				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.34	8.42	0.00	4998 (m)	584.2 -> 526.0	51.8	23.8	71.3

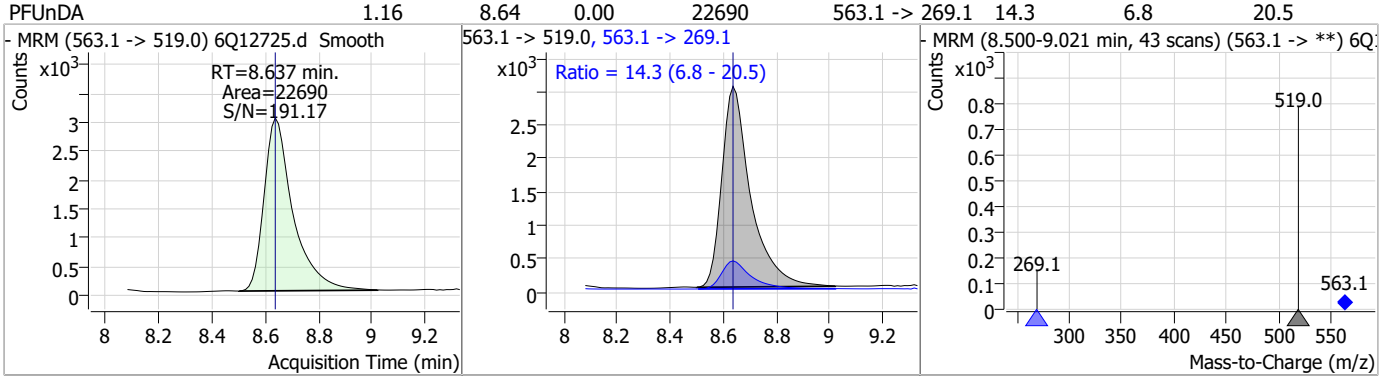


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.29	8.64	0.00	25039				

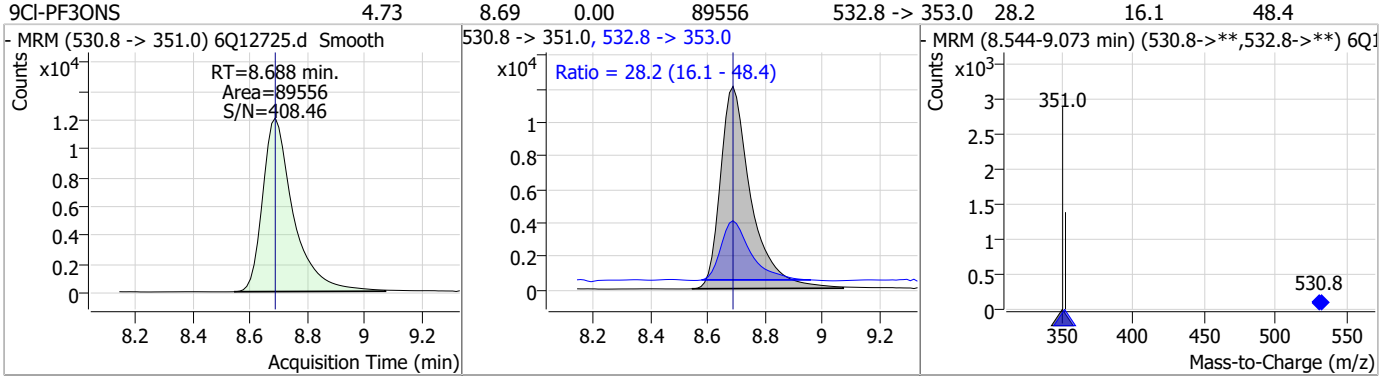


Perfluorinated Compounds by LC/MS/MS

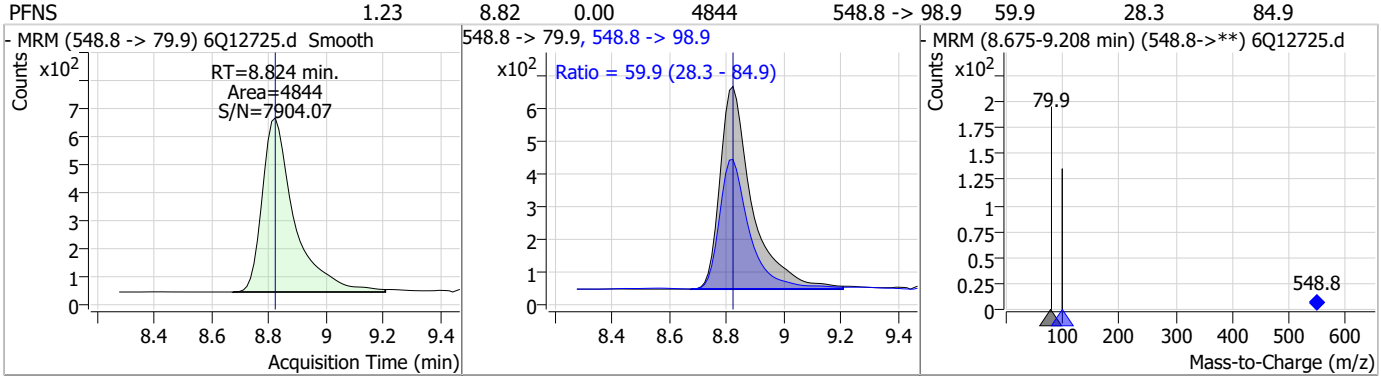
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.16	8.64	0.00	22690	563.1 -> 269.1	14.3	6.8	20.5



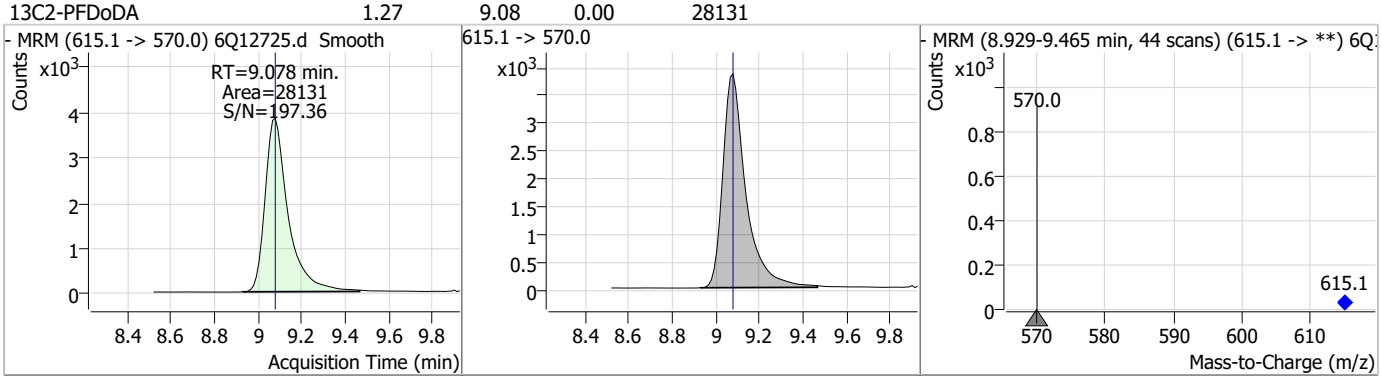
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.73	8.69	0.00	89556	532.8 -> 353.0	28.2	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.23	8.82	0.00	4844	548.8 -> 98.9	59.9	28.3	84.9

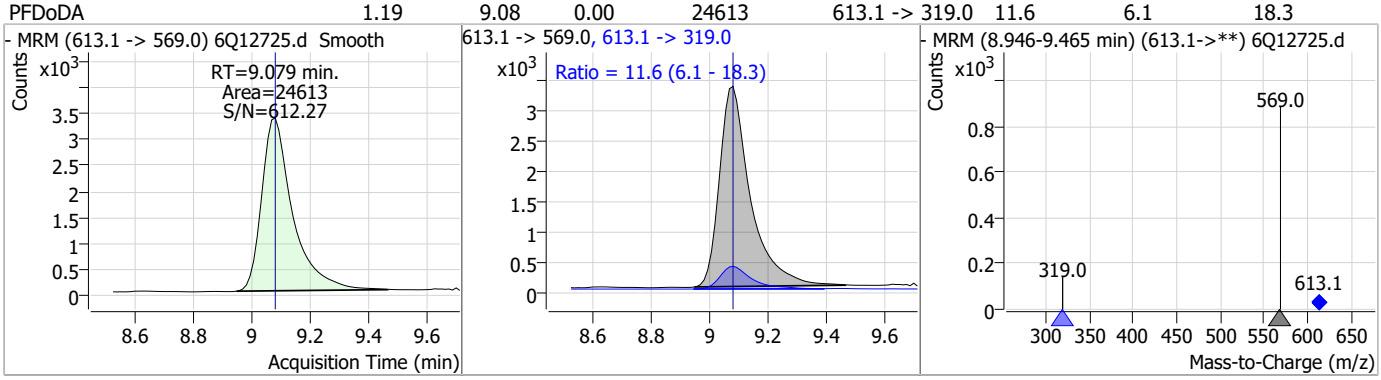


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	9.08	0.00	28131				

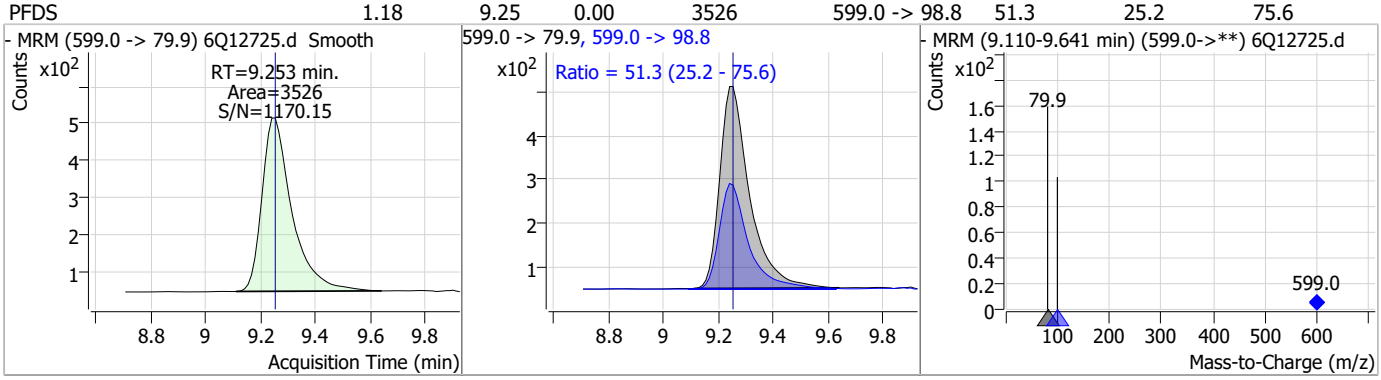


Perfluorinated Compounds by LC/MS/MS

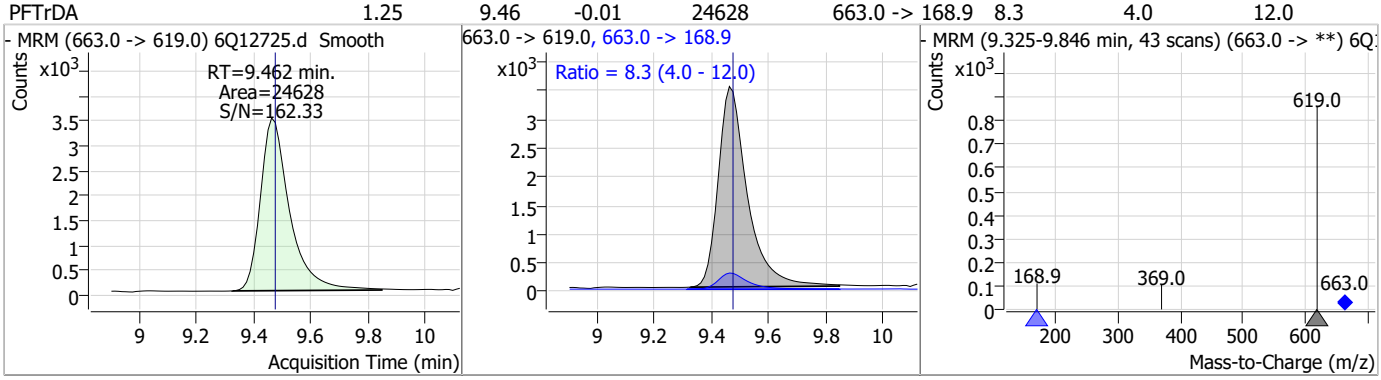
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.19	9.08	0.00	24613	613.1 -> 319.0	11.6	6.1	18.3



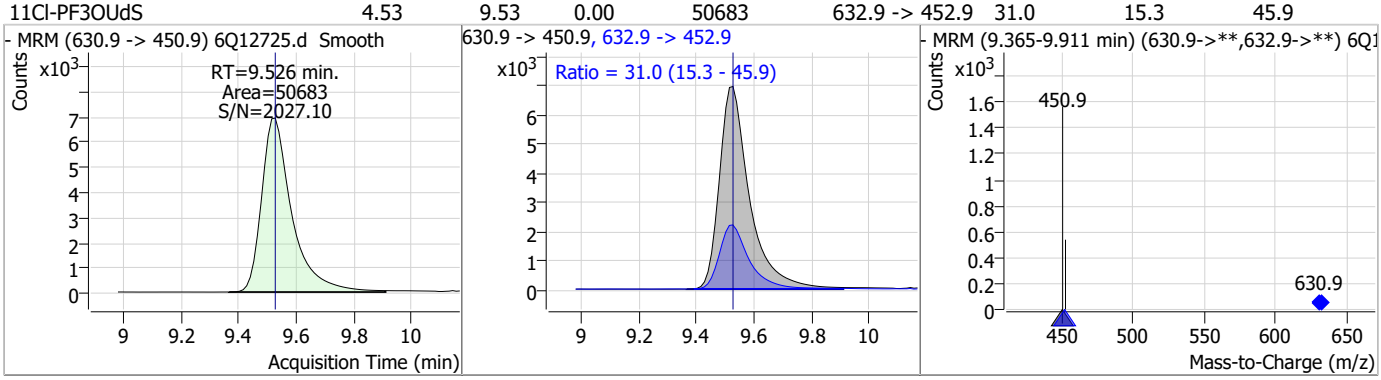
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.18	9.25	0.00	3526	599.0 -> 98.8	51.3	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.25	9.46	-0.01	24628	663.0 -> 168.9	8.3	4.0	12.0

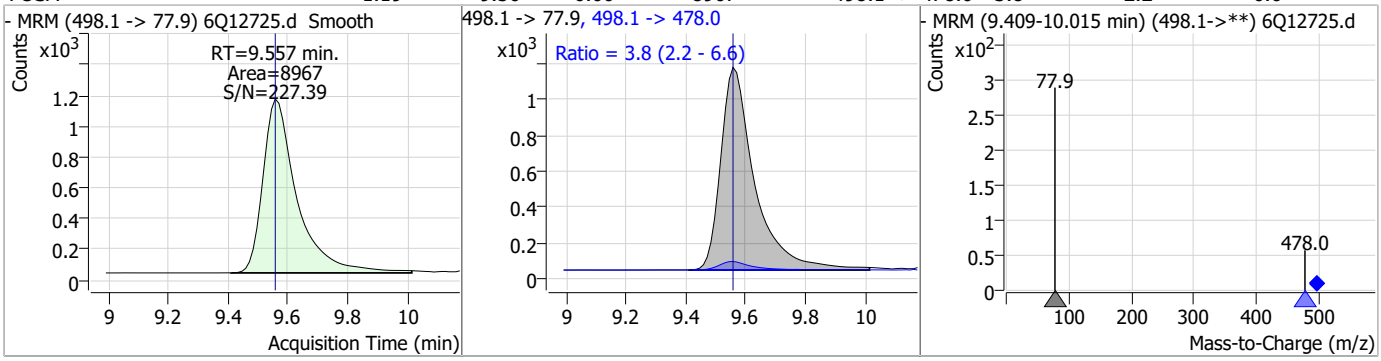


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.53	9.53	0.00	50683	632.9 -> 452.9	31.0	15.3	45.9

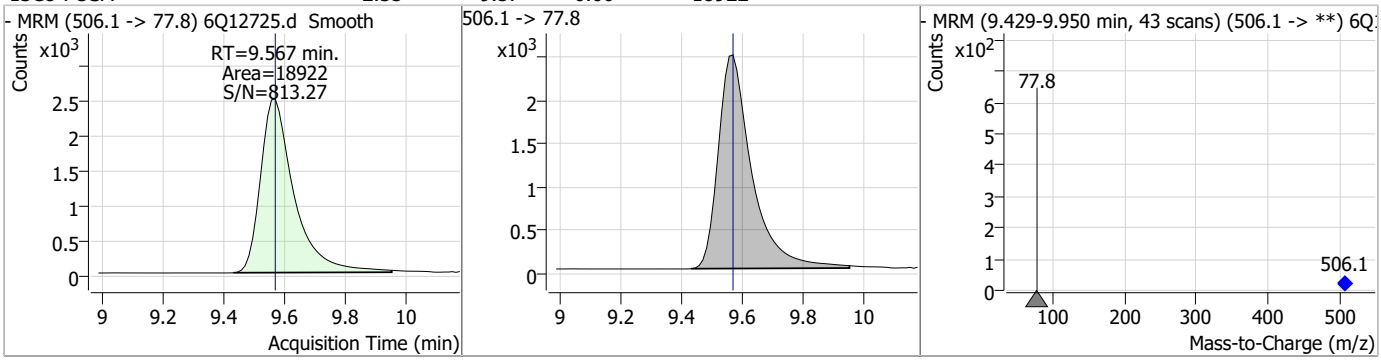


Perfluorinated Compounds by LC/MS/MS

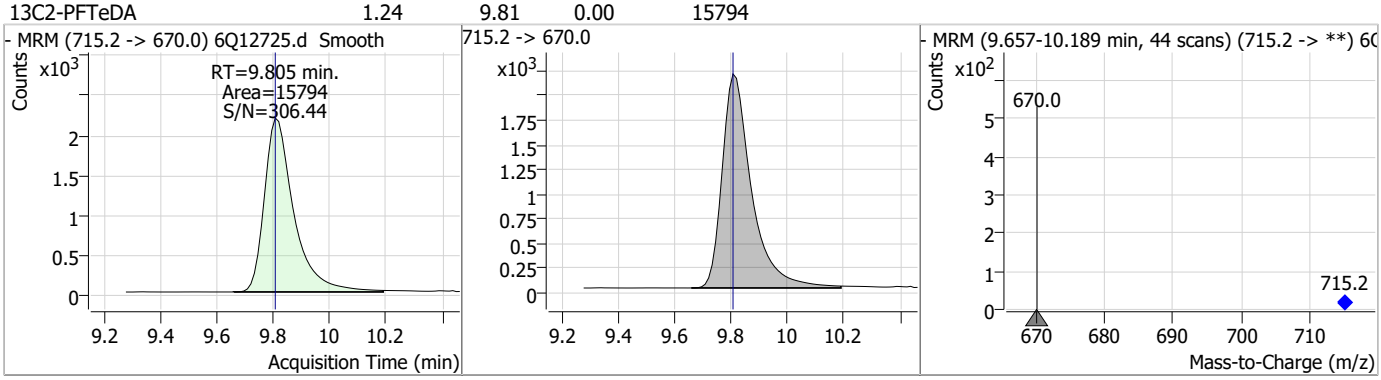
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.19	9.56	0.00	8967	498.1 -> 478.0	3.8	2.2	6.6



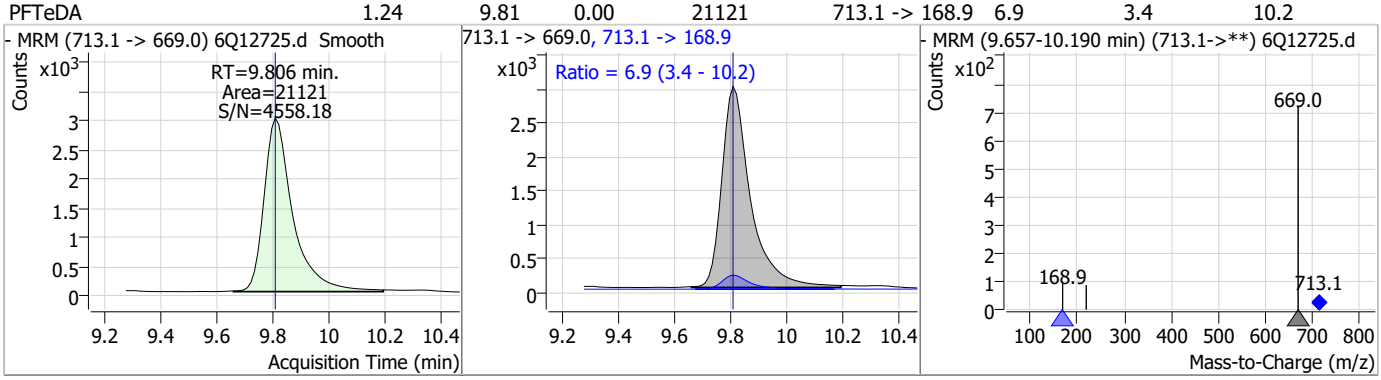
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.57	0.00	18922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.81	0.00	15794				

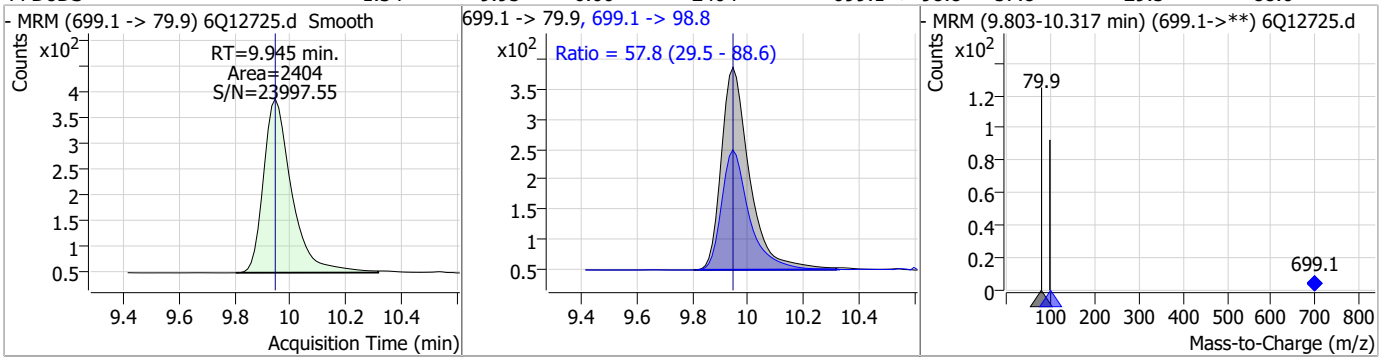


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.24	9.81	0.00	21121	713.1 -> 168.9	6.9	3.4	10.2

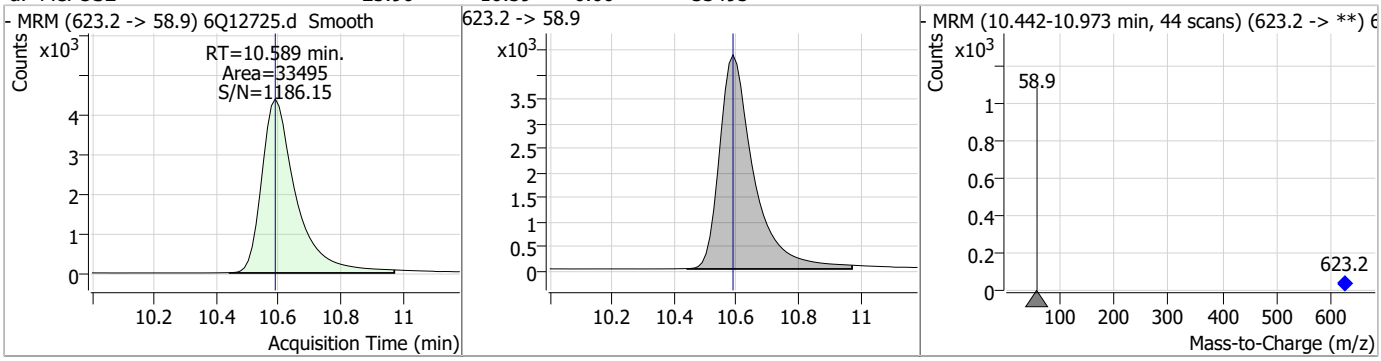


Perfluorinated Compounds by LC/MS/MS

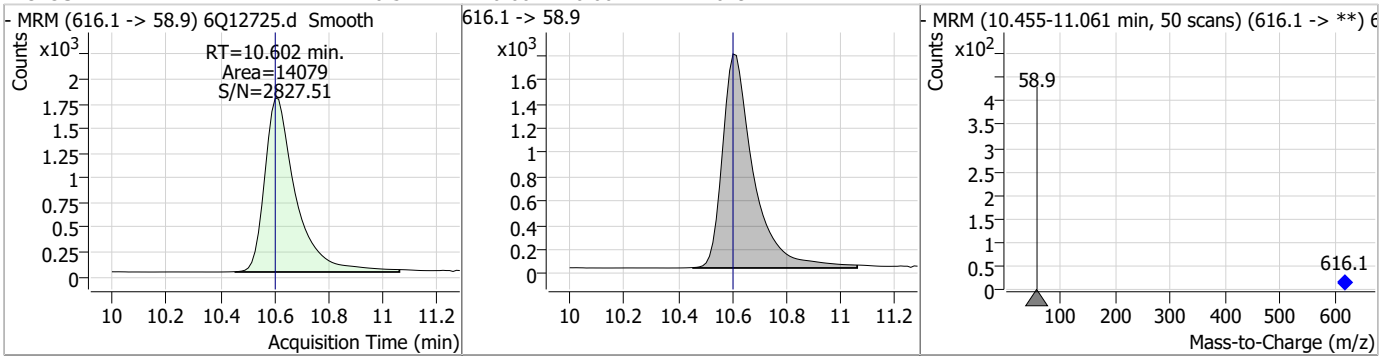
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	1.34	9.95	0.00	2404	699.1 -> 98.8	57.8	29.5	88.6



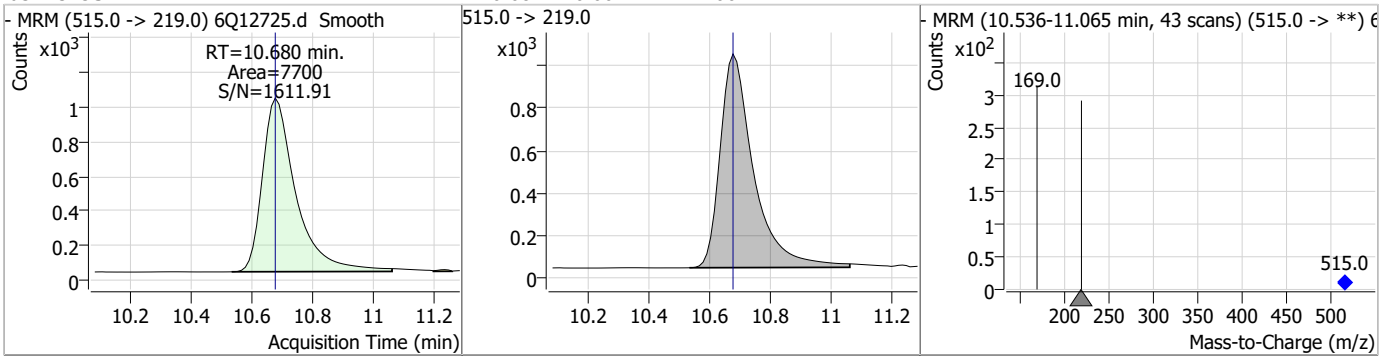
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.90	10.59	0.00	33495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.54	10.60	0.00	14079				

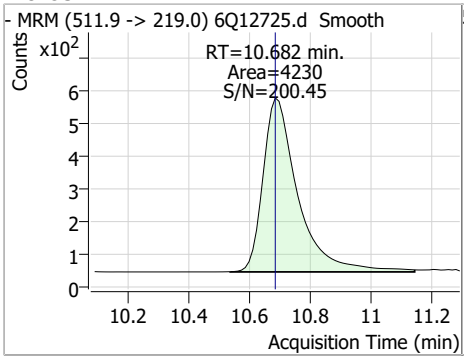


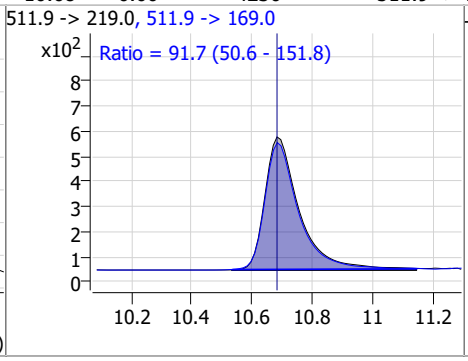
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.68	0.00	7700				

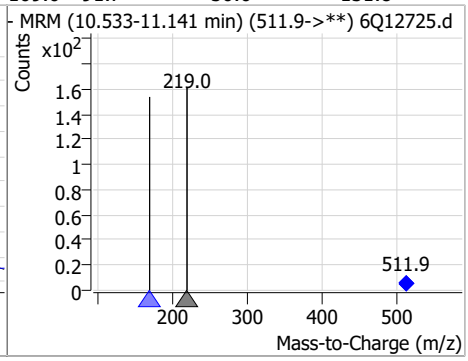


Perfluorinated Compounds by LC/MS/MS

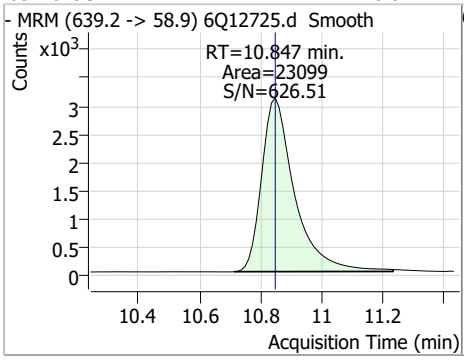
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.27	10.68	0.00	4230	511.9 -> 169.0	91.7	50.6	151.8

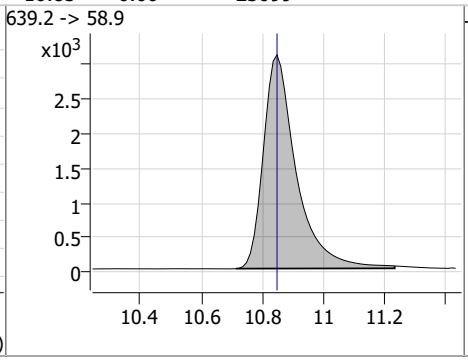


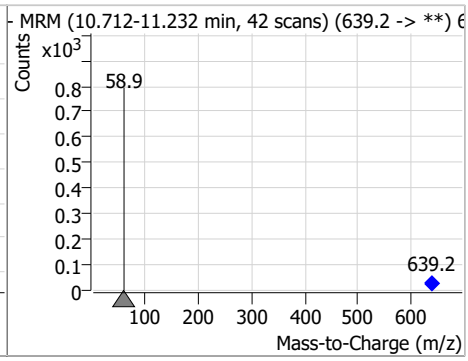




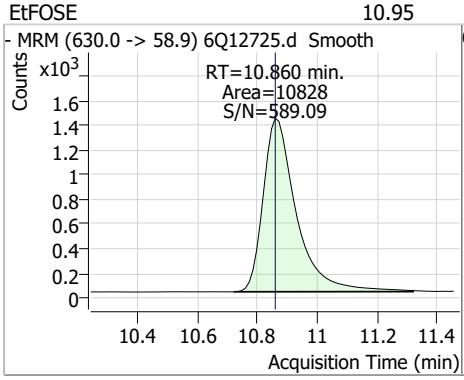
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.92	10.85	0.00	23099				

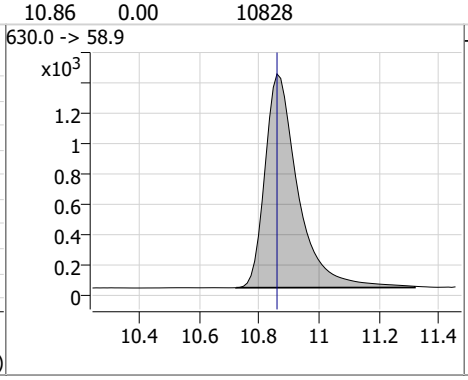


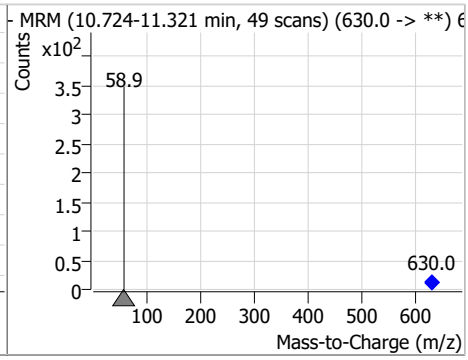




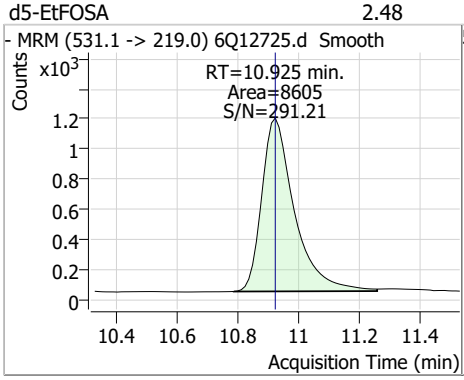
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.95	10.86	0.00	10828				

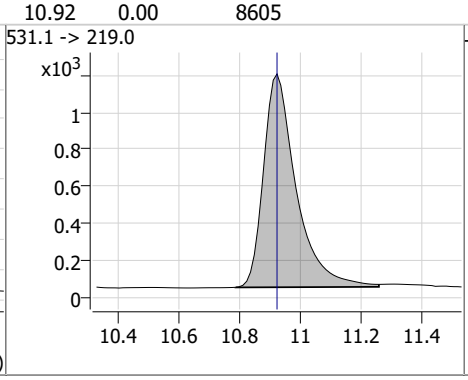


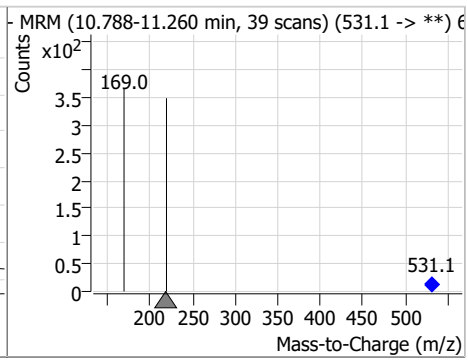




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.48	10.92	0.00	8605				

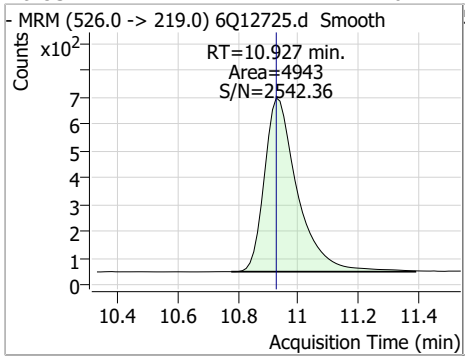


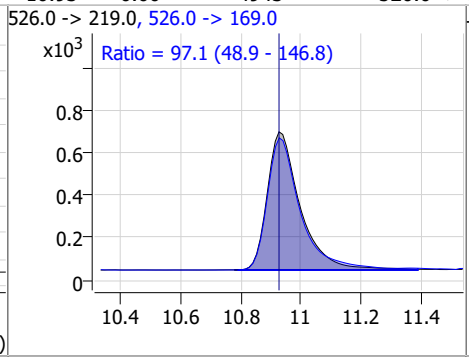


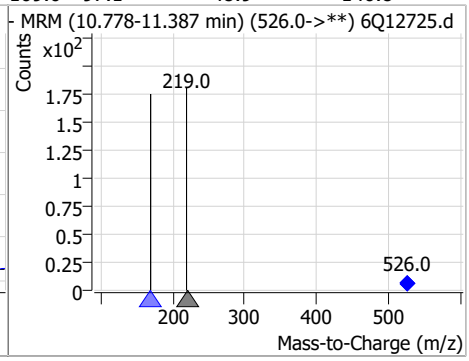


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	1.20	10.93	0.00	4943	526.0 -> 169.0	97.1	48.9	146.8







7.7.4

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12725.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 18:19	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12726.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 6:33:16 PM
Sample Name	:	icc196-4
Vial	:	P1-A5
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	81045	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	41552	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35975	2.50	µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	38376	2.50	µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	68201	2.50	µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	30158	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	19642	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24209	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27325	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15683	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18290	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14169	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9256	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9316	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2323	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3200	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2863	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30144	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23831	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	31414	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21253	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8213	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7400	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11023	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36535	5.00	µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7322	2.50	µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	79910	2.50	µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	27723	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32920	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	36044	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2323	4.88	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3200	5.07	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2863	4.51	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27325	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15683	1.29	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14169	2.38	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	9256	2.40	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C4-PFBA	2.975	216.8 -> 171.9	81045	10.00 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C4-PFHpA	6.515	367.1 -> 322.0	38376	2.58 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C5-PFHxA	5.575	318.0 -> 273.0	35975	2.52 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	41552	5.17 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19642	1.27 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	24209	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C8-FOSA	9.567	506.1 -> 77.8	18290	2.55 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C8-PFOA	7.159	421.1 -> 376.0	68201	2.56 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C8-PFOS	8.345	507.1 -> 79.9	9316	2.57 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C9-PFNA	7.689	472.1 -> 427.0	30158	1.30 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30144	4.99 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.22 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
d3-MeFOSA	10.680	515.0 -> 219.0	7400	2.39 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%		
d5-EtFOSAA	8.422	589.2 -> 419.0	23831	4.75 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	31414	25.10 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
d9-EtFOSE	10.847	639.2 -> 58.9	21253	24.64 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
d5-EtFOSA	10.925	531.1 -> 219.0	8213	2.44 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	48473	9.31 µg/L		100
		327.1 -> 80.9	10617			
6:2FTS	6.921	427.1 -> 407.0	43537	9.29 µg/L		100
		427.1 -> 80.9	8078			
8:2FTS	7.958	527.1 -> 507.0	23220	10.44 µg/L		100
		527.1 -> 80.8	5590			
EtFOSAA	8.424	584.2 -> 419.1	9020	2.36 µg/L	m	87
		584.2 -> 526.0	5043			
FOSA	9.557	498.1 -> 77.9	16805	2.30 µg/L		100
		498.1 -> 478.0	740			
MeFOSAA	8.216	570.1 -> 419.0	12562	2.27 µg/L		92
		570.1 -> 483.0	2224			
PFBA	2.982	212.8 -> 168.9	16638	9.19 µg/L		100
PFBS	5.518	298.7 -> 79.9	11743	2.16 µg/L		100
		298.7 -> 98.8	5126			
PFDA	8.170	512.9 -> 469.0	52409	2.34 µg/L		100
		512.9 -> 219.0	7793			
PFDoDA	9.079	613.1 -> 569.0	47321	2.36 µg/L		100
		613.1 -> 319.0	5764			
PFDS	9.253	599.0 -> 79.9	6826	2.16 µg/L		100

Perfluorinated Compounds by LC/MS/MS

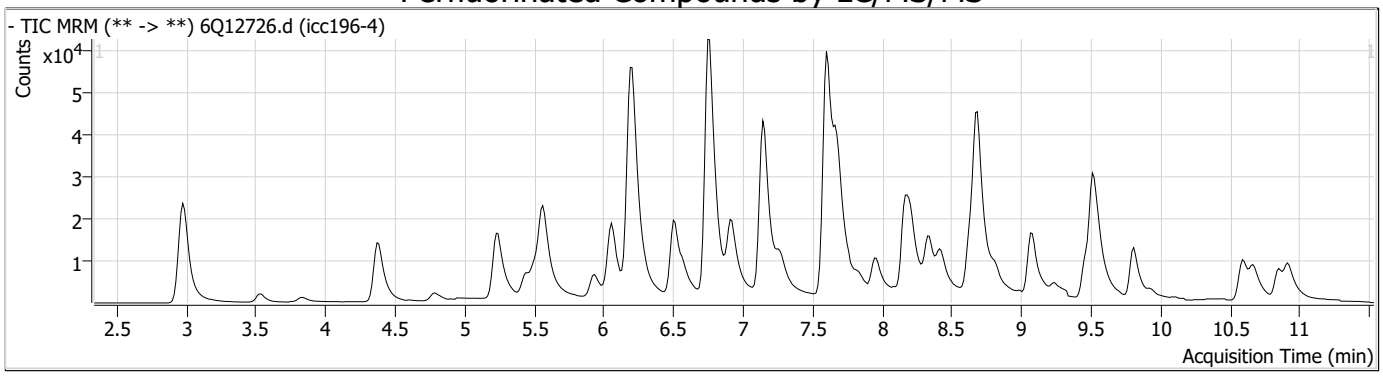
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3440				
PFHpA	6.515	363.1 -> 319.0	52449	2.31	µg/L		100
		363.1 -> 169.0	6568				
PFHpS	7.841	449.0 -> 79.9	8840	2.24	µg/L		100
		449.0 -> 98.9	4888				
PFHxA	5.578	313.0 -> 269.0	31377	2.22	µg/L		100
		313.0 -> 118.9	1353				
PFHxS	7.287	398.7 -> 79.9	8643	2.08	µg/L	m	95
		398.7 -> 98.9	5191				
PFNA	7.690	463.0 -> 419.0	45119	2.22	µg/L		100
		463.0 -> 219.0	8671				
PFNS	8.824	548.8 -> 79.9	9216	2.23	µg/L		100
		548.8 -> 98.9	5214				
PFOA	7.160	413.0 -> 369.0	66570	2.22	µg/L		100
		413.0 -> 169.0	9080				
PFOS	8.347	498.9 -> 79.9	8731	2.04	µg/L	m	79
		498.9 -> 98.8	5942				
PFPeA	4.388	263.0 -> 219.0	39627	4.52	µg/L		100
PFPeS	6.581	349.1 -> 79.9	10800	2.23	µg/L		100
		349.1 -> 98.9	5518				
PFTeDA	9.806	713.1 -> 669.0	39062	2.31	µg/L		100
		713.1 -> 168.9	2666				
PFTrDA	9.475	663.0 -> 619.0	44162	2.31	µg/L		100
		663.0 -> 168.9	3535				
PFUnDA	8.637	563.1 -> 519.0	44622	2.37	µg/L		100
		563.1 -> 269.1	6092				
11Cl-PF3OUdS	9.526	630.9 -> 450.9	93819	8.68	µg/L		100
		632.9 -> 452.9	28684				
9Cl-PF3ONS	8.688	530.8 -> 351.0	160664	8.80	µg/L		100
		532.8 -> 353.0	51833				
ADONA	6.766	376.9 -> 250.9	281709	8.62	µg/L		100
		376.9 -> 84.8	62877				
HFPO-DA	5.940	284.9 -> 168.9	12521	8.89	µg/L		100
		284.9 -> 184.9	1659				
3:3FTCA	3.841	241.0 -> 177.0	4887	11.34	µg/L		100
		241.0 -> 117.0	725				
5:3FTCA	6.206	341.0 -> 237.1	176343	59.77	µg/L		100
		341.0 -> 217.0	153804				
7:3FTCA	7.617	441.0 -> 316.9	110415	57.25	µg/L		100
		441.0 -> 336.9	231871				
EtFOSA	10.927	526.0 -> 219.0	9349	2.38	µg/L		100
		526.0 -> 169.0	9150				
EtFOSE	10.860	630.0 -> 58.9	20527	22.57	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	7762	2.42	µg/L		100
		511.9 -> 169.0	7856				
MeFOSE	10.602	616.1 -> 58.9	28719	22.92	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	4076	2.16	µg/L		100
		699.1 -> 98.8	2408				
NFDHA	5.457	295.0 -> 201.0	3919	4.70	µg/L		100
		295.0 -> 84.9	2015				
PFMBA	4.800	279.0 -> 85.1	11121	4.51	µg/L		100
PFMPA	3.541	229.0 -> 84.9	10505	4.49	µg/L		100
PFEESA	6.059	314.8 -> 134.9	86334	4.25	µg/L		100
		314.8 -> 82.9	1954				

= Qualifier out of range, m = manually integrated, + = Area summed

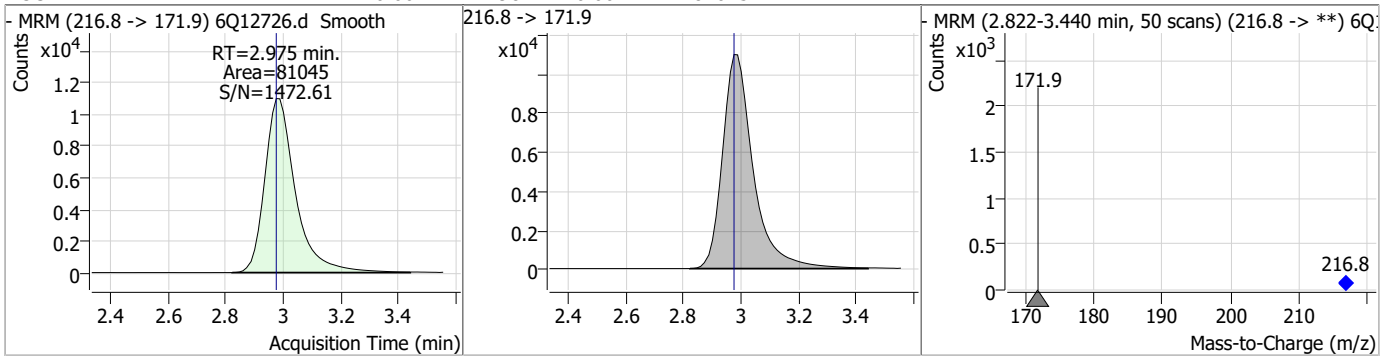
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

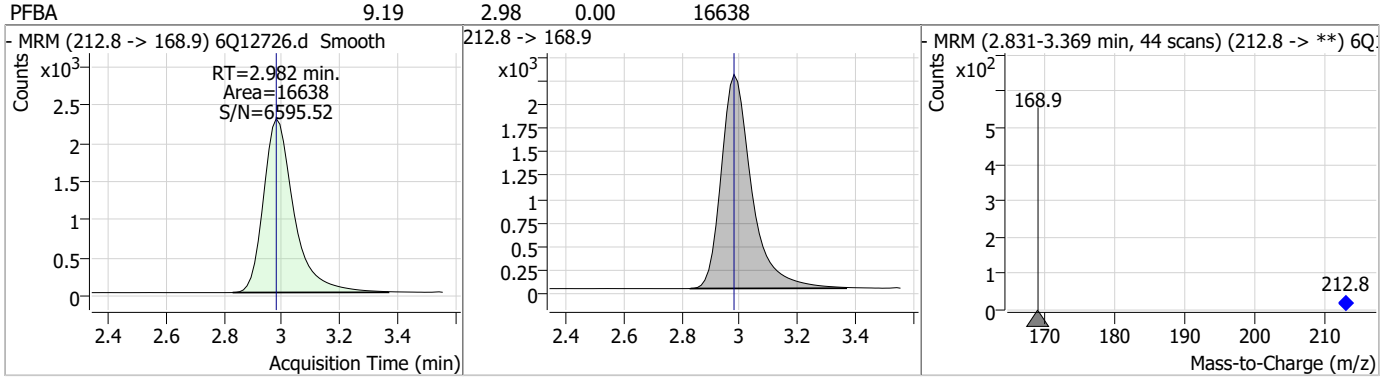
Perfluorinated Compounds by LC/MS/MS



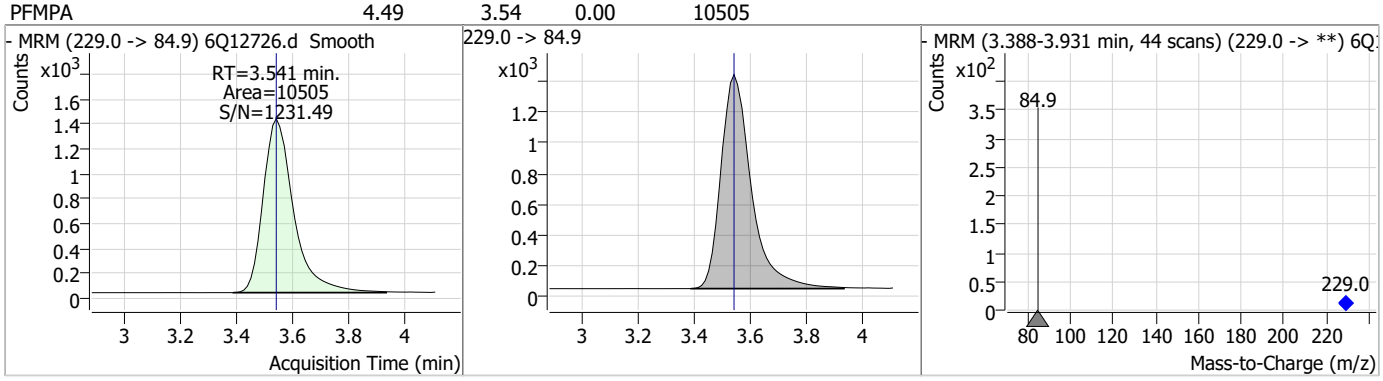
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.00	2.98	0.00	81045				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.19	2.98	0.00	16638				

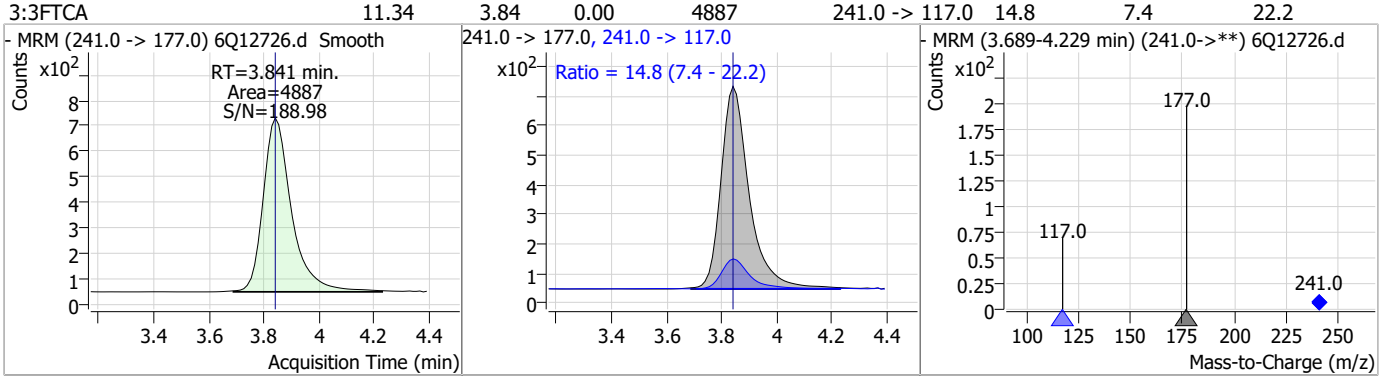


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	4.49	3.54	0.00	10505				

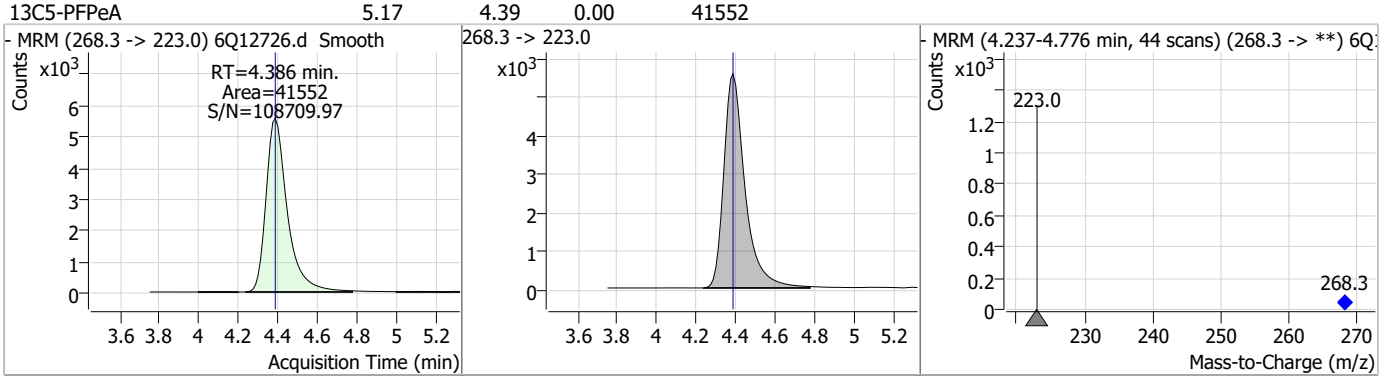


Perfluorinated Compounds by LC/MS/MS

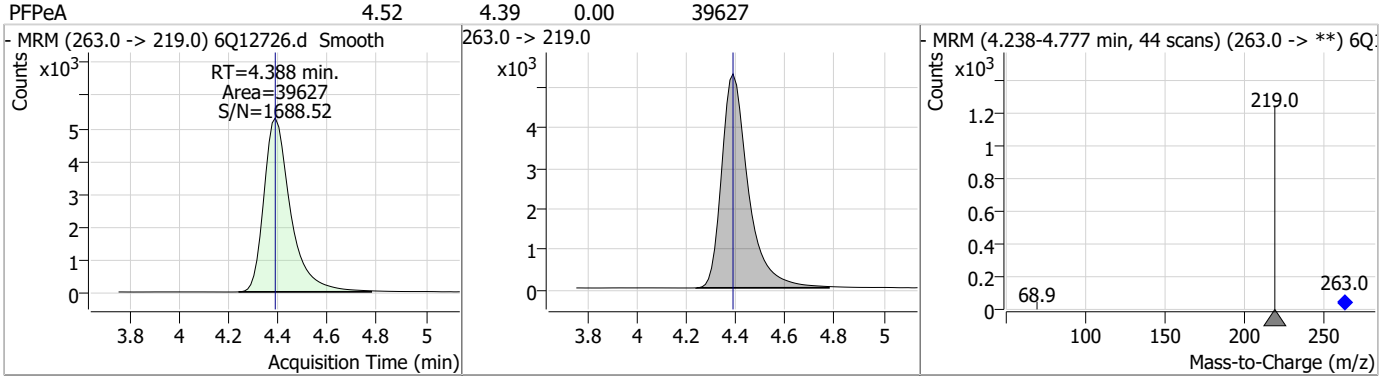
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.34	3.84	0.00	4887	241.0 -> 117.0	14.8	7.4	22.2



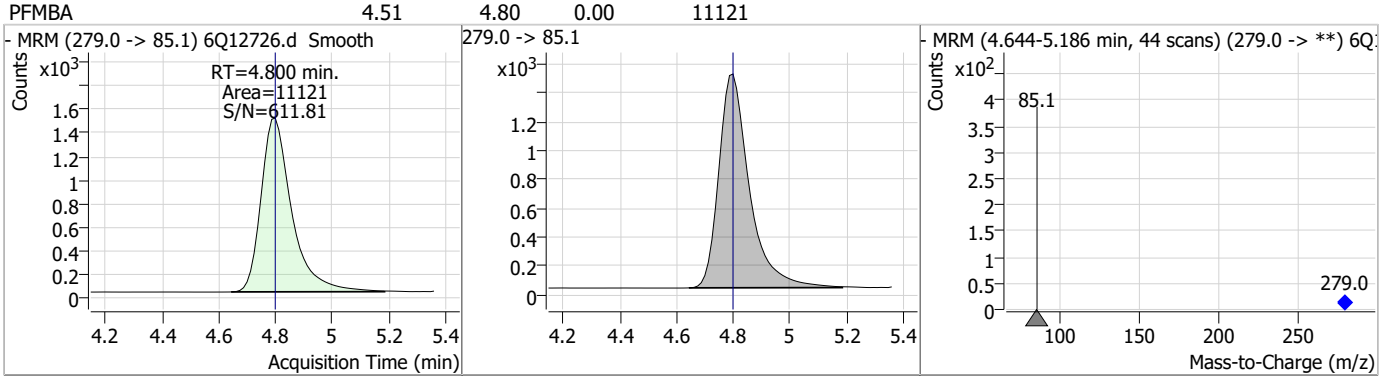
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.39	0.00	41552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.52	4.39	0.00	39627				

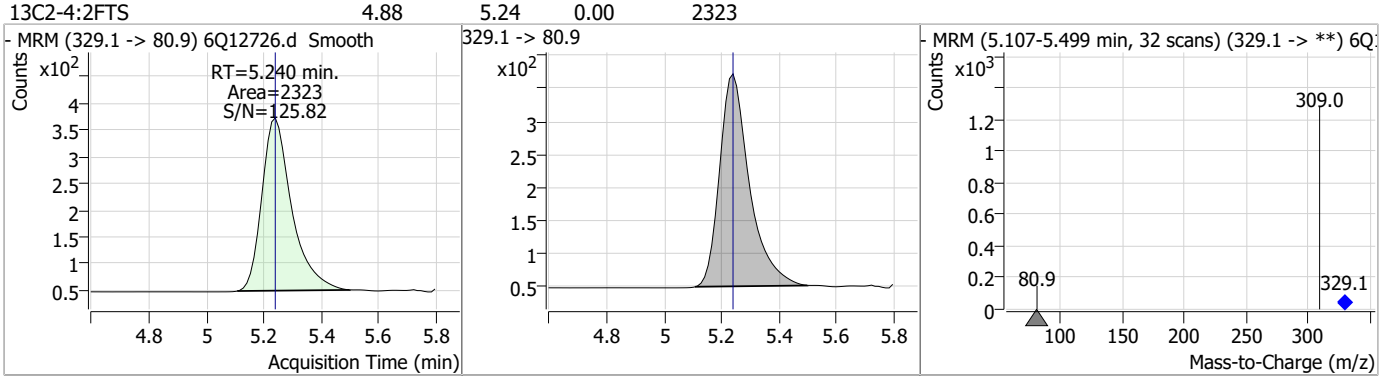


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.51	4.80	0.00	11121				

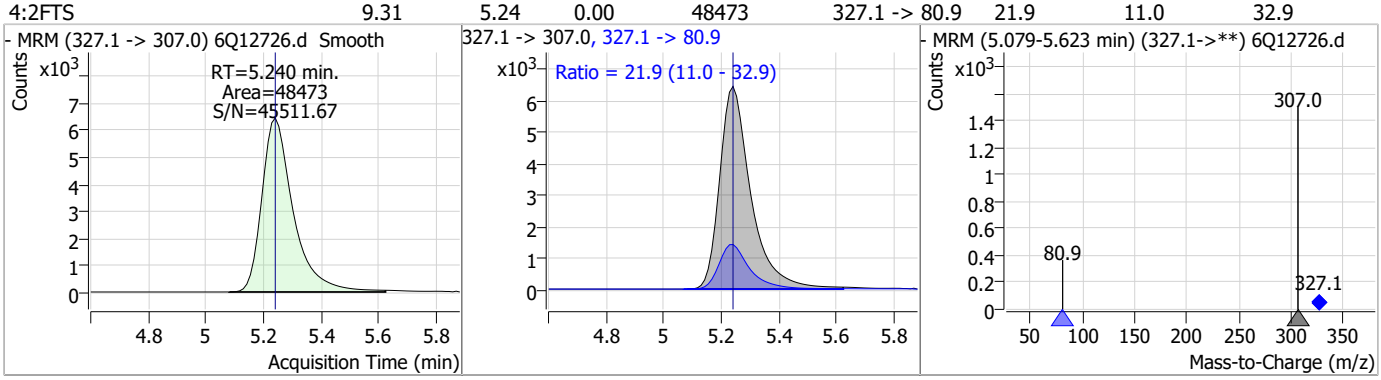


Perfluorinated Compounds by LC/MS/MS

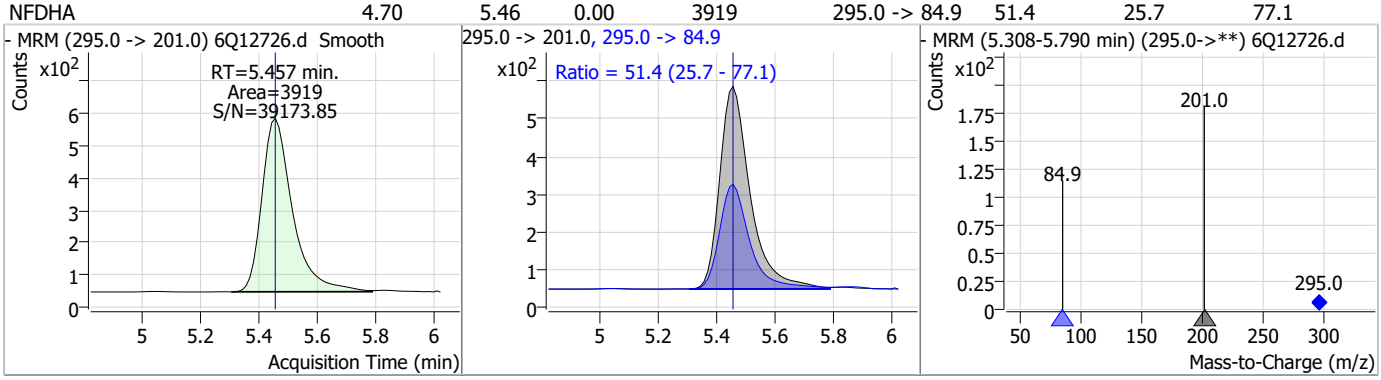
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.88	5.24	0.00	2323				



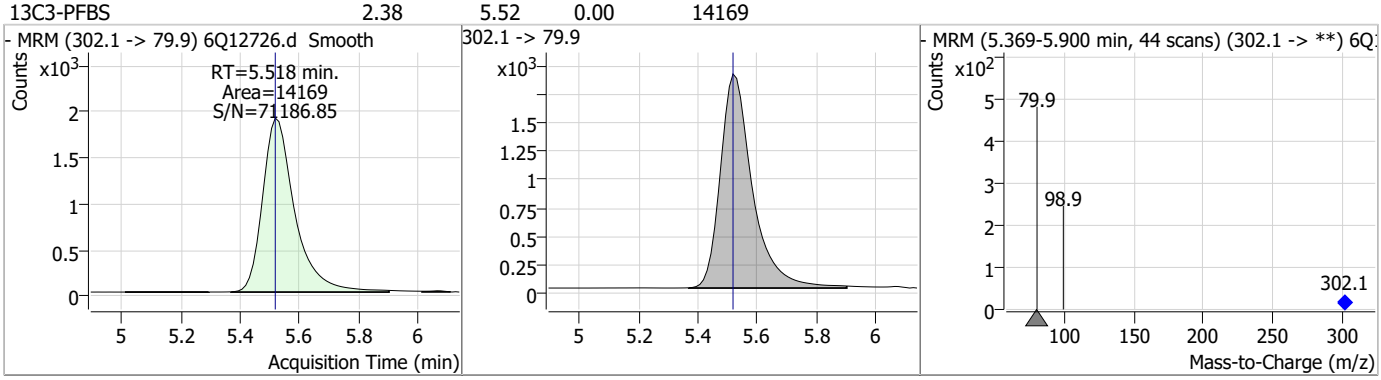
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.31	5.24	0.00	48473	327.1 -> 80.9	21.9	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.70	5.46	0.00	3919	295.0 -> 84.9	51.4	25.7	77.1

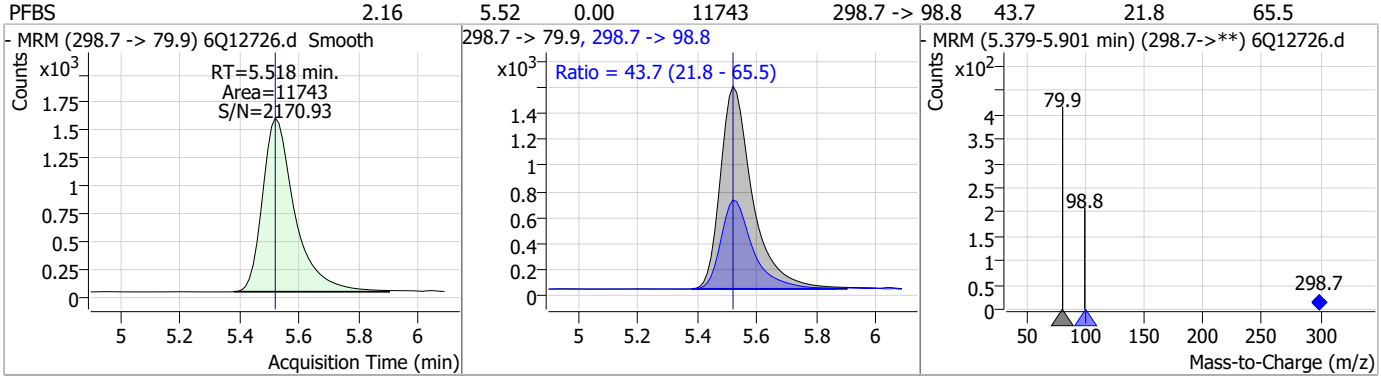


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.38	5.52	0.00	14169				

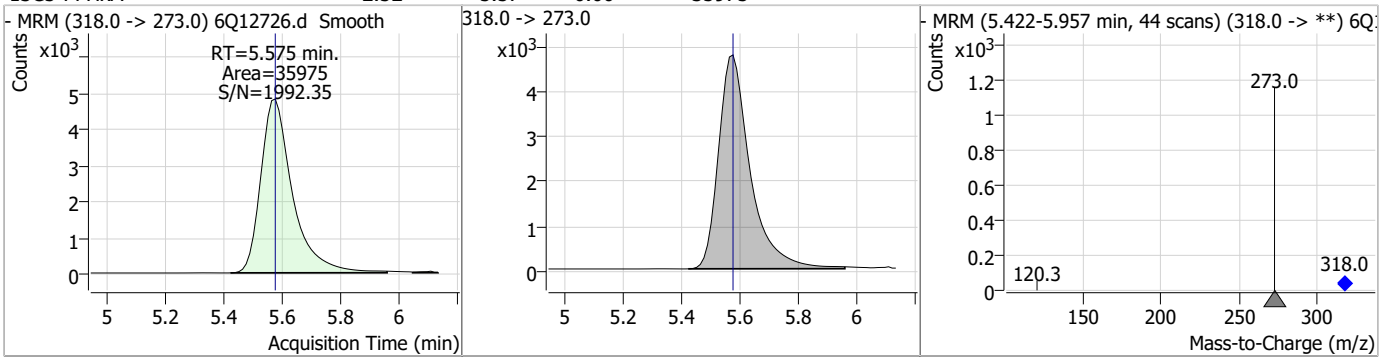


Perfluorinated Compounds by LC/MS/MS

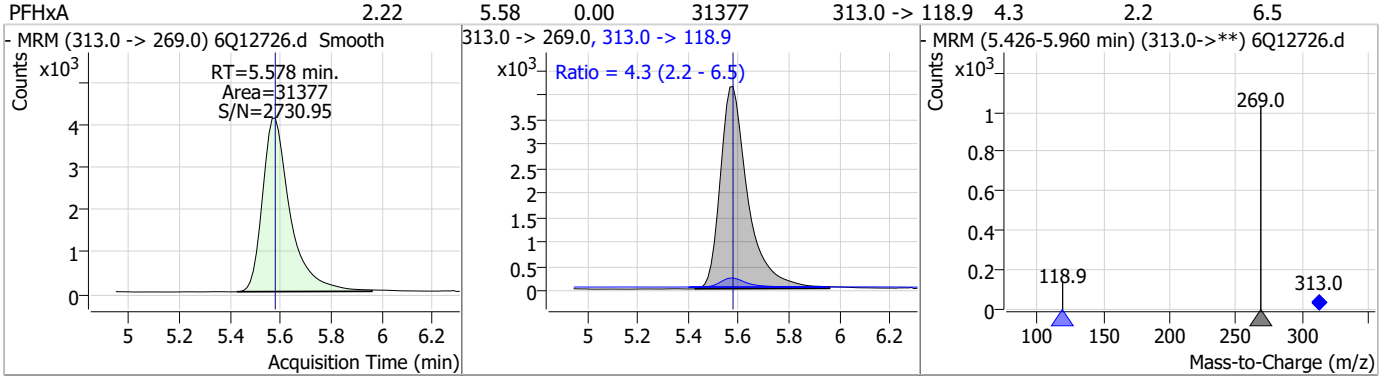
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.52	0.00	11743	298.7 -> 98.8	43.7	21.8	65.5



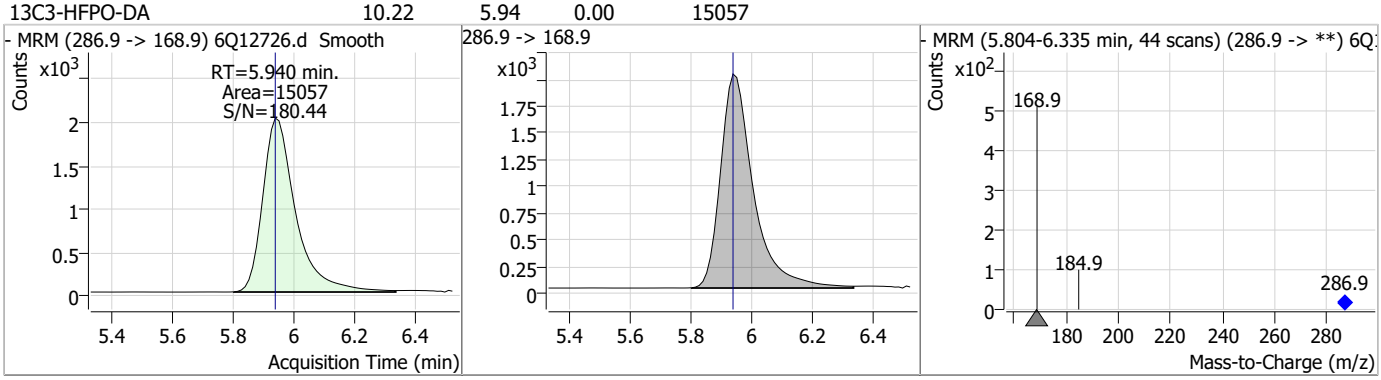
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.57	0.00	35975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.22	5.58	0.00	31377	313.0 -> 118.9	4.3	2.2	6.5

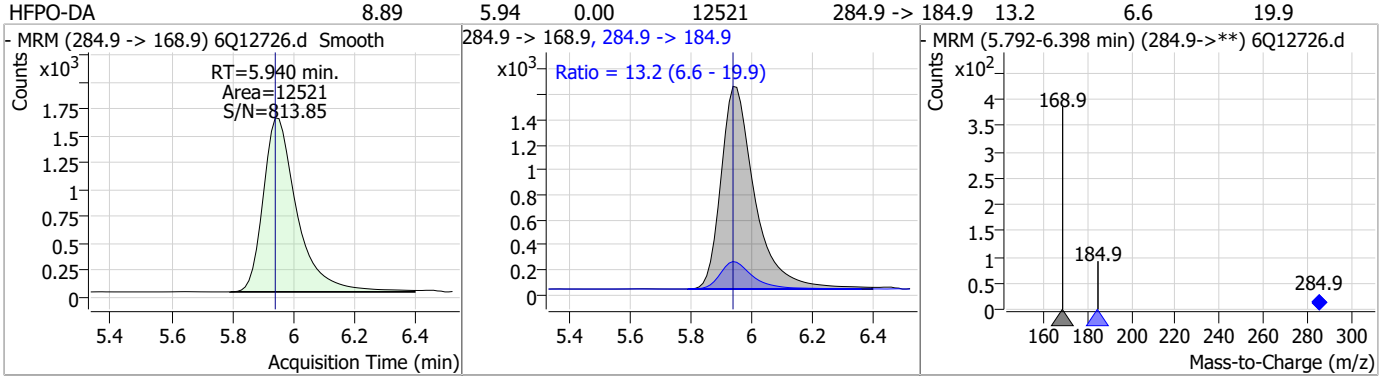


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.22	5.94	0.00	15057				

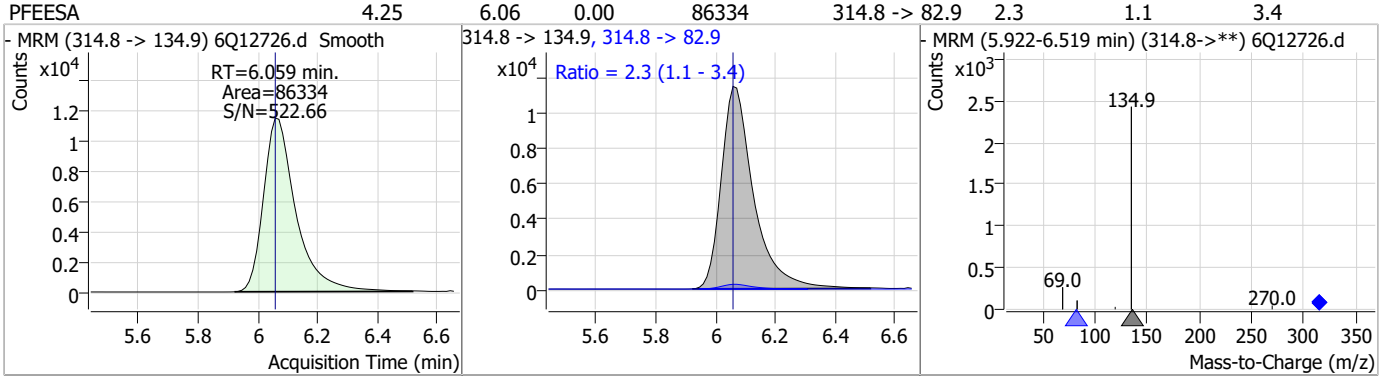


Perfluorinated Compounds by LC/MS/MS

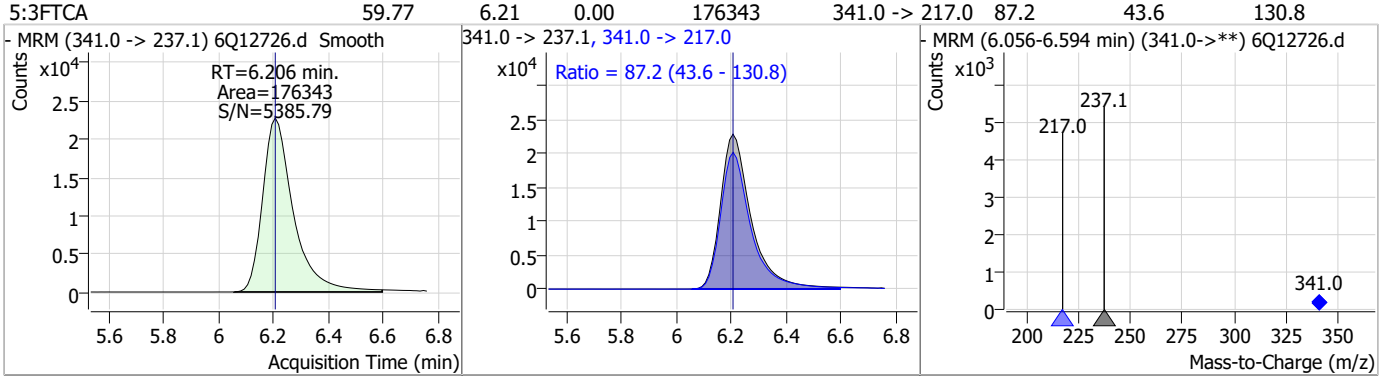
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.89	5.94	0.00	12521	284.9 -> 184.9	13.2	6.6	19.9



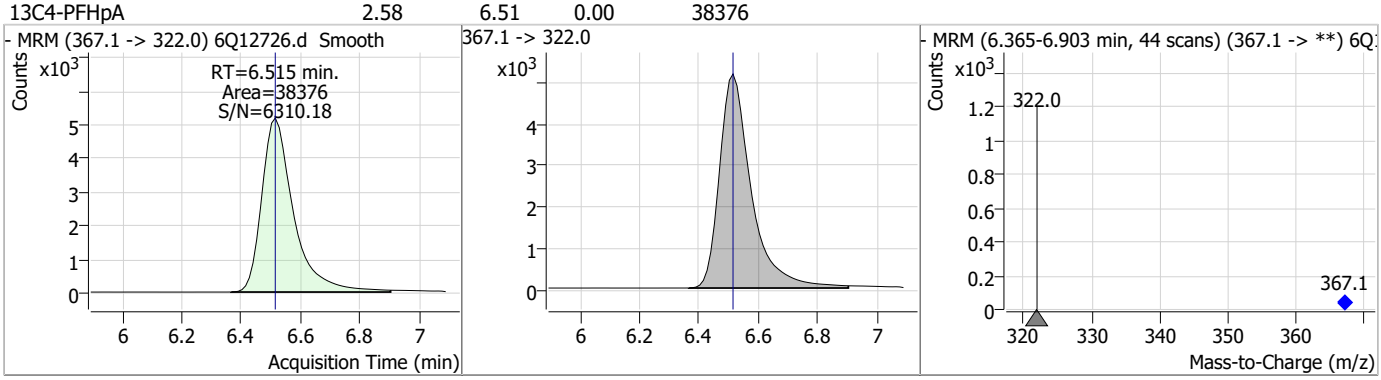
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	6.06	0.00	86334	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.77	6.21	0.00	176343	341.0 -> 217.0	87.2	43.6	130.8

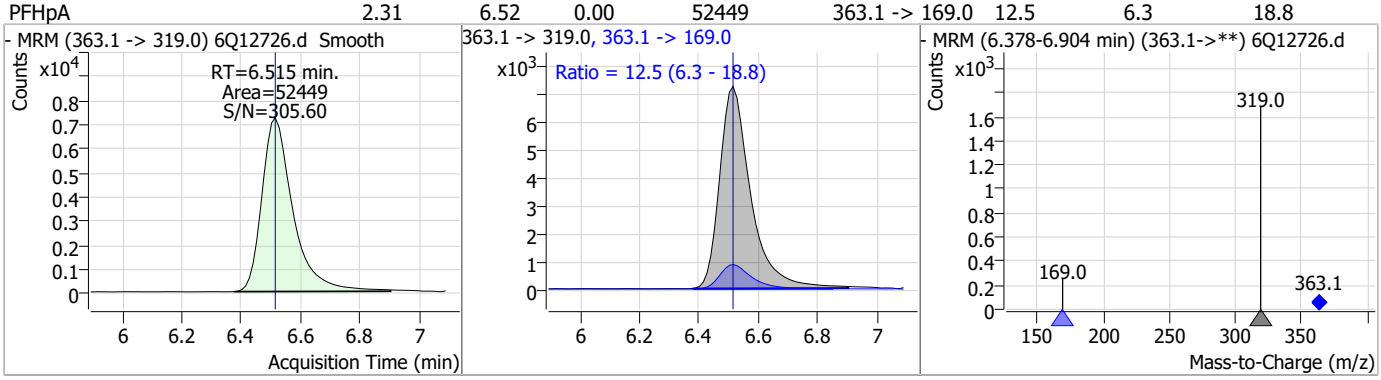


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.58	6.51	0.00	38376				

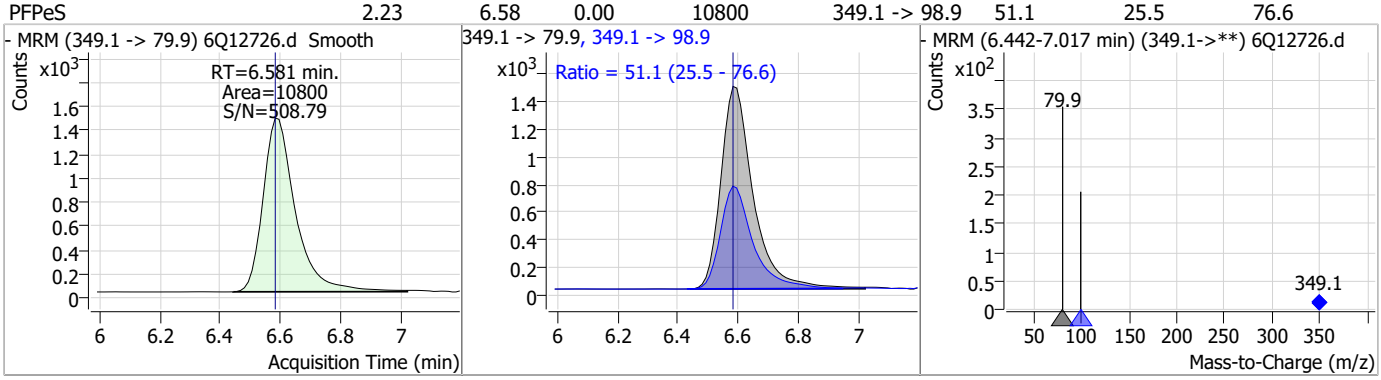


Perfluorinated Compounds by LC/MS/MS

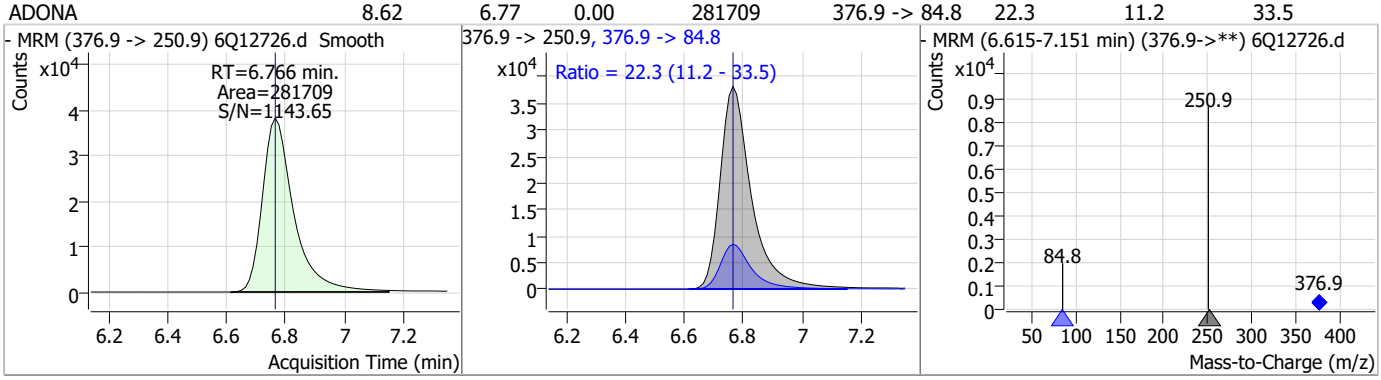
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.31	6.52	0.00	52449	363.1 -> 169.0	12.5	6.3	18.8



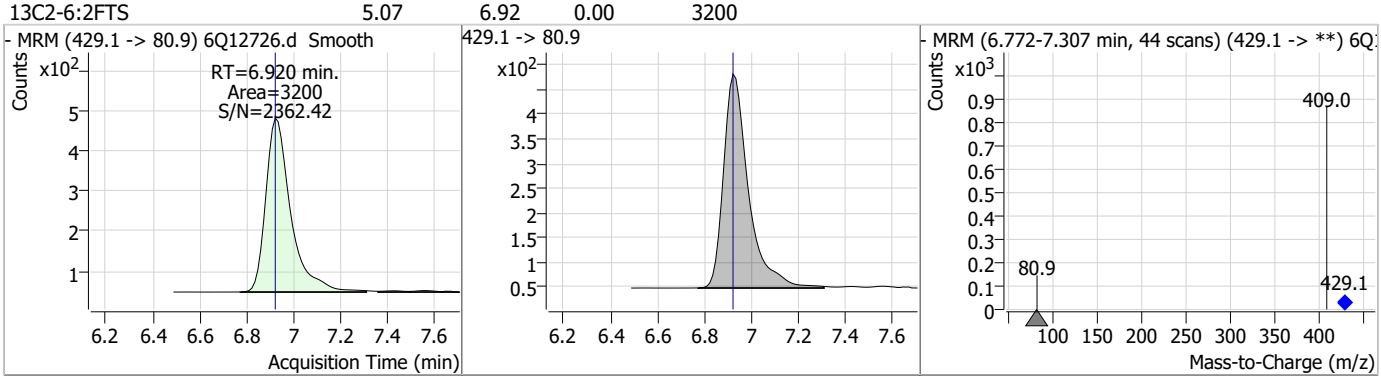
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.23	6.58	0.00	10800	349.1 -> 98.9	51.1	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.62	6.77	0.00	281709	376.9 -> 84.8	22.3	11.2	33.5

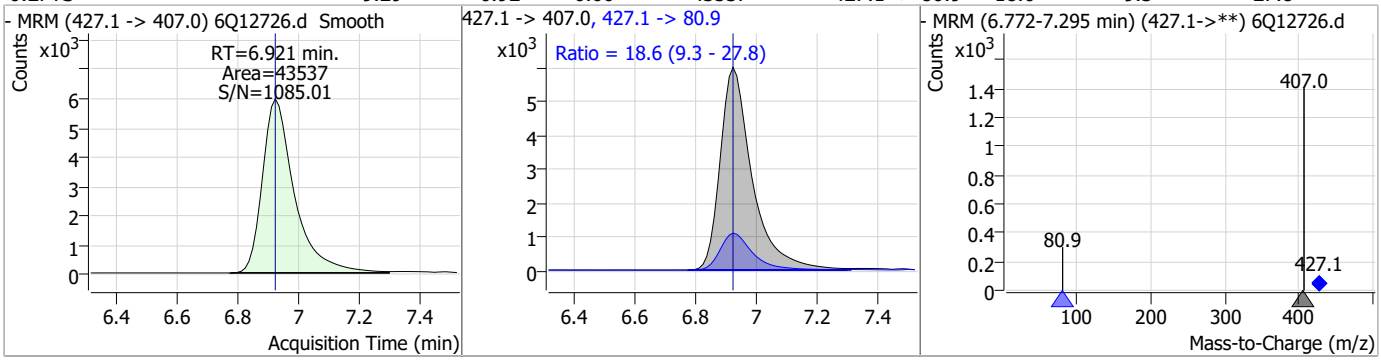


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.07	6.92	0.00	3200				

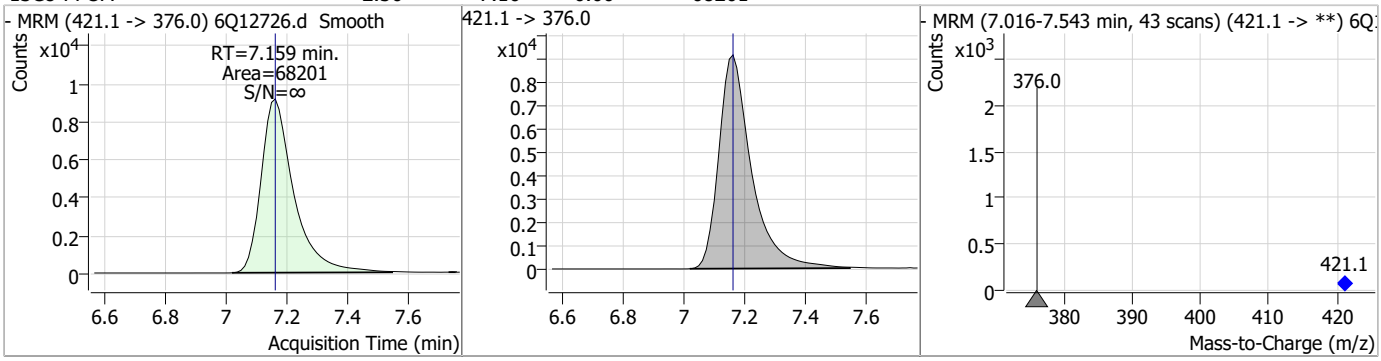


Perfluorinated Compounds by LC/MS/MS

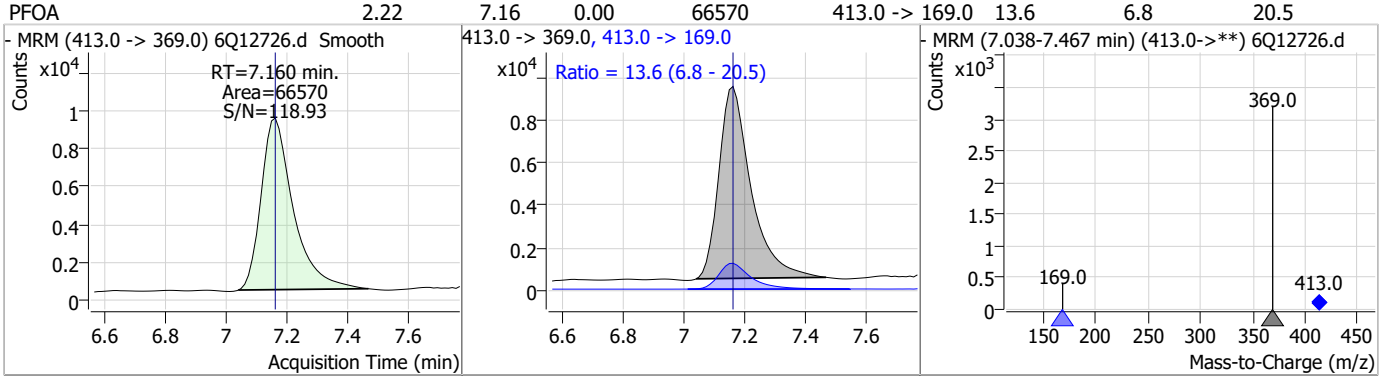
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.29	6.92	0.00	43537	427.1 -> 80.9	18.6	9.3	27.8



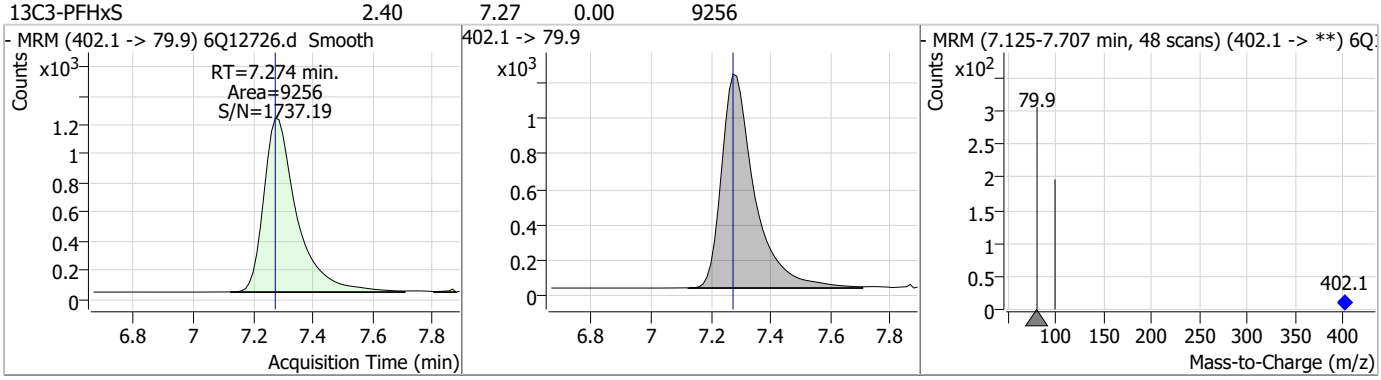
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.56	7.16	0.00	68201				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.22	7.16	0.00	66570	413.0 -> 169.0	13.6	6.8	20.5

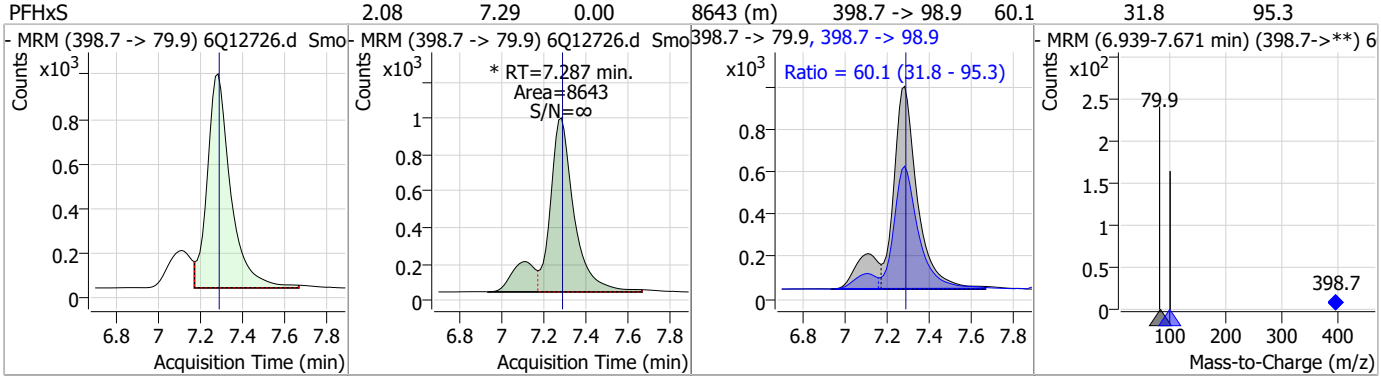


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.40	7.27	0.00	9256				

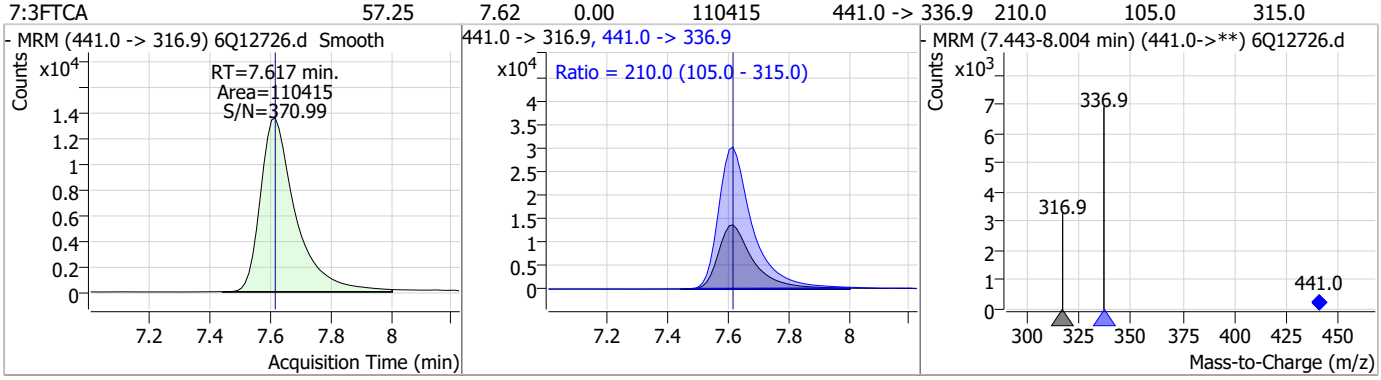


Perfluorinated Compounds by LC/MS/MS

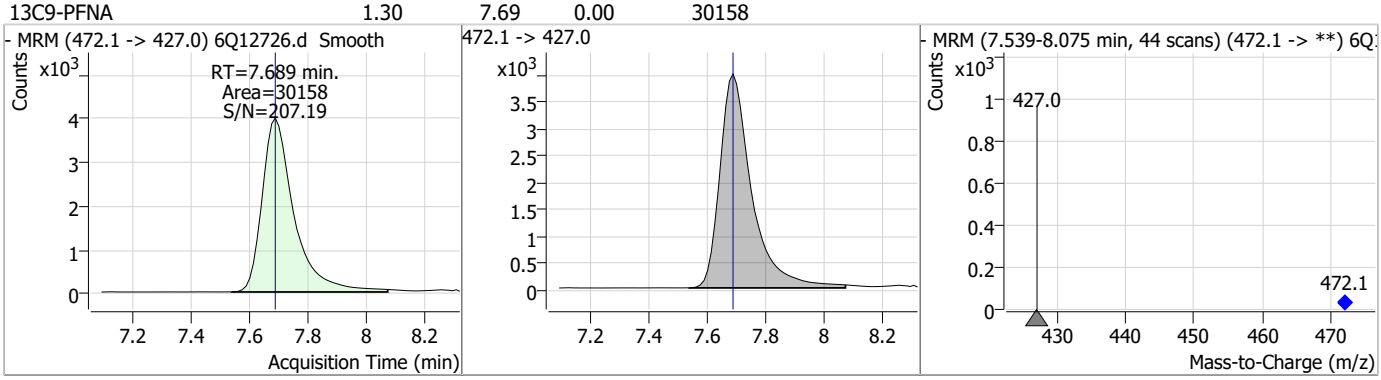
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.08	7.29	0.00	8643 (m)	398.7 -> 98.9	60.1	31.8	95.3



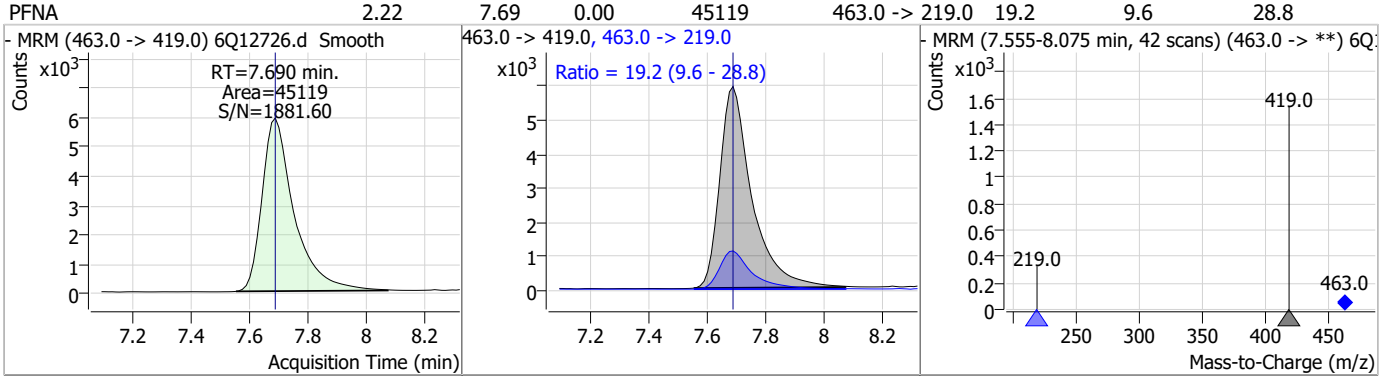
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	57.25	7.62	0.00	110415	441.0 -> 336.9	210.0	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.69	0.00	30158				

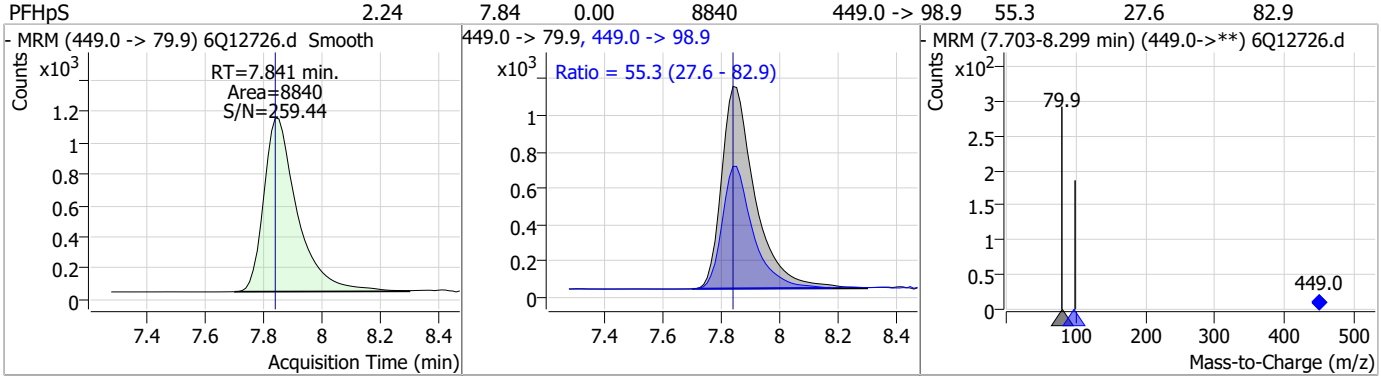


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.22	7.69	0.00	45119	463.0 -> 219.0	19.2	9.6	28.8

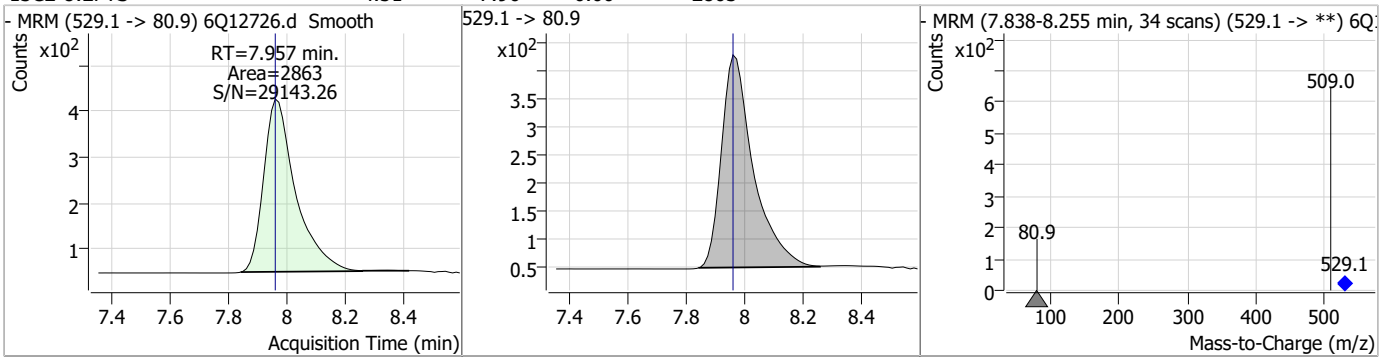


Perfluorinated Compounds by LC/MS/MS

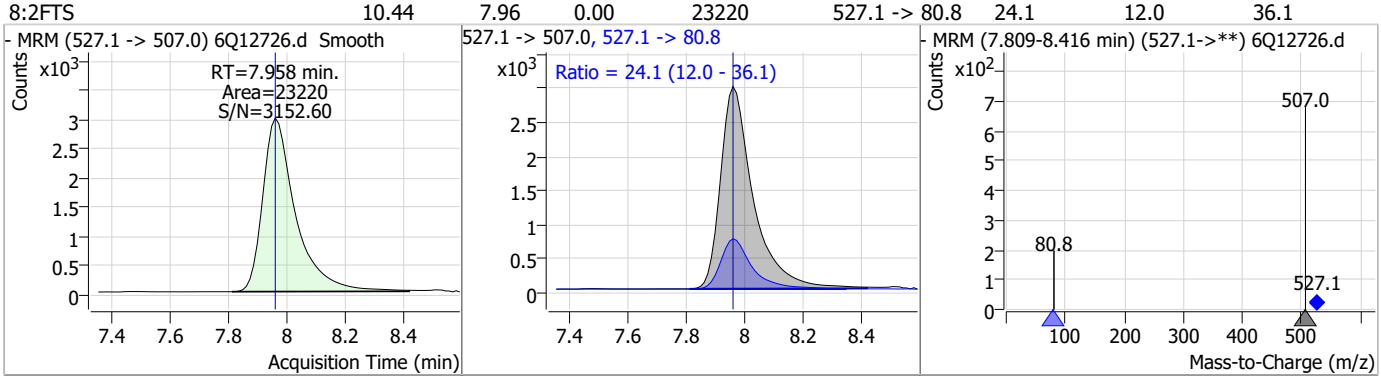
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.24	7.84	0.00	8840	449.0 -> 98.9	55.3	27.6	82.9



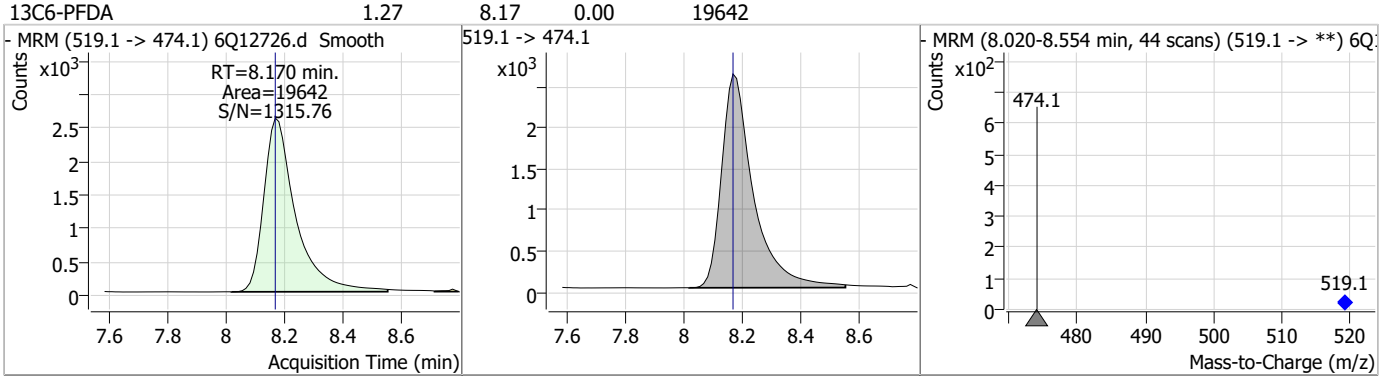
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.51	7.96	0.00	2863				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.44	7.96	0.00	23220	527.1 -> 80.8	24.1	12.0	36.1

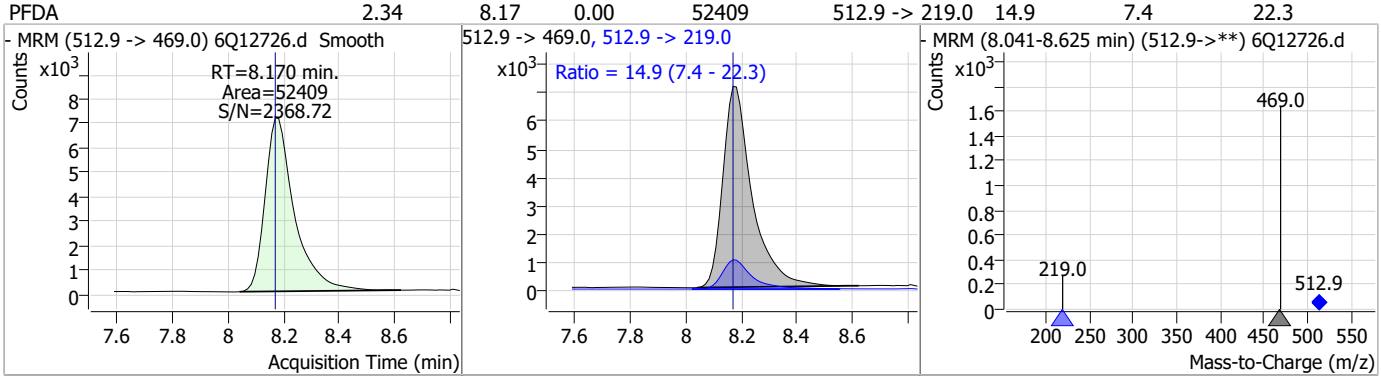


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.27	8.17	0.00	19642				

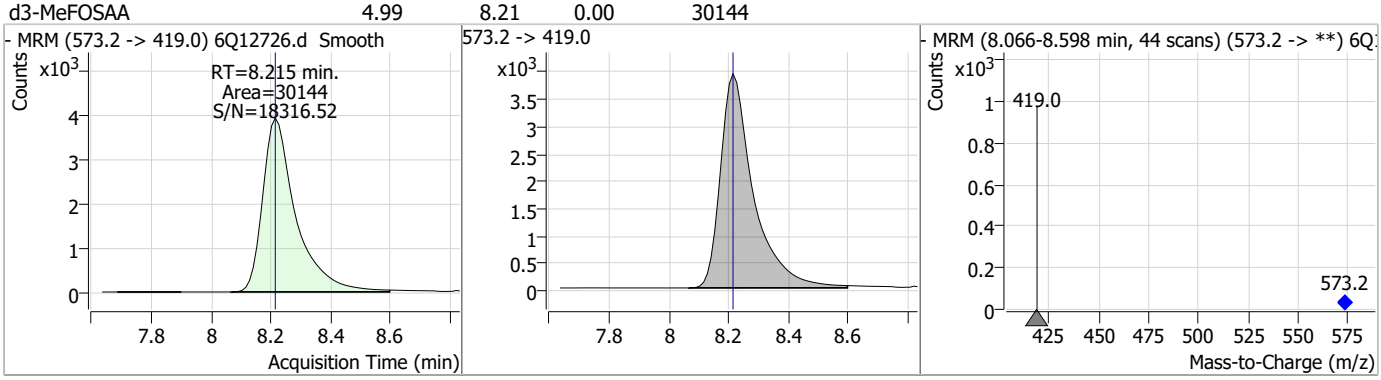


Perfluorinated Compounds by LC/MS/MS

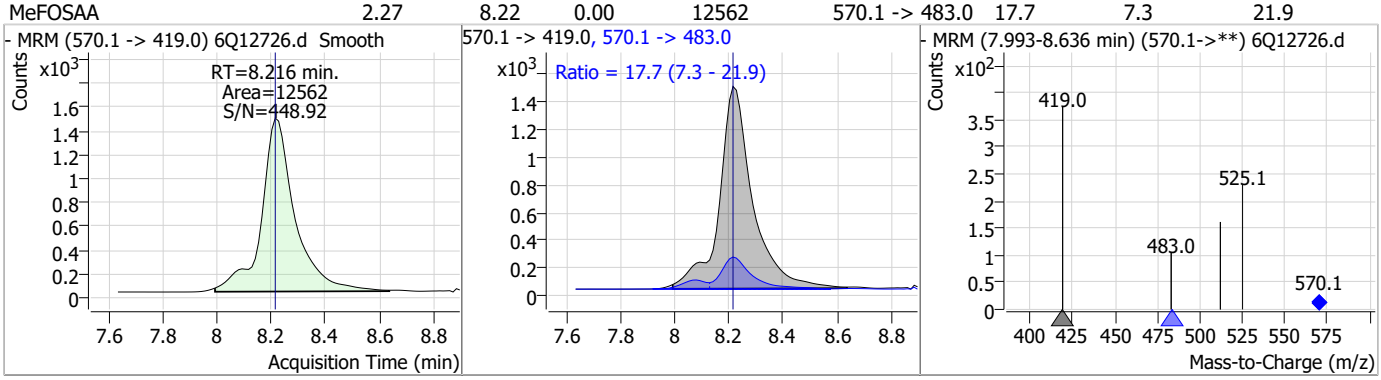
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.34	8.17	0.00	52409	512.9 -> 219.0	14.9	7.4	22.3



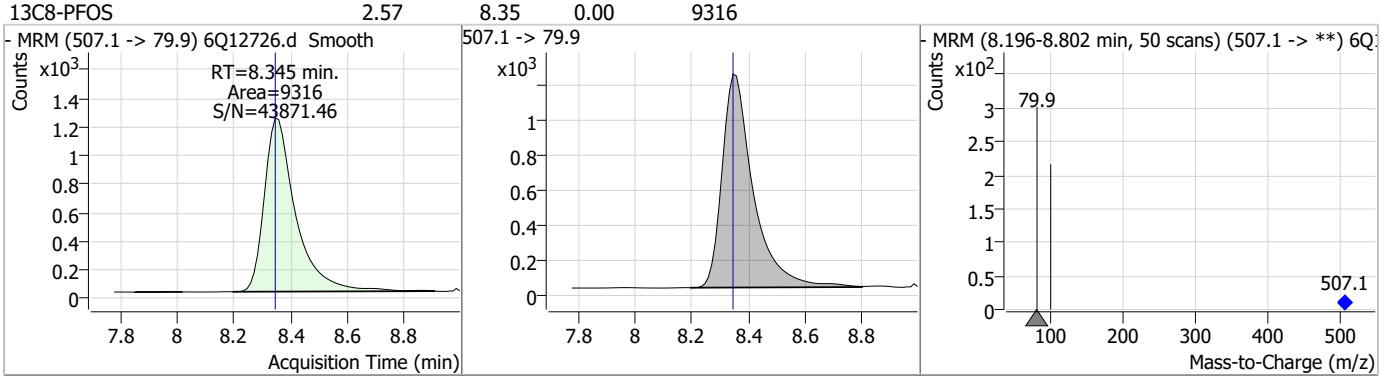
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.99	8.21	0.00	30144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.27	8.22	0.00	12562	570.1 -> 483.0	17.7	7.3	21.9

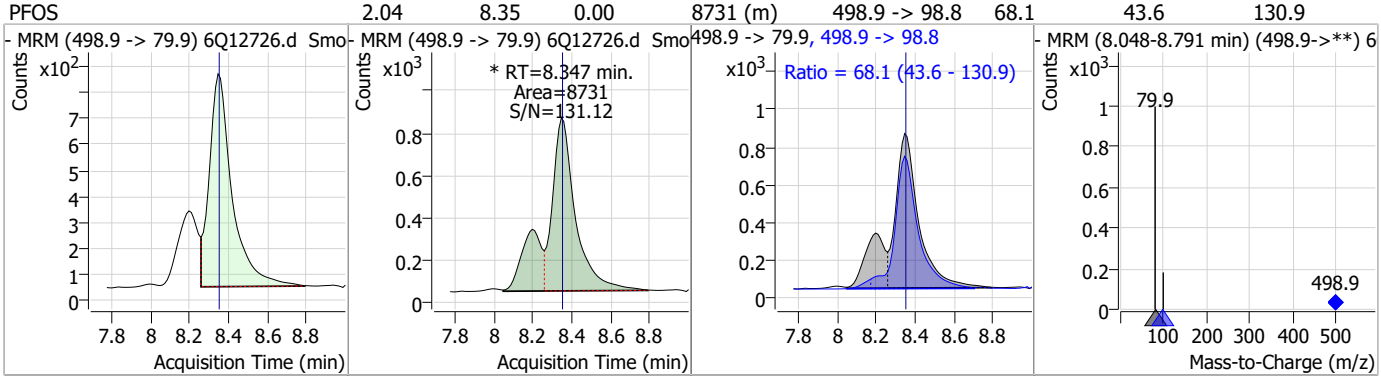


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.35	0.00	9316				

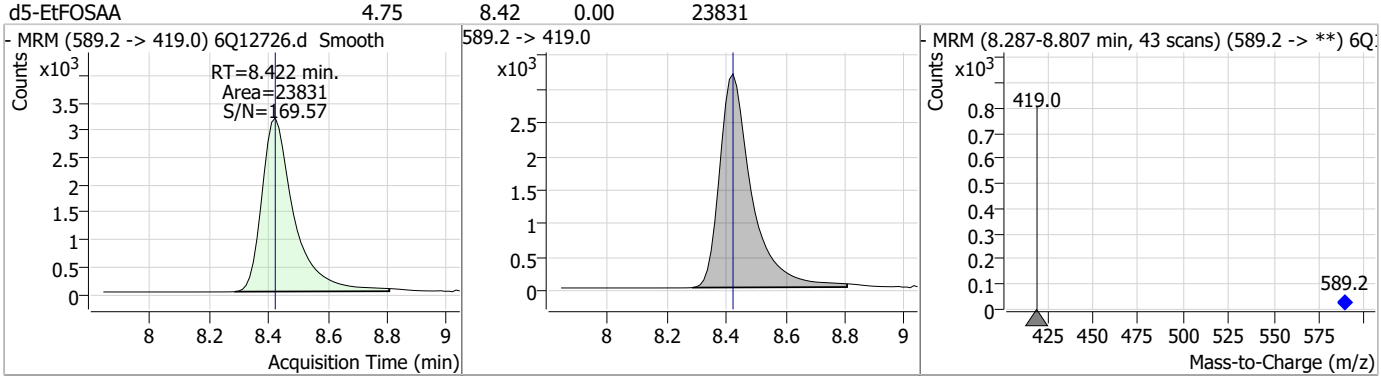


Perfluorinated Compounds by LC/MS/MS

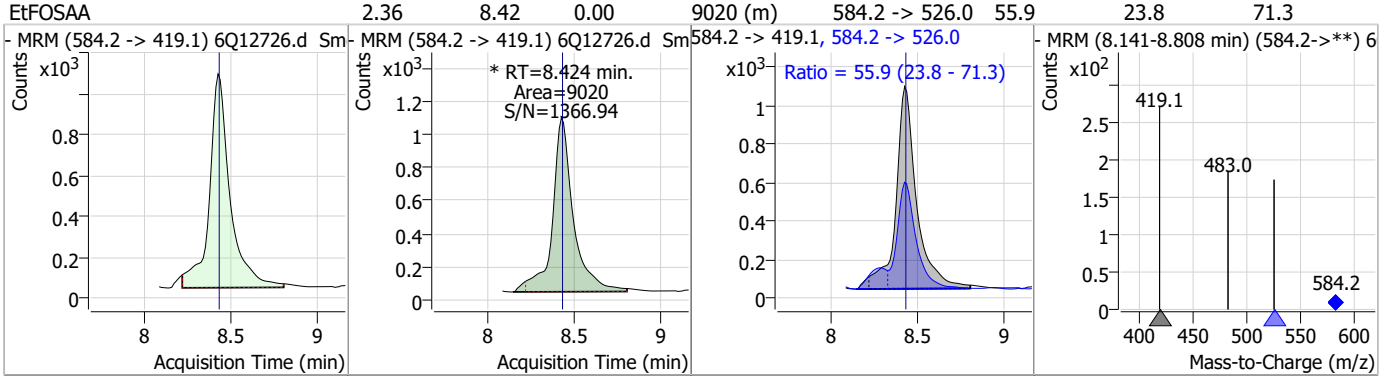
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.04	8.35	0.00	8731 (m)	498.9 -> 98.8	68.1	43.6	130.9



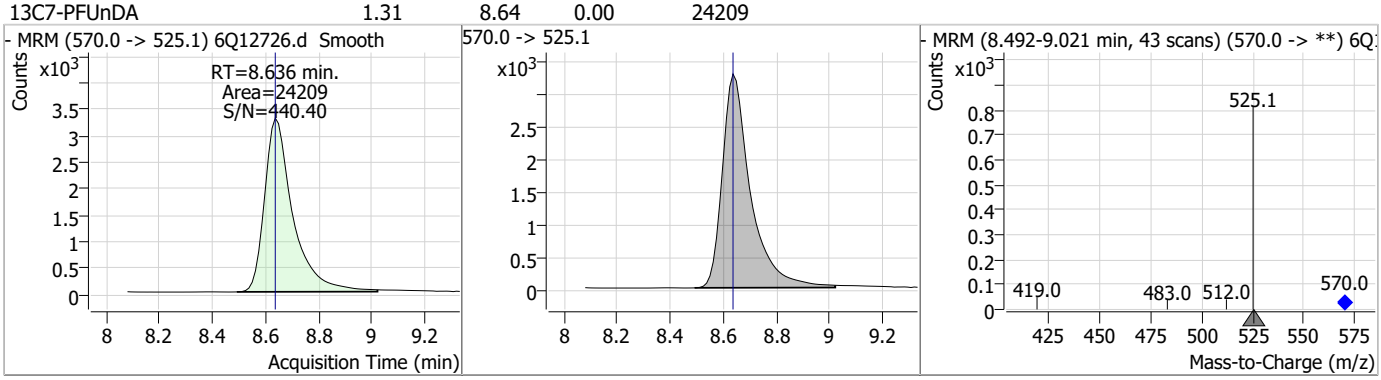
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.75	8.42	0.00	23831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.36	8.42	0.00	9020 (m)	584.2 -> 526.0	55.9	23.8	71.3

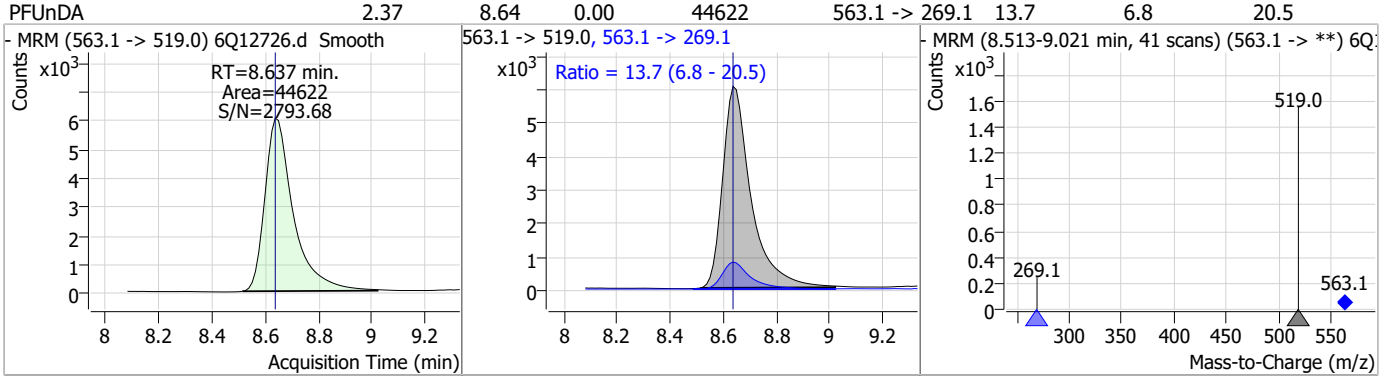


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	24209				

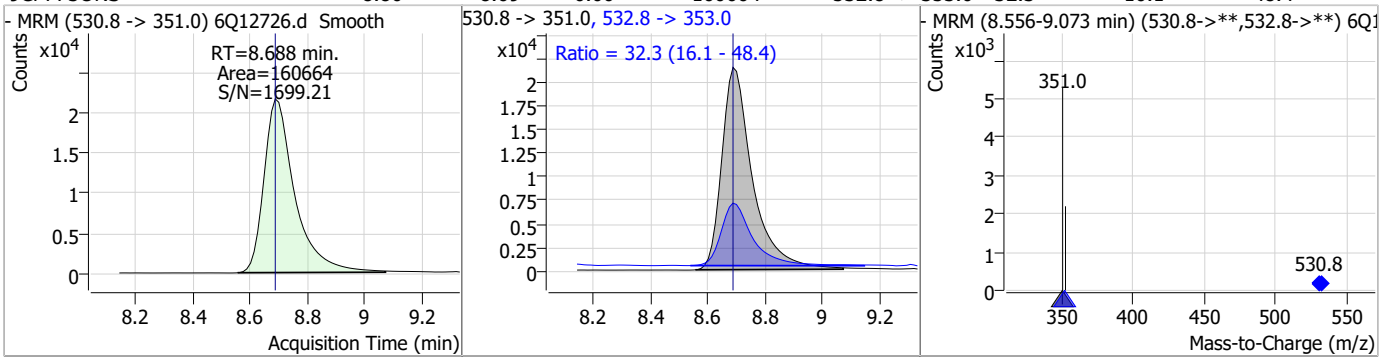


Perfluorinated Compounds by LC/MS/MS

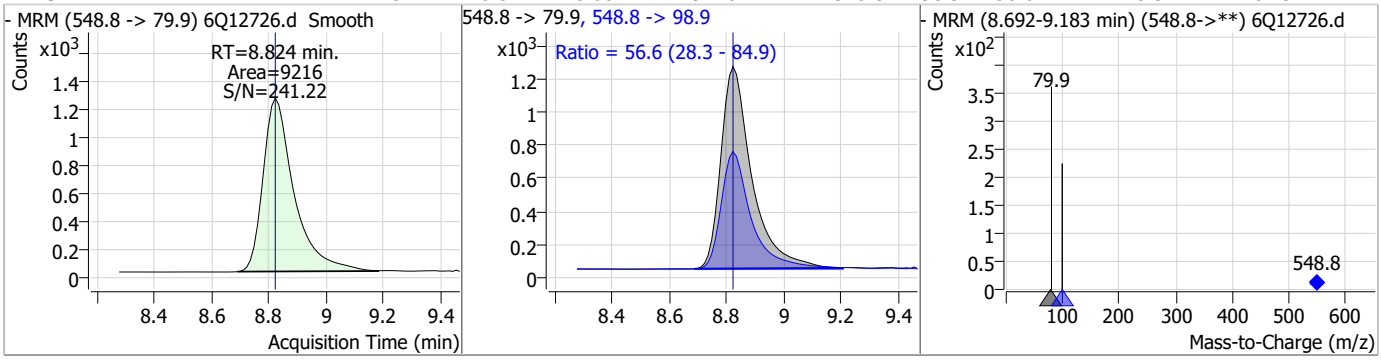
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.37	8.64	0.00	44622	563.1 -> 269.1	13.7	6.8	20.5



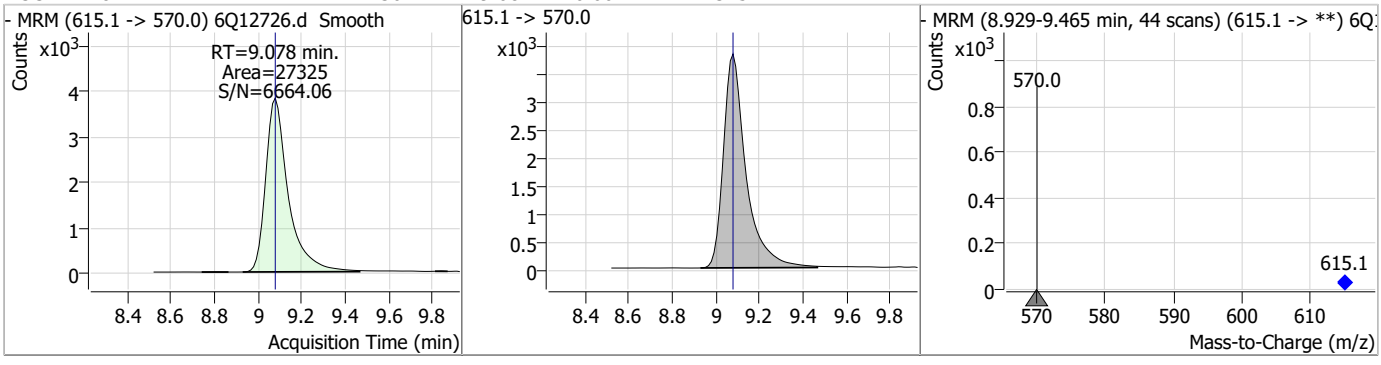
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.80	8.69	0.00	160664	532.8 -> 353.0	32.3	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.23	8.82	0.00	9216	548.8 -> 98.9	56.6	28.3	84.9

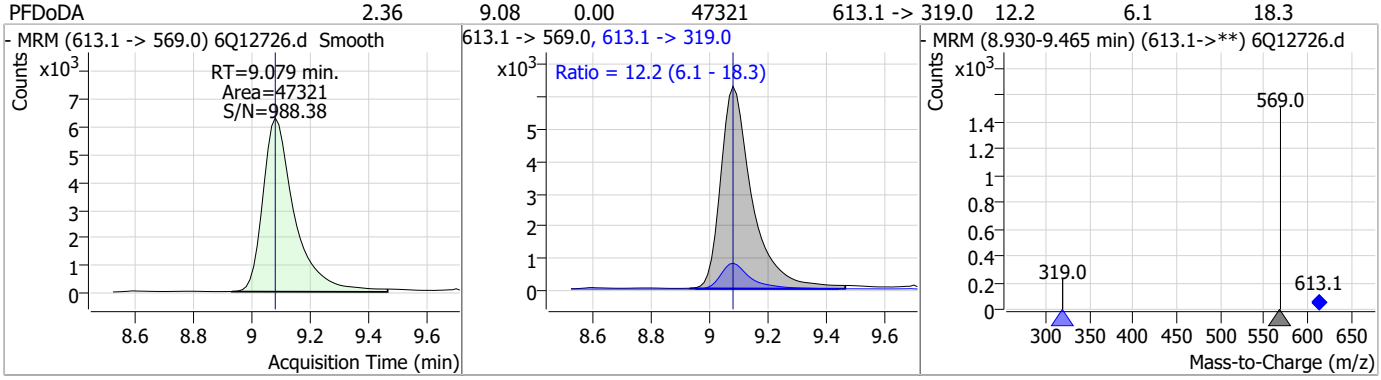


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	9.08	0.00	27325				

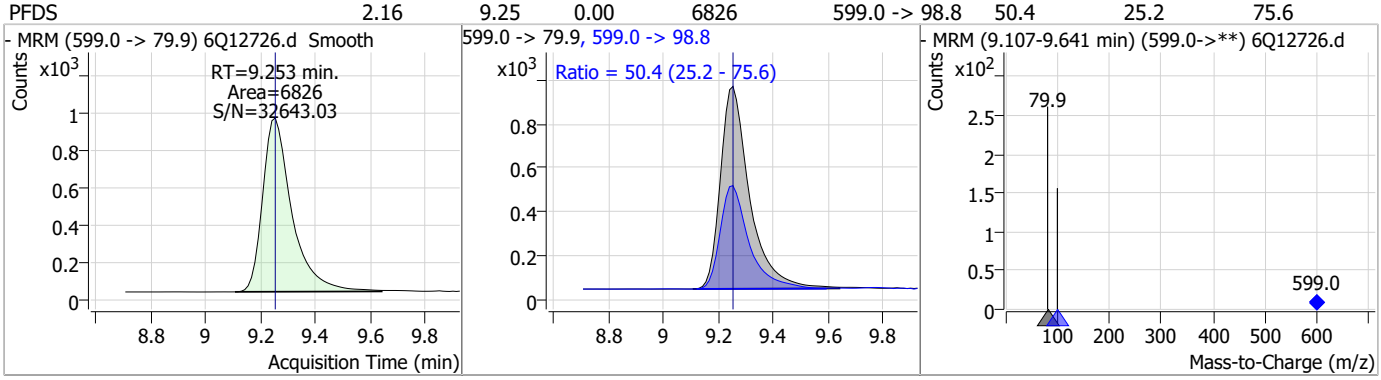


Perfluorinated Compounds by LC/MS/MS

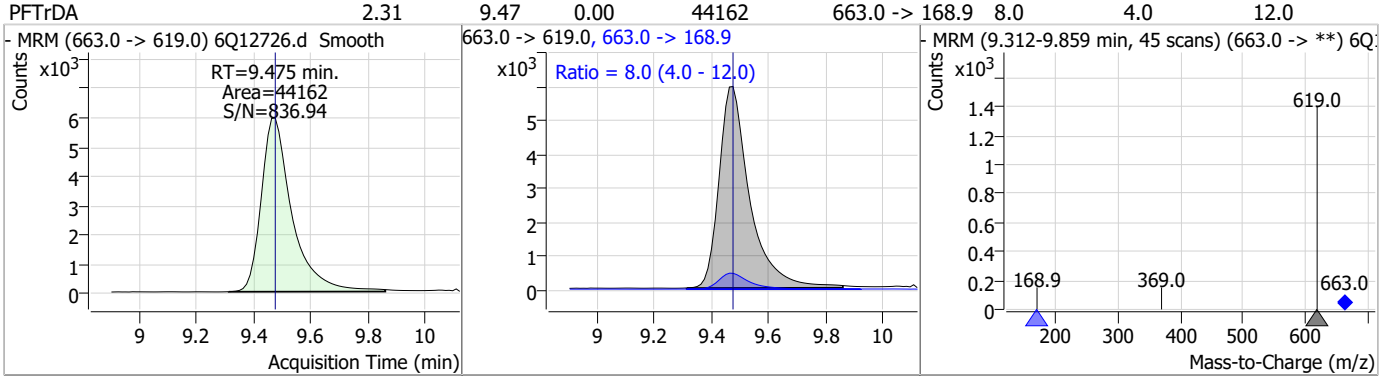
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.36	9.08	0.00	47321	613.1 -> 319.0	12.2	6.1	18.3



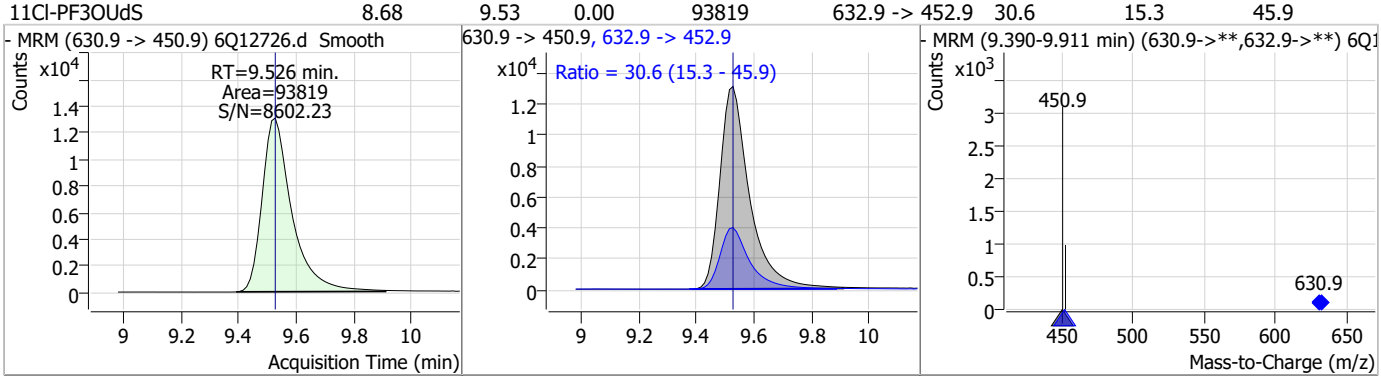
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.16	9.25	0.00	6826	599.0 -> 98.8	50.4	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.31	9.47	0.00	44162	663.0 -> 168.9	8.0	4.0	12.0

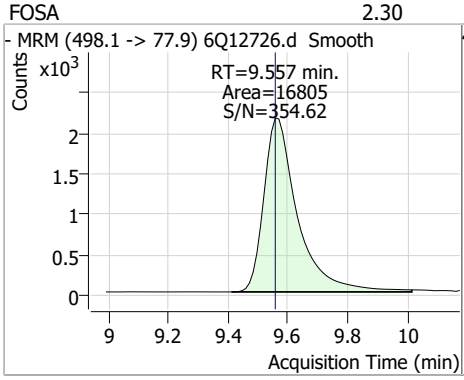


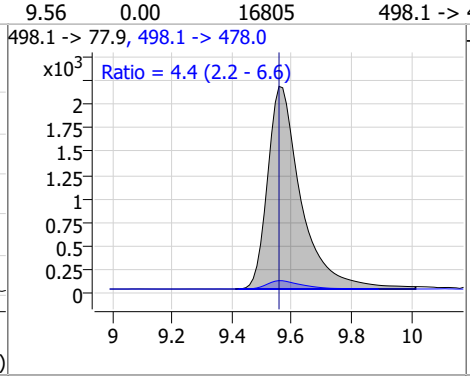
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.68	9.53	0.00	93819	632.9 -> 452.9	30.6	15.3	45.9

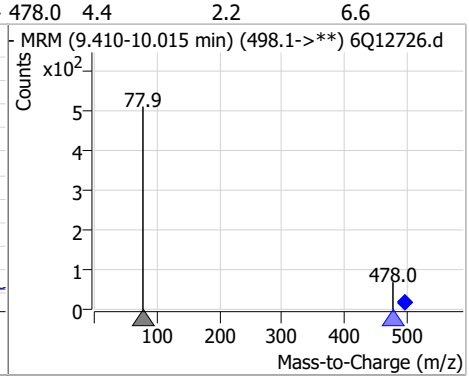


Perfluorinated Compounds by LC/MS/MS

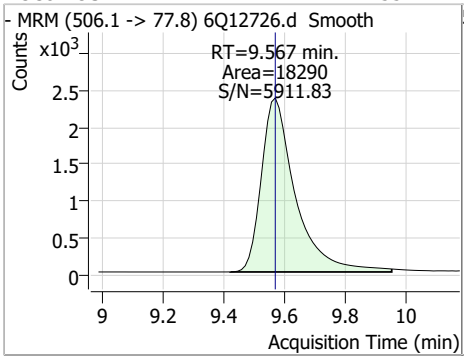
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.30	9.56	0.00	16805	498.1 -> 478.0	4.4	2.2	6.6

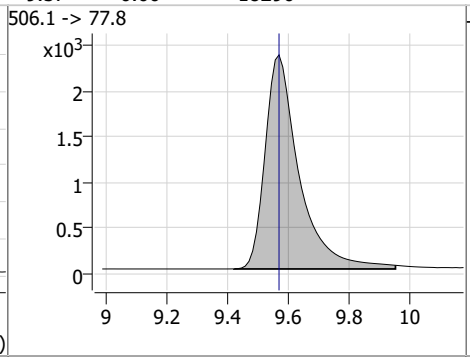


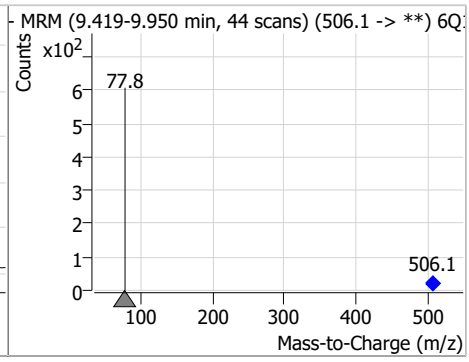




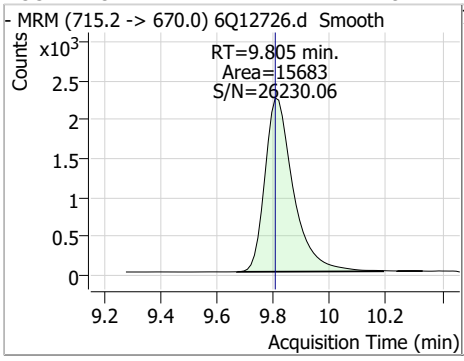
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.57	0.00	18290				

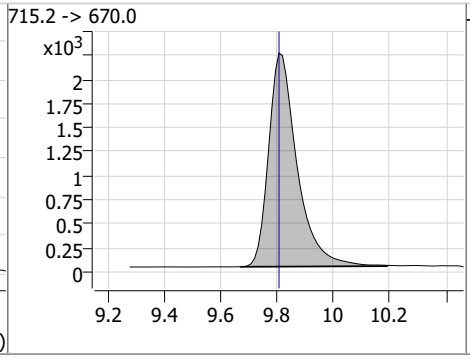


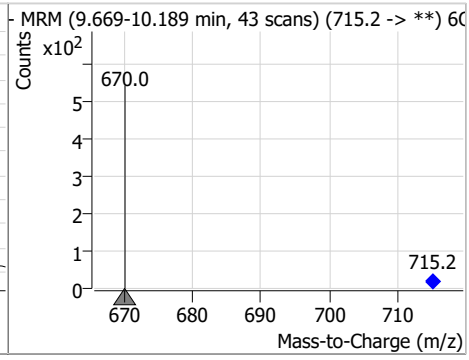




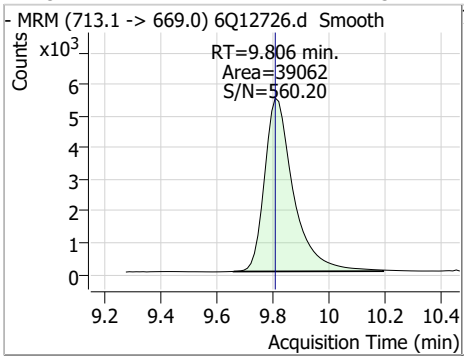
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.81	0.00	15683				

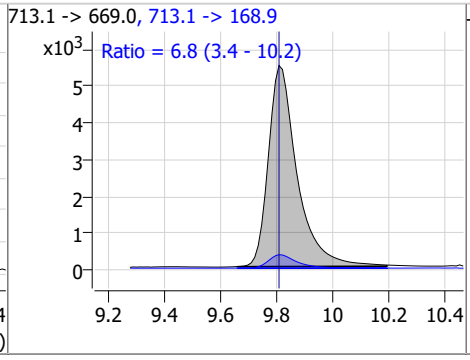


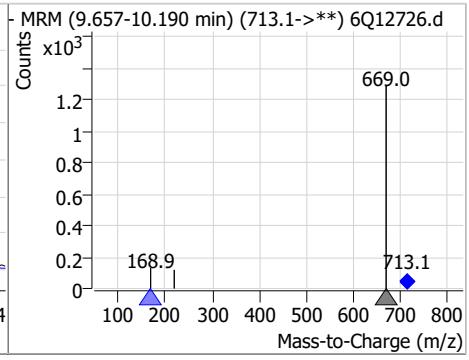




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.31	9.81	0.00	39062	713.1 -> 168.9	6.8	3.4	10.2

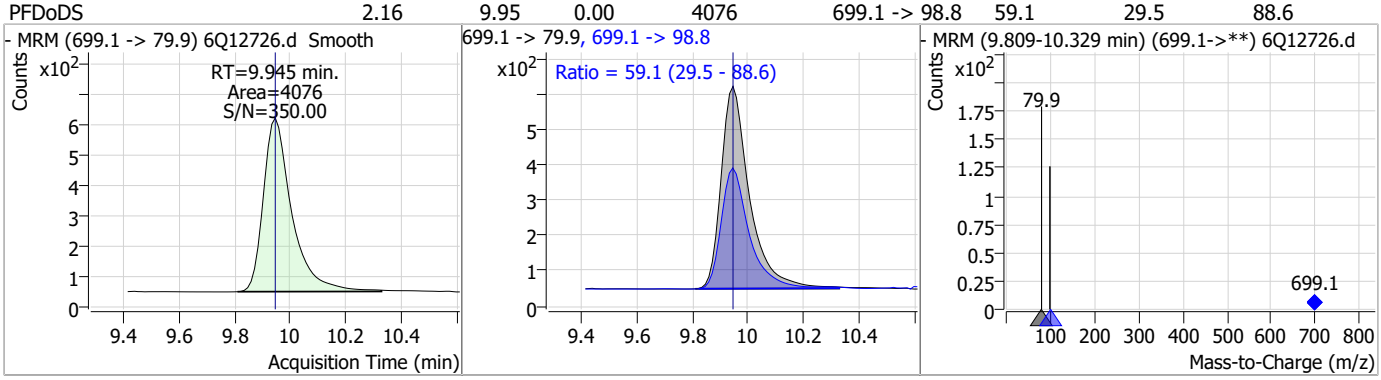




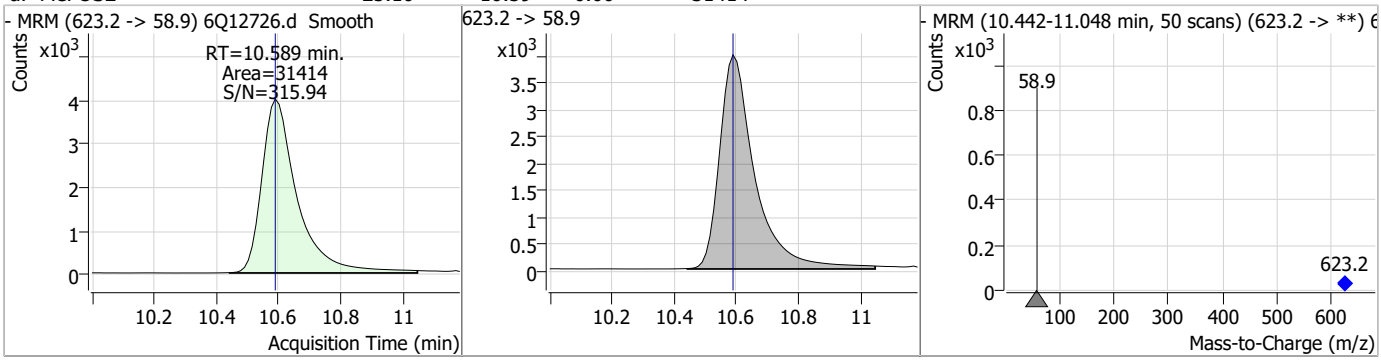


Perfluorinated Compounds by LC/MS/MS

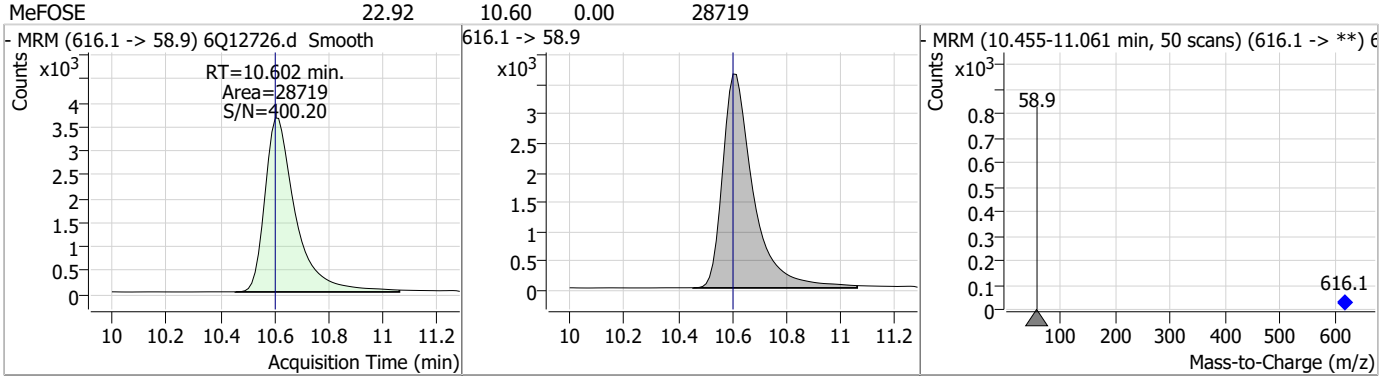
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.16	9.95	0.00	4076	699.1 -> 98.8	59.1	29.5	88.6



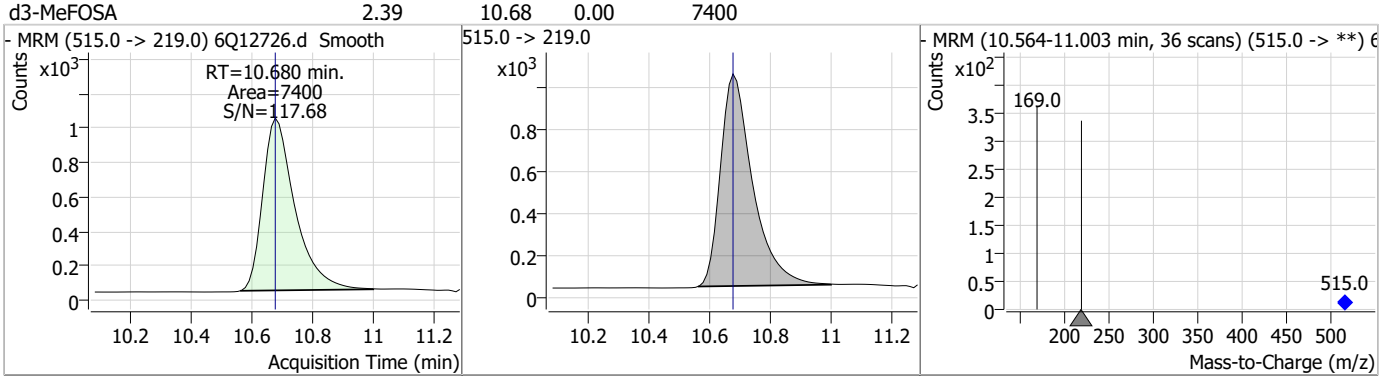
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.10	10.59	0.00	31414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.92	10.60	0.00	28719				

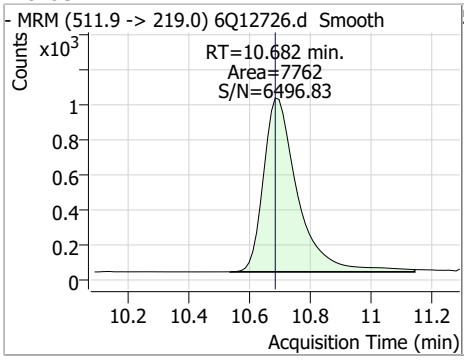


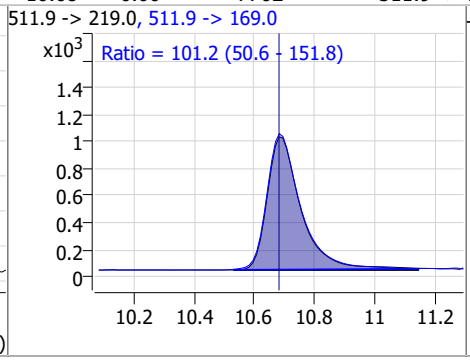
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	10.68	0.00	7400				

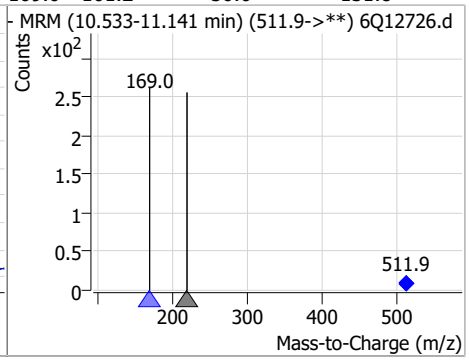


Perfluorinated Compounds by LC/MS/MS

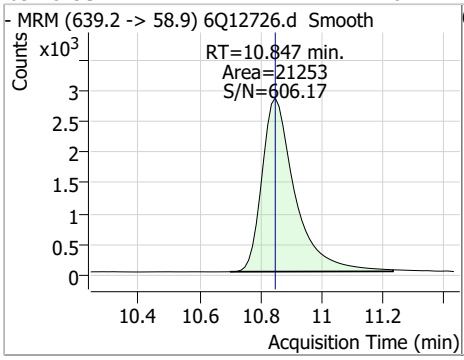
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.42	10.68	0.00	7762	511.9 -> 169.0	101.2	50.6	151.8

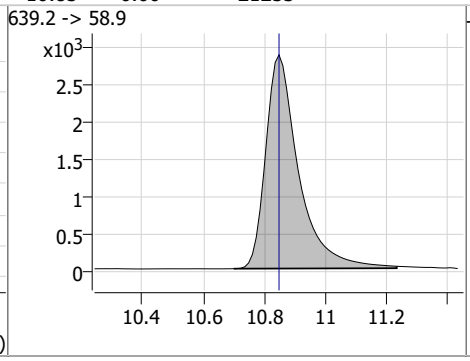


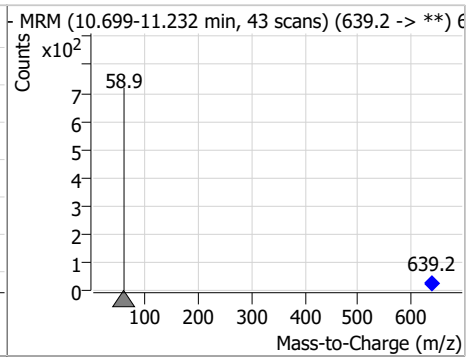




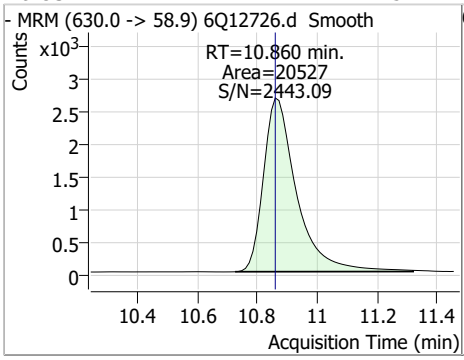
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.64	10.85	0.00	21253				

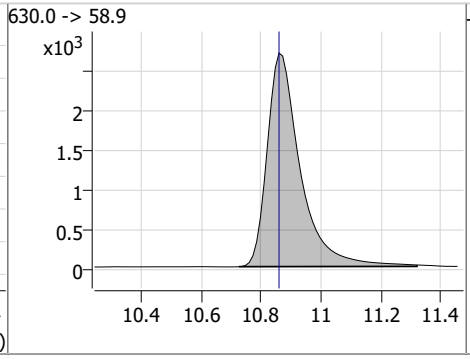


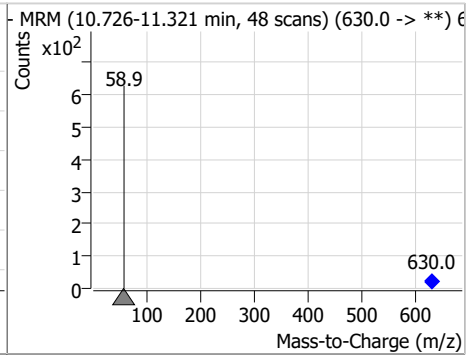




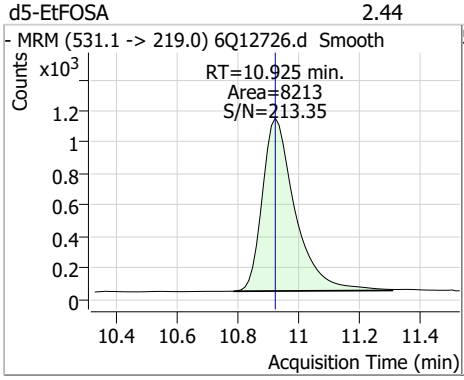
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.57	10.86	0.00	20527				

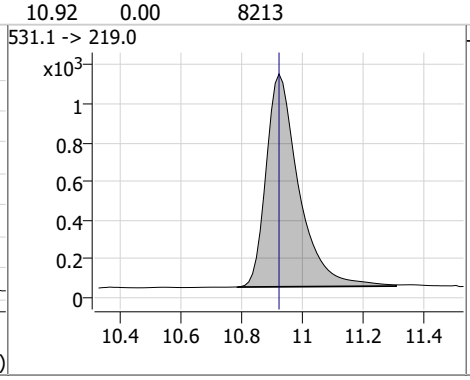


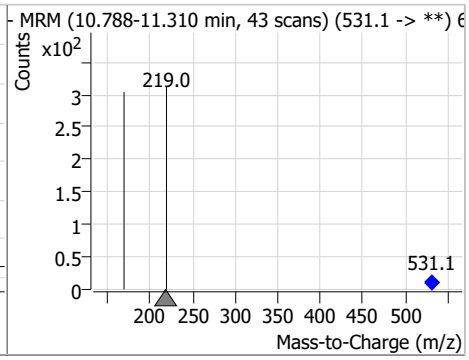




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	10.92	0.00	8213				

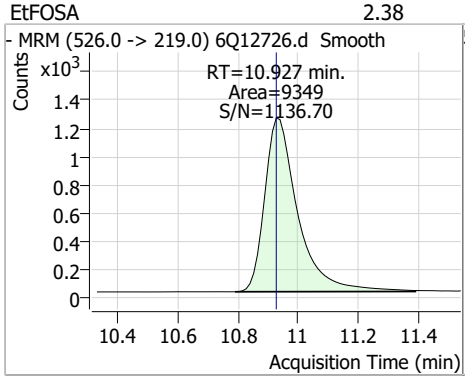


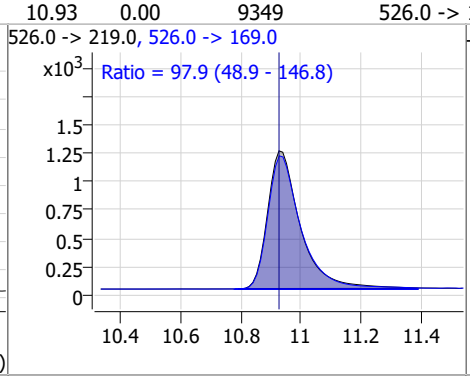


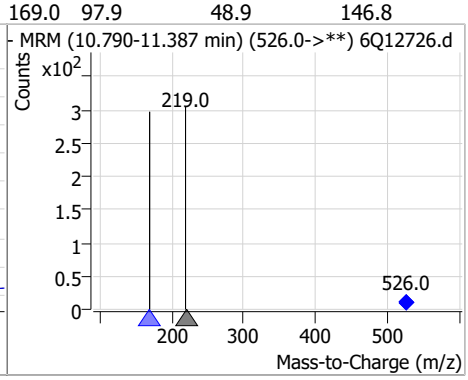


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.38	10.93	0.00	9349	526.0 -> 169.0	97.9	48.9	146.8







Manual Integration Approval Summary

Sample Number:	S6Q196-ICC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12726.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 18:33	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12727.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 2/1/2023 6:47:16 PM
Sample Name : ic196-5
Vial : P1-A6
DA Method File : 1633_020223_S6Q196.quantmethod.xml
Batch Name : S6Q196.batch.bin
Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	78942	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39851	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35890	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36598	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66375	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27603	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19407	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23309	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27350	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15463	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17261	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14287	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9246	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9116	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2181	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3133	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3117	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14480	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30467	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21457	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8119	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7652	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10334	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35625	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6977	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	79400	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28578	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33582	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35943	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2181	4.81	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3133	5.21	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3117	5.16	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27350	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15463	1.23	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C3-PFBS	5.518	302.1 -> 79.9	14287	2.51	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	9246	2.52	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C4-PFBA	2.975	216.8 -> 171.9	78942	9.98 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	36598	2.47 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C5-PFHxA	5.563	318.0 -> 273.0	35890	2.52 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	39851	4.98 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19407	1.22 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C7-PFUnDA	8.636	570.0 -> 525.1	23309	1.23 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C8-FOSA	9.567	506.1 -> 77.8	17261	2.56 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-PFOA	7.146	421.1 -> 376.0	66375	2.50 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C8-PFOS	8.345	507.1 -> 79.9	9116	2.68 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%		
13C9-PFNA	7.677	472.1 -> 427.0	27603	1.17 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.23 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14480	9.86 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7652	2.64 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%		
d5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.65 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	30467	25.96 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	21457	26.53 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	8119	2.57 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	100511	20.55 µg/L		97
		327.1 -> 80.9	20631			
6:2FTS	6.908	427.1 -> 407.0	86930	18.95 µg/L		98
		427.1 -> 80.9	16825			
8:2FTS	7.958	527.1 -> 507.0	37347	15.43 µg/L		90
		527.1 -> 80.8	10895			
EtFOSAA	8.424	584.2 -> 419.1	19150	4.50 µg/L	m	88
		584.2 -> 526.0	10602			
FOSA	9.557	498.1 -> 77.9	33849	4.91 µg/L		100
		498.1 -> 478.0	1503			
MeFOSAA	8.216	570.1 -> 419.0	28560	5.27 µg/L	m	94
		570.1 -> 483.0	4913			
PFBA	2.982	212.8 -> 168.9	35222	19.98 µg/L		100
PFBS	5.518	298.7 -> 79.9	23666	4.31 µg/L		93
		298.7 -> 98.8	11459			
PFDA	8.170	512.9 -> 469.0	110156	4.99 µg/L		99
		512.9 -> 219.0	16678			
PFDoDA	9.079	613.1 -> 569.0	97991	4.89 µg/L		100
		613.1 -> 319.0	12126			
PFDS	9.241	599.0 -> 79.9	14293	4.63 µg/L		99

Perfluorinated Compounds by LC/MS/MS

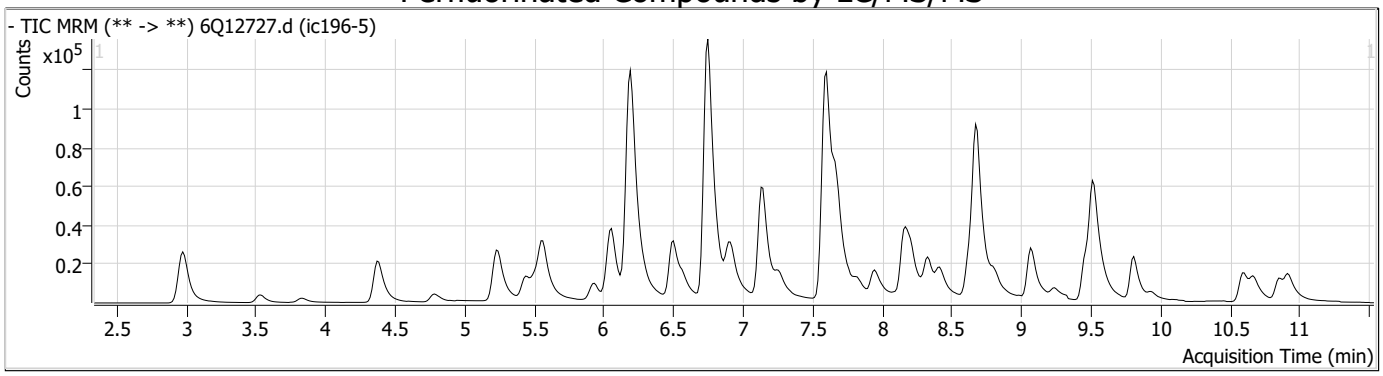
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	7320				
PFHpA	6.503	363.1 -> 319.0	110098	5.08	µg/L		98
		363.1 -> 169.0	14498				
PFHpS	7.841	449.0 -> 79.9	18161	4.70	µg/L		99
		449.0 -> 98.9	9926				
PFHxA	5.566	313.0 -> 269.0	68851	4.89	µg/L		99
		313.0 -> 118.9	2814				
PFHxS	7.275	398.7 -> 79.9	18510	4.46	µg/L	m	90
		398.7 -> 98.9	10266				
PFNA	7.677	463.0 -> 419.0	95950	5.15	µg/L		99
		463.0 -> 219.0	17850				
PFNS	8.824	548.8 -> 79.9	19012	4.69	µg/L		98
		548.8 -> 98.9	11068				
PFOA	7.148	413.0 -> 369.0	147721	5.05	µg/L		97
		413.0 -> 169.0	18543				
PFOS	8.347	498.9 -> 79.9	17743	4.24	µg/L	m	71
		498.9 -> 98.8	10779				
PFPeA	4.388	263.0 -> 219.0	83769	9.95	µg/L		100
PFPeS	6.581	349.1 -> 79.9	21594	4.47	µg/L		95
		349.1 -> 98.9	11768				
PFTeDA	9.806	713.1 -> 669.0	85389	5.12	µg/L		99
		713.1 -> 168.9	5586				
PFTrDA	9.462	663.0 -> 619.0	100172	5.23	µg/L		99
		663.0 -> 168.9	7718				
PFUnDA	8.637	563.1 -> 519.0	89375	4.92	µg/L		96
		563.1 -> 269.1	13860				
11Cl-PF3OUdS	9.526	630.9 -> 450.9	203989	19.63	µg/L		100
		632.9 -> 452.9	62820				
9Cl-PF3ONS	8.688	530.8 -> 351.0	336601	19.16	µg/L		96
		532.8 -> 353.0	101391				
ADONA	6.753	376.9 -> 250.9	615502	19.59	µg/L		98
		376.9 -> 84.8	131793				
HFPO-DA	5.940	284.9 -> 168.9	29062	21.46	µg/L		97
		284.9 -> 184.9	3537				
3:3FTCA	3.841	241.0 -> 177.0	10332	25.00	µg/L		96
		241.0 -> 117.0	1339				
5:3FTCA	6.193	341.0 -> 237.1	362809	123.26	µg/L		97
		341.0 -> 217.0	325555				
7:3FTCA	7.605	441.0 -> 316.9	237904	123.66	µg/L		92
		441.0 -> 336.9	468899				
EtFOSA	10.927	526.0 -> 219.0	20073	5.18	µg/L		99
		526.0 -> 169.0	19373				
EtFOSE	10.860	630.0 -> 58.9	45861	49.94	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	16774	5.07	µg/L		97
		511.9 -> 169.0	16422				
MeFOSE	10.602	616.1 -> 58.9	62231	51.20	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	8906	4.82	µg/L		99
		699.1 -> 98.8	5317				
NFDHA	5.445	295.0 -> 201.0	7961	9.57	µg/L		96
		295.0 -> 84.9	4300				
PFMBA	4.787	279.0 -> 85.1	24020	10.15	µg/L		100
PFMPA	3.541	229.0 -> 84.9	22203	9.89	µg/L		100
PFEESA	6.059	314.8 -> 134.9	187773	9.27	µg/L		100
		314.8 -> 82.9	4280				

= Qualifier out of range, m = manually integrated, + = Area summed

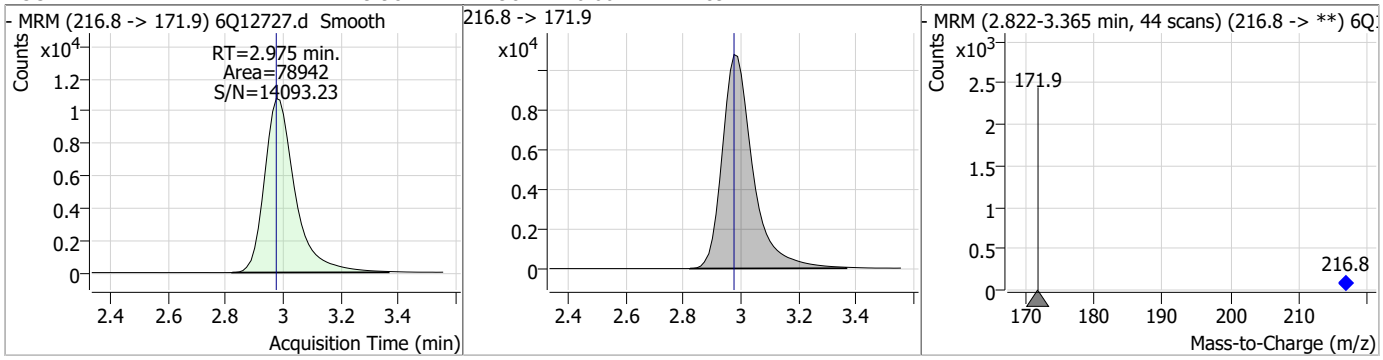
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

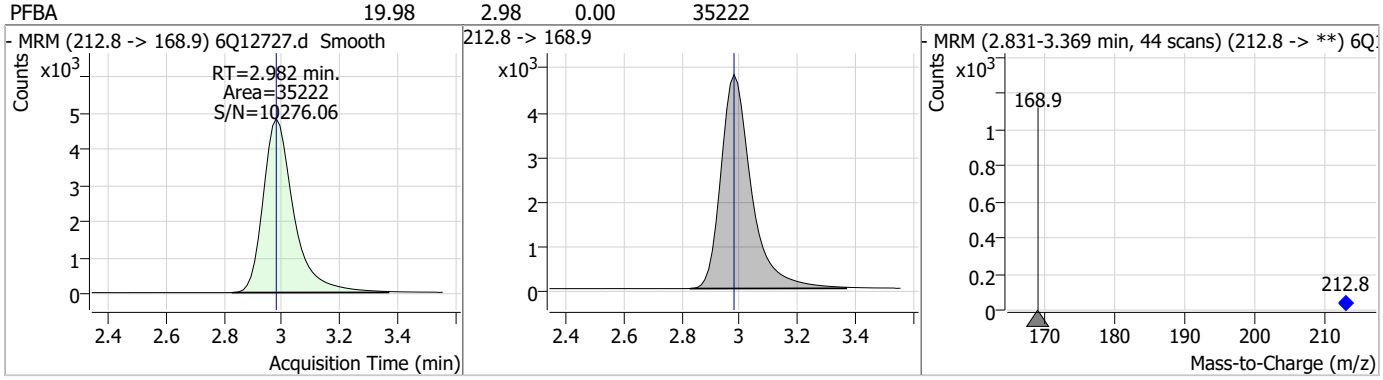
Perfluorinated Compounds by LC/MS/MS



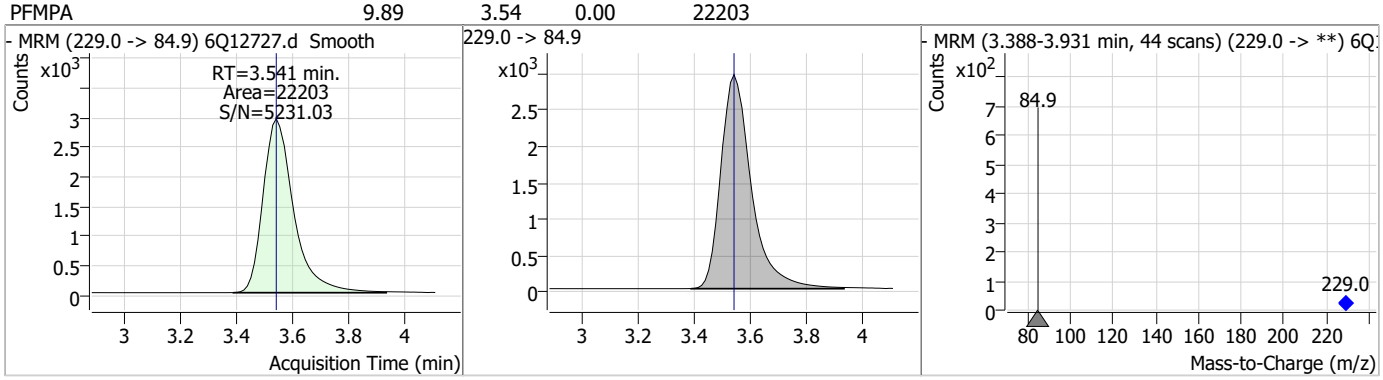
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.98	2.98	0.00	78942				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.98	2.98	0.00	35222				

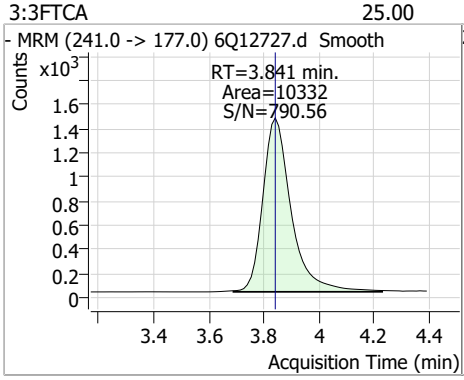


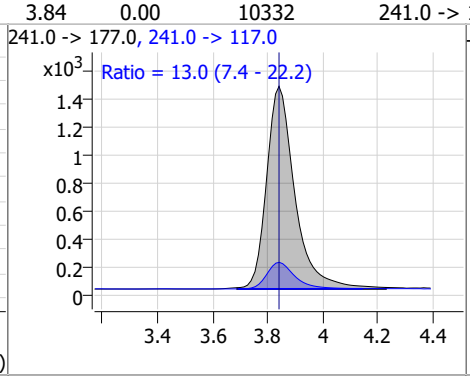
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	9.89	3.54	0.00	22203				

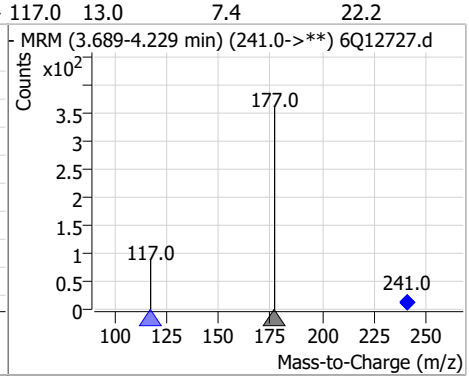


Perfluorinated Compounds by LC/MS/MS

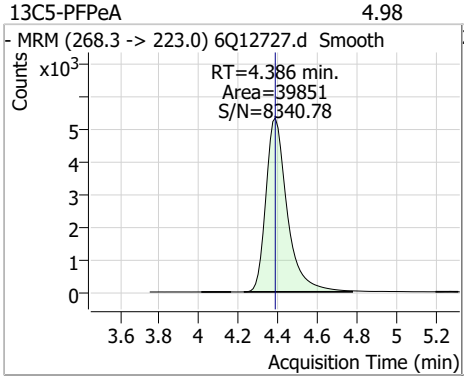
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	25.00	3.84	0.00	10332	241.0 -> 117.0	13.0	7.4	22.2

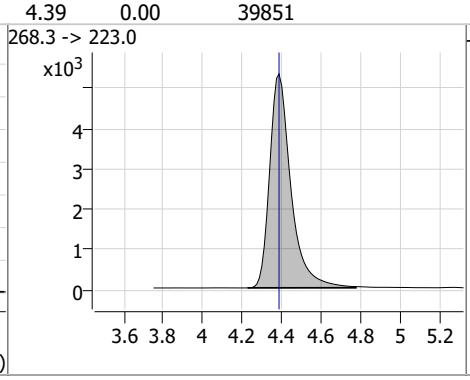


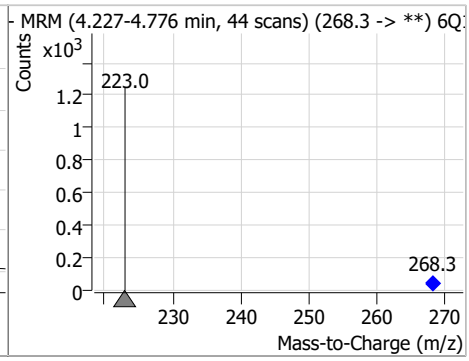




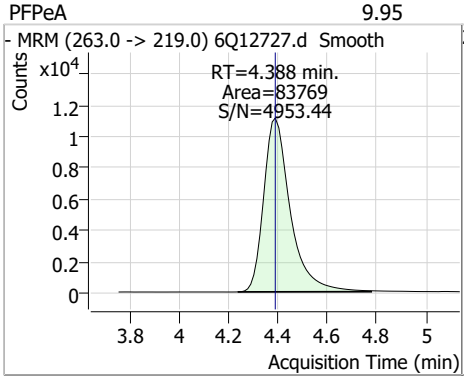
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.98	4.39	0.00	39851				

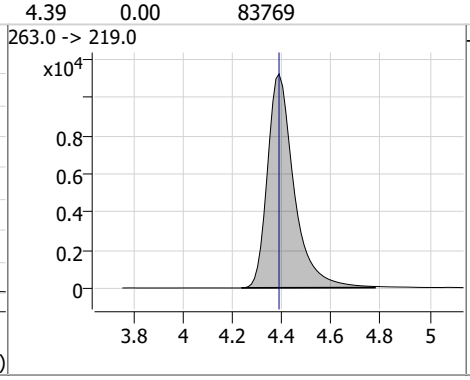


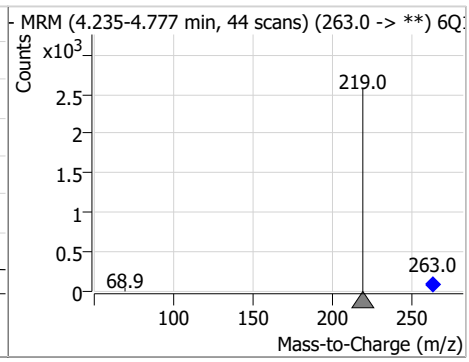




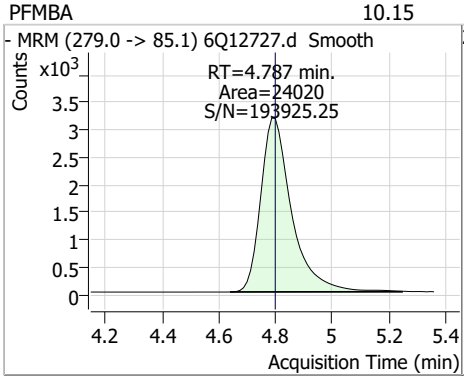
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.95	4.39	0.00	83769				

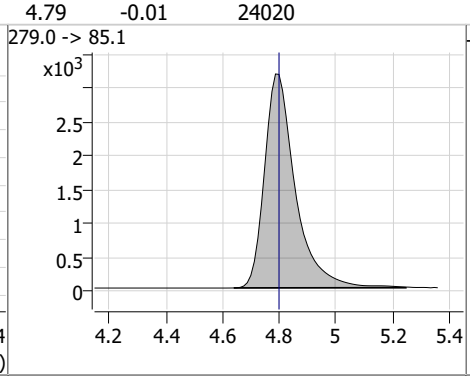


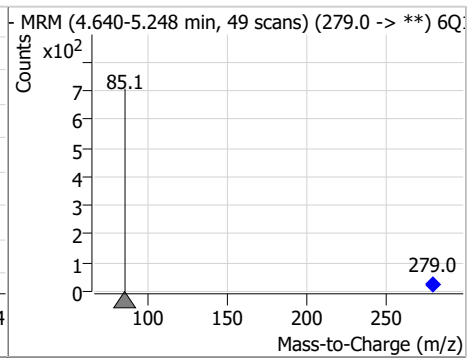




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	10.15	4.79	-0.01	24020				

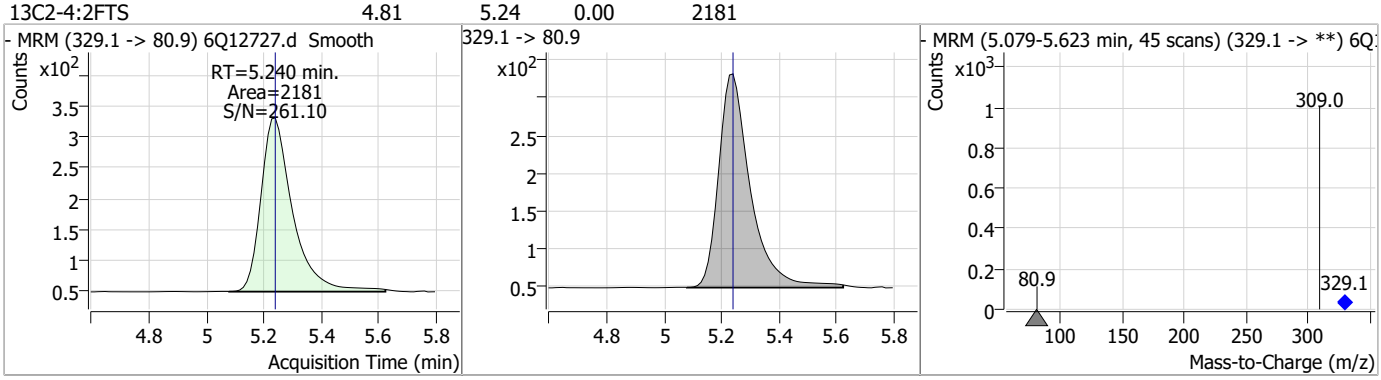




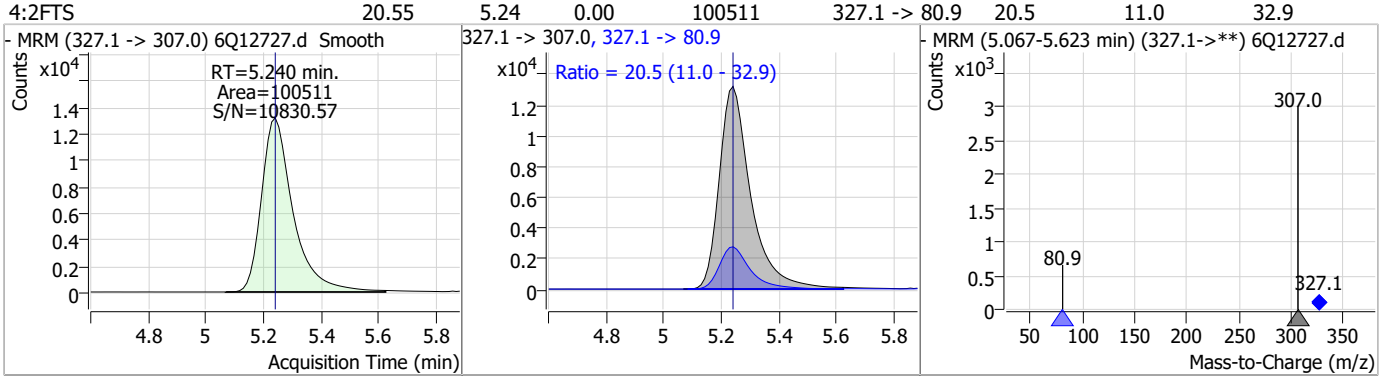


Perfluorinated Compounds by LC/MS/MS

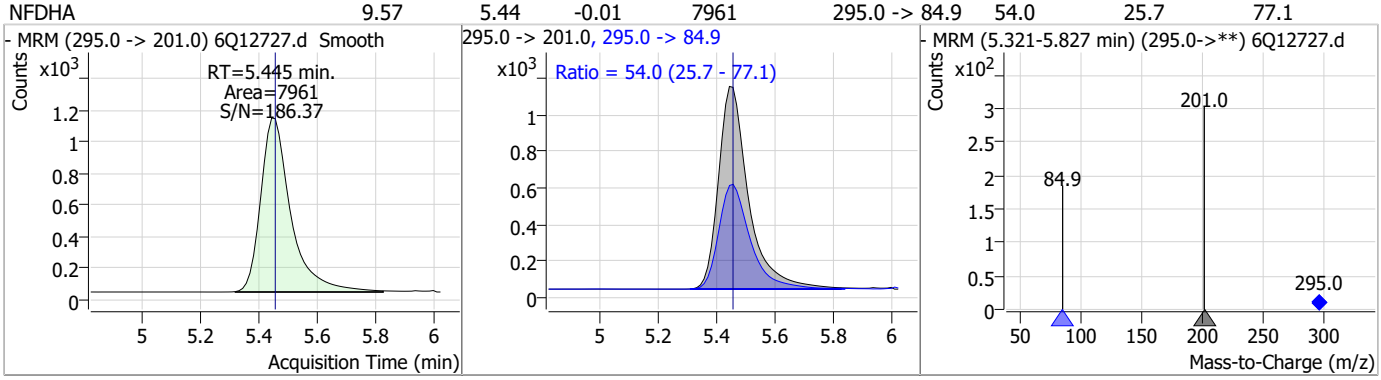
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.81	5.24	0.00	2181				



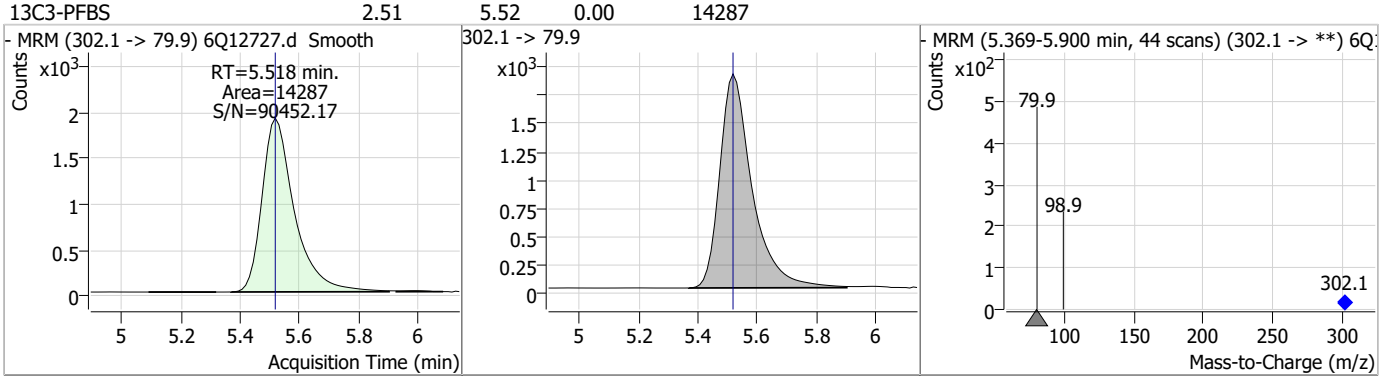
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.55	5.24	0.00	100511	327.1 -> 80.9	20.5	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	9.57	5.44	-0.01	7961	295.0 -> 84.9	54.0	25.7	77.1

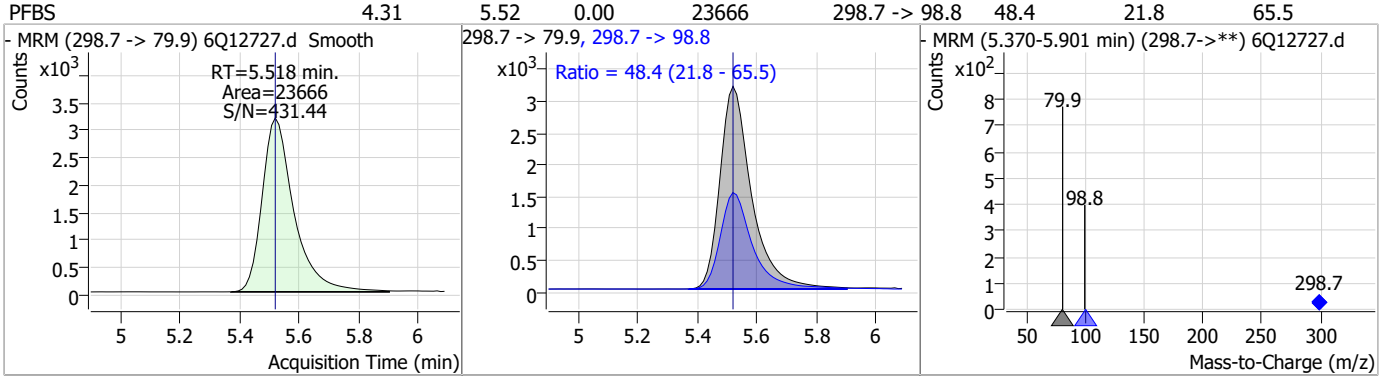


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.51	5.52	0.00	14287				

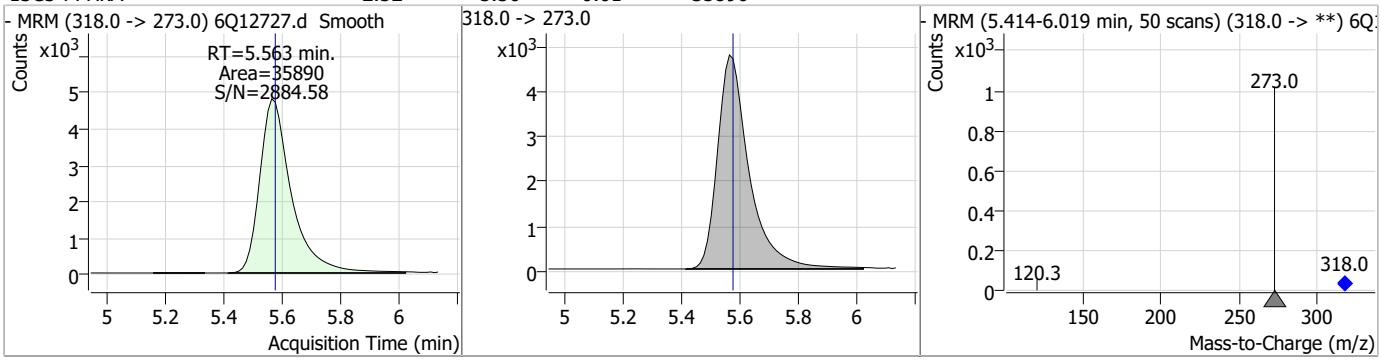


Perfluorinated Compounds by LC/MS/MS

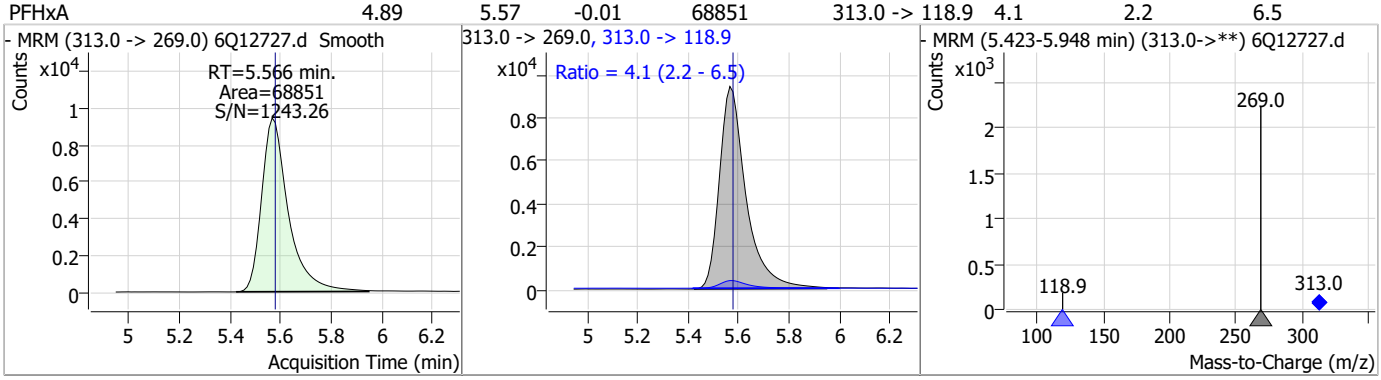
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.31	5.52	0.00	23666	298.7 -> 98.8	48.4	21.8	65.5



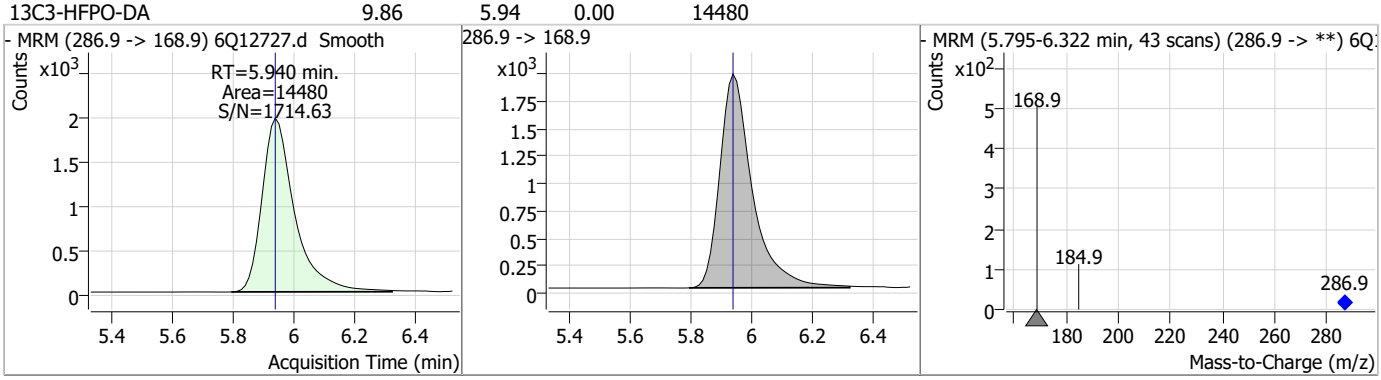
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.56	-0.01	35890				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.89	5.57	-0.01	68851	313.0 -> 118.9	4.1	2.2	6.5

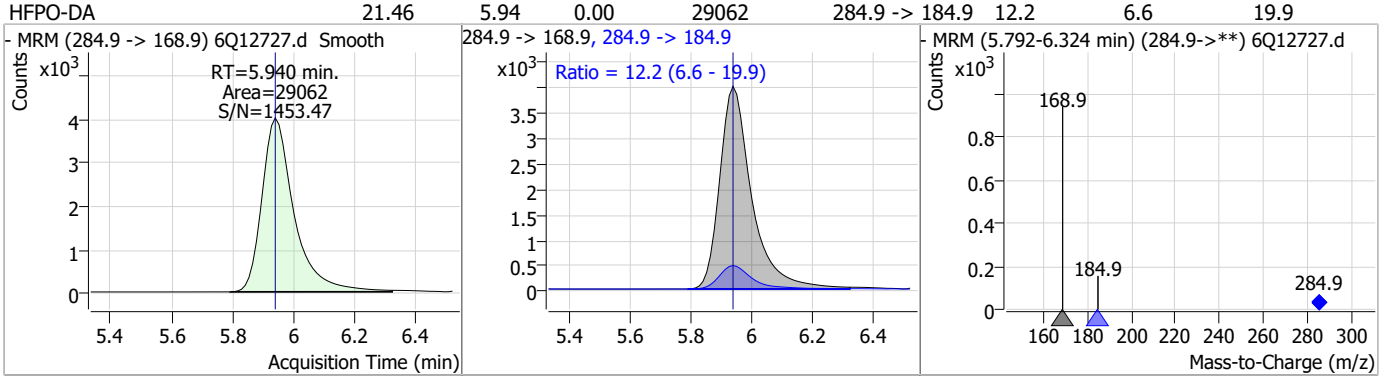


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.86	5.94	0.00	14480				

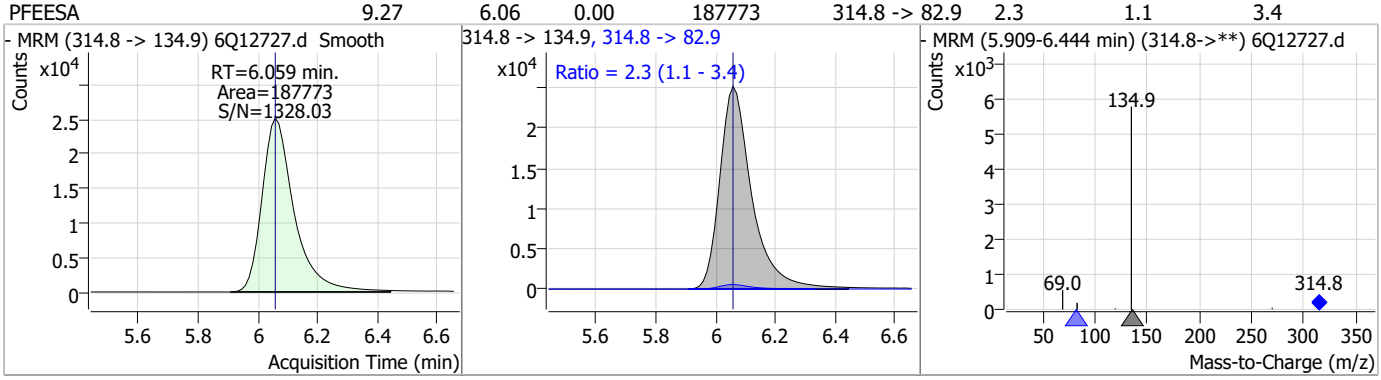


Perfluorinated Compounds by LC/MS/MS

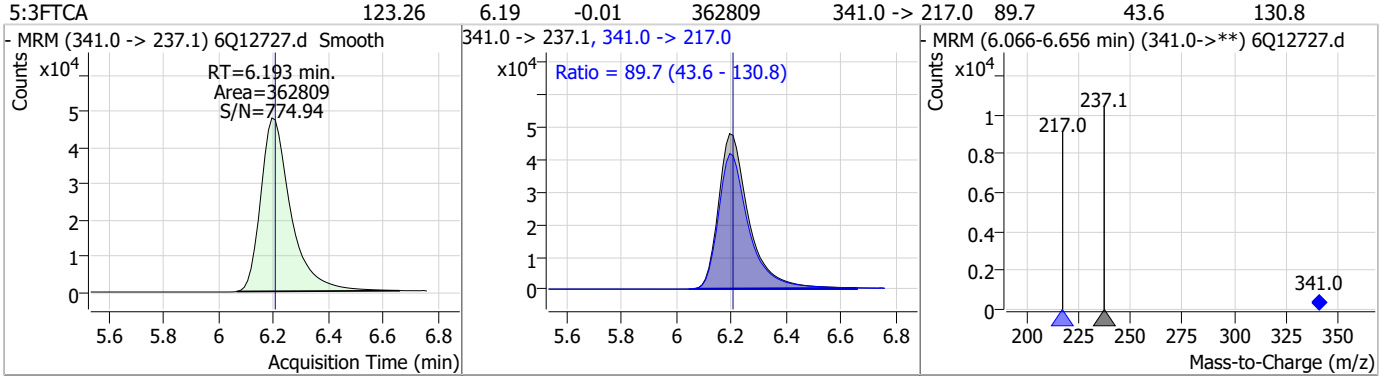
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.46	5.94	0.00	29062	284.9 -> 184.9	12.2	6.6	19.9



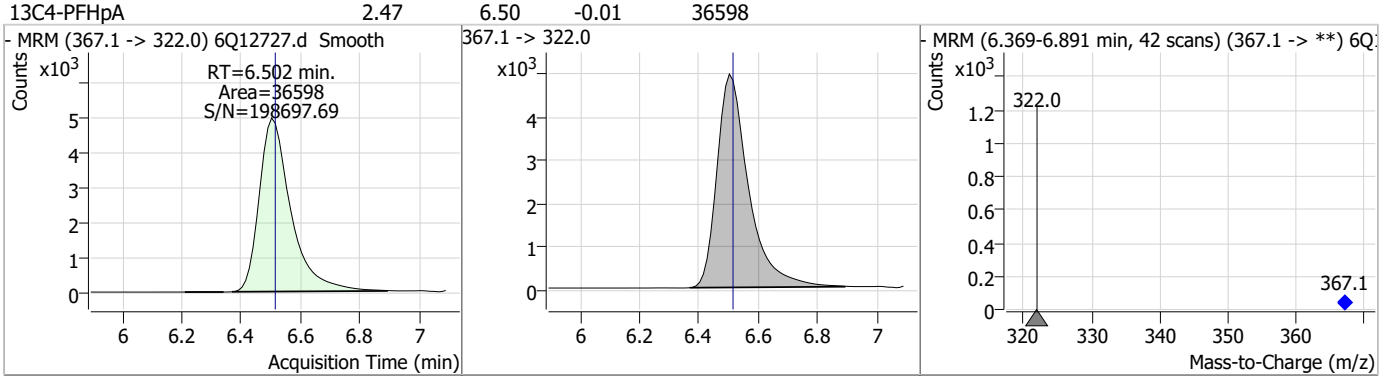
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	9.27	6.06	0.00	187773	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	123.26	6.19	-0.01	362809	341.0 -> 217.0	89.7	43.6	130.8

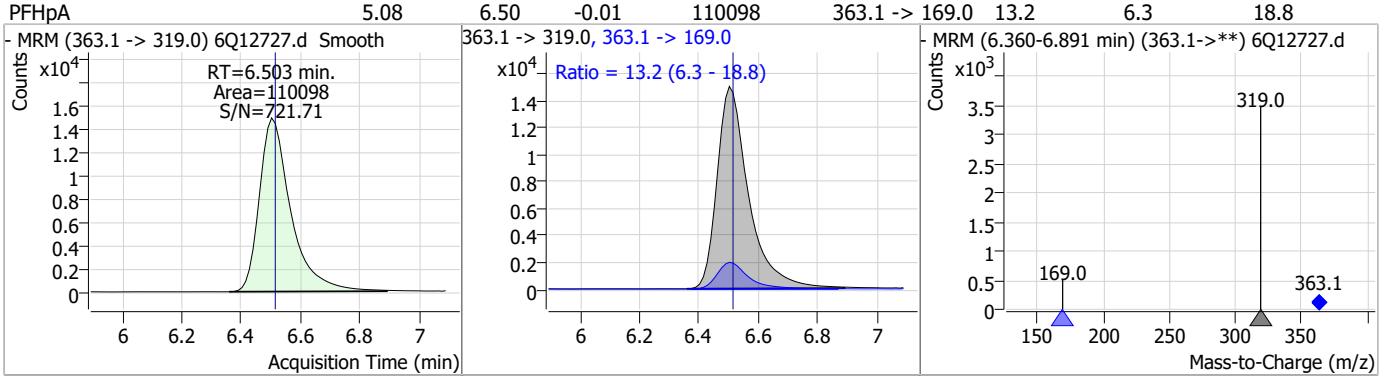


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.50	-0.01	36598				

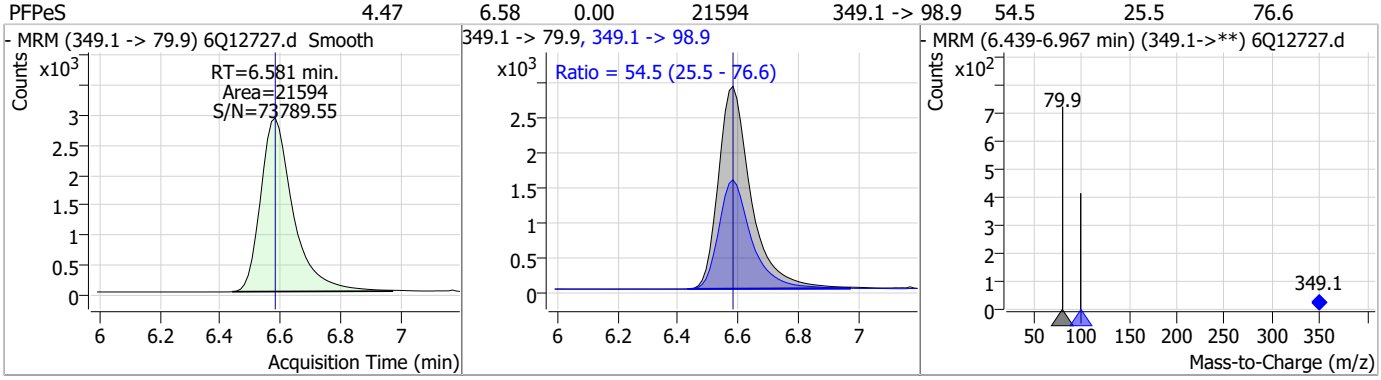


Perfluorinated Compounds by LC/MS/MS

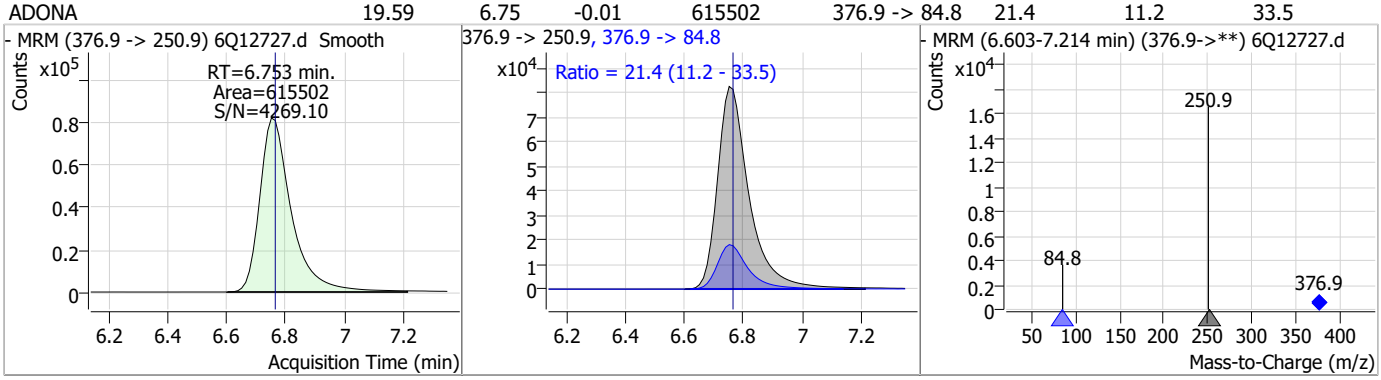
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.08	6.50	-0.01	110098	363.1 -> 169.0	13.2	6.3	18.8



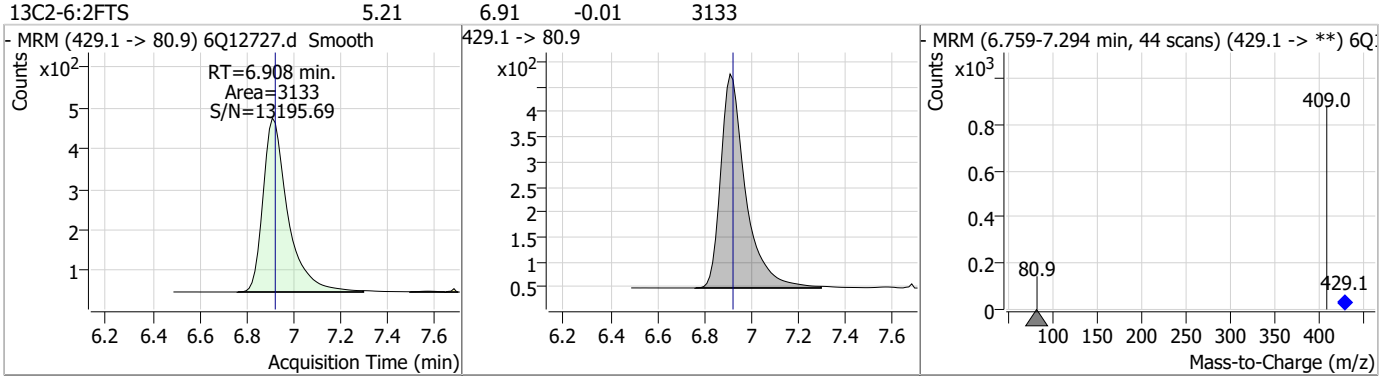
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.47	6.58	0.00	21594	349.1 -> 98.9	54.5	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.59	6.75	-0.01	615502	376.9 -> 84.8	21.4	11.2	33.5

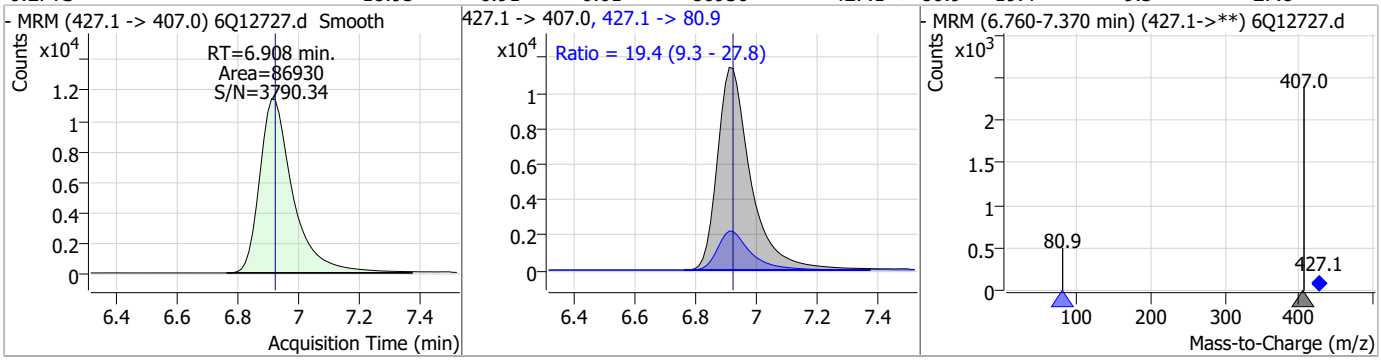


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.21	6.91	-0.01	3133				

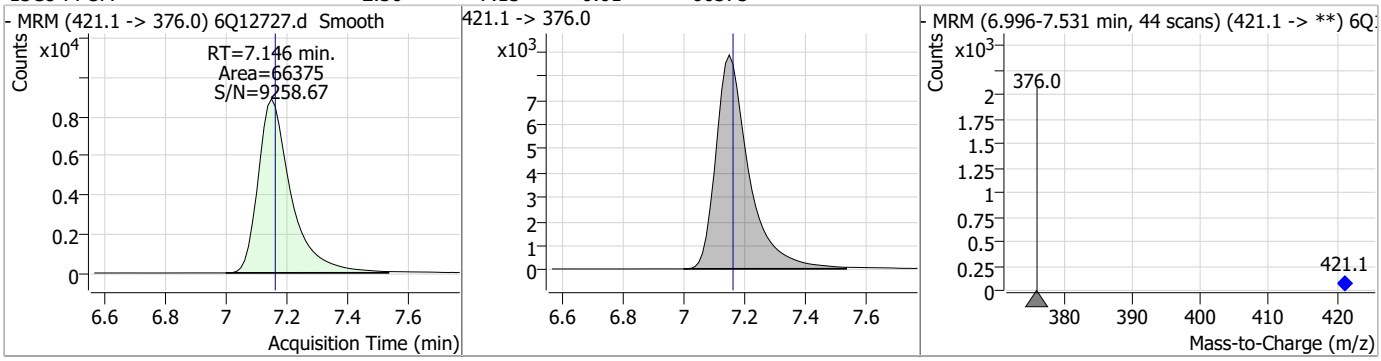


Perfluorinated Compounds by LC/MS/MS

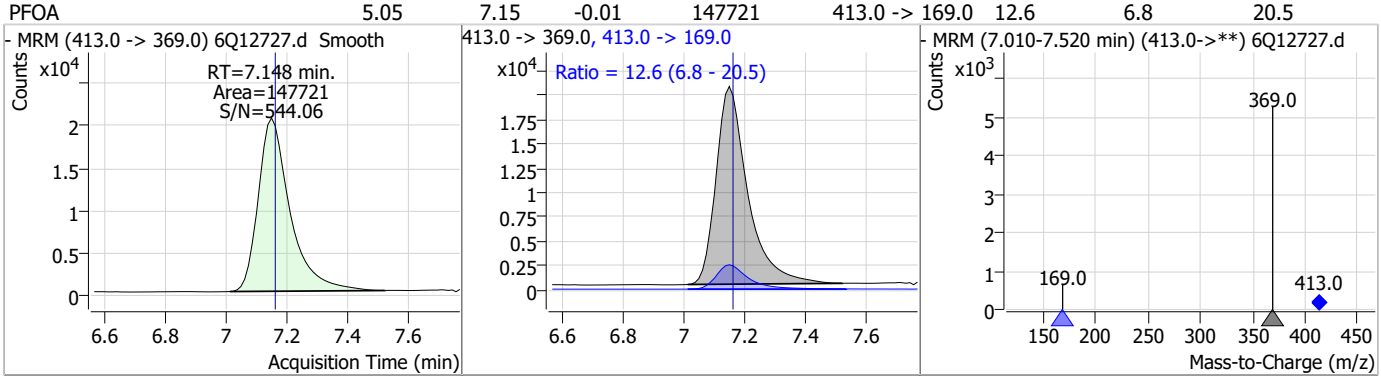
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	18.95	6.91	-0.01	86930	427.1 -> 80.9	19.4	9.3	27.8



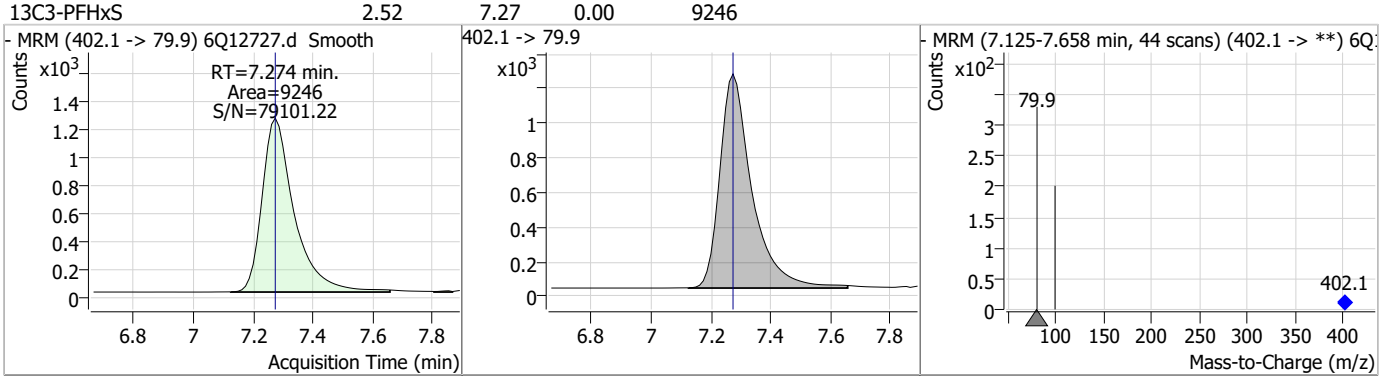
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.50	7.15	-0.01	66375				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.05	7.15	-0.01	147721	413.0 -> 169.0	12.6	6.8	20.5

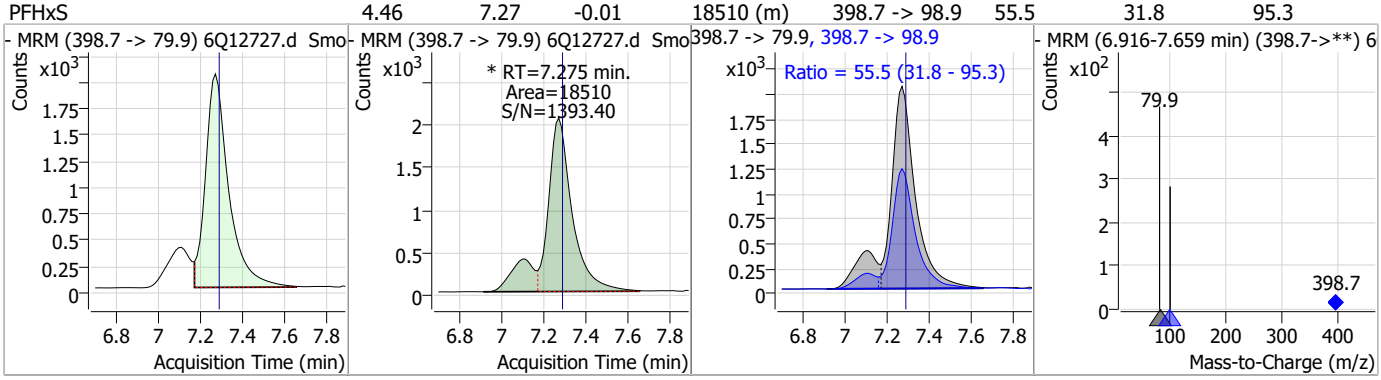


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.52	7.27	0.00	9246				

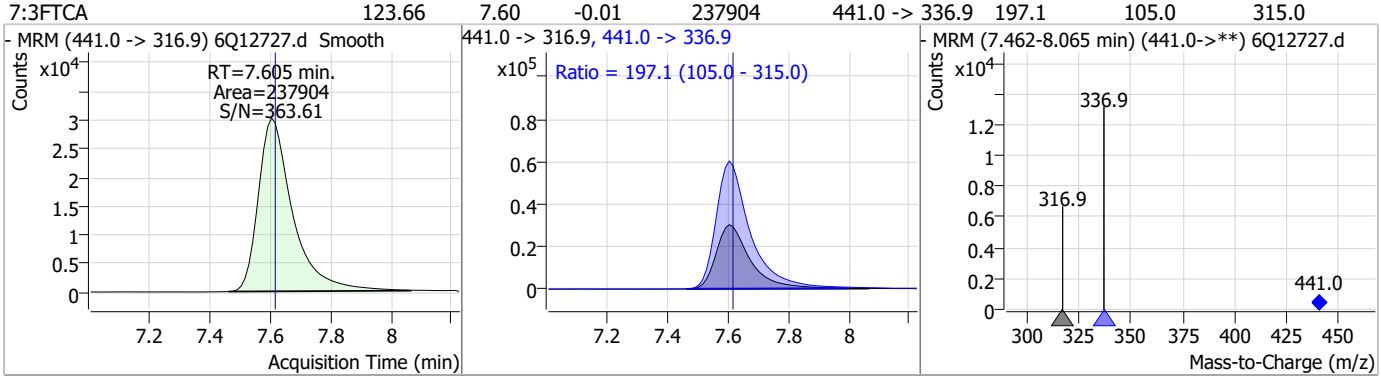


Perfluorinated Compounds by LC/MS/MS

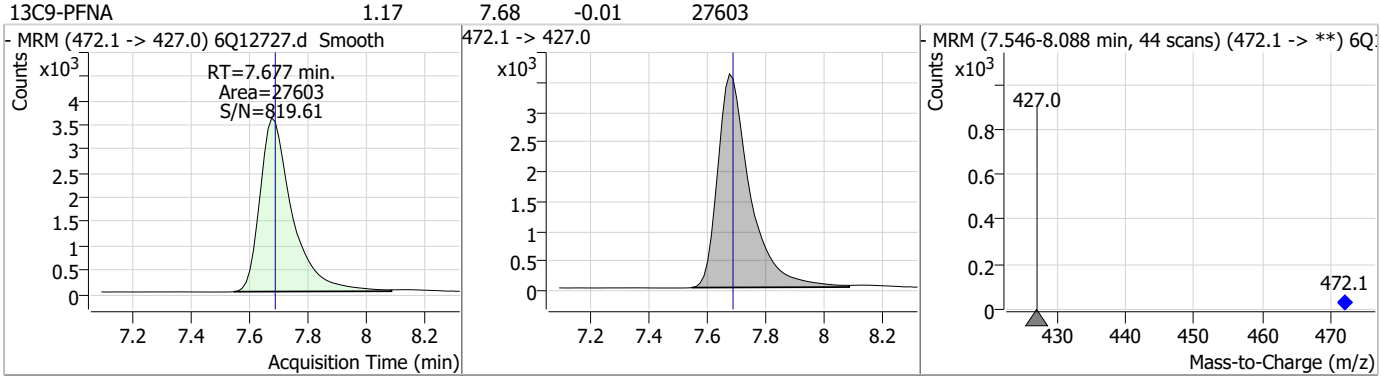
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.46	7.27	-0.01	18510 (m)	398.7 -> 98.9	55.5	31.8	95.3



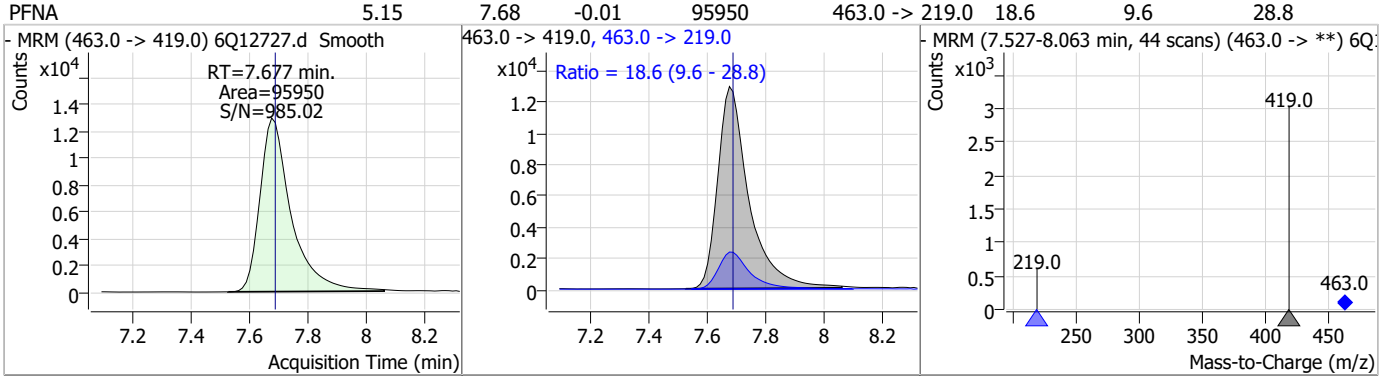
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	123.66	7.60	-0.01	237904	441.0 -> 336.9	197.1	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.17	7.68	-0.01	27603				

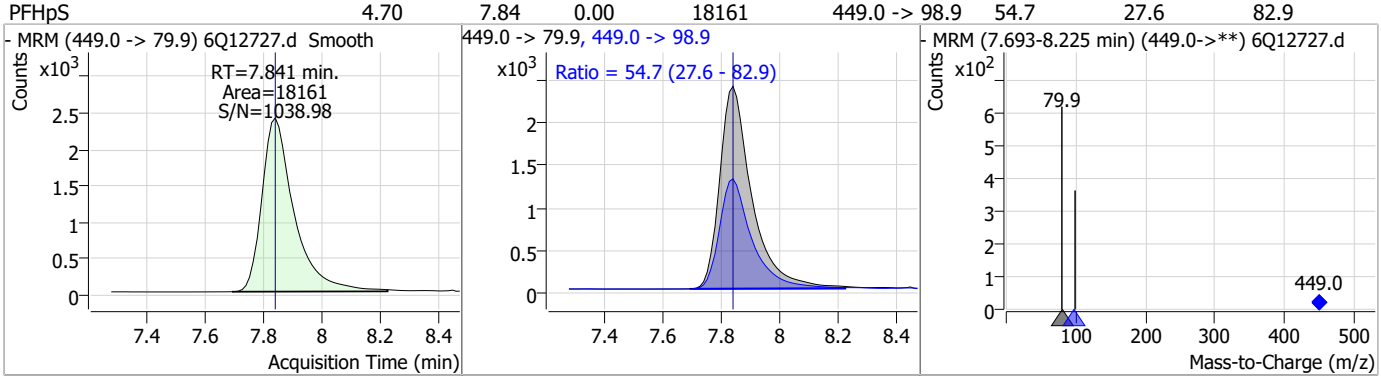


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.15	7.68	-0.01	95950	463.0 -> 219.0	18.6	9.6	28.8

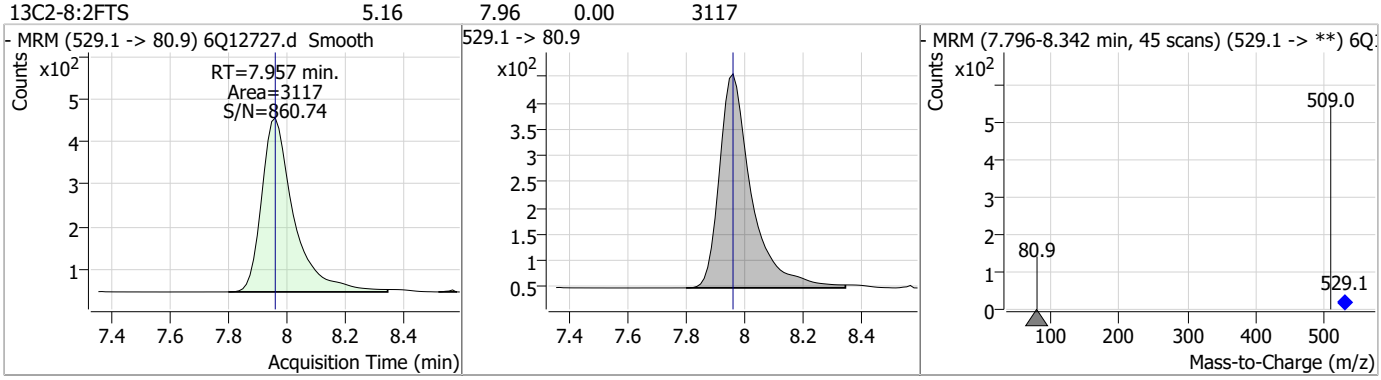


Perfluorinated Compounds by LC/MS/MS

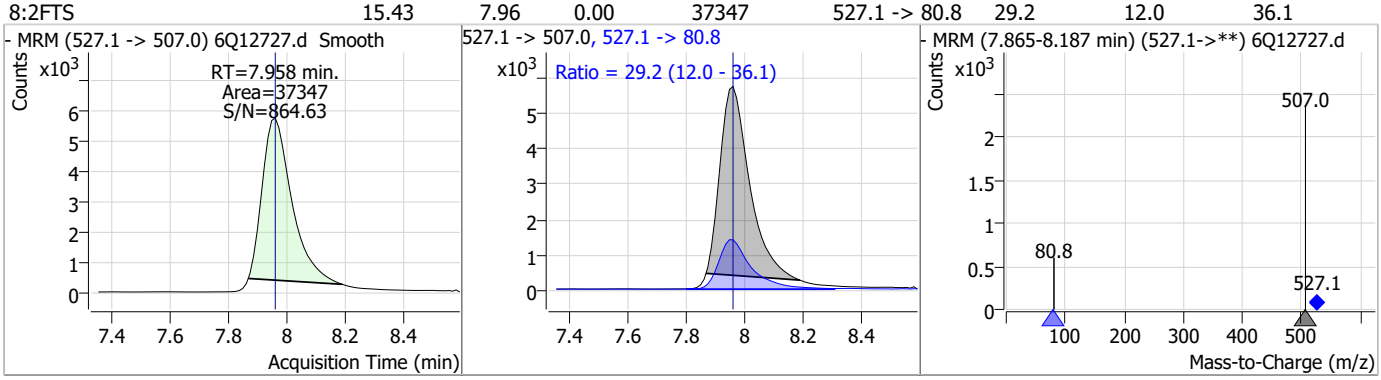
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.70	7.84	0.00	18161	449.0 -> 98.9	54.7	27.6	82.9



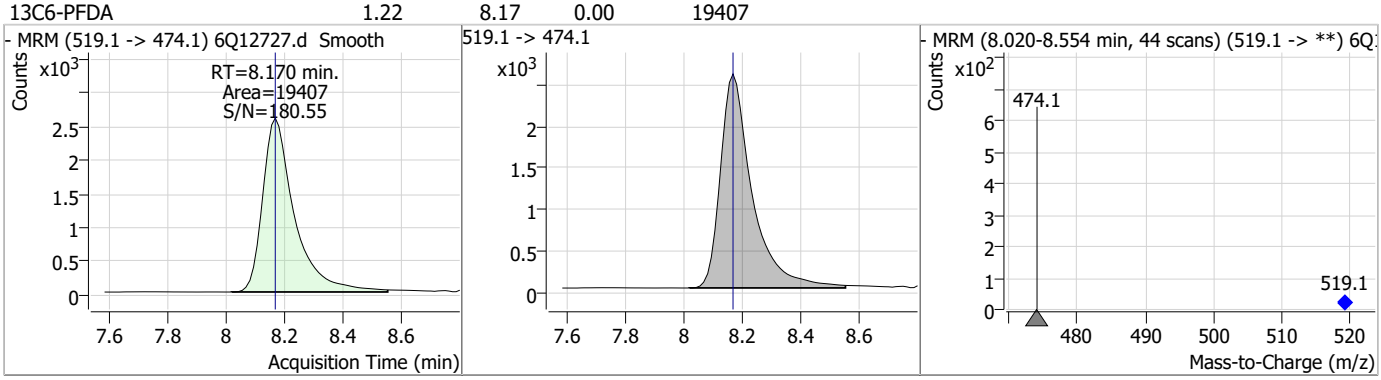
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.16	7.96	0.00	3117				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	15.43	7.96	0.00	37347	527.1 -> 80.8	29.2	12.0	36.1

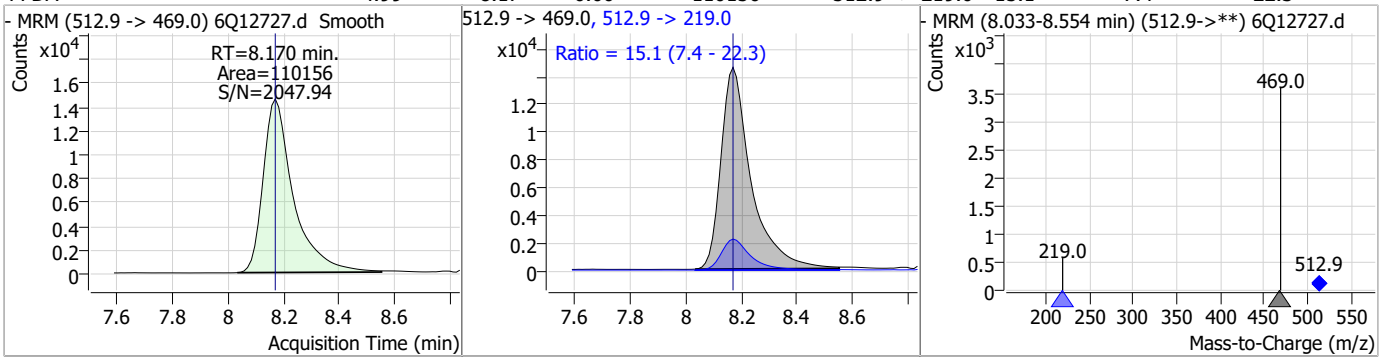


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.22	8.17	0.00	19407				

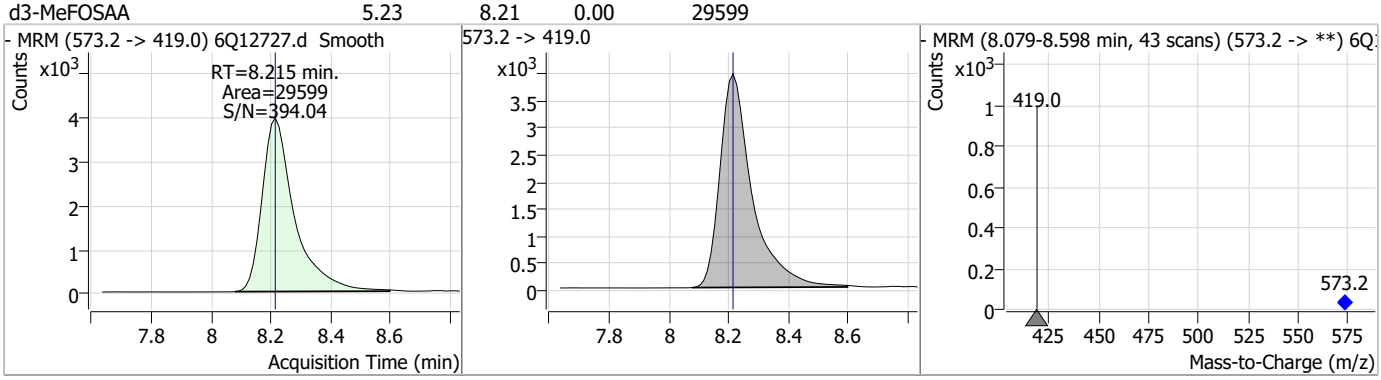


Perfluorinated Compounds by LC/MS/MS

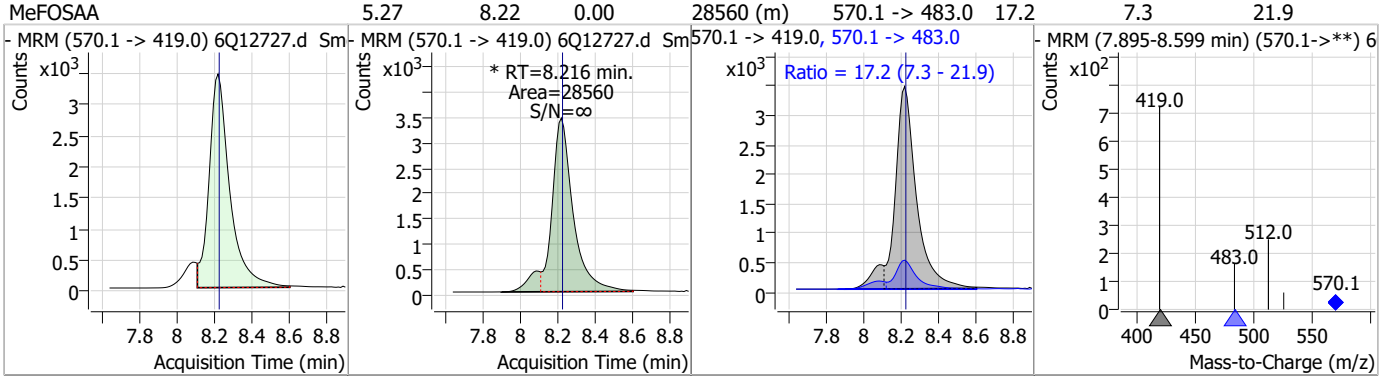
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.99	8.17	0.00	110156	512.9 -> 219.0	15.1	7.4	22.3



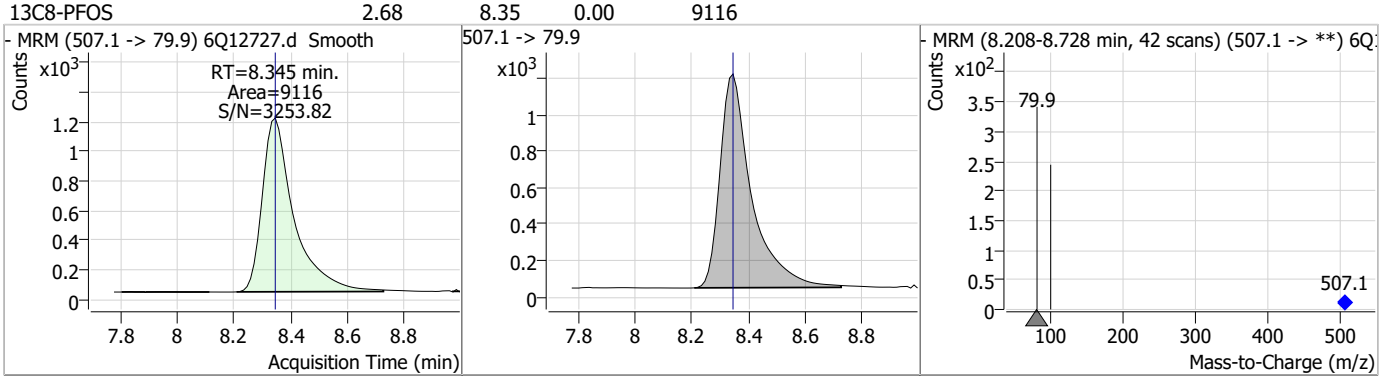
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.23	8.21	0.00	29599				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	5.27	8.22	0.00	28560 (m)	570.1 -> 483.0	17.2	7.3	21.9

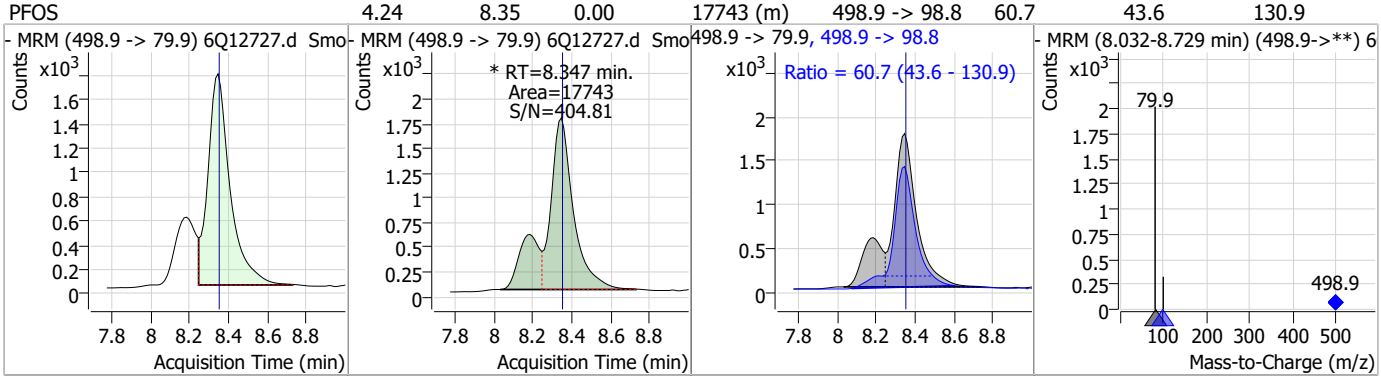


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.68	8.35	0.00	9116				

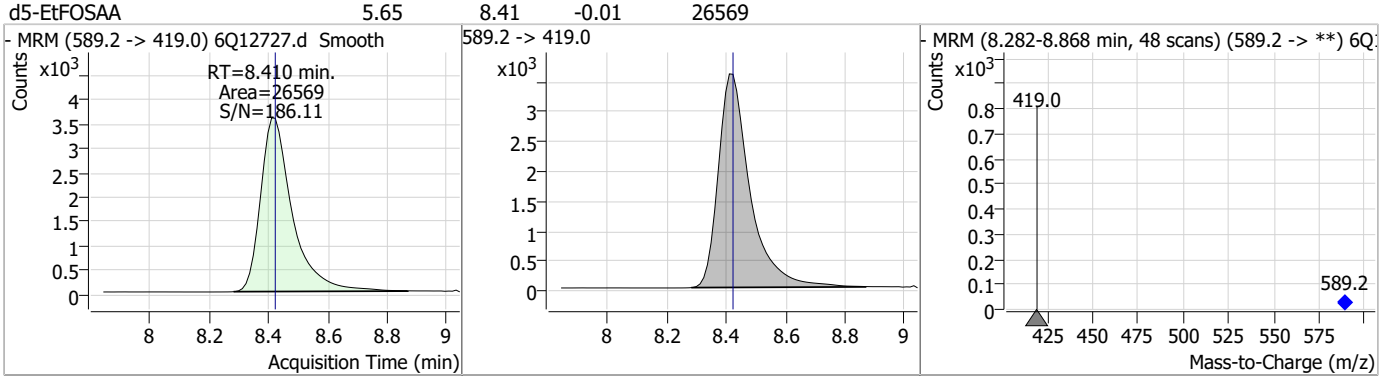


Perfluorinated Compounds by LC/MS/MS

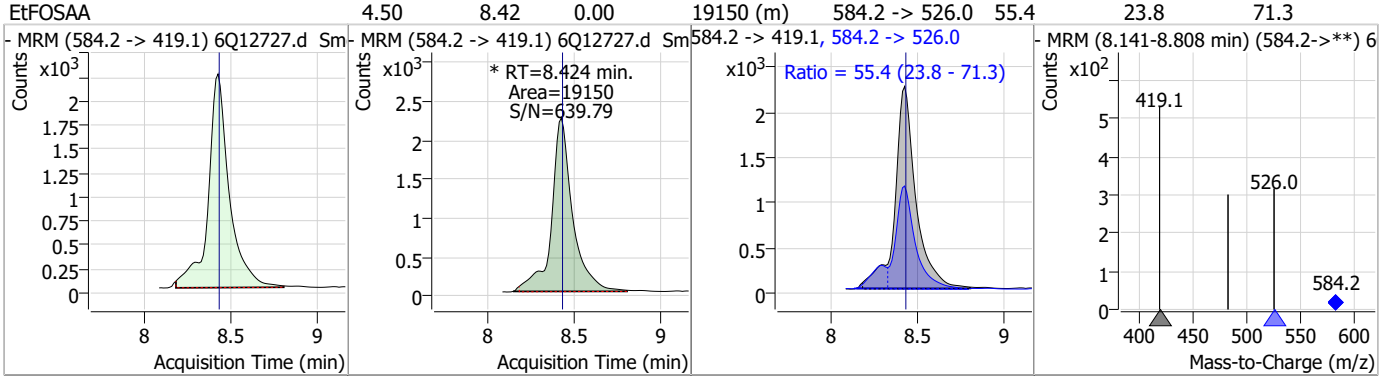
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.24	8.35	0.00	17743 (m)	498.9 -> 98.8	60.7	43.6	130.9



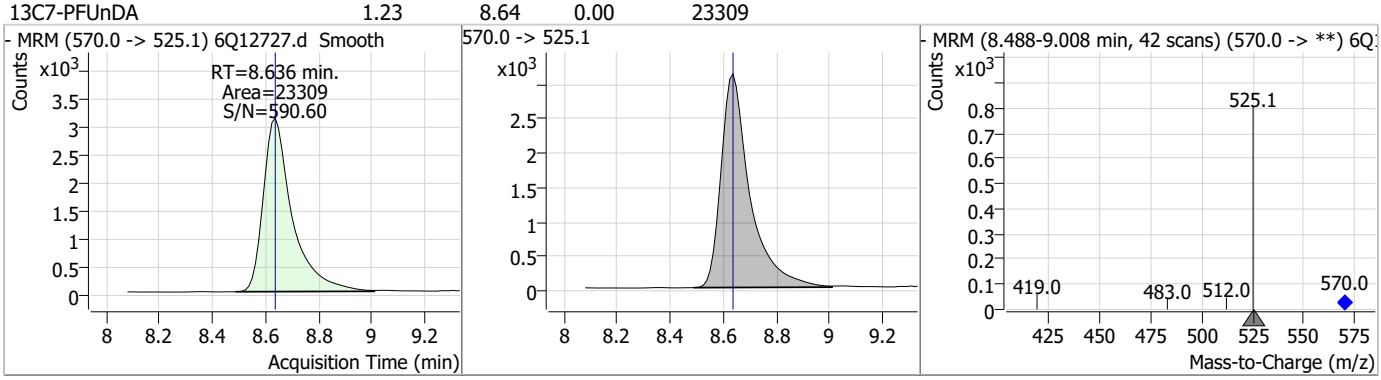
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.65	8.41	-0.01	26569				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.50	8.42	0.00	19150 (m)	584.2 -> 526.0	55.4	23.8	71.3

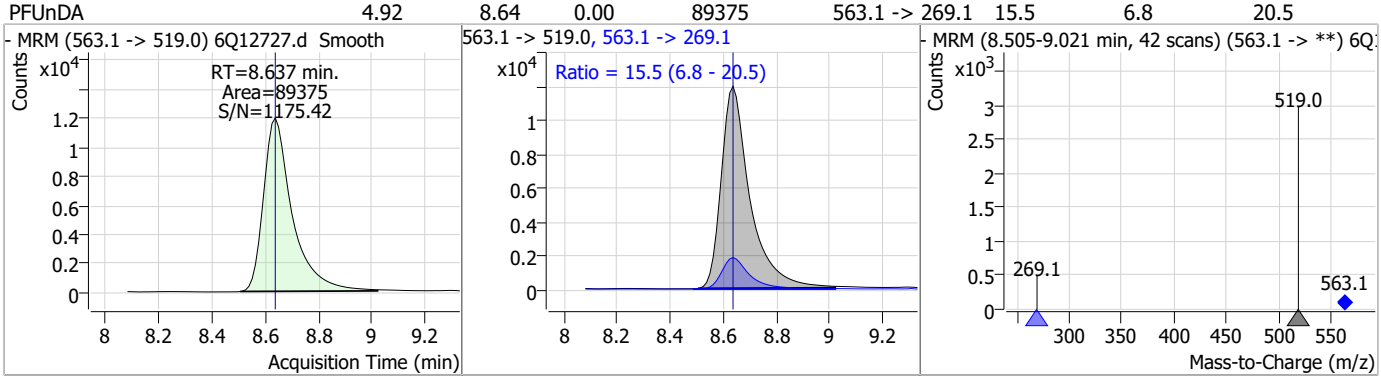


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	0.00	23309				

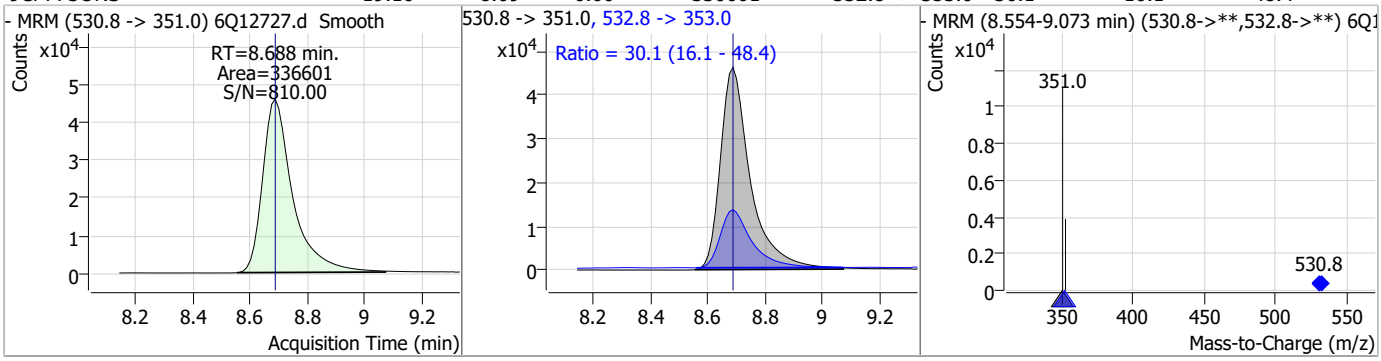


Perfluorinated Compounds by LC/MS/MS

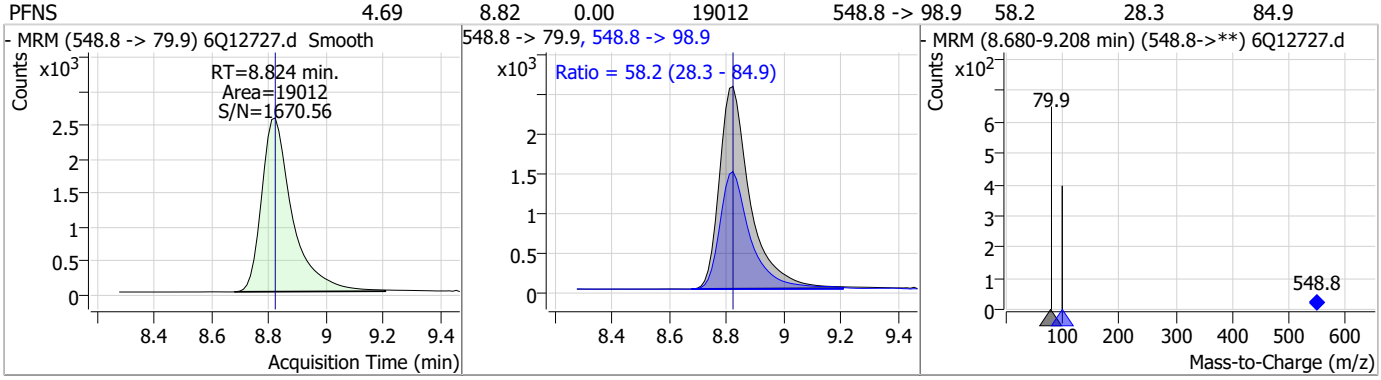
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.92	8.64	0.00	89375	563.1 -> 269.1	15.5	6.8	20.5



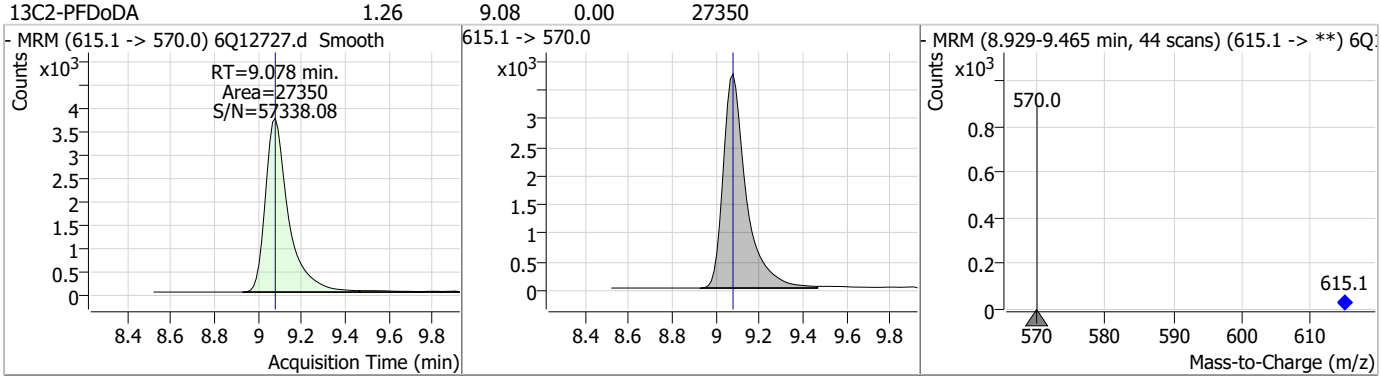
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.16	8.69	0.00	336601	532.8 -> 353.0	30.1	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.69	8.82	0.00	19012	548.8 -> 98.9	58.2	28.3	84.9

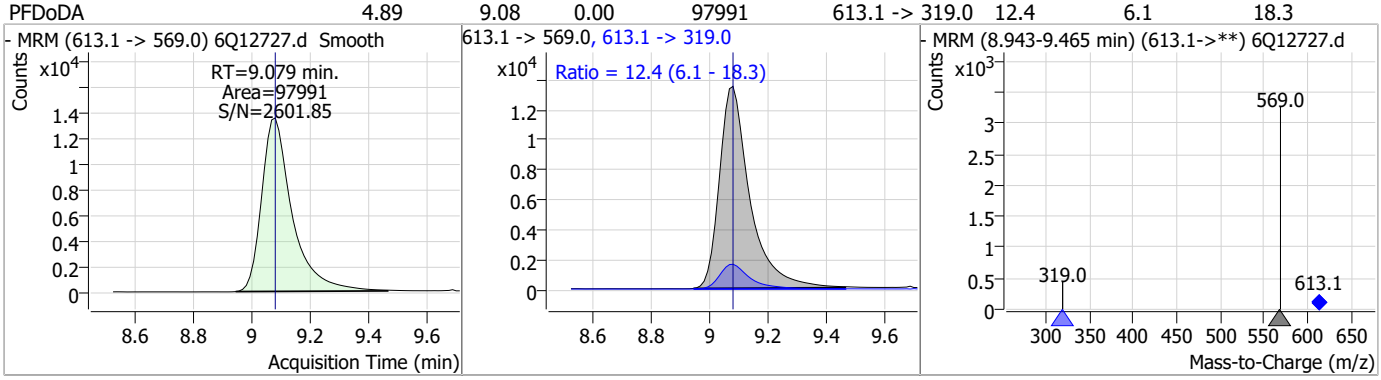


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.26	9.08	0.00	27350				

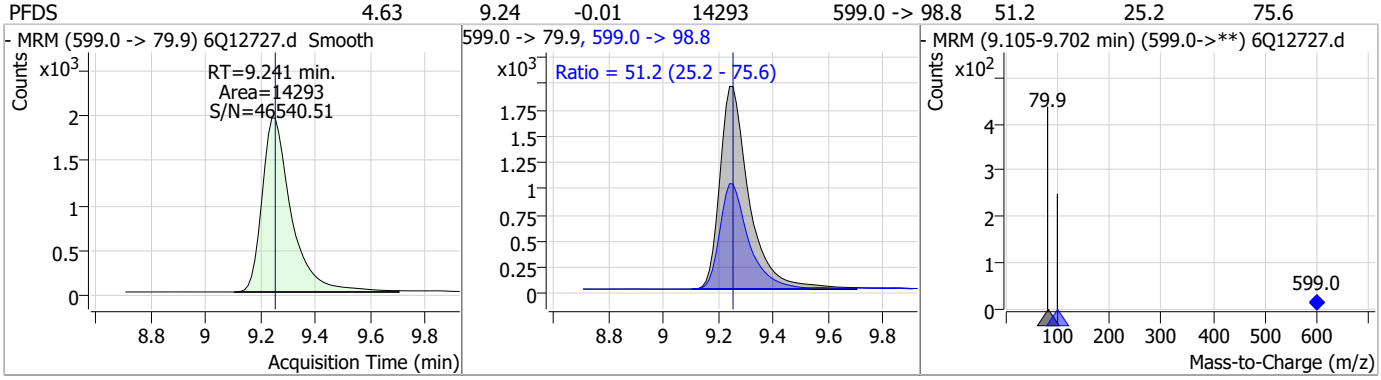


Perfluorinated Compounds by LC/MS/MS

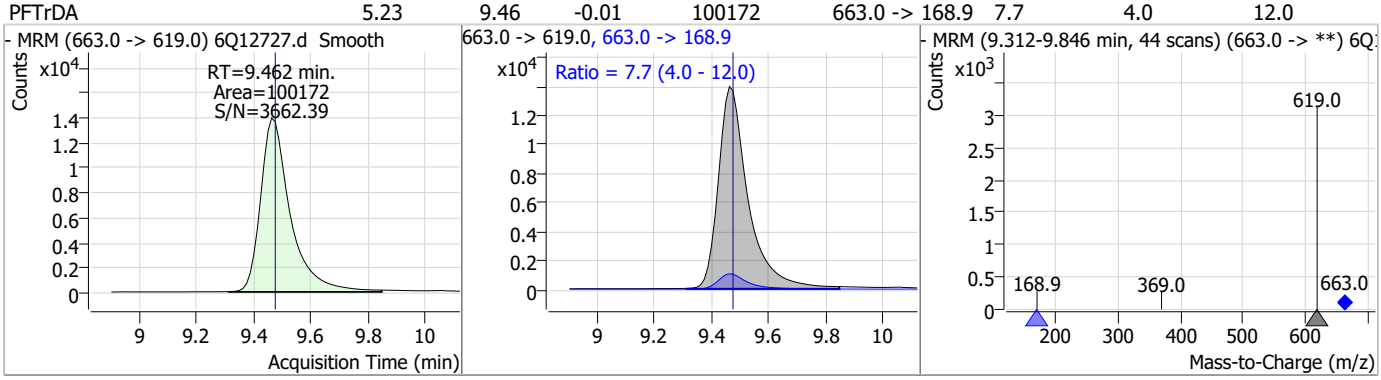
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.89	9.08	0.00	97991	613.1 -> 319.0	12.4	6.1	18.3



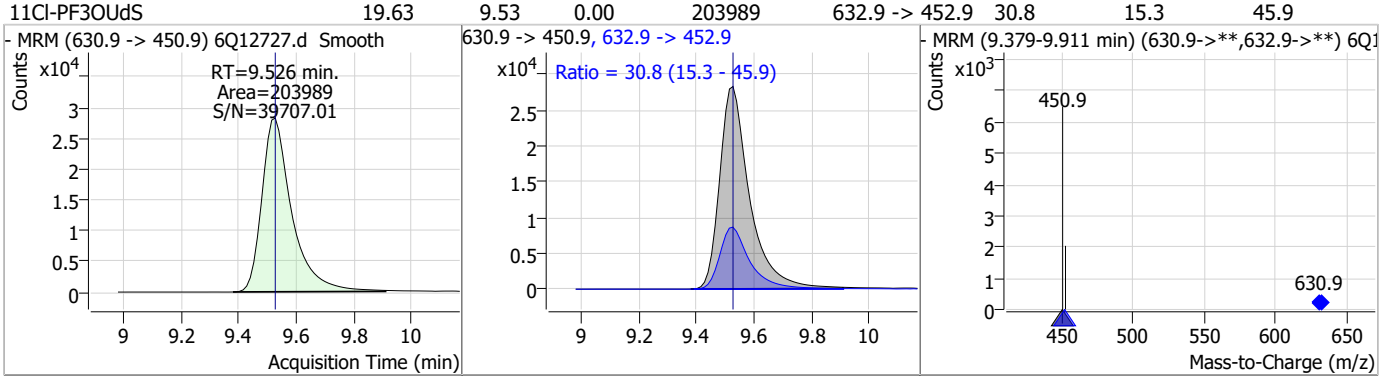
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	4.63	9.24	-0.01	14293	599.0 -> 98.8	51.2	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	5.23	9.46	-0.01	100172	663.0 -> 168.9	7.7	4.0	12.0

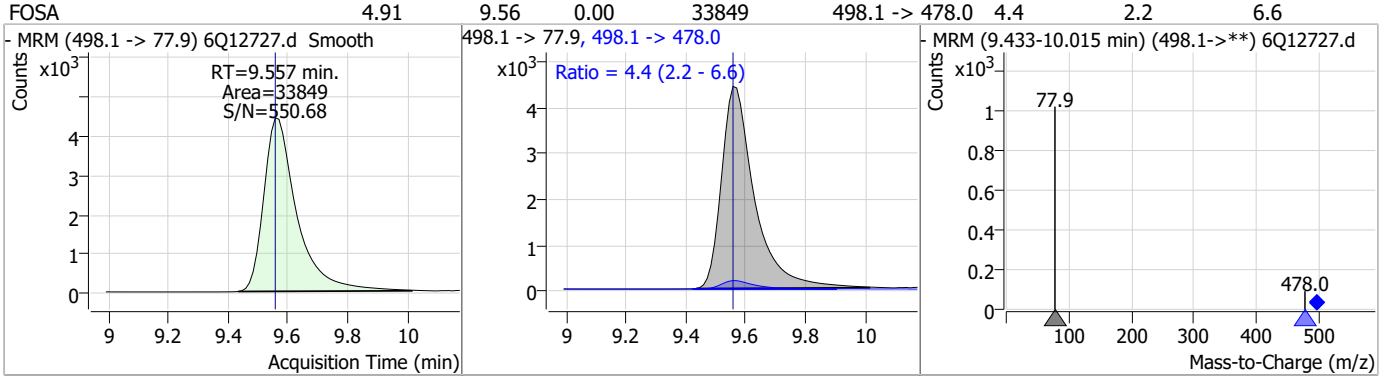


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.63	9.53	0.00	203989	632.9 -> 452.9	30.8	15.3	45.9

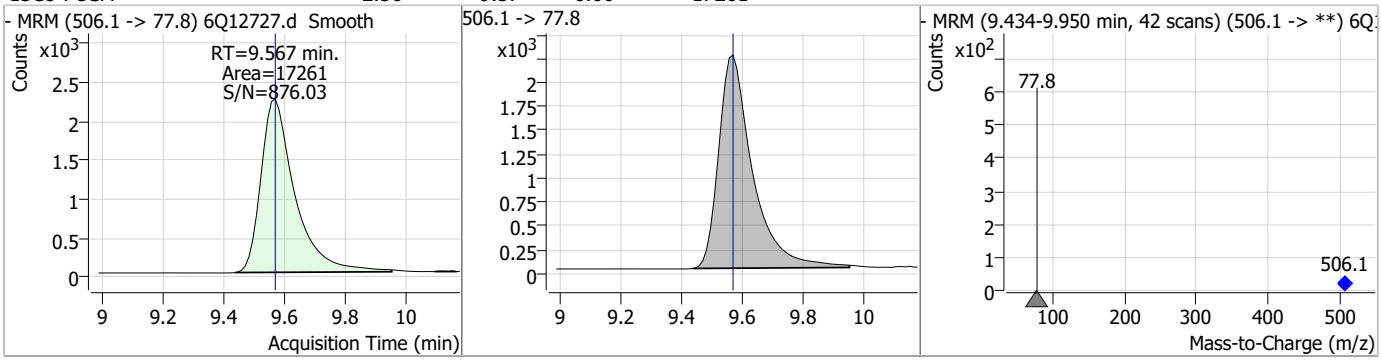


Perfluorinated Compounds by LC/MS/MS

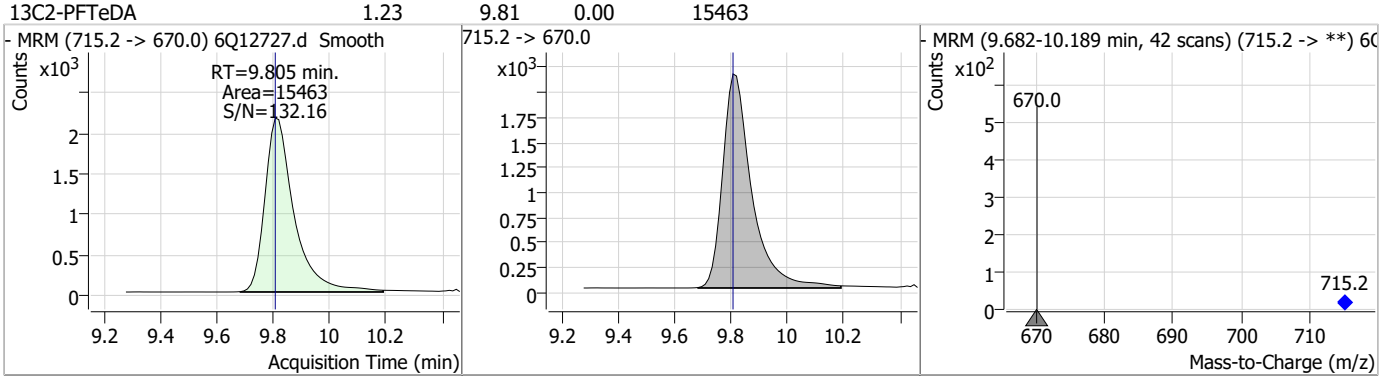
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.91	9.56	0.00	33849	498.1 -> 478.0	4.4	2.2	6.6



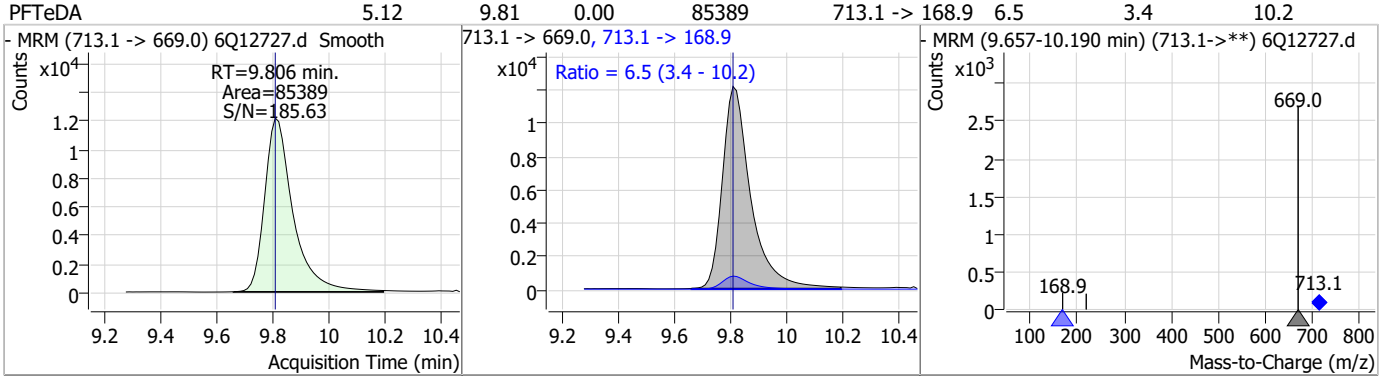
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.57	0.00	17261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.81	0.00	15463				

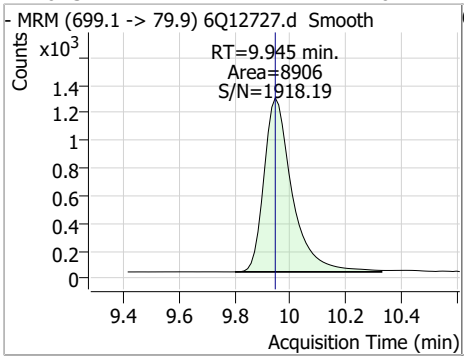


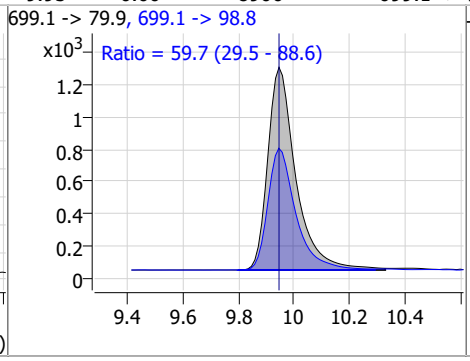
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.12	9.81	0.00	85389	713.1 -> 168.9	6.5	3.4	10.2

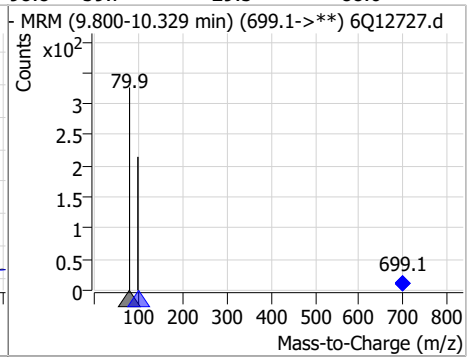


Perfluorinated Compounds by LC/MS/MS

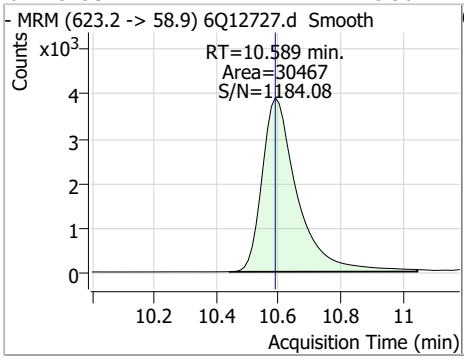
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	4.82	9.95	0.00	8906	699.1 -> 98.8	59.7	29.5	88.6

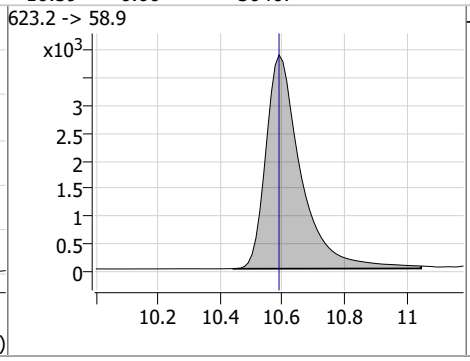


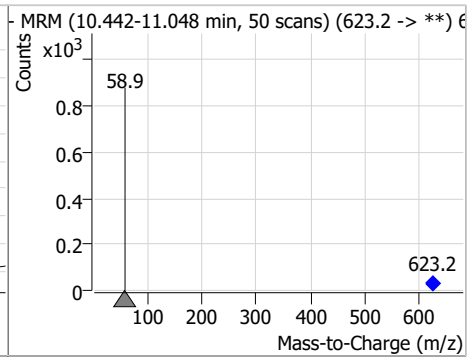




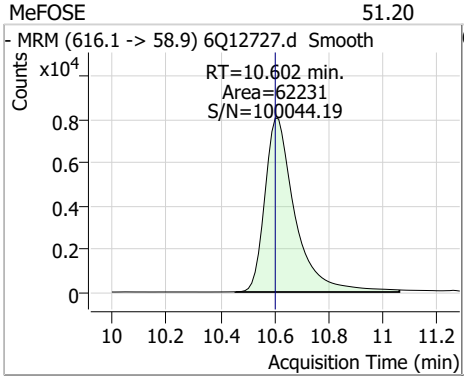
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.96	10.59	0.00	30467				

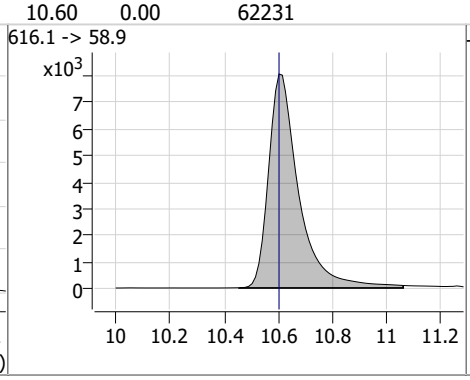


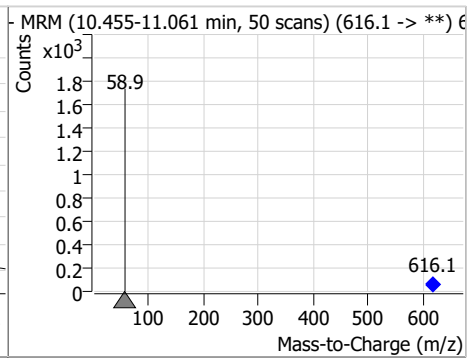




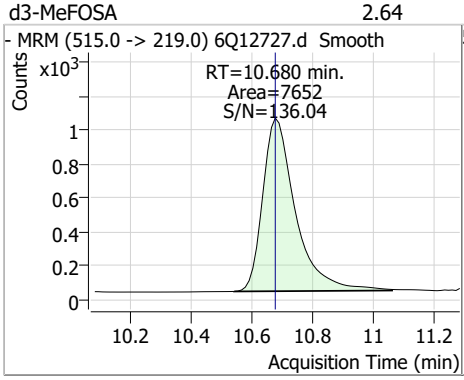
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	51.20	10.60	0.00	62231				

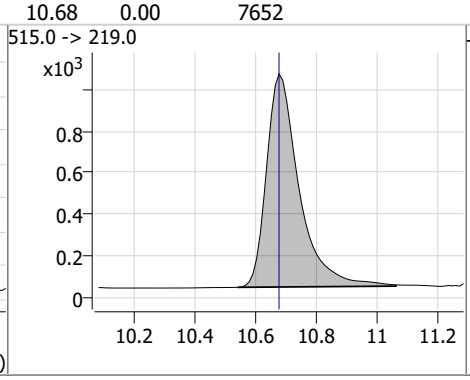


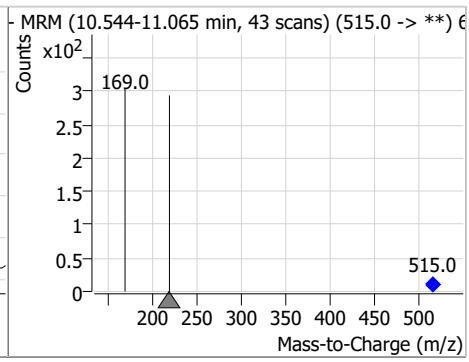




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.68	0.00	7652				

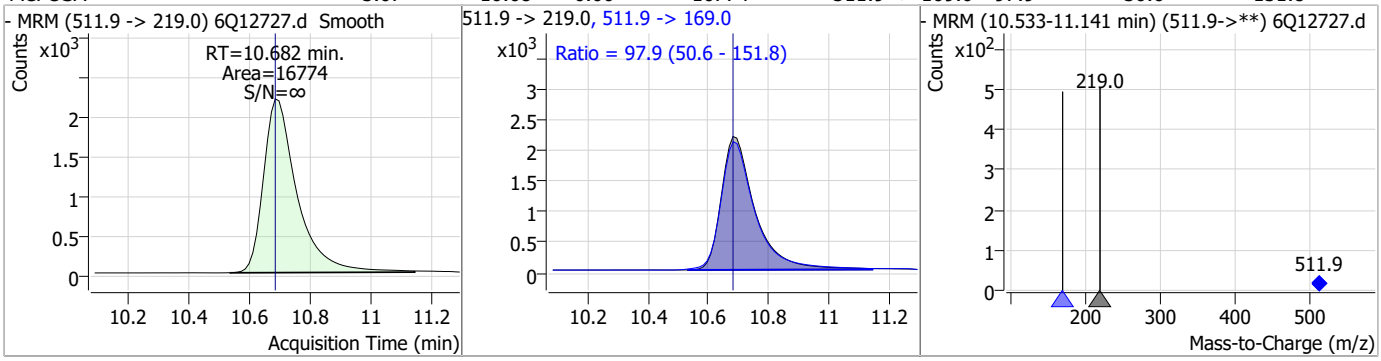




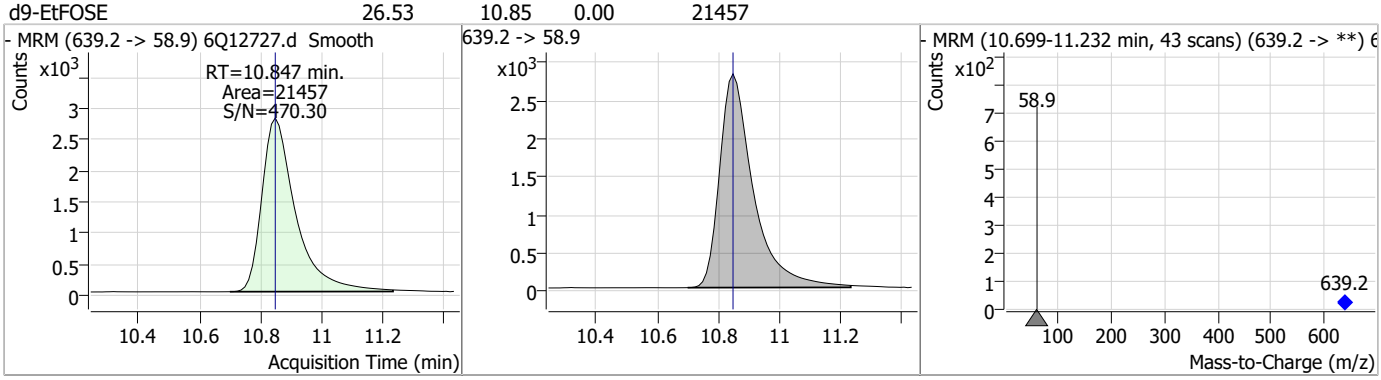


Perfluorinated Compounds by LC/MS/MS

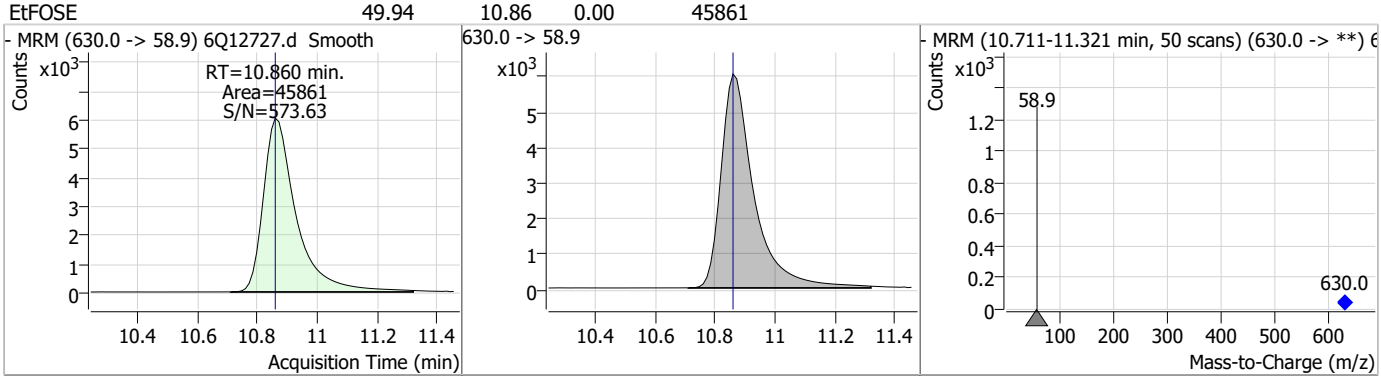
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.07	10.68	0.00	16774	511.9 -> 169.0	97.9	50.6	151.8



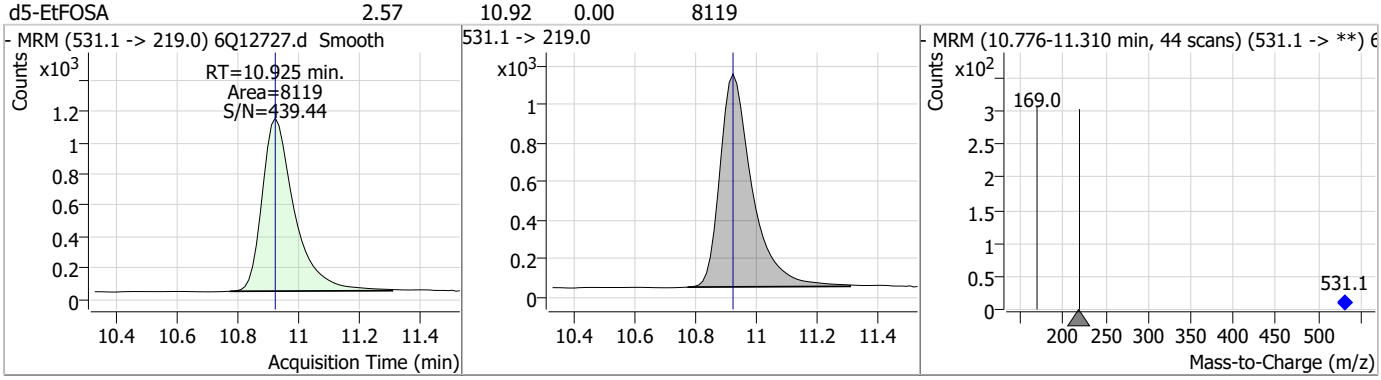
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.53	10.85	0.00	21457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	49.94	10.86	0.00	45861				

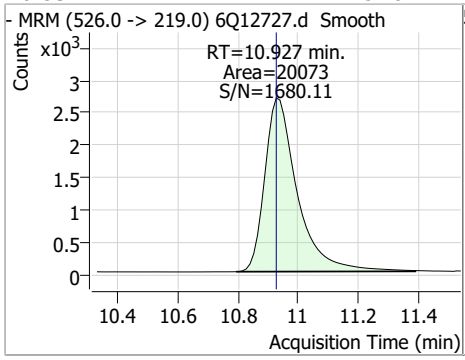


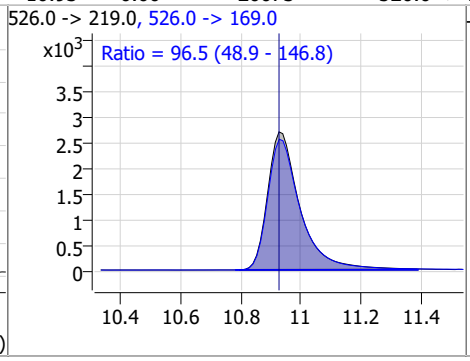
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.57	10.92	0.00	8119				

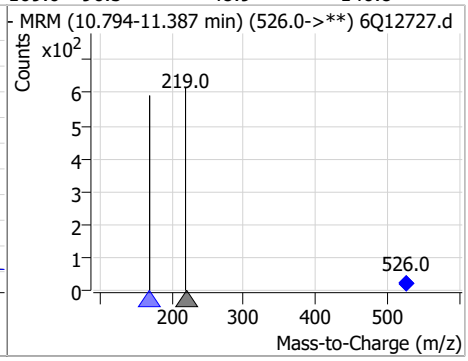


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.18	10.93	0.00	20073	526.0 -> 169.0	96.5	48.9	146.8







7.7.6

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12727.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 18:47	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

6Q12728.D

Manual Integrations APPROVED (compounds with "m" flag)

Norman Farmer 02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12728.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 7:01:15 PM
Sample Name	:	ic196-6
Vial	:	P1-A7
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	75807	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38810	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35006	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	36652	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66287	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	26314	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19004	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23194	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14727	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16380	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13831	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8829	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8576	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1975	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2739	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2717	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	28423	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13689	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	28159	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21366	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8432	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7433	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10428	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34475	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6603	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	77916	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27088	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31152	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35839	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	1975	4.60	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2739	4.81	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2717	4.75	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14727	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13831	2.57	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8829	2.54	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C4-PFBA	2.975	216.8 -> 171.9	75807	9.91 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C4-PFHpA	6.502	367.1 -> 322.0	36652	2.48 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C5-PFHxA	5.575	318.0 -> 273.0	35006	2.47 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C5-PFPeA	4.386	268.3 -> 223.0	38810	4.86 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C6-PFDA	8.170	519.1 -> 474.1	19004	1.26 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	23194	1.29 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C8-FOSA	9.567	506.1 -> 77.8	16380	2.41 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C8-PFOA	7.146	421.1 -> 376.0	66287	2.55 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C8-PFOS	8.345	507.1 -> 79.9	8576	2.50 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C9-PFNA	7.677	472.1 -> 427.0	26314	1.20 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%		
d3-MeFOSAA	8.215	573.2 -> 419.0	28423	4.97 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13689	9.35 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	7433	2.54 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.19 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	28159	23.78 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
d9-EtFOSE	10.847	639.2 -> 58.9	21366	26.18 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	8432	2.65 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	223593	50.49 µg/L		98
		327.1 -> 80.9	47062			
6:2FTS	6.921	427.1 -> 407.0	197483	49.24 µg/L		99
		427.1 -> 80.9	37643			
8:2FTS	7.958	527.1 -> 507.0	103485	49.04 µg/L		97
		527.1 -> 80.8	26387			
EtFOSAA	8.424	584.2 -> 419.1	47141	11.96 µg/L	m	88
		584.2 -> 526.0	26059			
FOSA	9.557	498.1 -> 77.9	85451	13.07 µg/L		99
		498.1 -> 478.0	3497			
MeFOSAA	8.216	570.1 -> 419.0	65325	12.54 µg/L		92
		570.1 -> 483.0	11712			
PFBA	2.982	212.8 -> 168.9	85941	50.76 µg/L		100
PFBS	5.518	298.7 -> 79.9	56325	10.60 µg/L		95
		298.7 -> 98.8	26284			
PFDA	8.170	512.9 -> 469.0	263882	12.20 µg/L		98
		512.9 -> 219.0	37498			
PFDoDA	9.067	613.1 -> 569.0	241001	12.80 µg/L		98
		613.1 -> 319.0	27351			
PFDS	9.241	599.0 -> 79.9	35414	12.19 µg/L		98

Perfluorinated Compounds by LC/MS/MS

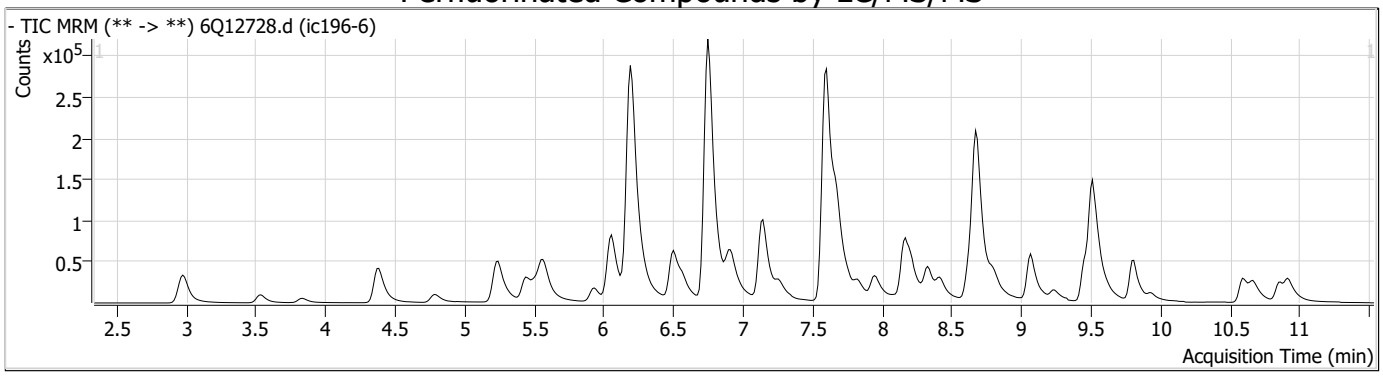
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	17274				
PFHpA	6.503	363.1 -> 319.0	258234	11.89	µg/L		97
		363.1 -> 169.0	35741				
PFHpS	7.841	449.0 -> 79.9	43744	12.02	µg/L		97
		449.0 -> 98.9	25039				
PFHxA	5.578	313.0 -> 269.0	160652	11.70	µg/L		98
		313.0 -> 118.9	6086				
PFHxS	7.275	398.7 -> 79.9	43823	11.05	µg/L	m	93
		398.7 -> 98.9	25487				
PFNA	7.690	463.0 -> 419.0	230960	13.01	µg/L		100
		463.0 -> 219.0	43974				
PFNS	8.811	548.8 -> 79.9	45490	11.93	µg/L		96
		548.8 -> 98.9	27217				
PFOA	7.148	413.0 -> 369.0	347114	11.89	µg/L		99
		413.0 -> 169.0	46243				
PFOS	8.347	498.9 -> 79.9	44577	11.33	µg/L	m	73
		498.9 -> 98.8	27878				
PFPeA	4.388	263.0 -> 219.0	208178	25.40	µg/L		100
PFPeS	6.581	349.1 -> 79.9	53091	11.51	µg/L		92
		349.1 -> 98.9	30041				
PFTeDA	9.806	713.1 -> 669.0	210413	13.24	µg/L		98
		713.1 -> 168.9	12838				
PFTrDA	9.462	663.0 -> 619.0	222761	12.37	µg/L		99
		663.0 -> 168.9	18436				
PFUnDA	8.637	563.1 -> 519.0	209274	11.59	µg/L		98
		563.1 -> 269.1	29973				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	498527	50.75	µg/L		99
		632.9 -> 452.9	148539				
9Cl-PF3ONS	8.688	530.8 -> 351.0	798001	48.06	µg/L		98
		532.8 -> 353.0	268189				
ADONA	6.766	376.9 -> 250.9	1450917	48.86	µg/L		98
		376.9 -> 84.8	312230				
HFPO-DA	5.940	284.9 -> 168.9	69648	54.40	µg/L		96
		284.9 -> 184.9	8211				
3:3FTCA	3.841	241.0 -> 177.0	25737	63.95	µg/L		95
		241.0 -> 117.0	3277				
5:3FTCA	6.206	341.0 -> 237.1	884234	307.99	µg/L		97
		341.0 -> 217.0	798090				
7:3FTCA	7.605	441.0 -> 316.9	568701	303.07	µg/L		96
		441.0 -> 336.9	1158167				
EtFOSA	10.927	526.0 -> 219.0	48290	12.00	µg/L		99
		526.0 -> 169.0	47799				
EtFOSE	10.860	630.0 -> 58.9	112104	122.59	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	41283	12.84	µg/L		98
		511.9 -> 169.0	40866				
MeFOSE	10.602	616.1 -> 58.9	151323	134.71	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	20621	11.87	µg/L		94
		699.1 -> 98.8	13042				
NFDHA	5.457	295.0 -> 201.0	19845	24.45	µg/L		99
		295.0 -> 84.9	10297				
PFMBA	4.800	279.0 -> 85.1	56963	24.72	µg/L		100
PFMPA	3.541	229.0 -> 84.9	54695	25.03	µg/L		100
PFEESA	6.059	314.8 -> 134.9	420761	21.29	µg/L		99
		314.8 -> 82.9	10779				

= Qualifier out of range, m = manually integrated, + = Area summed

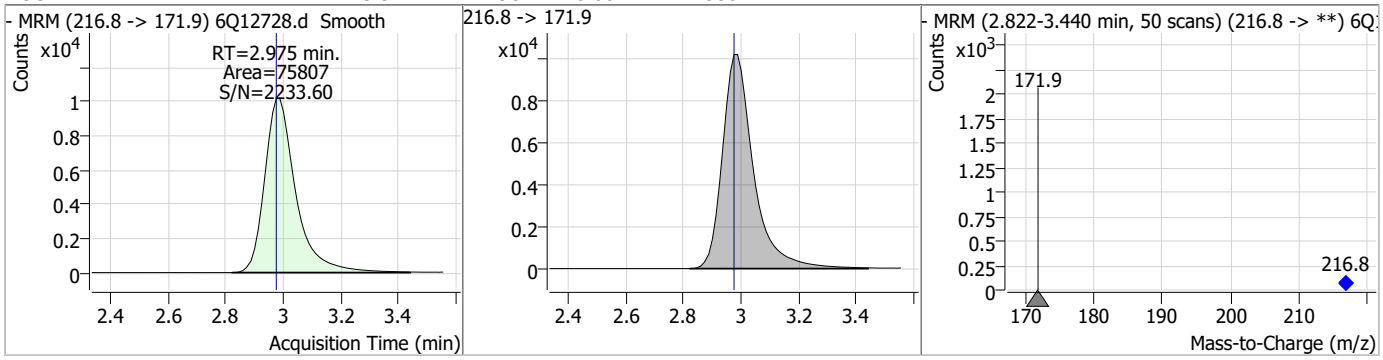
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

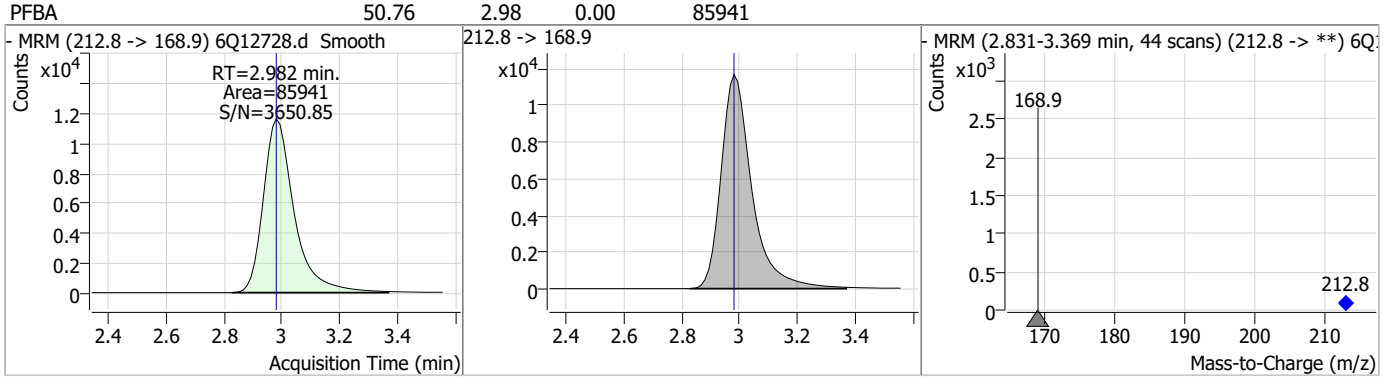
Perfluorinated Compounds by LC/MS/MS



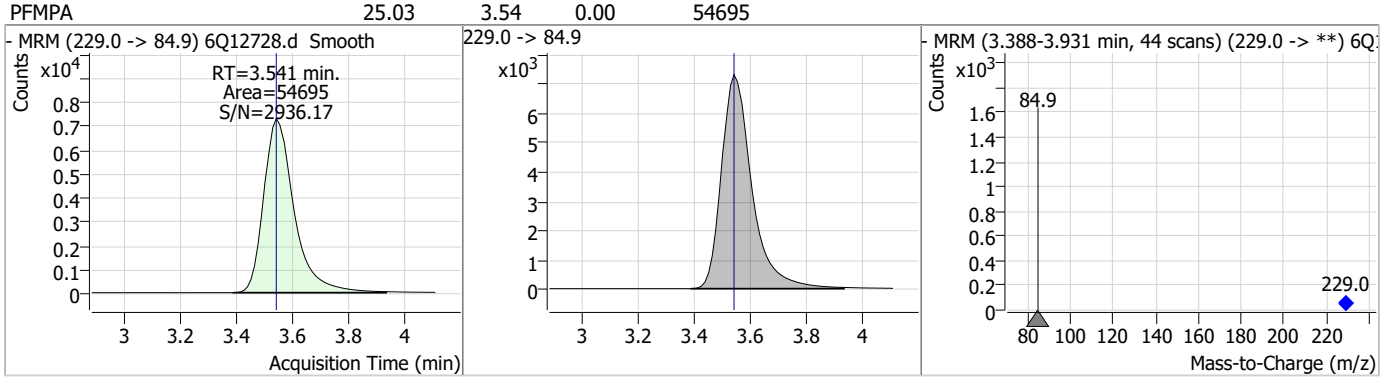
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.91	2.98	0.00	75807				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	50.76	2.98	0.00	85941				

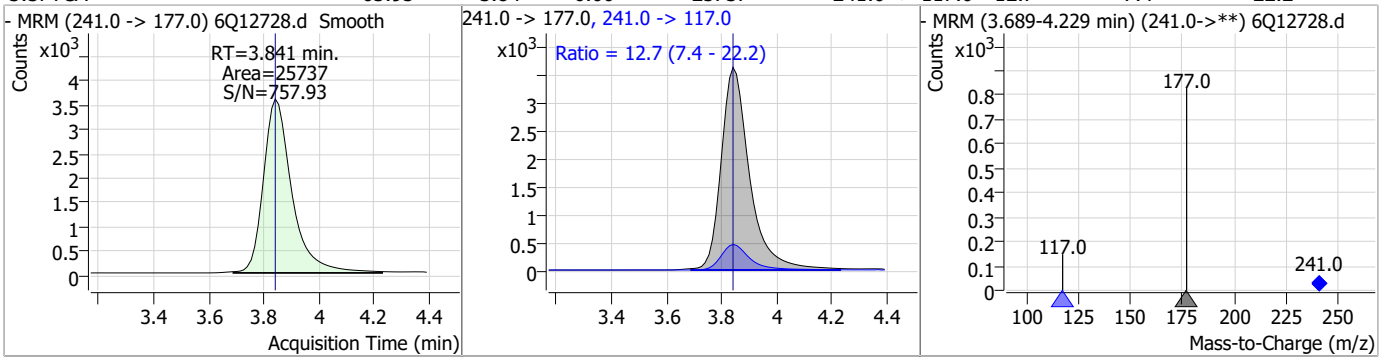


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	25.03	3.54	0.00	54695				

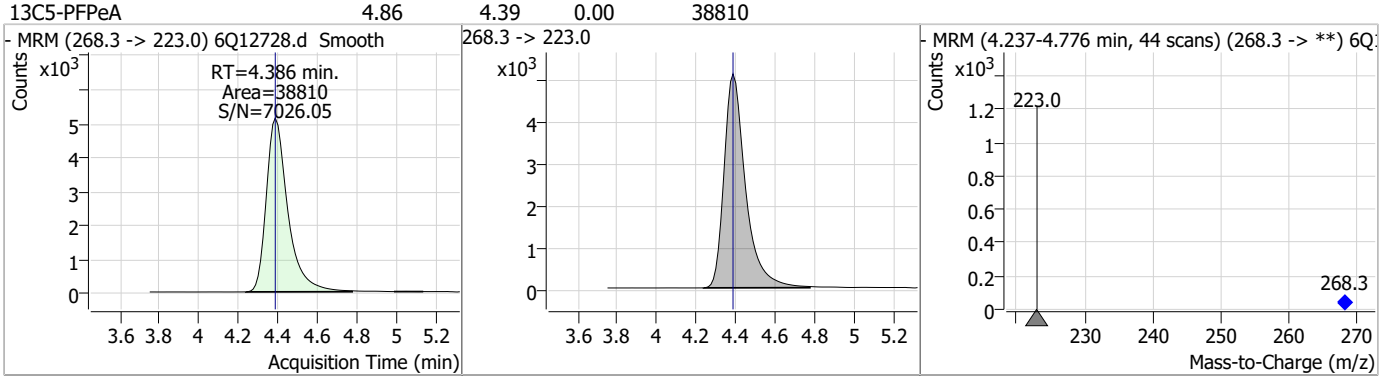


Perfluorinated Compounds by LC/MS/MS

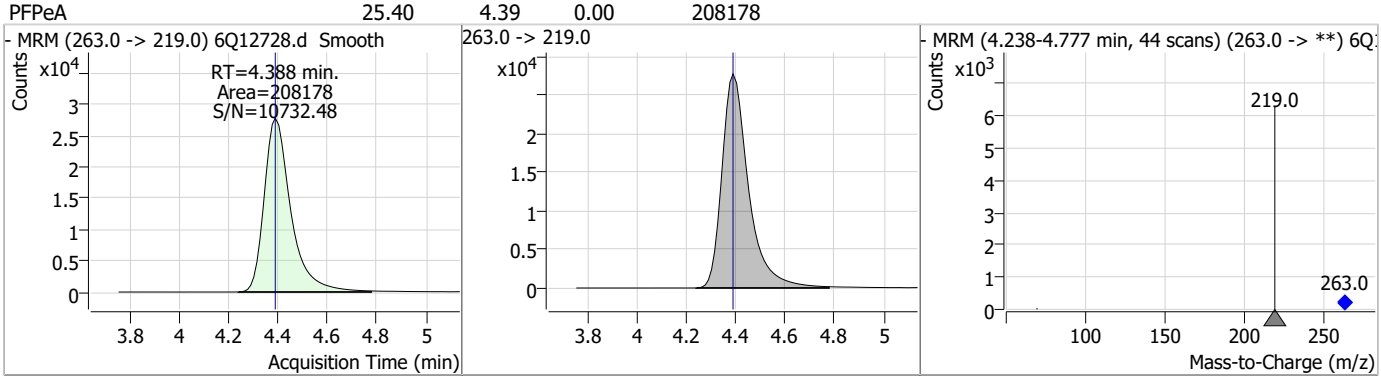
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	63.95	3.84	0.00	25737	241.0 -> 117.0	12.7	7.4	22.2



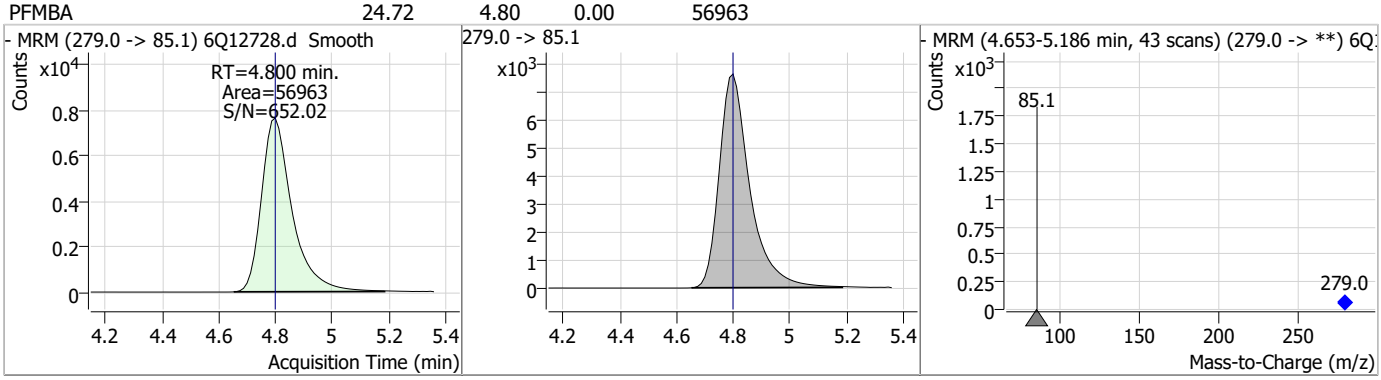
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.86	4.39	0.00	38810				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.40	4.39	0.00	208178				

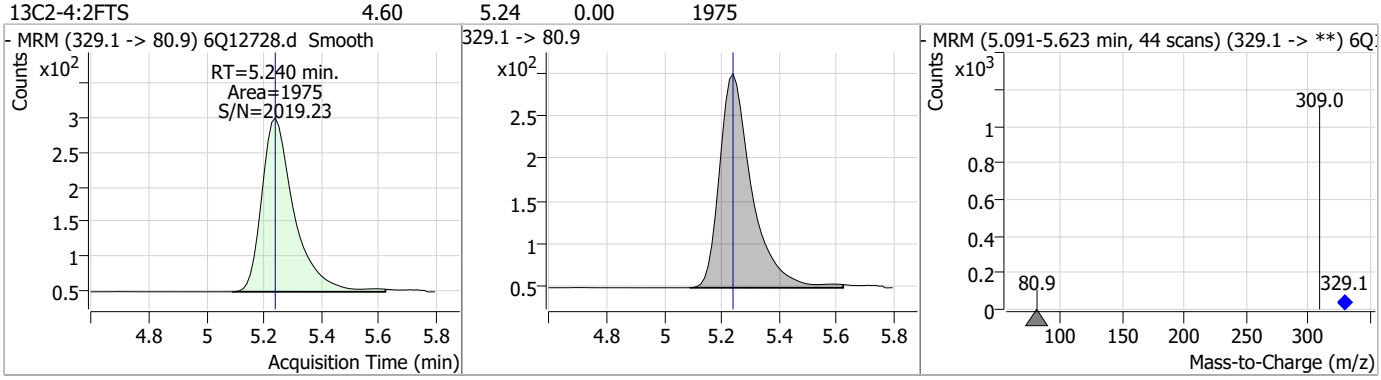


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	24.72	4.80	0.00	56963				

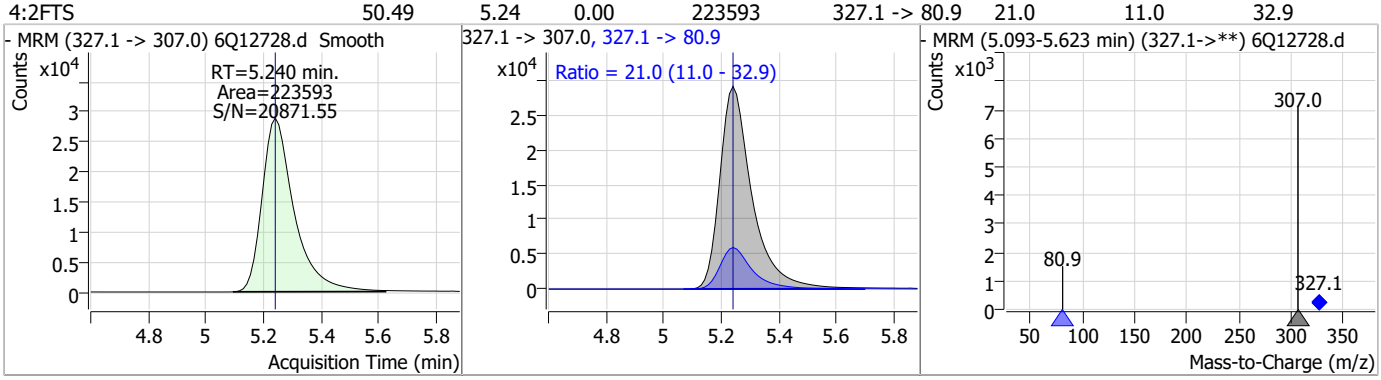


Perfluorinated Compounds by LC/MS/MS

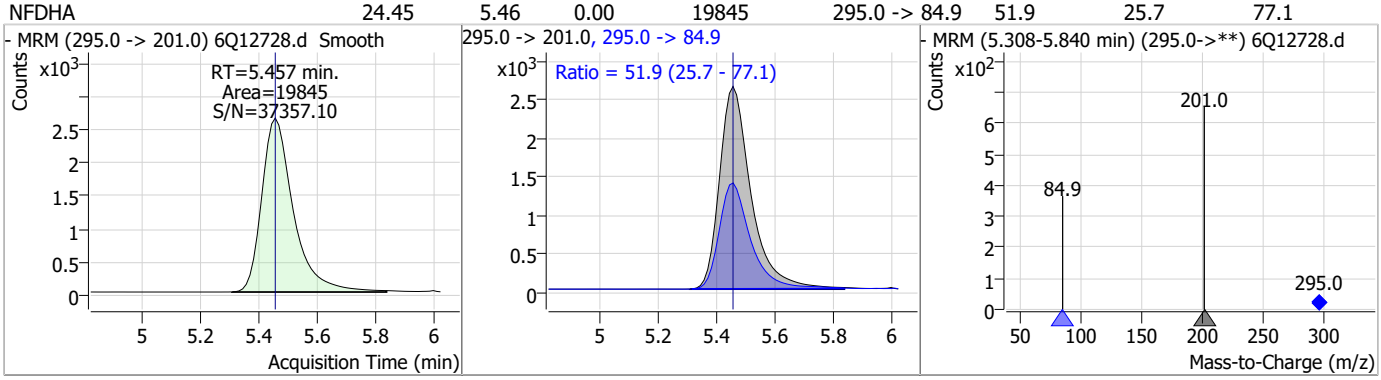
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.60	5.24	0.00	1975				



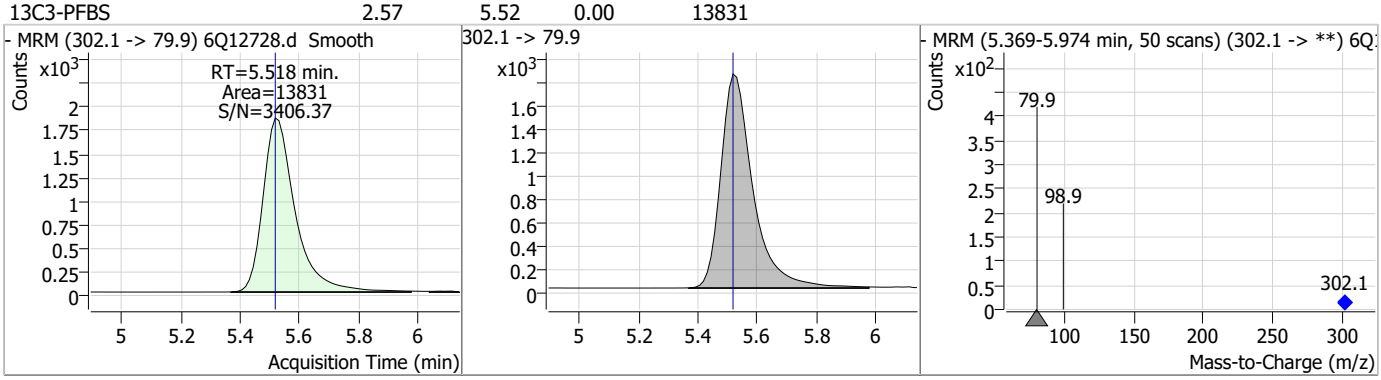
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.49	5.24	0.00	223593	327.1 -> 80.9	21.0	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	24.45	5.46	0.00	19845	295.0 -> 84.9	51.9	25.7	77.1

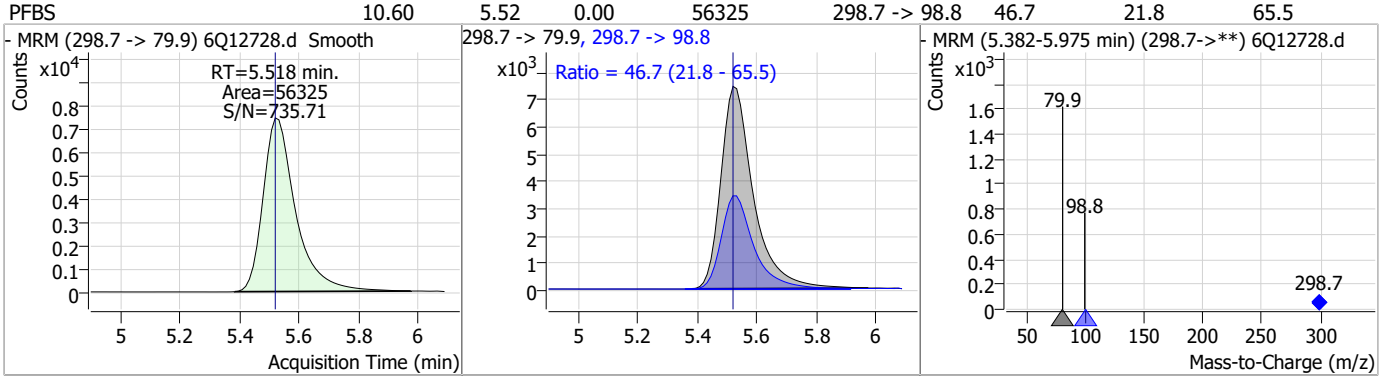


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.57	5.52	0.00	13831				

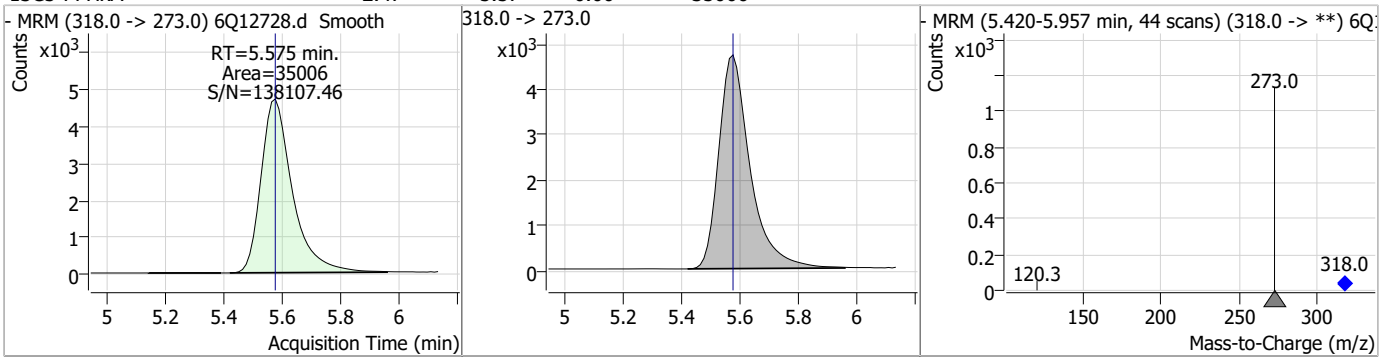


Perfluorinated Compounds by LC/MS/MS

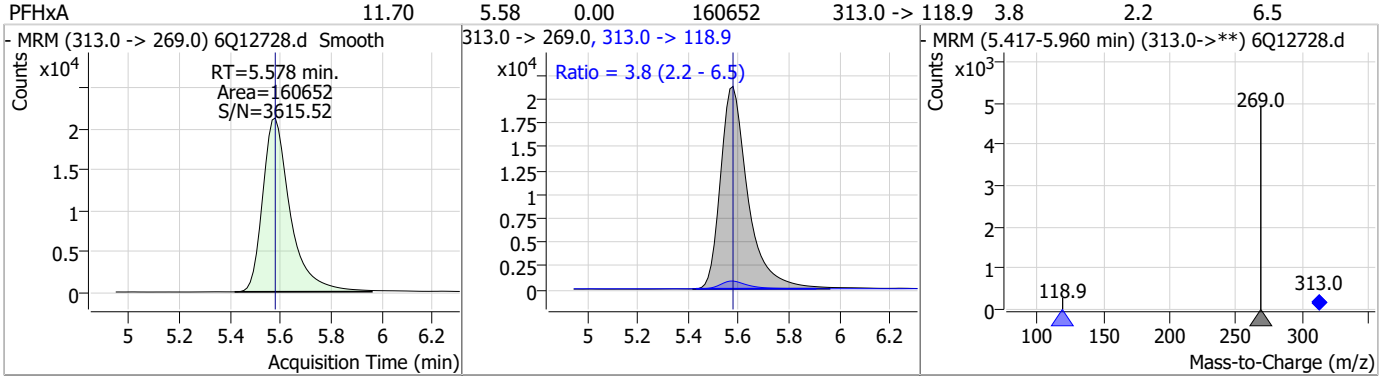
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.60	5.52	0.00	56325	298.7 -> 98.8	46.7	21.8	65.5



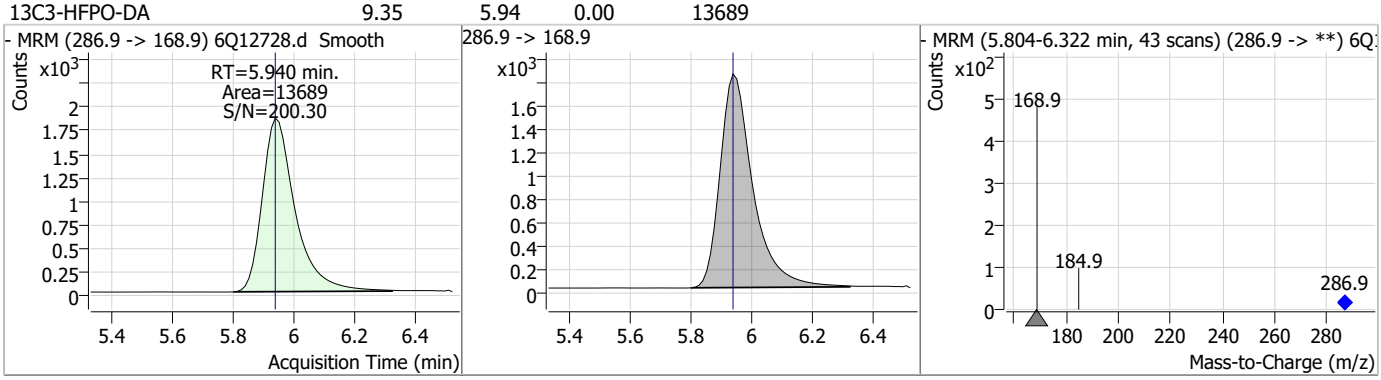
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.57	0.00	35006				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	11.70	5.58	0.00	160652	313.0 -> 118.9	3.8	2.2	6.5

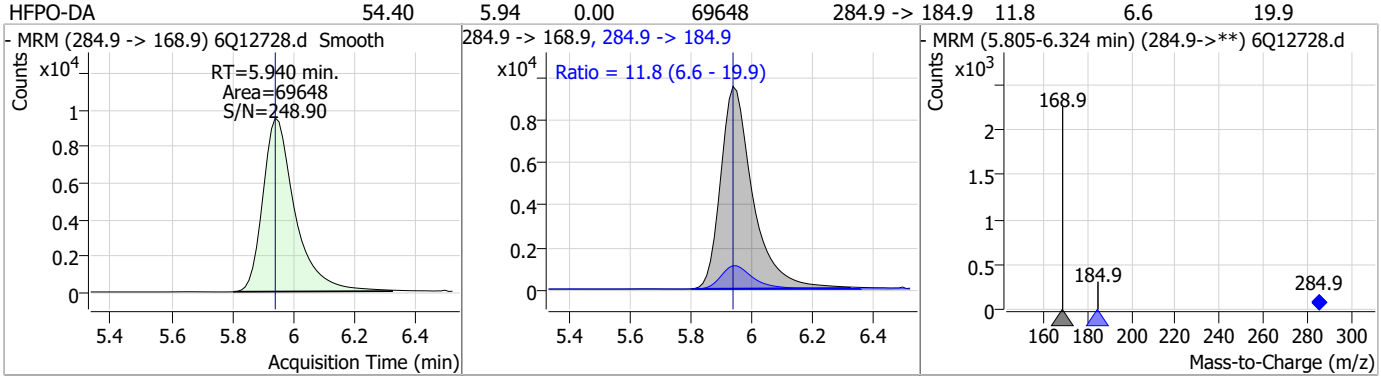


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.35	5.94	0.00	13689				

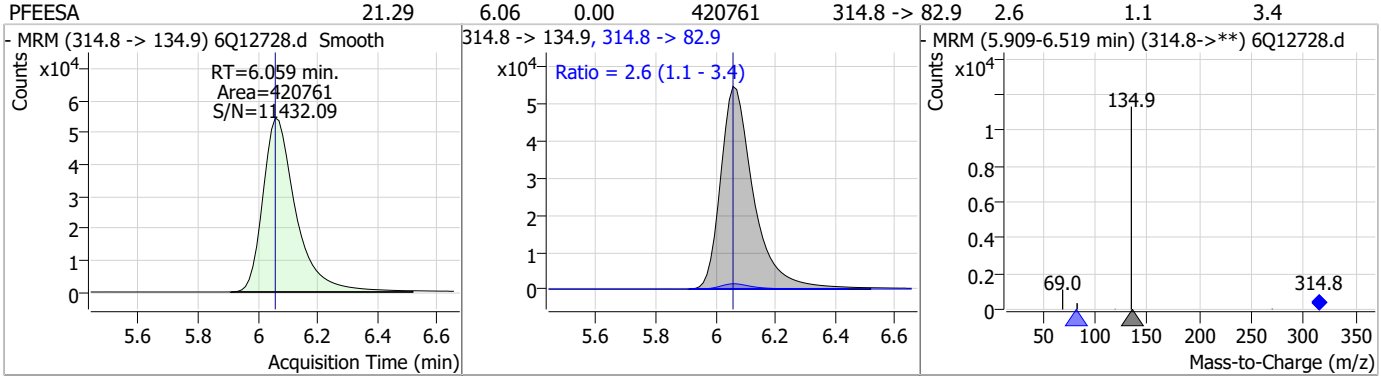


Perfluorinated Compounds by LC/MS/MS

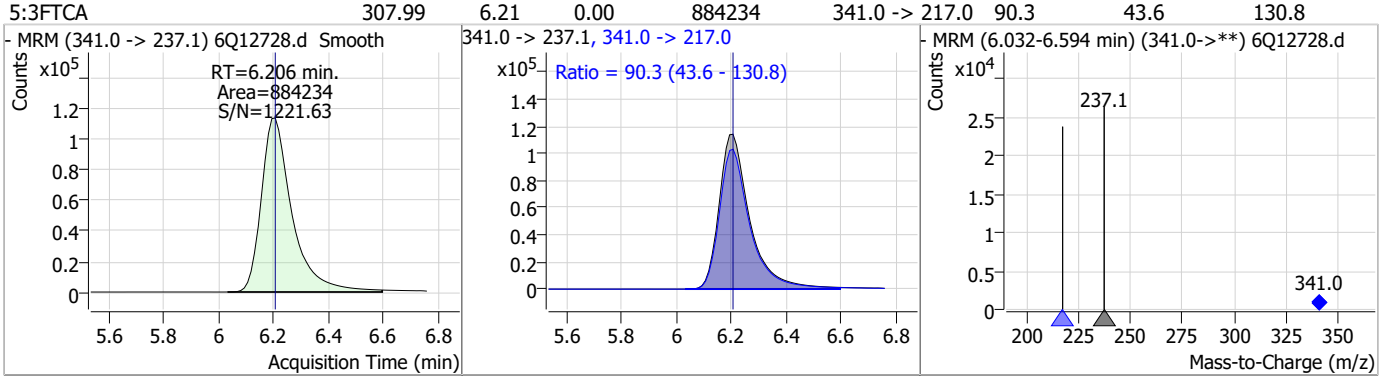
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	54.40	5.94	0.00	69648	284.9 -> 184.9	11.8	6.6	19.9



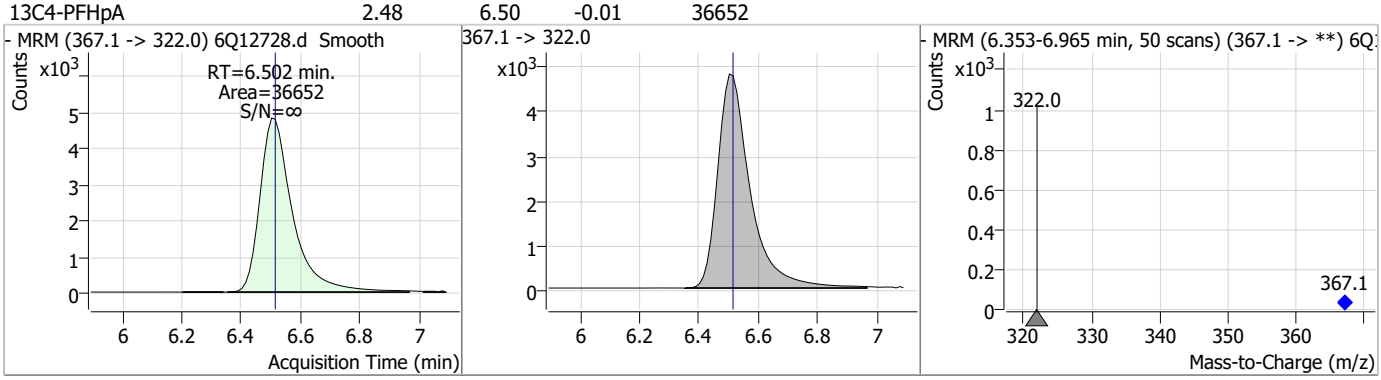
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	21.29	6.06	0.00	420761	314.8 -> 82.9	2.6	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	307.99	6.21	0.00	884234	341.0 -> 217.0	90.3	43.6	130.8

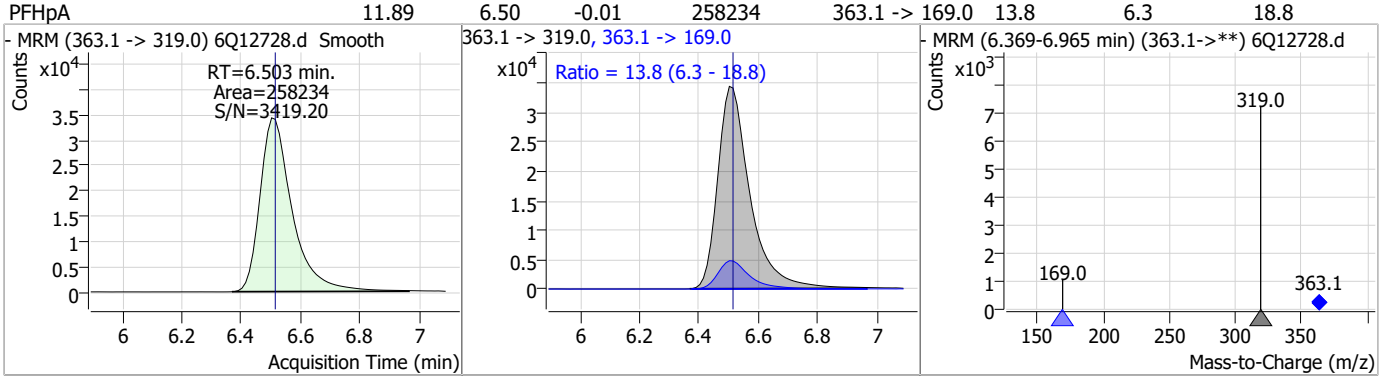


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.50	-0.01	36652				

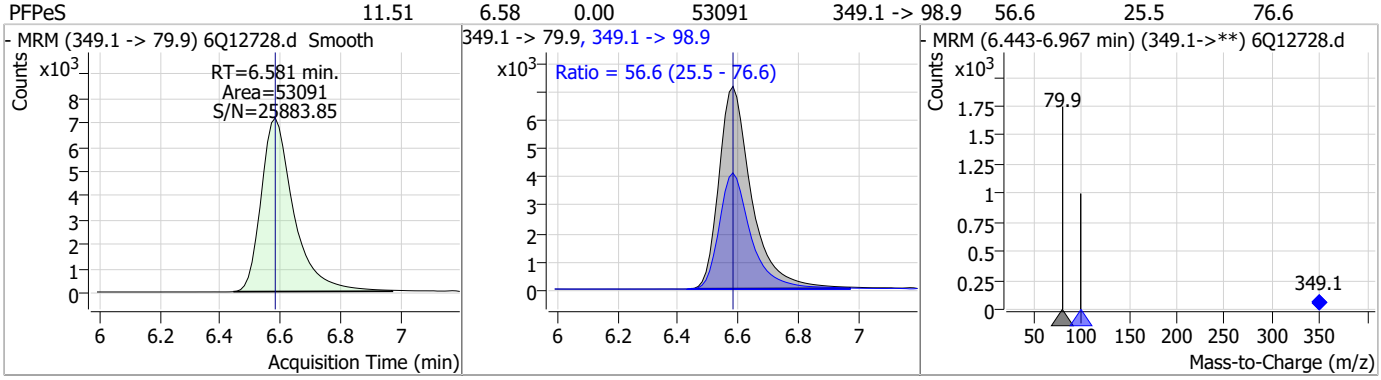


Perfluorinated Compounds by LC/MS/MS

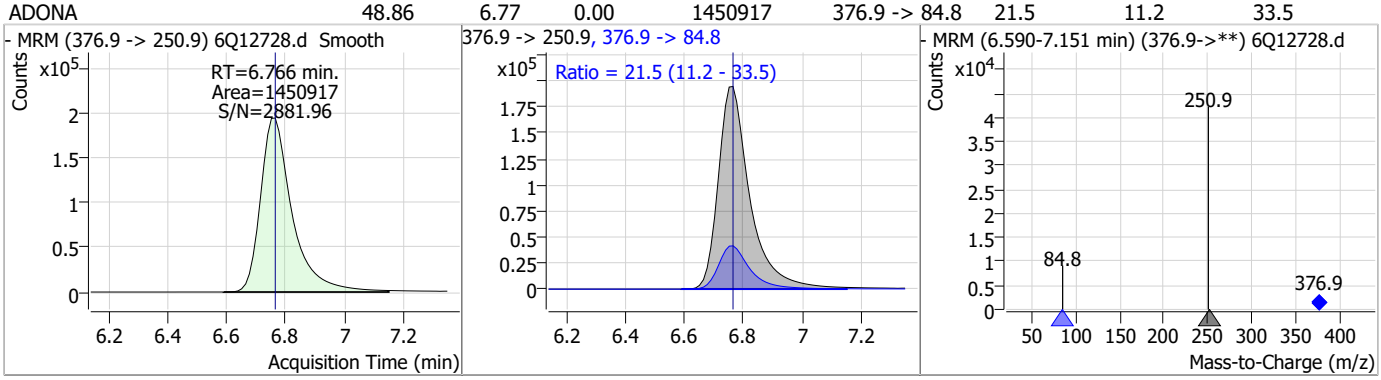
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	11.89	6.50	-0.01	258234	363.1 -> 169.0	13.8	6.3	18.8



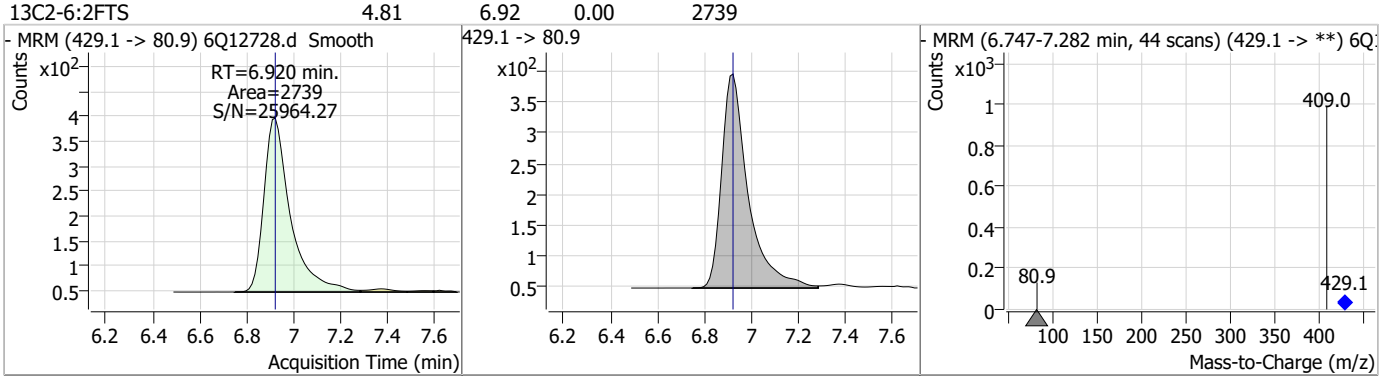
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.51	6.58	0.00	53091	349.1 -> 98.9	56.6	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	48.86	6.77	0.00	1450917	376.9 -> 84.8	21.5	11.2	33.5

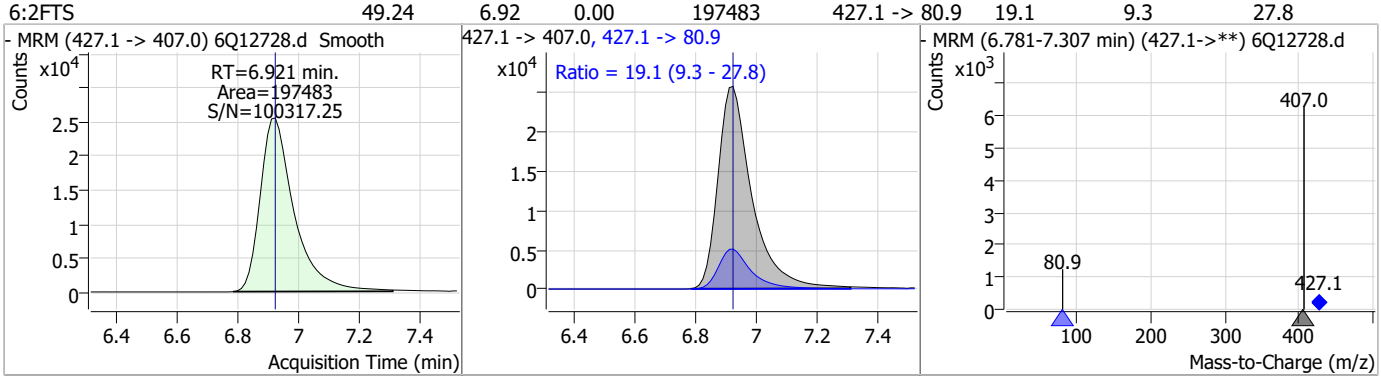


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.81	6.92	0.00	2739				

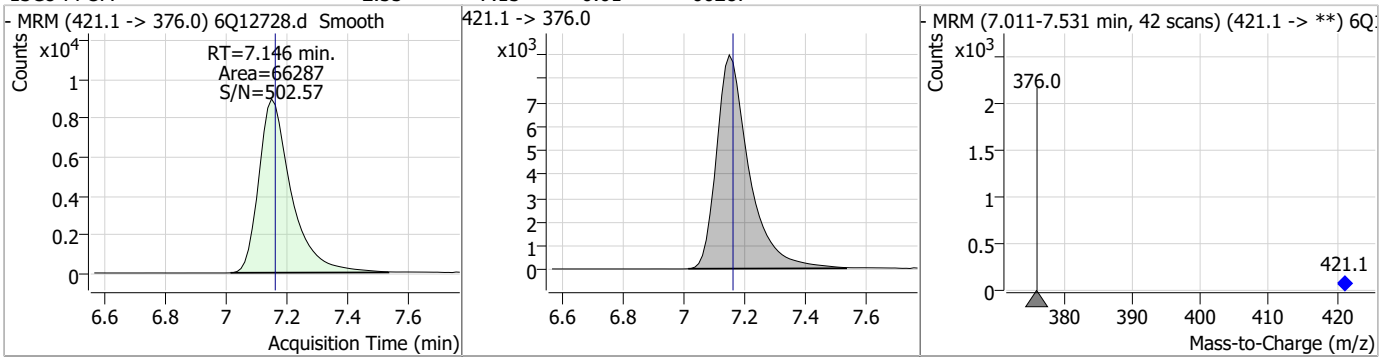


Perfluorinated Compounds by LC/MS/MS

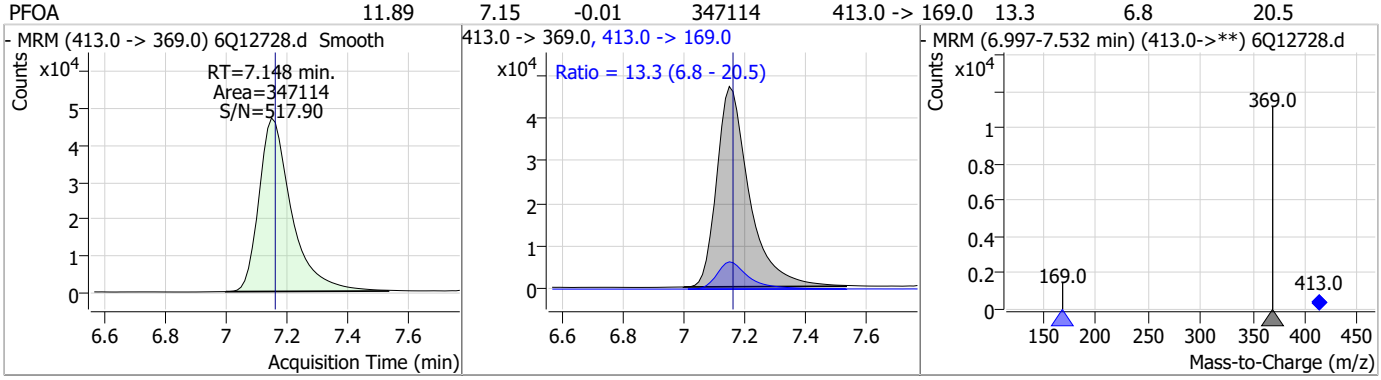
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	49.24	6.92	0.00	197483	427.1 -> 80.9	19.1	9.3	27.8



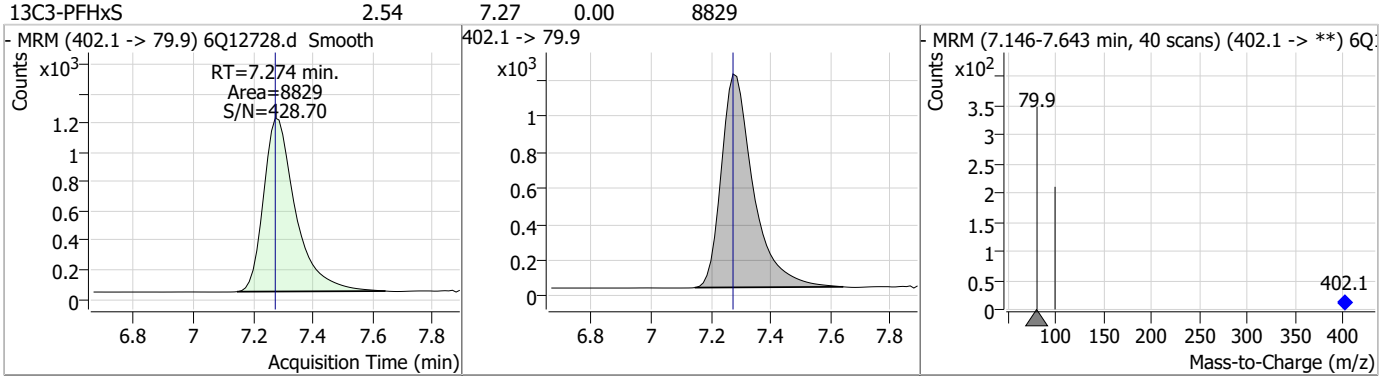
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.55	7.15	-0.01	66287				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	11.89	7.15	-0.01	347114	413.0 -> 169.0	13.3	6.8	20.5

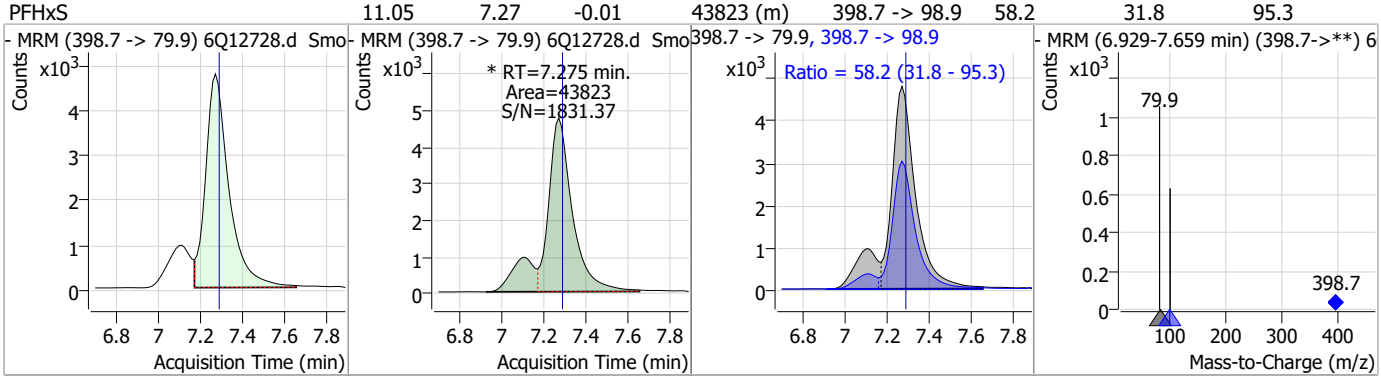


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.54	7.27	0.00	8829				

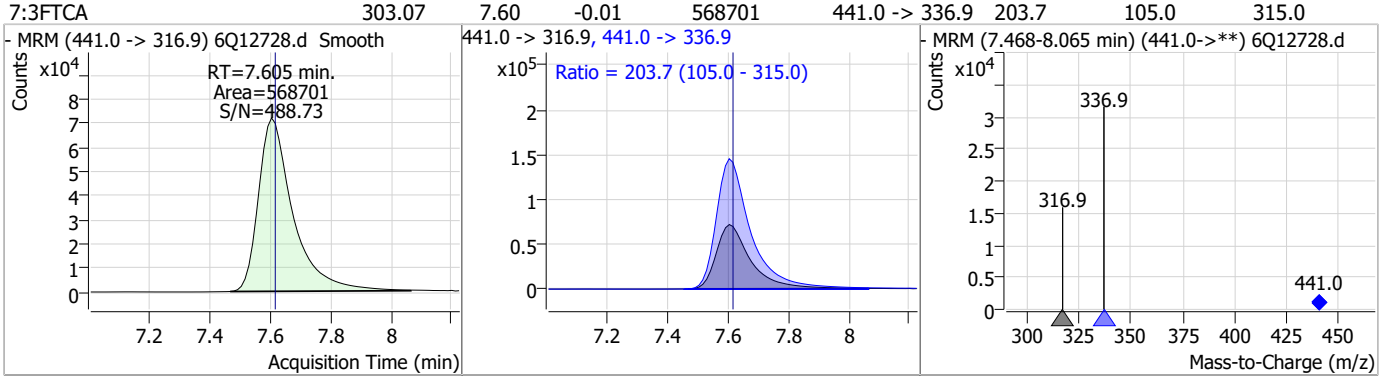


Perfluorinated Compounds by LC/MS/MS

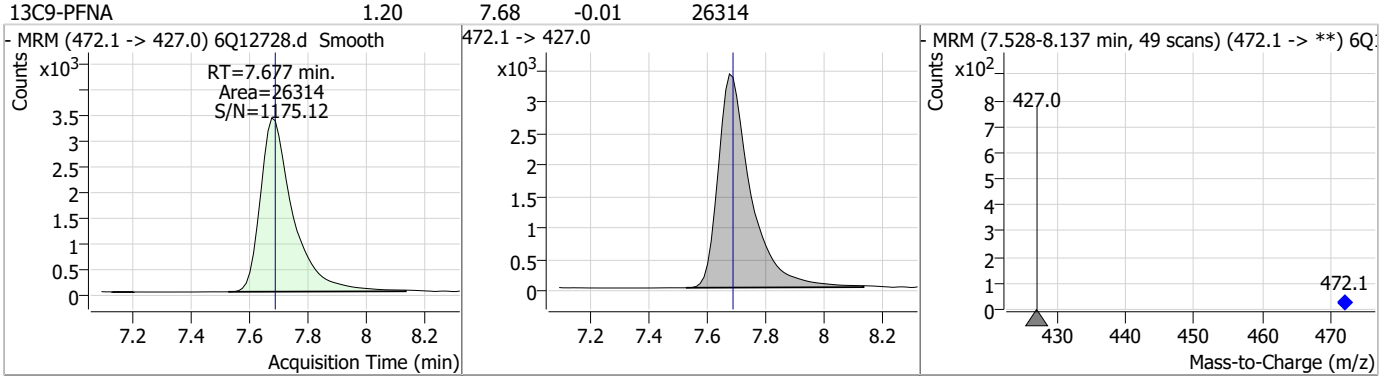
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.05	7.27	-0.01	43823 (m)	398.7 -> 98.9	58.2	31.8	95.3



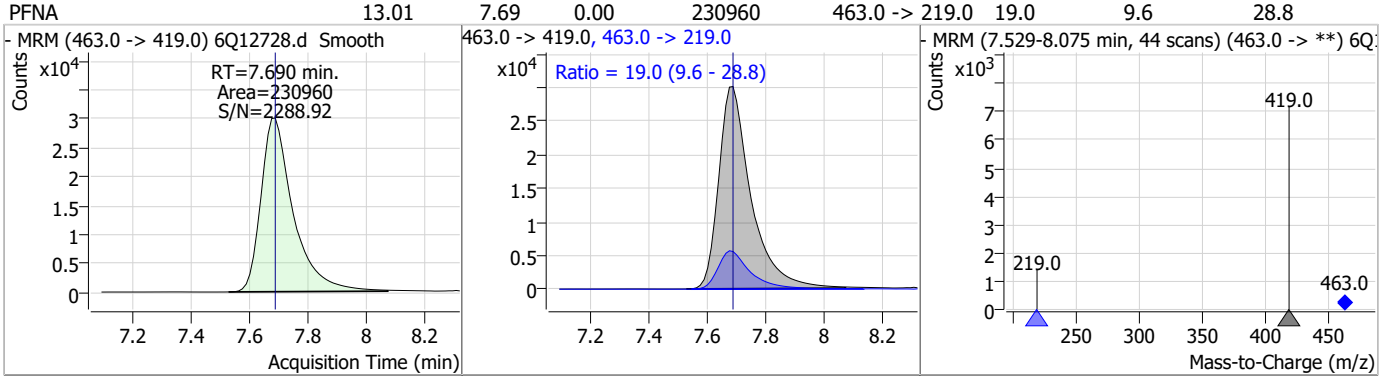
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	303.07	7.60	-0.01	568701	441.0 -> 336.9	203.7	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.20	7.68	-0.01	26314				

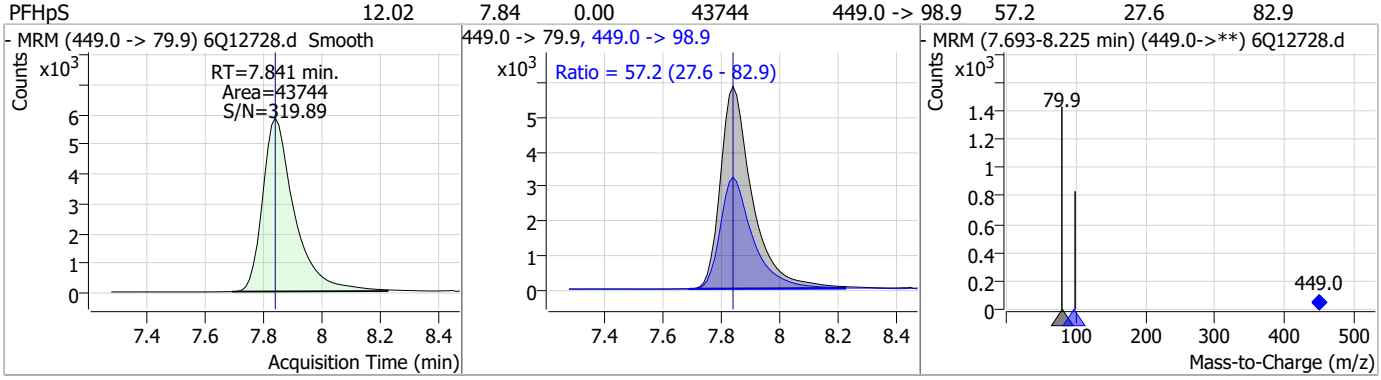


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	13.01	7.69	0.00	230960	463.0 -> 219.0	19.0	9.6	28.8

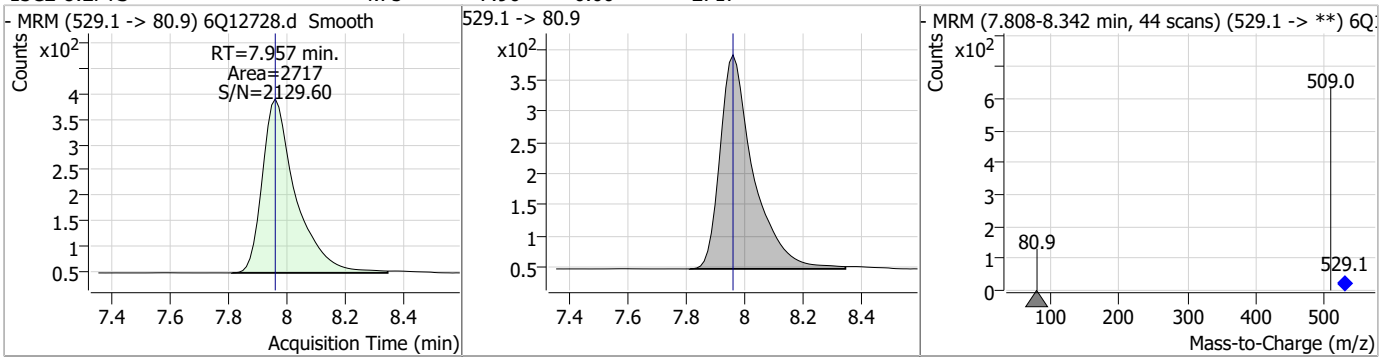


Perfluorinated Compounds by LC/MS/MS

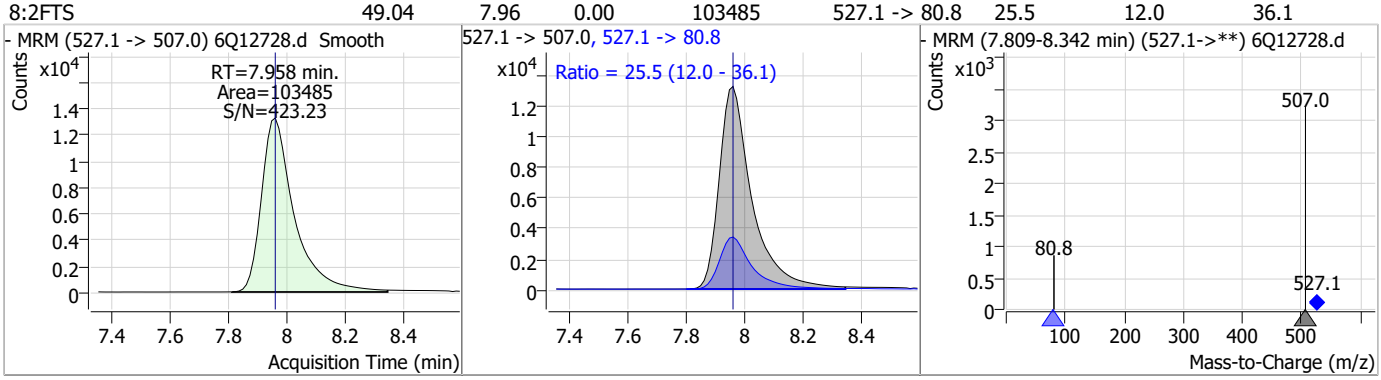
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.02	7.84	0.00	43744	449.0 -> 98.9	57.2	27.6	82.9



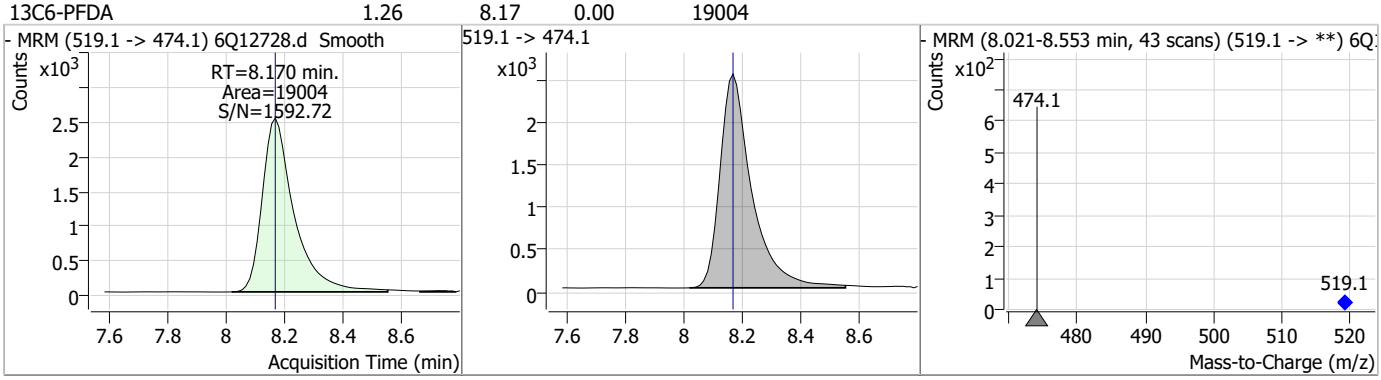
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.75	7.96	0.00	2717				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	49.04	7.96	0.00	103485	527.1 -> 80.8	25.5	12.0	36.1

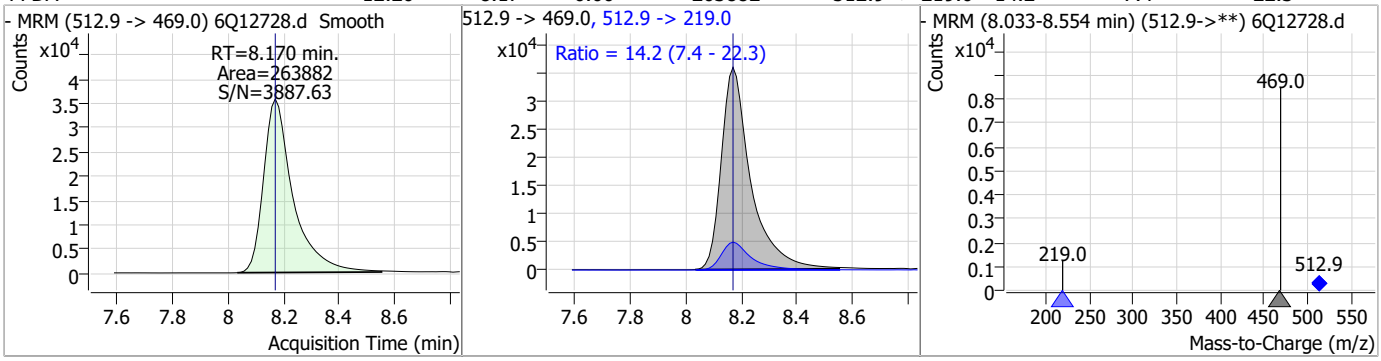


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.26	8.17	0.00	19004				

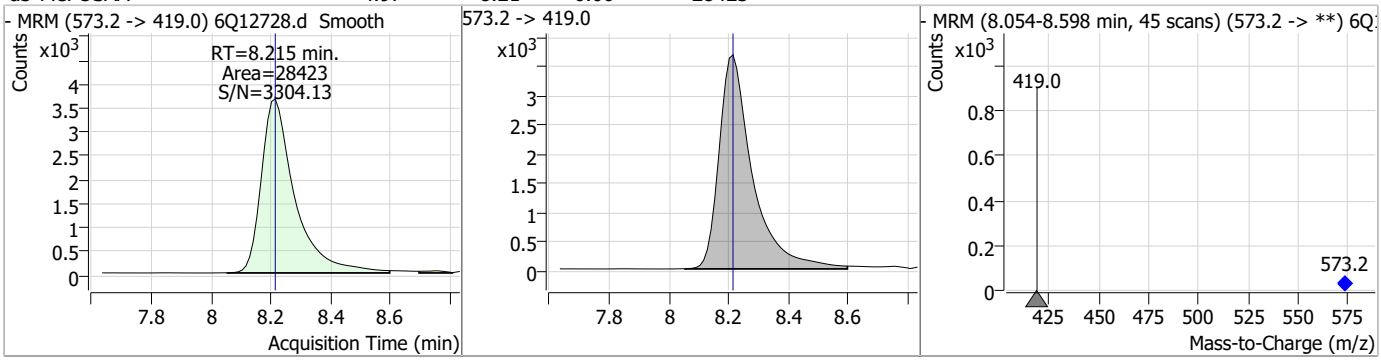


Perfluorinated Compounds by LC/MS/MS

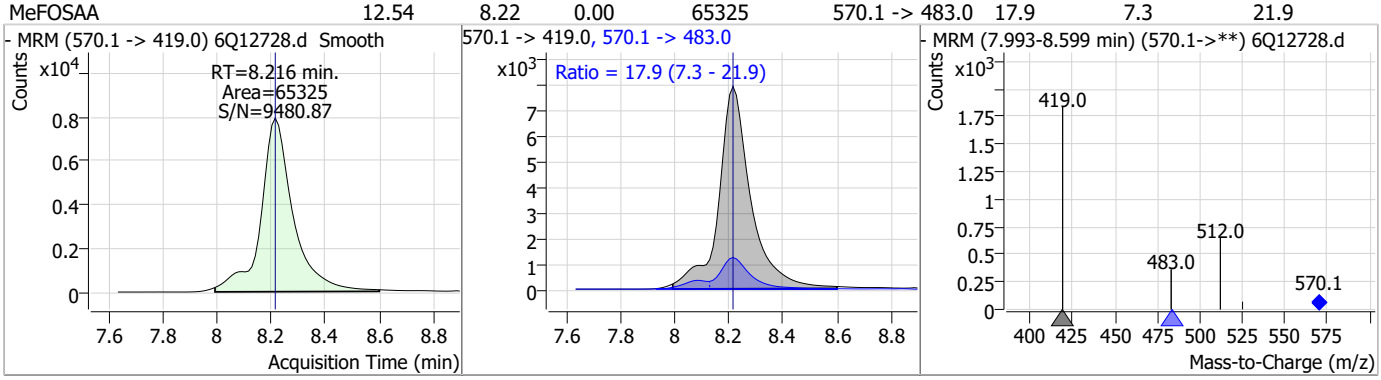
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	12.20	8.17	0.00	263882	512.9 -> 219.0	14.2	7.4	22.3



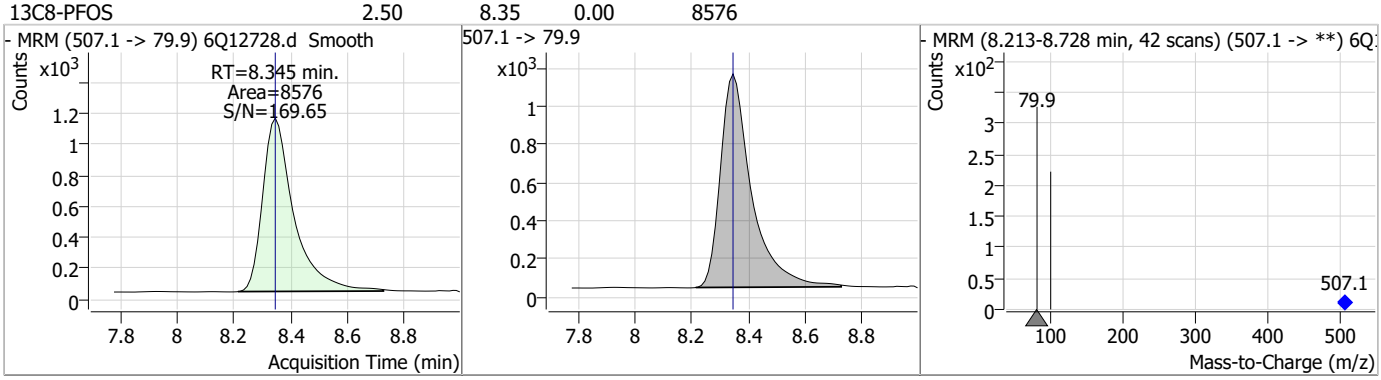
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.97	8.21	0.00	28423				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.54	8.22	0.00	65325	570.1 -> 483.0	17.9	7.3	21.9

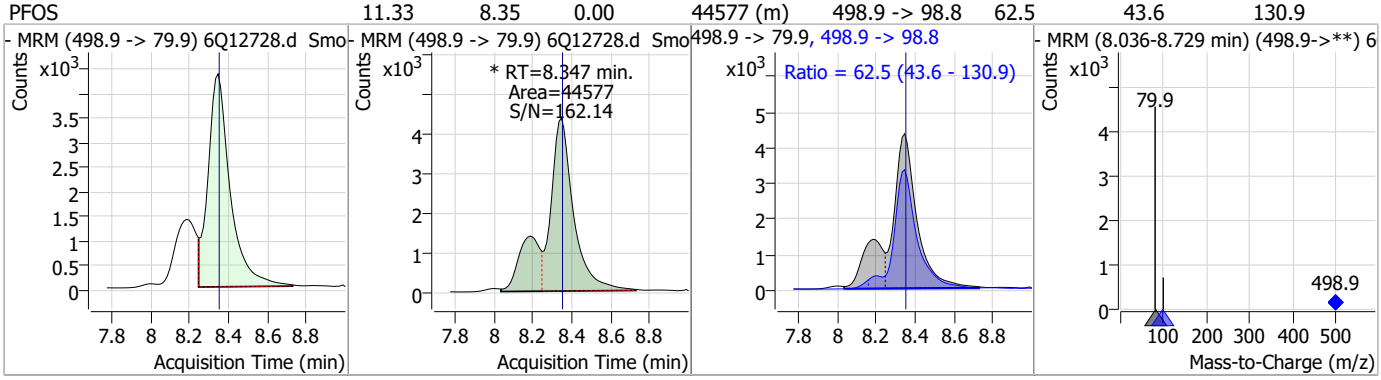


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.50	8.35	0.00	8576				

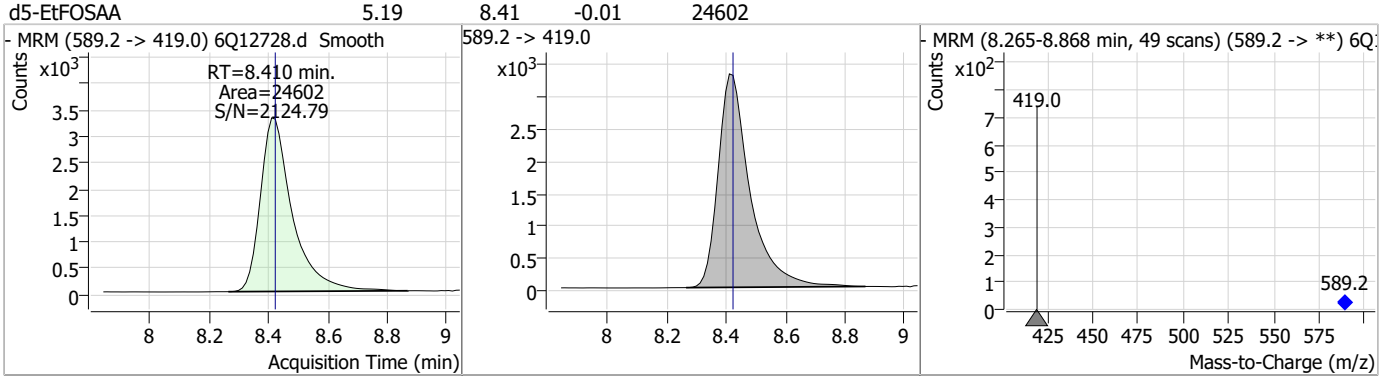


Perfluorinated Compounds by LC/MS/MS

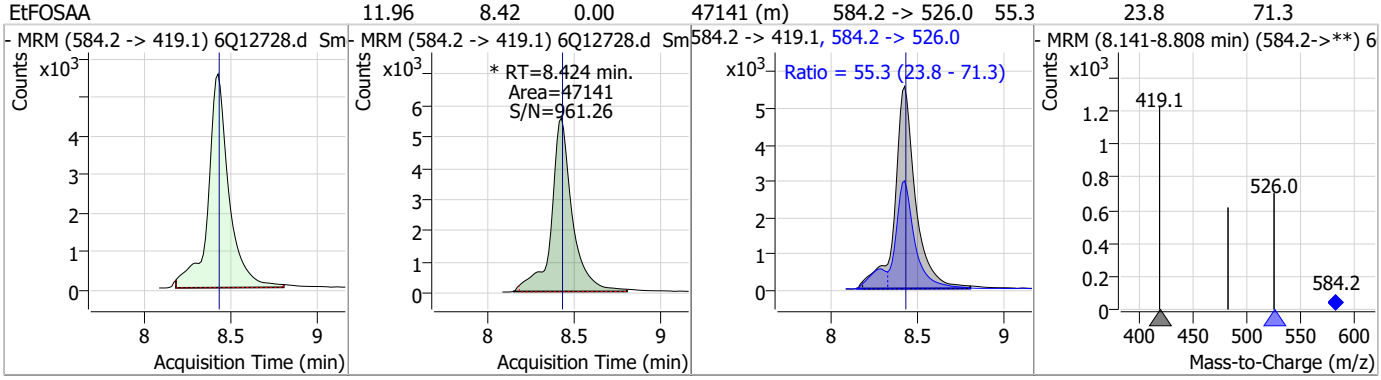
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.33	8.35	0.00	44577 (m)	498.9 -> 98.8	62.5	43.6	130.9



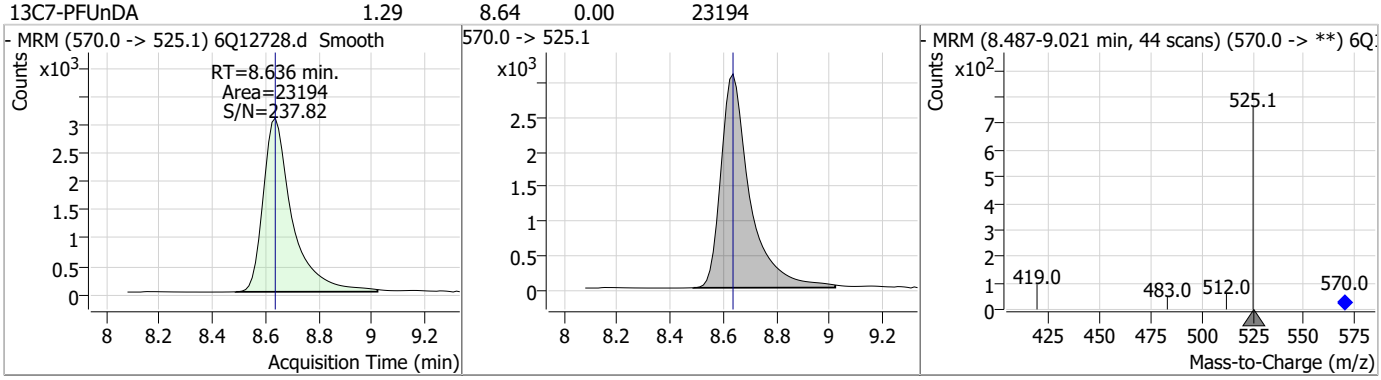
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.41	-0.01	24602				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.96	8.42	0.00	47141 (m)	584.2 -> 526.0	55.3	23.8	71.3

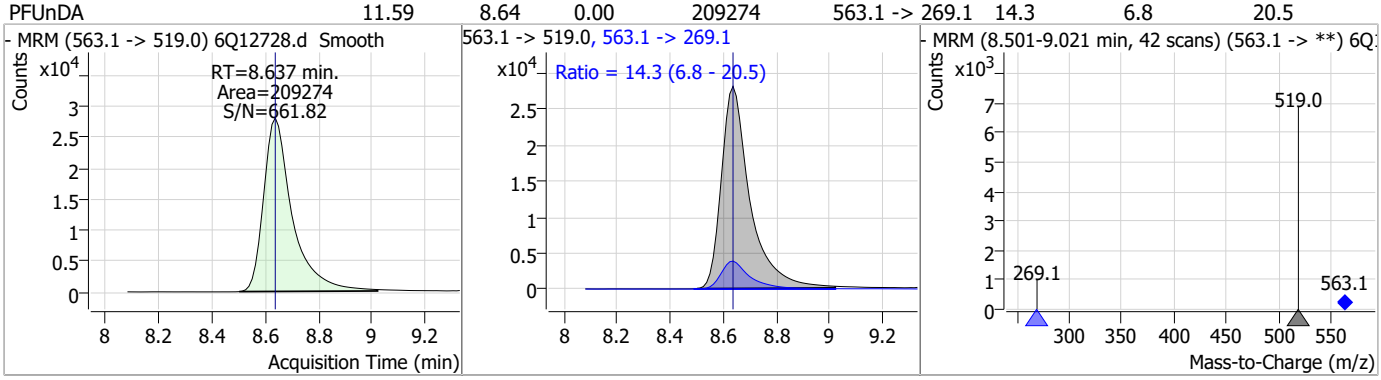


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.29	8.64	0.00	23194				

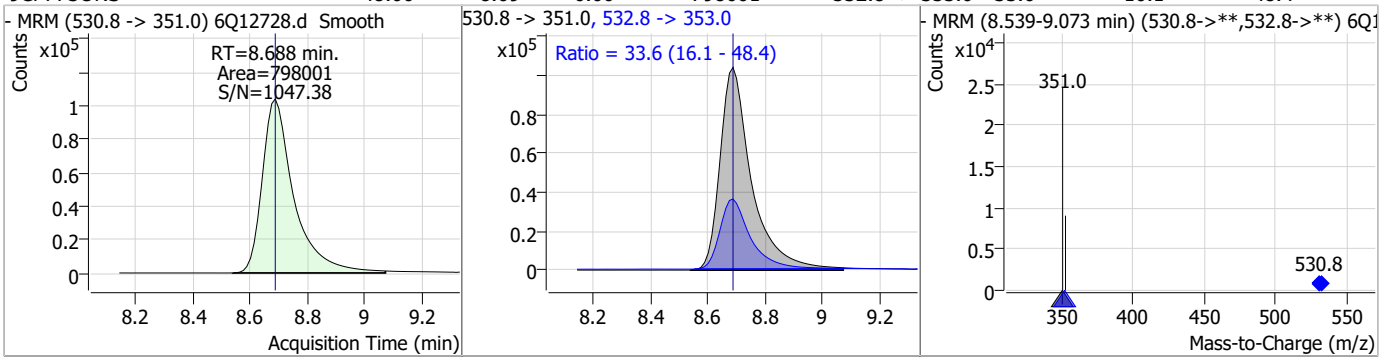


Perfluorinated Compounds by LC/MS/MS

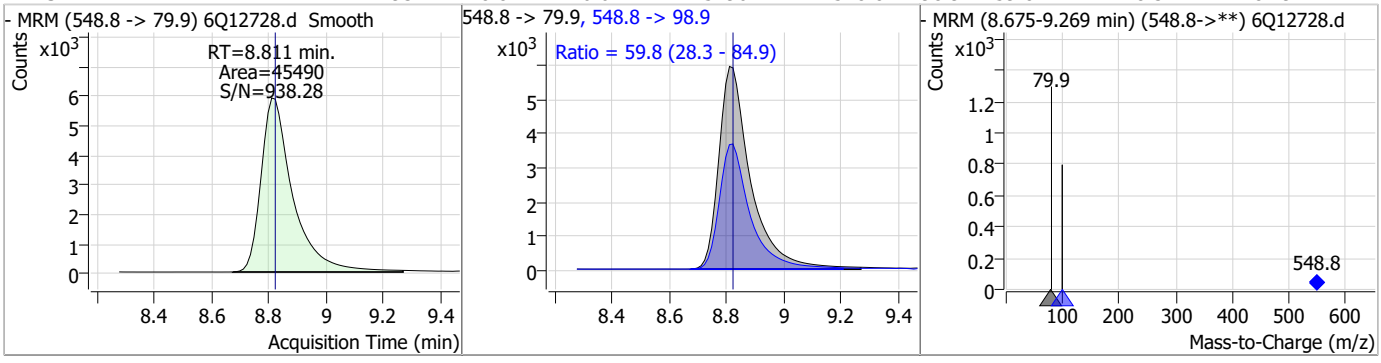
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	11.59	8.64	0.00	209274	563.1 -> 269.1	14.3	6.8	20.5



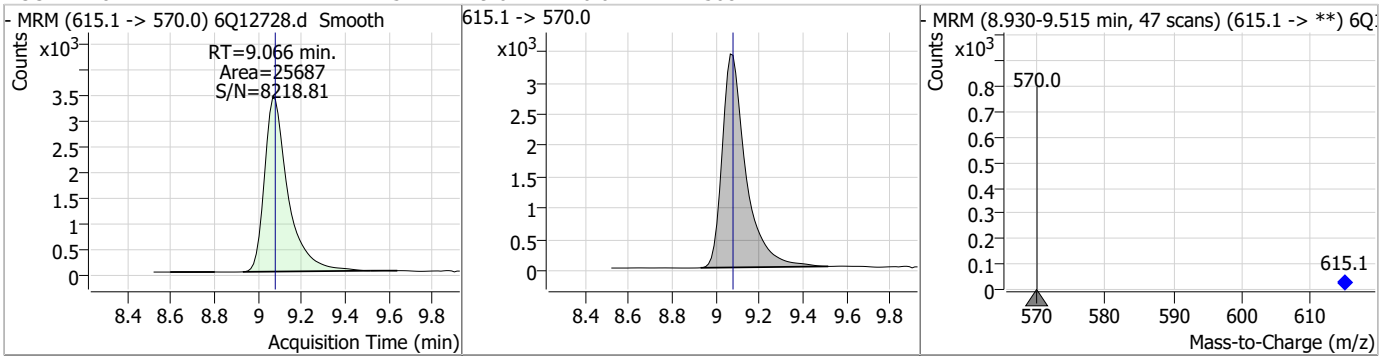
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	48.06	8.69	0.00	798001	532.8 -> 353.0	33.6	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	11.93	8.81	-0.01	45490	548.8 -> 98.9	59.8	28.3	84.9

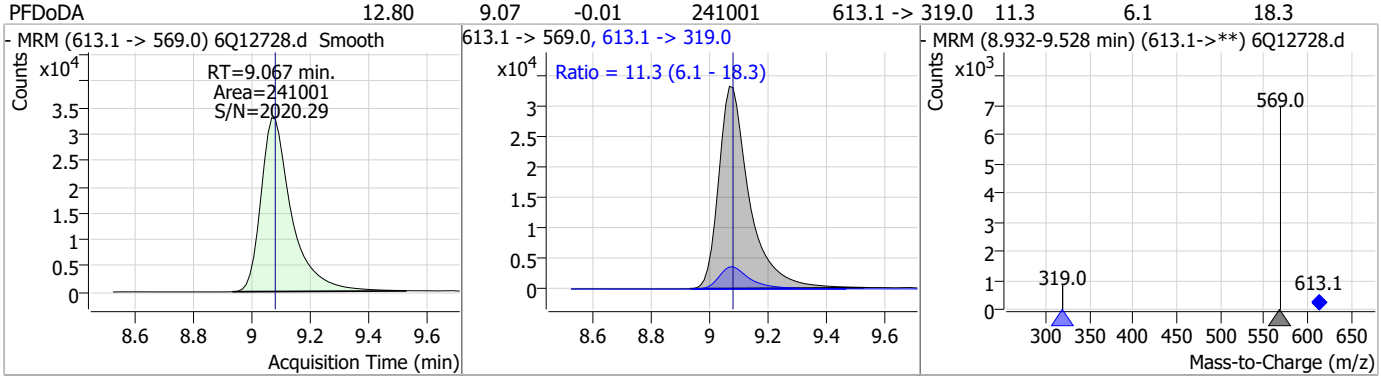


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.07	-0.01	25687				

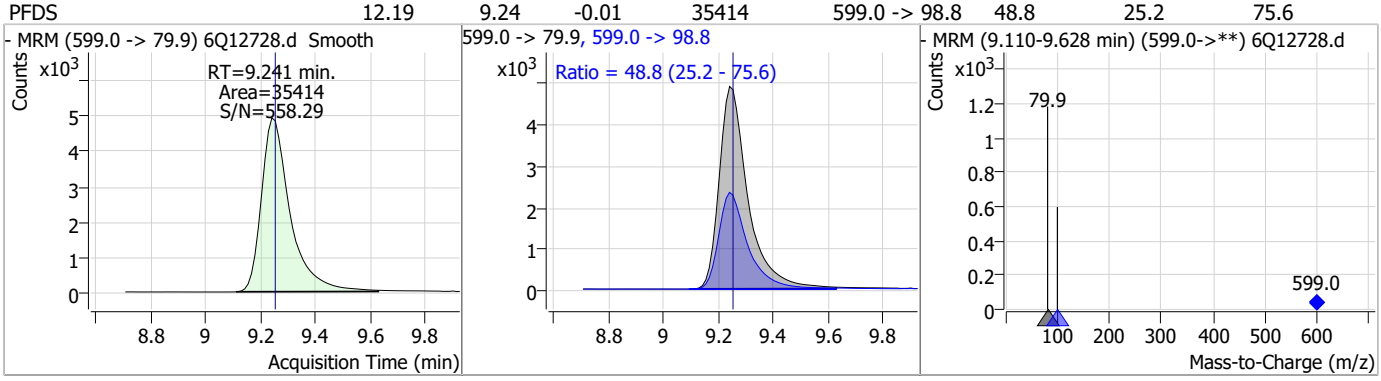


Perfluorinated Compounds by LC/MS/MS

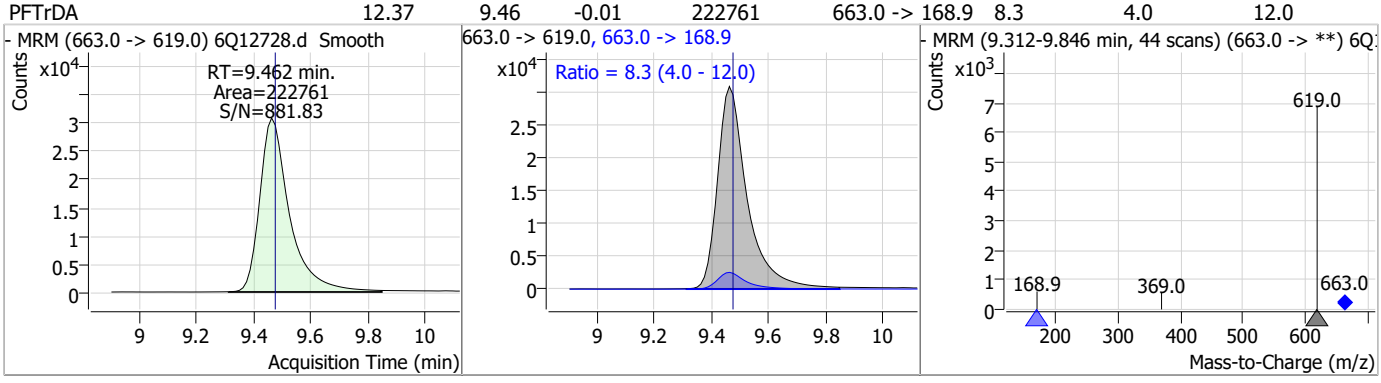
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	12.80	9.07	-0.01	241001	613.1 -> 319.0	11.3	6.1	18.3



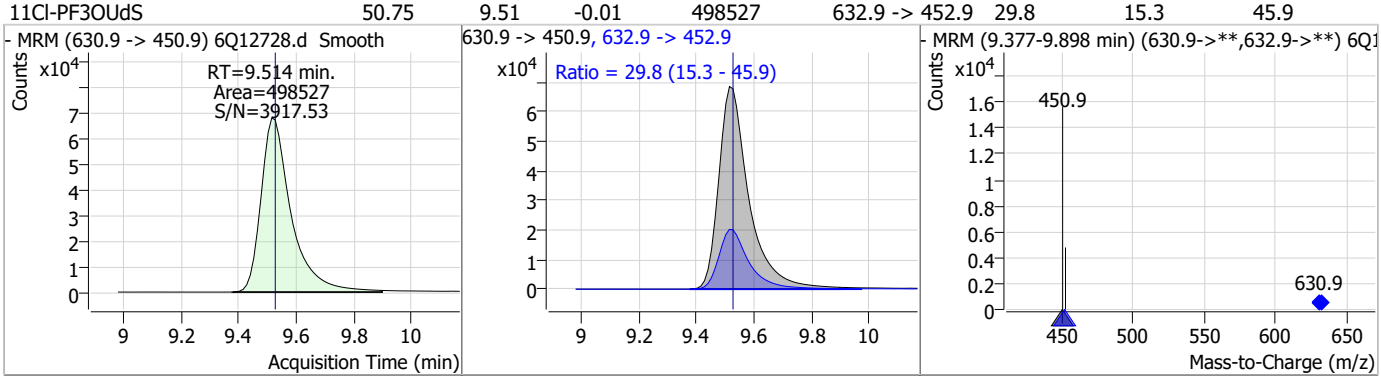
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	12.19	9.24	-0.01	35414	599.0 -> 98.8	48.8	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	12.37	9.46	-0.01	222761	663.0 -> 168.9	8.3	4.0	12.0

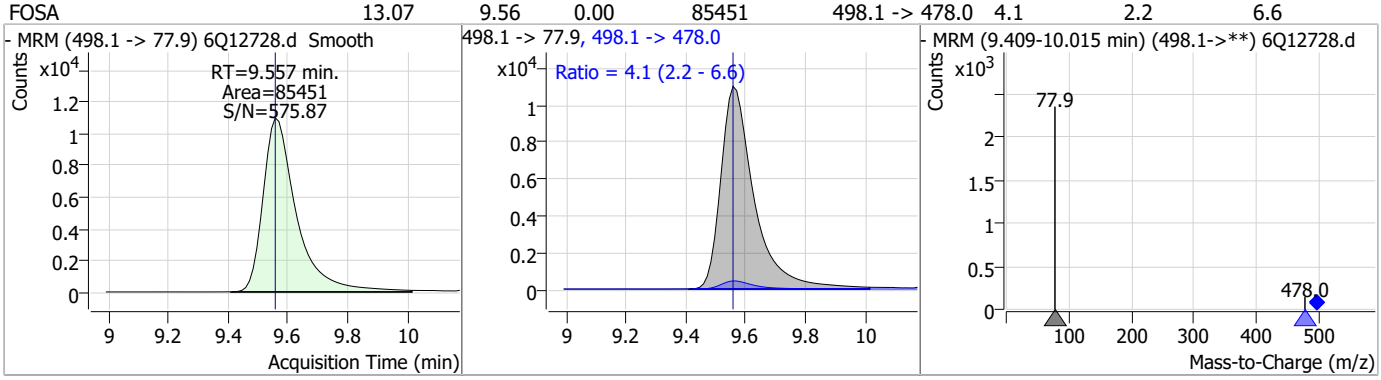


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.75	9.51	-0.01	498527	632.9 -> 452.9	29.8	15.3	45.9

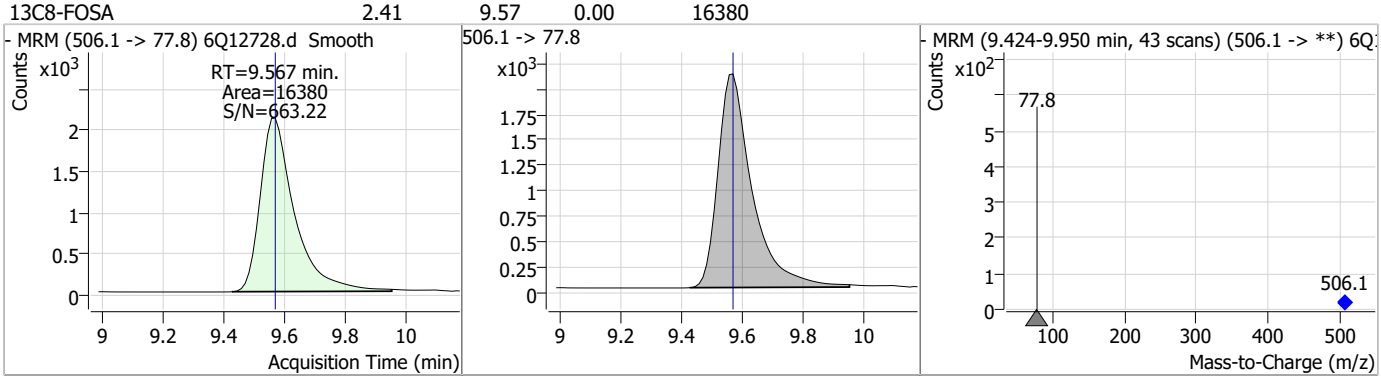


Perfluorinated Compounds by LC/MS/MS

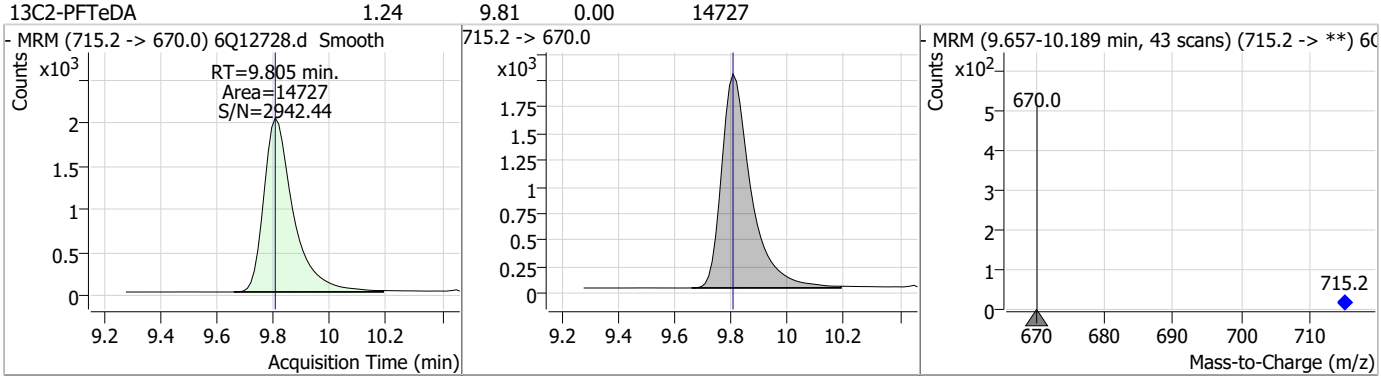
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.07	9.56	0.00	85451	498.1 -> 478.0	4.1	2.2	6.6



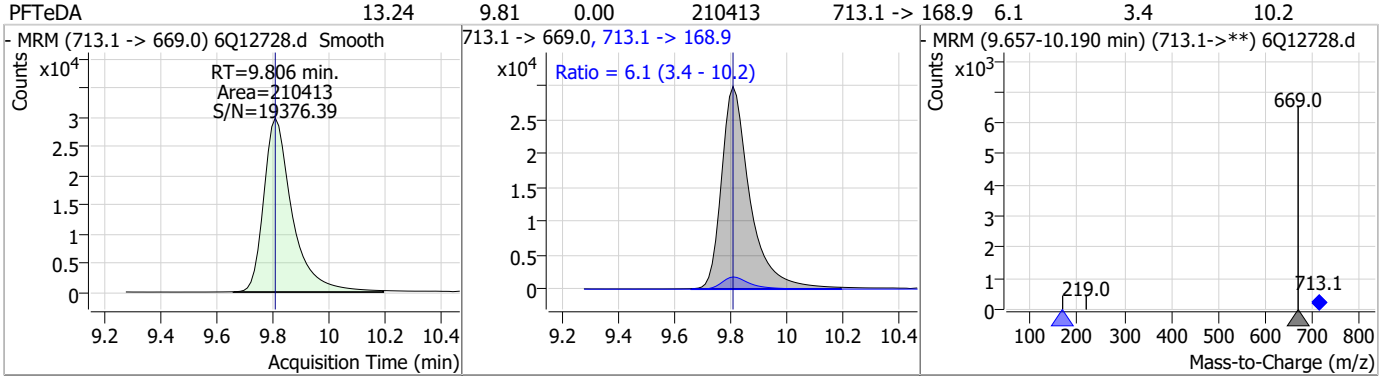
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.41	9.57	0.00	16380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.81	0.00	14727				

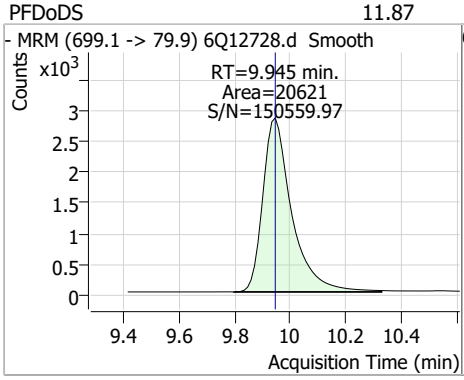


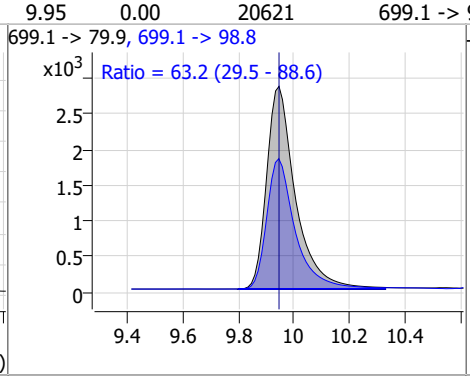
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.24	9.81	0.00	210413	713.1 -> 168.9	6.1	3.4	10.2

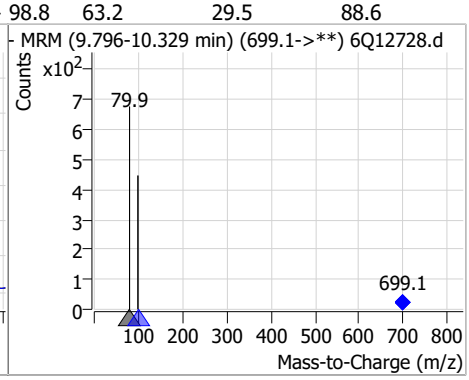


Perfluorinated Compounds by LC/MS/MS

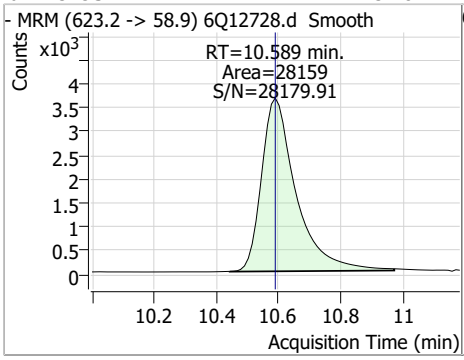
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	11.87	9.95	0.00	20621	699.1 -> 98.8	63.2	29.5	88.6

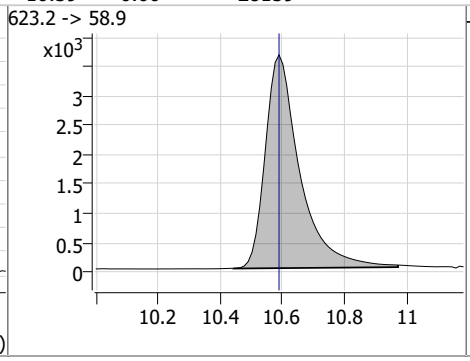


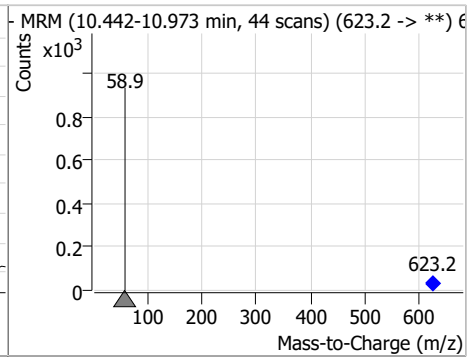




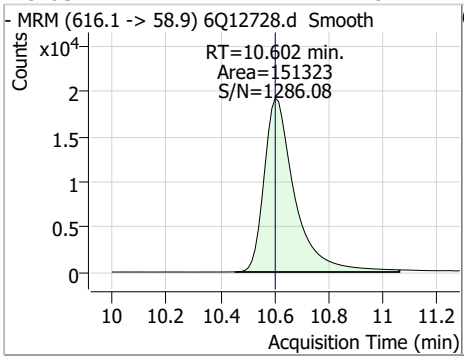
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.78	10.59	0.00	28159				

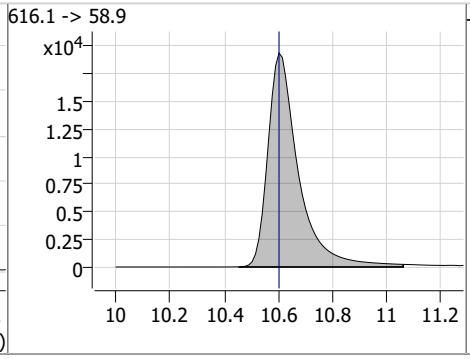


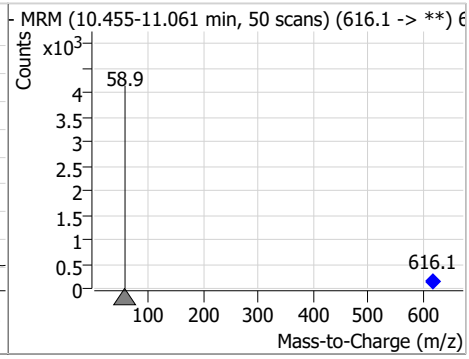




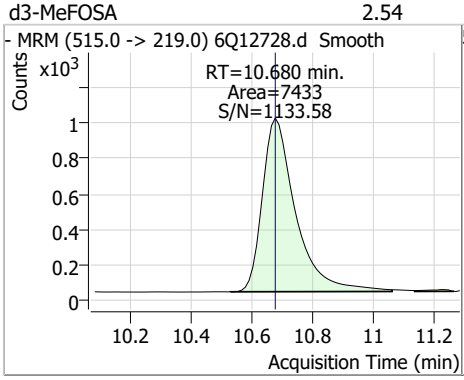
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	134.71	10.60	0.00	151323				

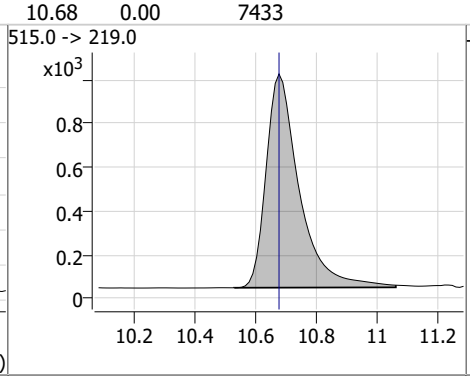


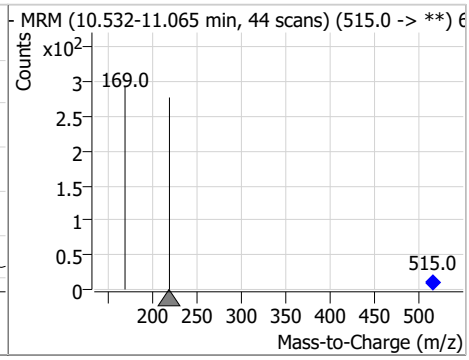




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	10.68	0.00	7433				

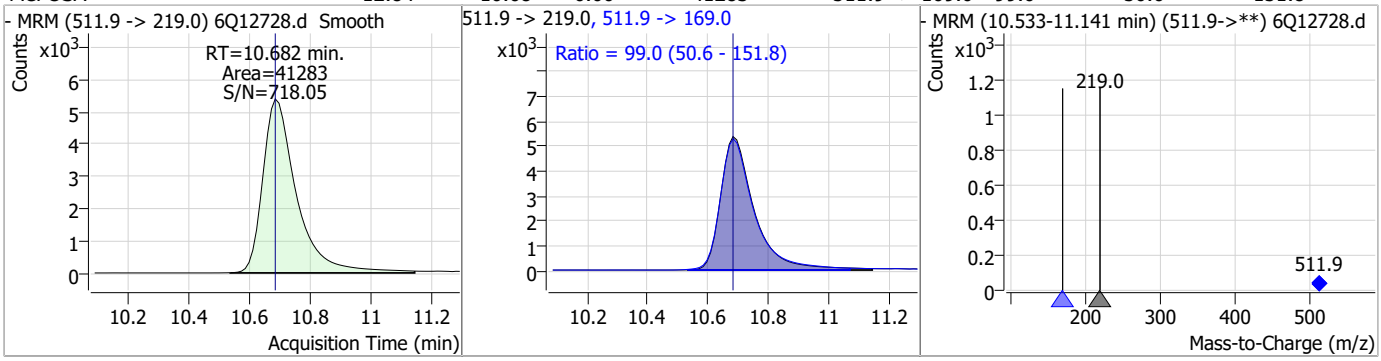




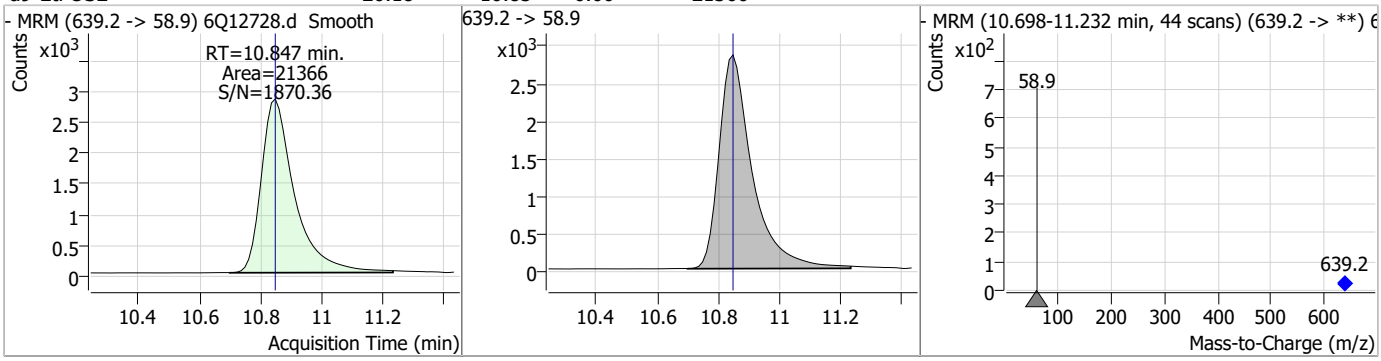


Perfluorinated Compounds by LC/MS/MS

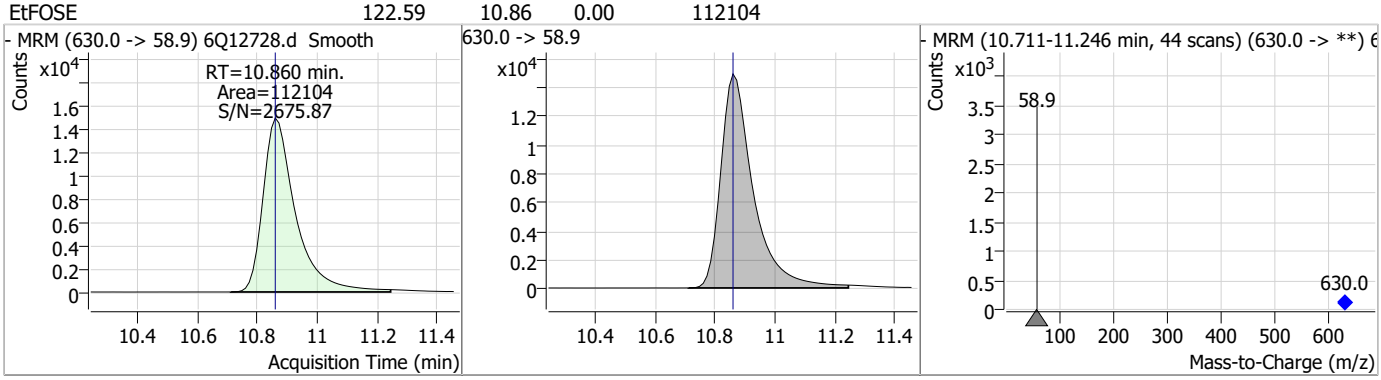
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	12.84	10.68	0.00	41283	511.9 -> 169.0	99.0	50.6	151.8



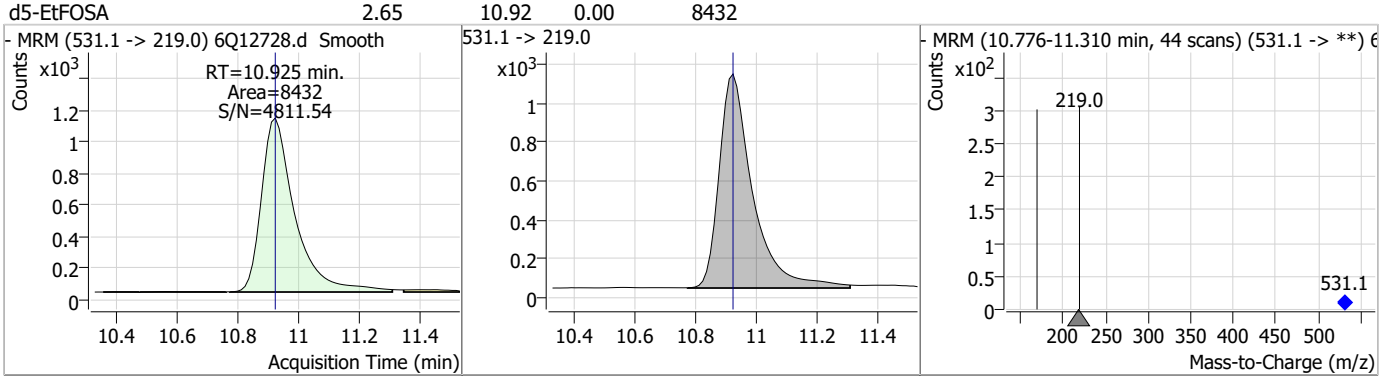
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.18	10.85	0.00	21366				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	122.59	10.86	0.00	112104				

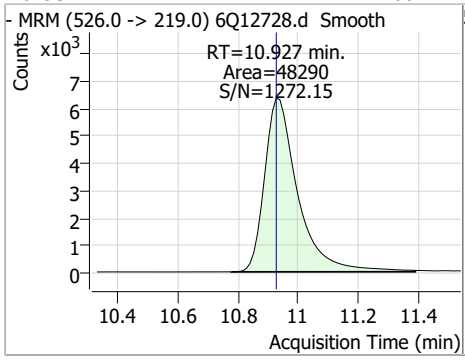


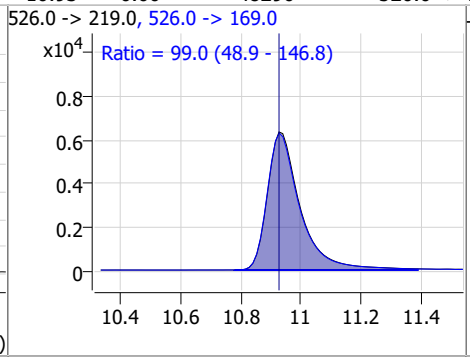
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.65	10.92	0.00	8432				

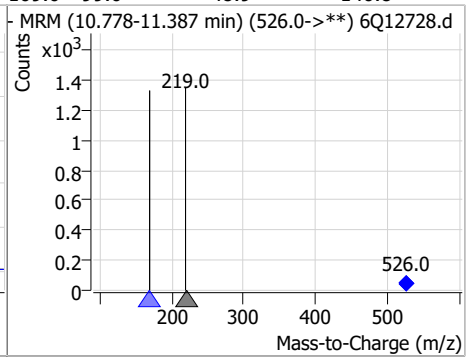


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	12.00	10.93	0.00	48290	526.0 -> 169.0	99.0	48.9	146.8







7.2.7

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12728.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 19:01	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12729.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 7:15:14 PM
Sample Name	:	ic196-7
Vial	:	P1-A8
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	73235	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	37346	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32289	2.50	µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33539	2.50	µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	61120	2.50	µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	26776	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18428	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21391	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24501	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14917	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15956	2.50	µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	12956	2.50	µg/L	0.012
M3-PFHxS	7.287	402.1 -> 79.9	9060	2.50	µg/L	0.013
M8-PFOS	8.345	507.1 -> 79.9	7830	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2080	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2594	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2741	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27498	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14153	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	28427	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19495	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7890	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7429	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10225	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32454	5.00	µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	6512	2.50	µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	75112	2.50	µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	26461	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	30379	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35267	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2080	4.91	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2594	4.62	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2741	4.86	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24501	1.22	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14917	1.28	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C3-PFBS	5.530	302.1 -> 79.9	12956	2.44	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C3-PFHxS	7.287	402.1 -> 79.9	9060	2.65	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C4-PFBA	2.975	216.8 -> 171.9	73235	10.17 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C4-PFHpA	6.515	367.1 -> 322.0	33539	2.30 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C5-PFHxA	5.575	318.0 -> 273.0	32289	2.31 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%		
13C5-PFPeA	4.386	268.3 -> 223.0	37346	4.75 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C6-PFDA	8.170	519.1 -> 474.1	18428	1.25 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C7-PFUnDA	8.636	570.0 -> 525.1	21391	1.22 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C8-FOSA	9.567	506.1 -> 77.8	15956	2.40 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C8-PFOA	7.159	421.1 -> 376.0	61120	2.44 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C8-PFOS	8.345	507.1 -> 79.9	7830	2.33 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C9-PFNA	7.689	472.1 -> 427.0	26776	1.25 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27498	4.91 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14153	9.82 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
d3-MeFOSA	10.680	515.0 -> 219.0	7429	2.59 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%		
d5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.02 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
d7-MeFOSE	10.589	623.2 -> 58.9	28427	24.49 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	19495	24.36 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7890	2.53 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	414036	88.76 µg/L		100
		327.1 -> 80.9	90108			
6:2FTS	6.921	427.1 -> 407.0	375221	98.78 µg/L		99
		427.1 -> 80.9	68351			
8:2FTS	7.958	527.1 -> 507.0	201602	94.71 µg/L		99
		527.1 -> 80.8	47770			
EtFOSAA	8.424	584.2 -> 419.1	94854	25.37 µg/L	m	85
		584.2 -> 526.0	54297			
FOSA	9.557	498.1 -> 77.9	162616	25.54 µg/L		99
		498.1 -> 478.0	6385			
MeFOSAA	8.216	570.1 -> 419.0	136159	27.02 µg/L	m	97
		570.1 -> 483.0	21831			
PFBA	2.982	212.8 -> 168.9	176121	107.67 µg/L		100
PFBS	5.518	298.7 -> 79.9	113065	22.72 µg/L		92
		298.7 -> 98.8	55270			
PFDA	8.170	512.9 -> 469.0	552940	26.37 µg/L		99
		512.9 -> 219.0	79427			
PFDoDA	9.079	613.1 -> 569.0	456440	25.42 µg/L		98
		613.1 -> 319.0	59635			
PFDS	9.241	599.0 -> 79.9	64943	24.48 µg/L		95

Perfluorinated Compounds by LC/MS/MS

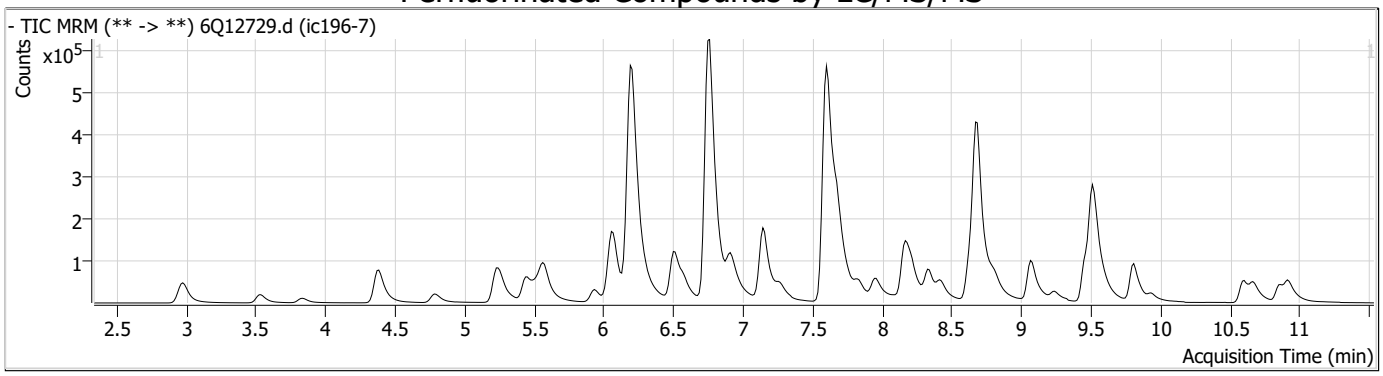
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	34911				
PFHpA	6.515	363.1 -> 319.0	537448	27.05	µg/L		96
		363.1 -> 169.0	75226				
PFHpS	7.841	449.0 -> 79.9	90405	27.22	µg/L		94
		449.0 -> 98.9	54222				
PFHxA	5.578	313.0 -> 269.0	353846	27.93	µg/L		98
		313.0 -> 118.9	12894				
PFHxS	7.275	398.7 -> 79.9	93551	22.98	µg/L	m	86
		398.7 -> 98.9	49093				
PFNA	7.690	463.0 -> 419.0	458485	25.38	µg/L		99
		463.0 -> 219.0	86106				
PFNS	8.824	548.8 -> 79.9	89864	25.82	µg/L		94
		548.8 -> 98.9	54950				
PFOA	7.160	413.0 -> 369.0	710157	26.38	µg/L		99
		413.0 -> 169.0	92927				
PFOS	8.347	498.9 -> 79.9	91208	25.39	µg/L	m	73
		498.9 -> 98.8	57224				
PFPeA	4.388	263.0 -> 219.0	424519	53.83	µg/L		100
PFPeS	6.581	349.1 -> 79.9	108547	22.93	µg/L		95
		349.1 -> 98.9	59612				
PFTeDA	9.806	713.1 -> 669.0	400446	24.88	µg/L		100
		713.1 -> 168.9	27323				
PFTrDA	9.462	663.0 -> 619.0	452988	26.38	µg/L		98
		663.0 -> 168.9	33816				
PFUnDA	8.637	563.1 -> 519.0	469239	28.17	µg/L		99
		563.1 -> 269.1	62287				
11Cl-PF3OUdS	9.526	630.9 -> 450.9	984756	96.96	µg/L		100
		632.9 -> 452.9	302828				
9Cl-PF3ONS	8.688	530.8 -> 351.0	1676561	97.66	µg/L		99
		532.8 -> 353.0	535345				
ADONA	6.766	376.9 -> 250.9	3019273	98.34	µg/L		97
		376.9 -> 84.8	631130				
HFPO-DA	5.953	284.9 -> 168.9	136874	103.40	µg/L		97
		284.9 -> 184.9	16574				
3:3FTCA	3.841	241.0 -> 177.0	53013	136.88	µg/L		95
		241.0 -> 117.0	6772				
5:3FTCA	6.206	341.0 -> 237.1	1813346	684.76	µg/L		100
		341.0 -> 217.0	1574313				
7:3FTCA	7.617	441.0 -> 316.9	1160781	670.63	µg/L		93
		441.0 -> 336.9	2315978				
EtFOSA	10.927	526.0 -> 219.0	97097	25.79	µg/L		99
		526.0 -> 169.0	93801				
EtFOSE	10.860	630.0 -> 58.9	218801	262.23	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	80524	25.06	µg/L		97
		511.9 -> 169.0	83697				
MeFOSE	10.602	616.1 -> 58.9	298173	262.94	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	42100	26.54	µg/L		99
		699.1 -> 98.8	25247				
NFDHA	5.457	295.0 -> 201.0	39355	52.56	µg/L		97
		295.0 -> 84.9	21064				
PFMBA	4.800	279.0 -> 85.1	120690	54.42	µg/L		100
PFMPA	3.541	229.0 -> 84.9	113193	53.82	µg/L		100
PFEESA	6.071	314.8 -> 134.9	893404	49.00	µg/L		100
		314.8 -> 82.9	21436				

= Qualifier out of range, m = manually integrated, + = Area summed

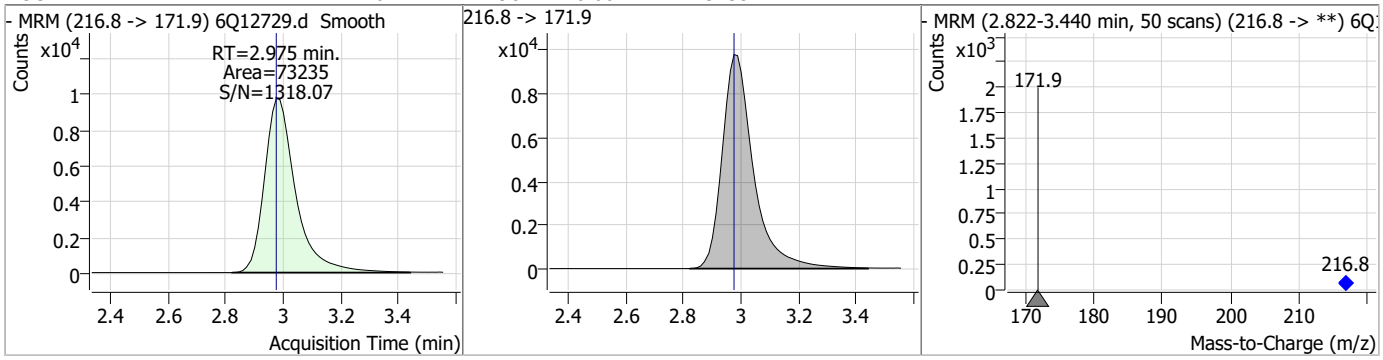
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

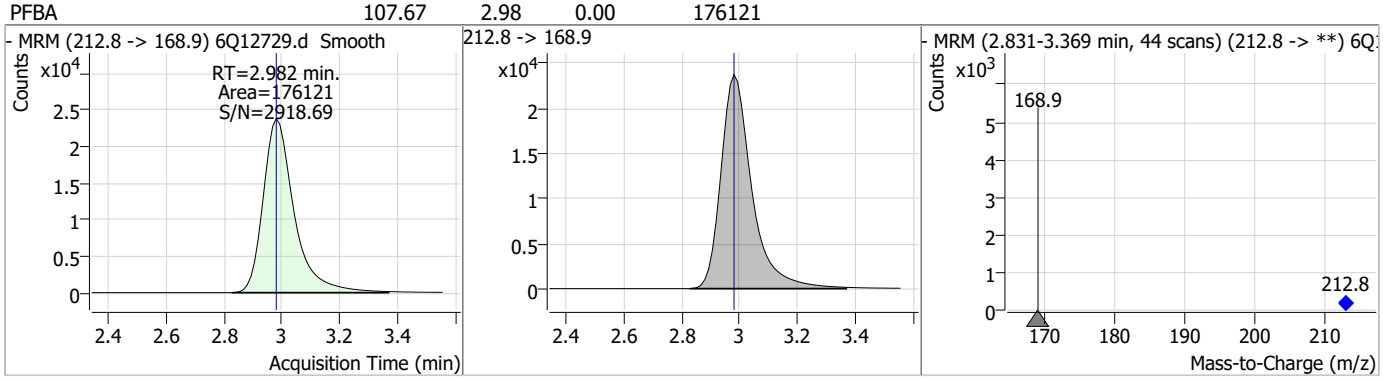
Perfluorinated Compounds by LC/MS/MS



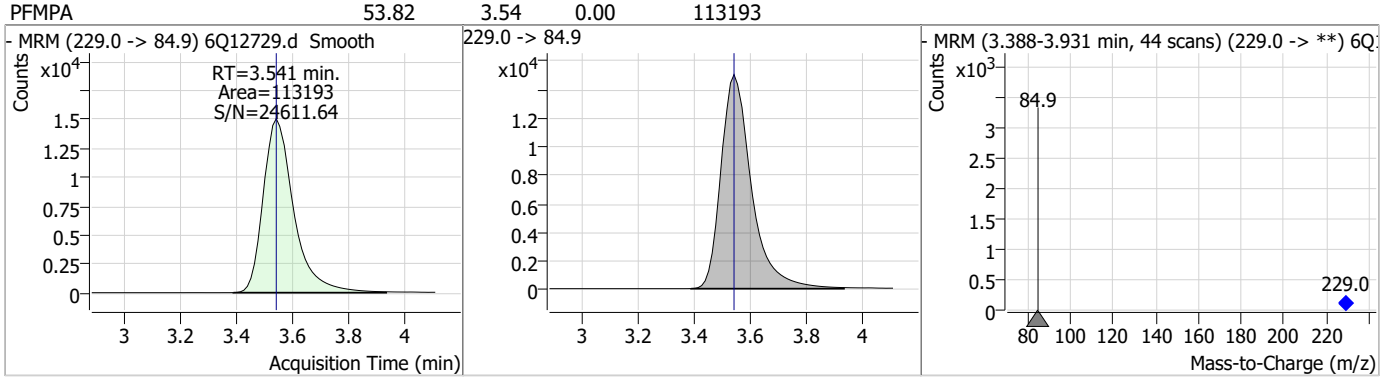
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.17	2.98	0.00	73235				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	107.67	2.98	0.00	176121				

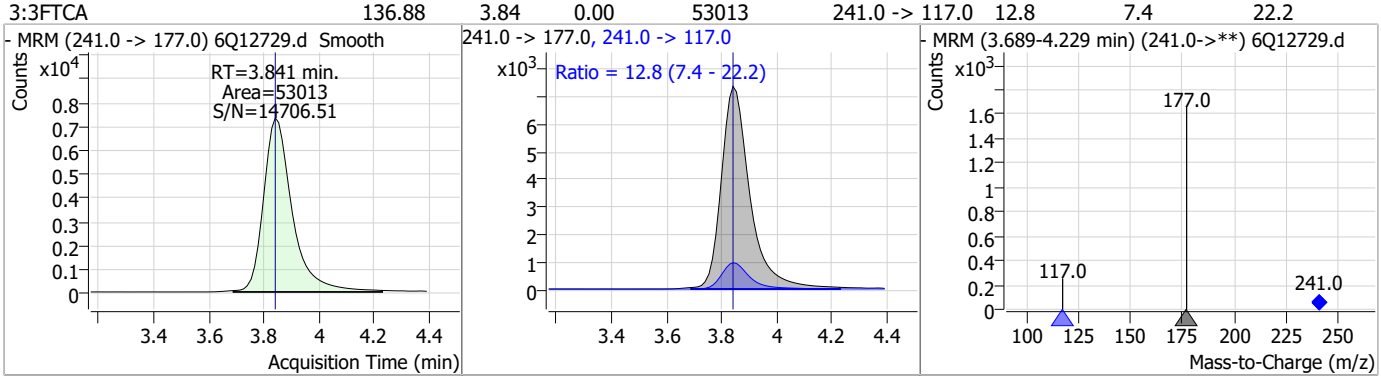


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	53.82	3.54	0.00	113193				

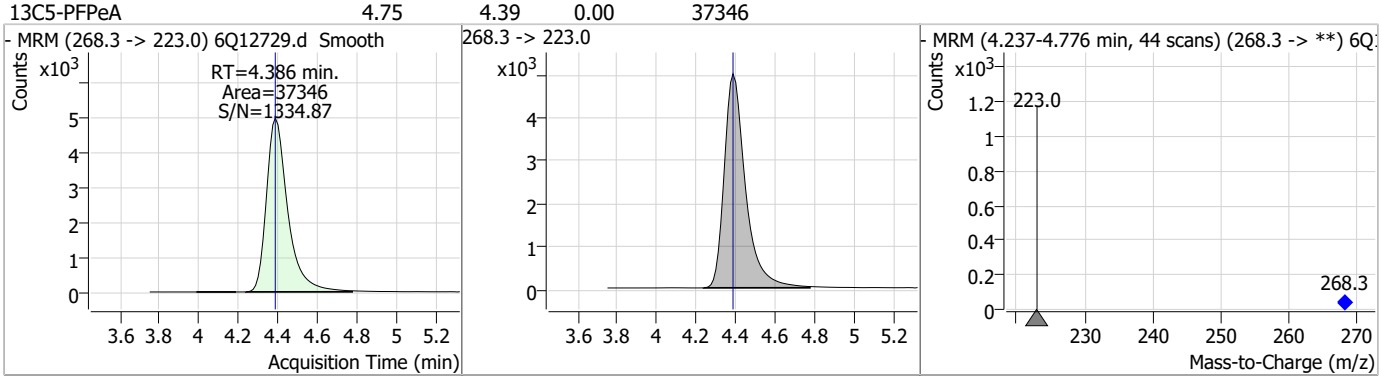


Perfluorinated Compounds by LC/MS/MS

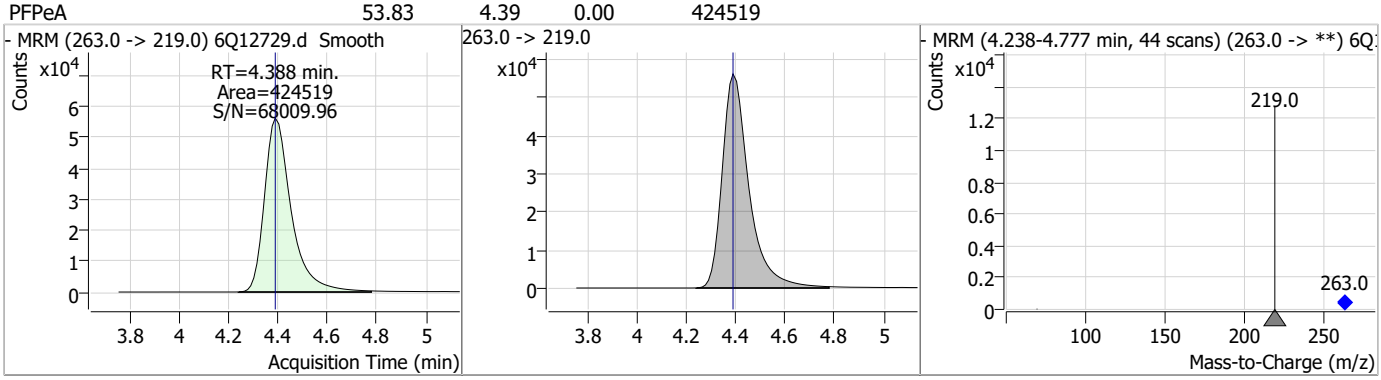
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	136.88	3.84	0.00	53013	241.0 -> 117.0	12.8	7.4	22.2



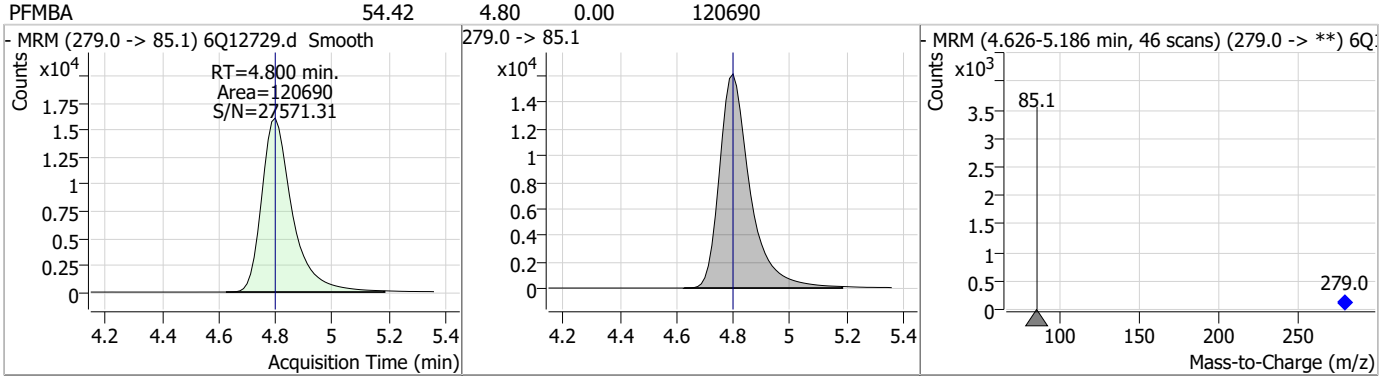
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.39	0.00	37346				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.83	4.39	0.00	424519				

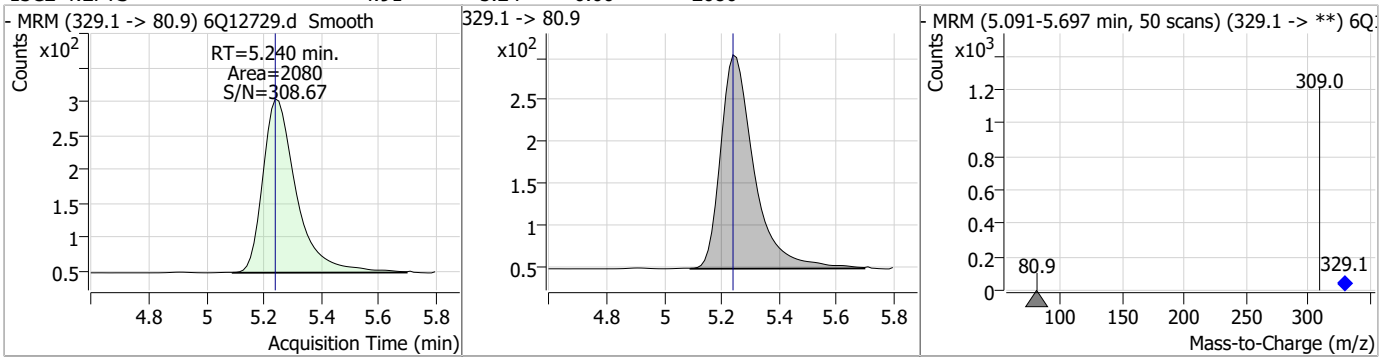


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	54.42	4.80	0.00	120690				

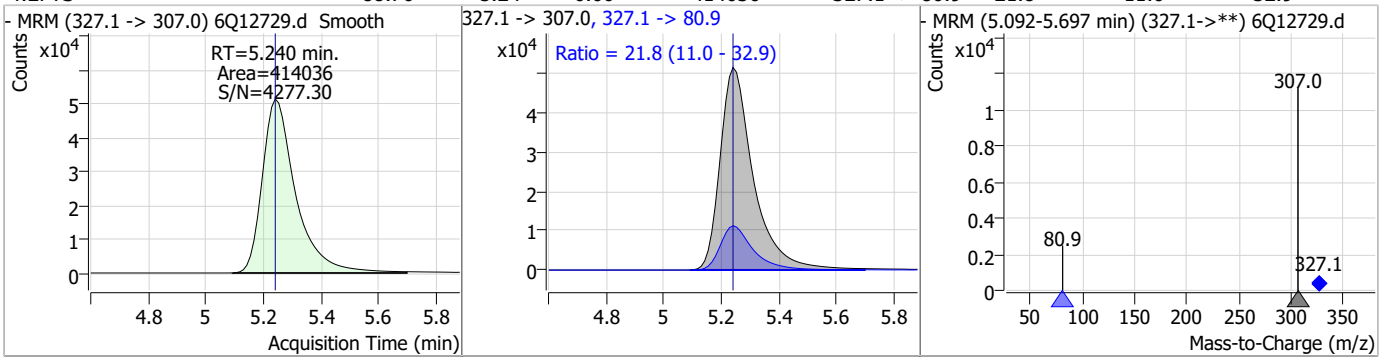


Perfluorinated Compounds by LC/MS/MS

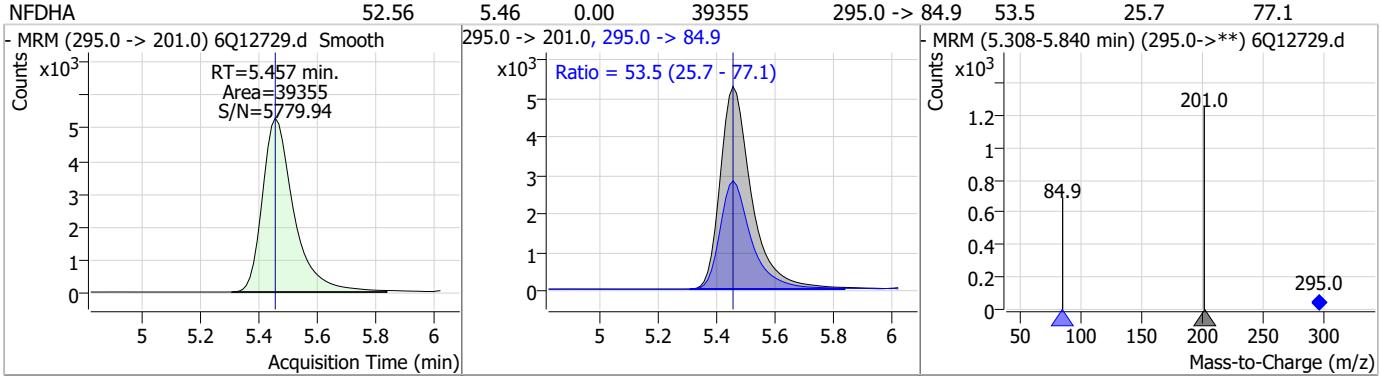
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.91	5.24	0.00	2080				



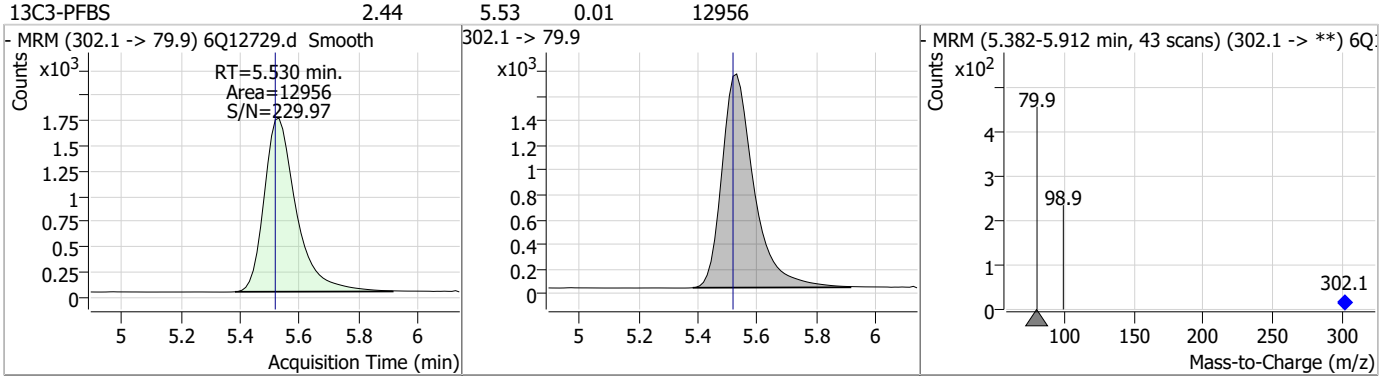
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	88.76	5.24	0.00	414036	327.1 -> 80.9	21.8	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	52.56	5.46	0.00	39355	295.0 -> 84.9	53.5	25.7	77.1

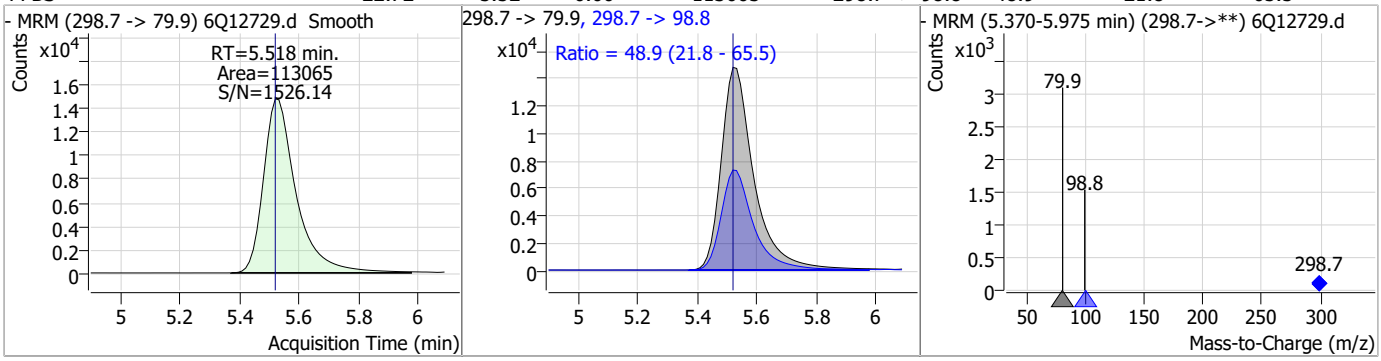


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.44	5.53	0.01	12956				

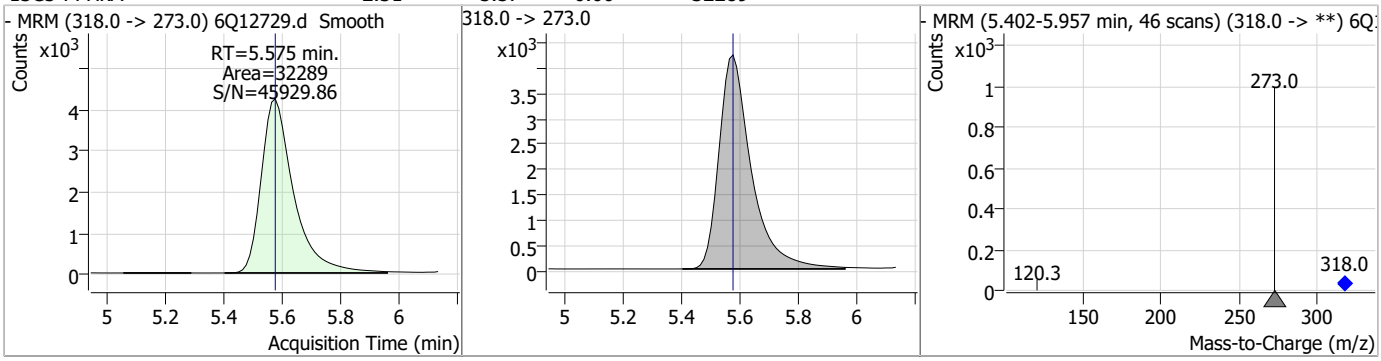


Perfluorinated Compounds by LC/MS/MS

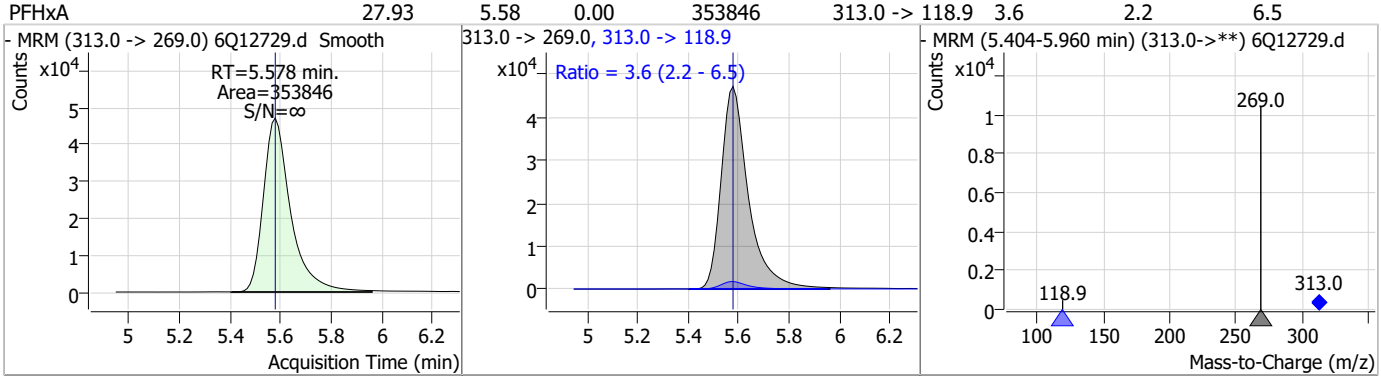
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.72	5.52	0.00	113065	298.7 -> 98.8	48.9	21.8	65.5



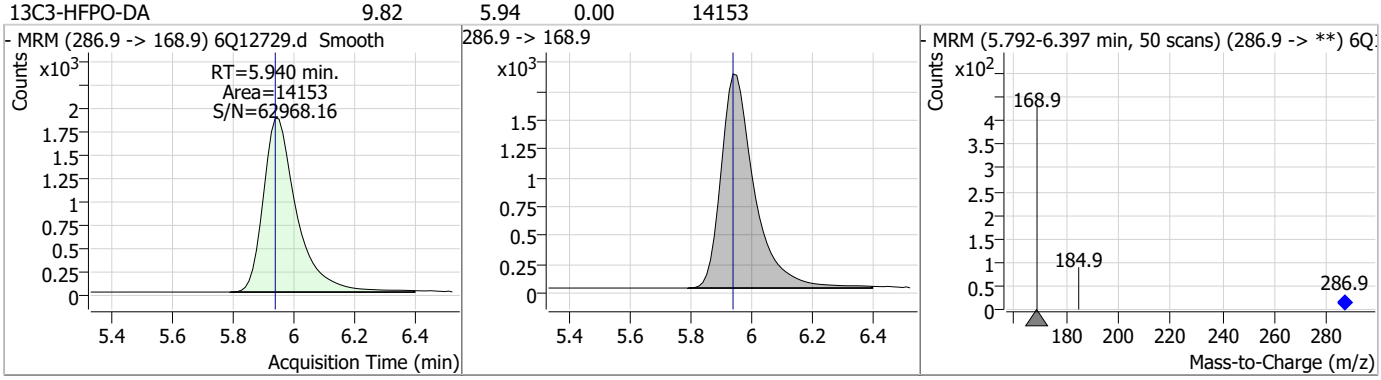
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.31	5.57	0.00	32289				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.93	5.58	0.00	353846	313.0 -> 118.9	3.6	2.2	6.5

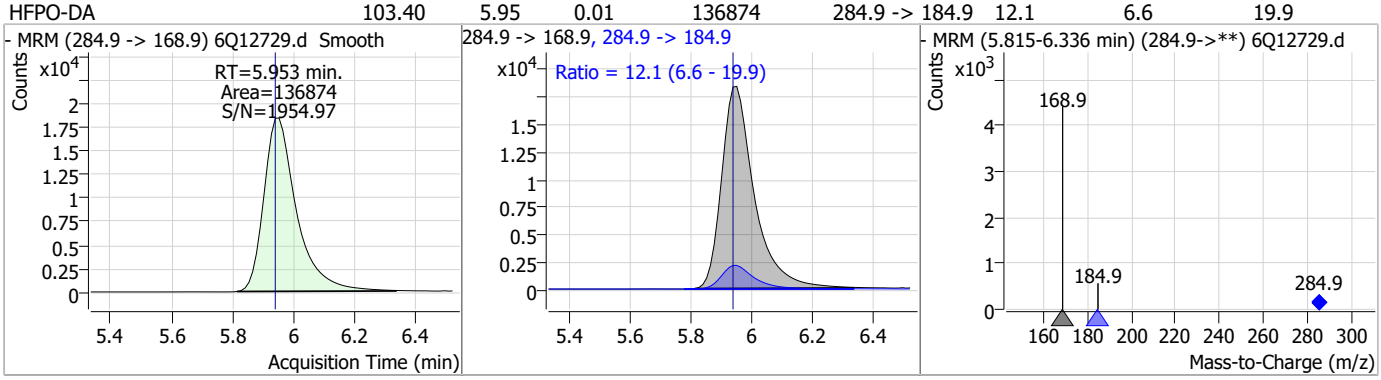


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.82	5.94	0.00	14153				

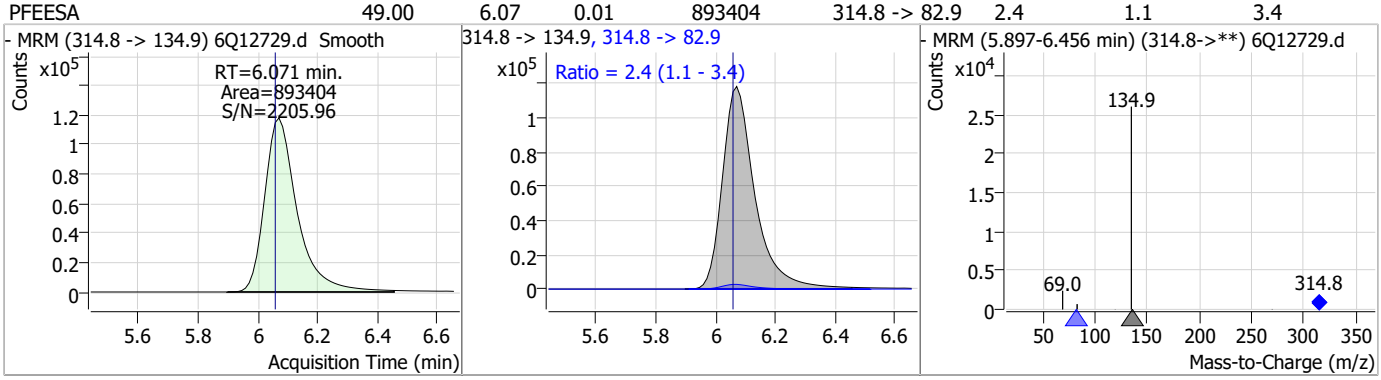


Perfluorinated Compounds by LC/MS/MS

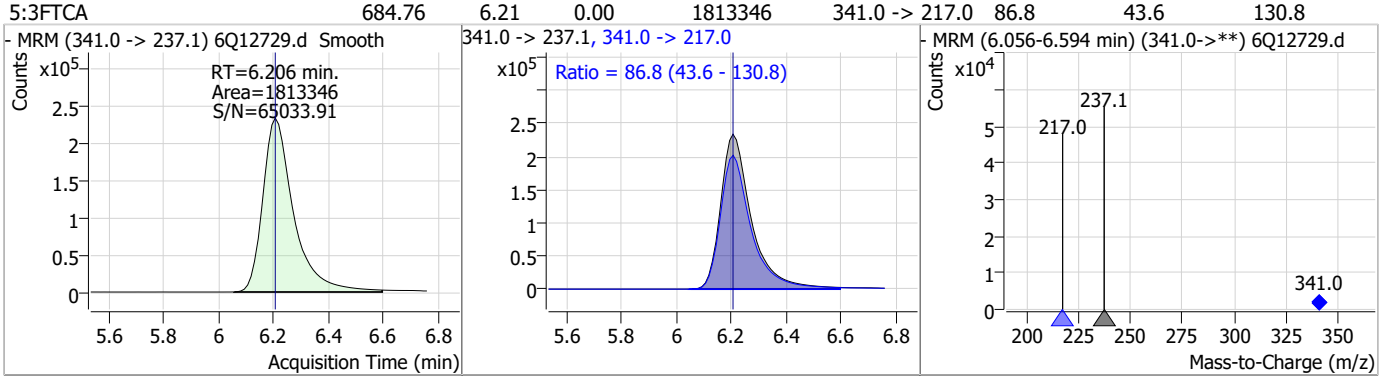
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	103.40	5.95	0.01	136874	284.9 -> 184.9	12.1	6.6	19.9



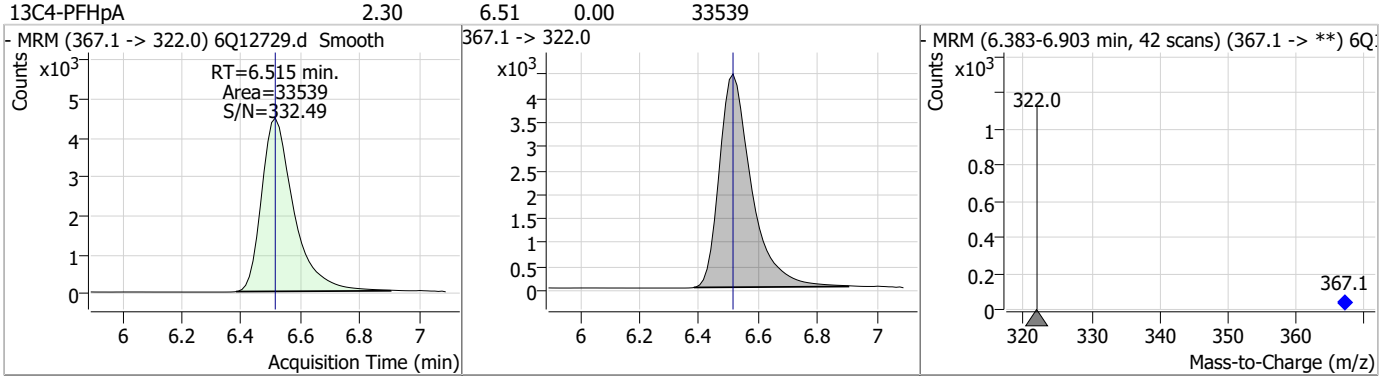
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	49.00	6.07	0.01	893404	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	684.76	6.21	0.00	1813346	341.0 -> 217.0	86.8	43.6	130.8

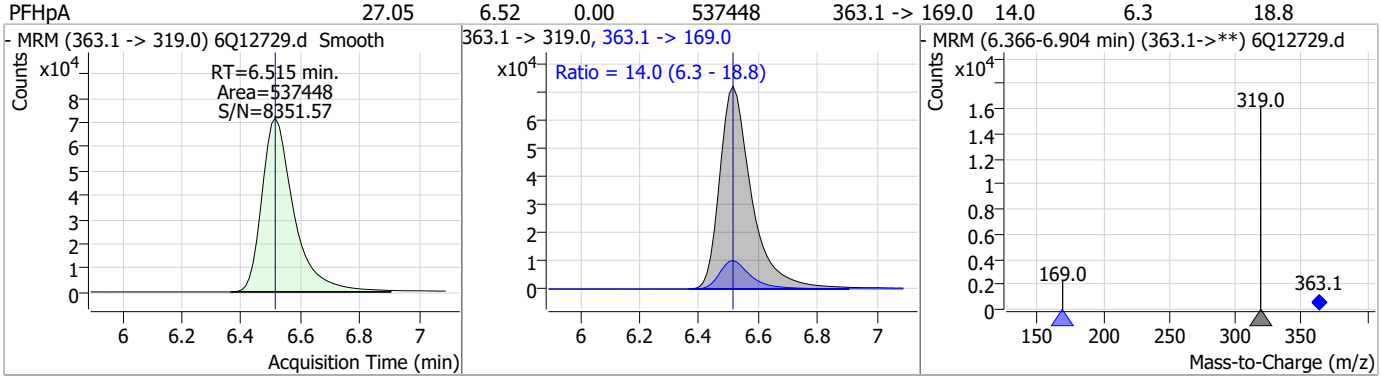


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.30	6.51	0.00	33539				

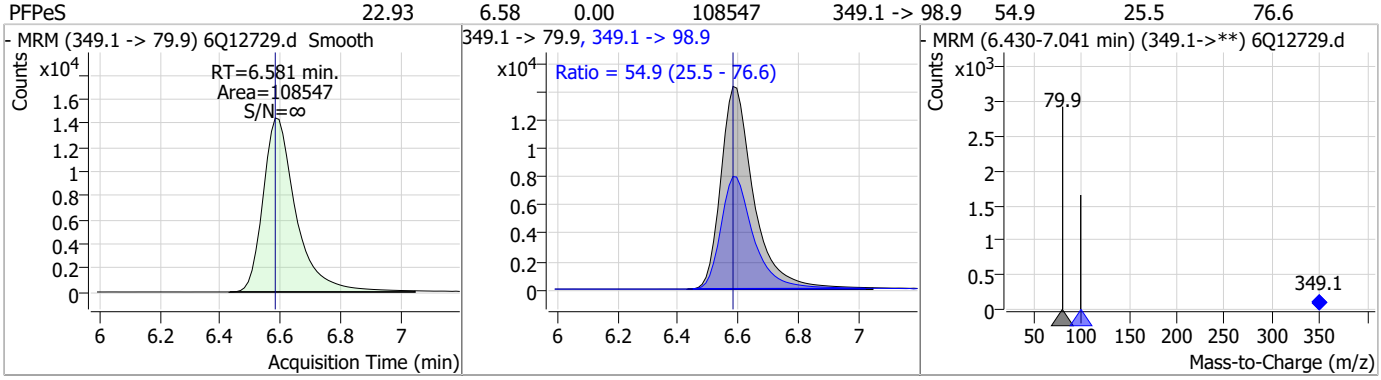


Perfluorinated Compounds by LC/MS/MS

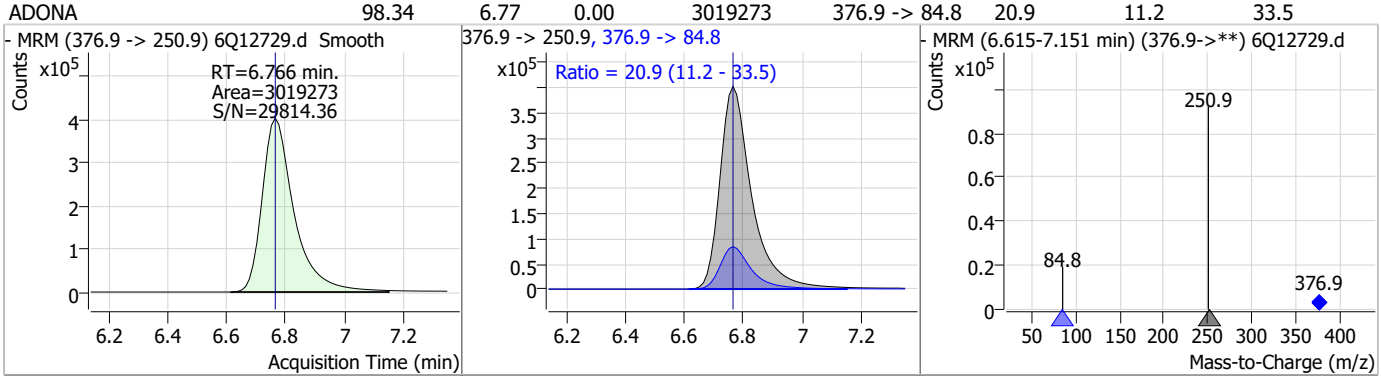
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	27.05	6.52	0.00	537448	363.1 -> 169.0	14.0	6.3	18.8



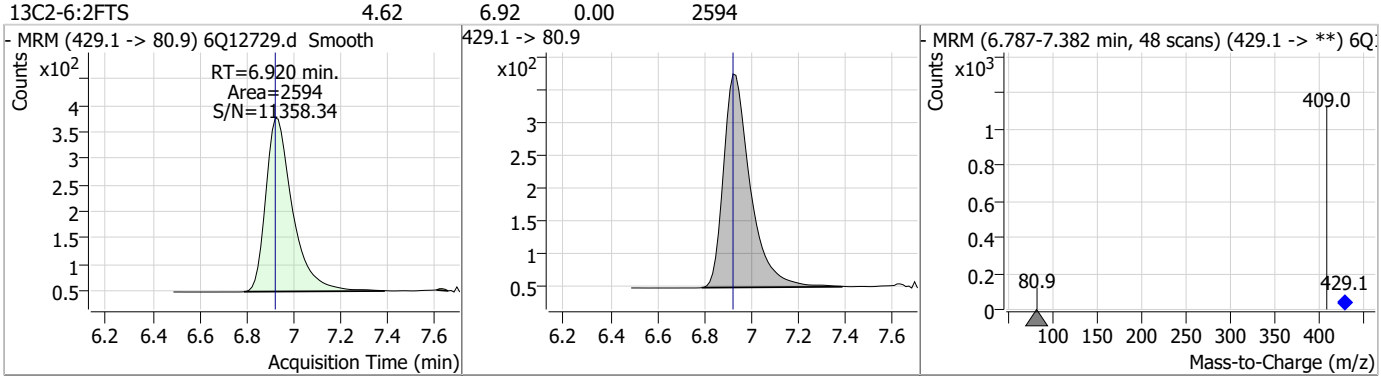
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	22.93	6.58	0.00	108547	349.1 -> 98.9	54.9	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	98.34	6.77	0.00	3019273	376.9 -> 84.8	20.9	11.2	33.5

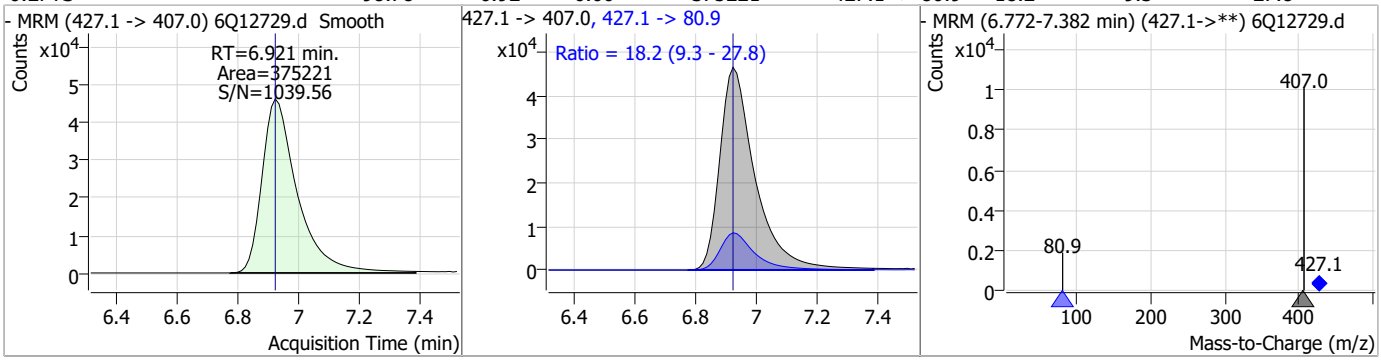


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.62	6.92	0.00	2594				

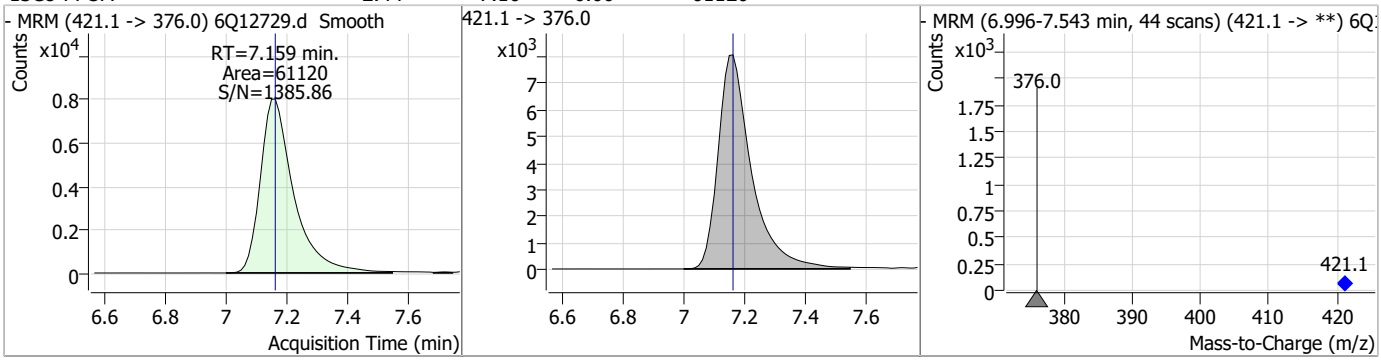


Perfluorinated Compounds by LC/MS/MS

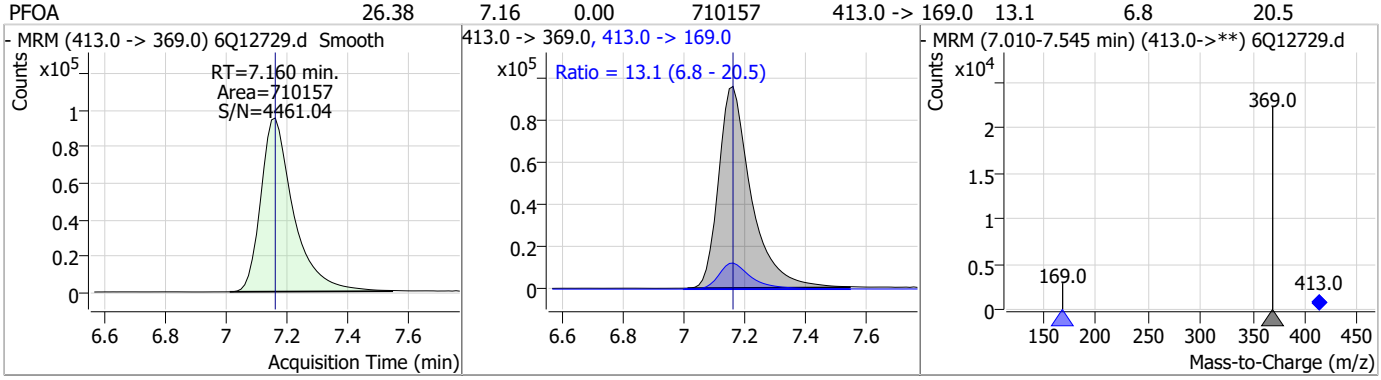
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	98.78	6.92	0.00	375221	427.1 -> 80.9	18.2	9.3	27.8



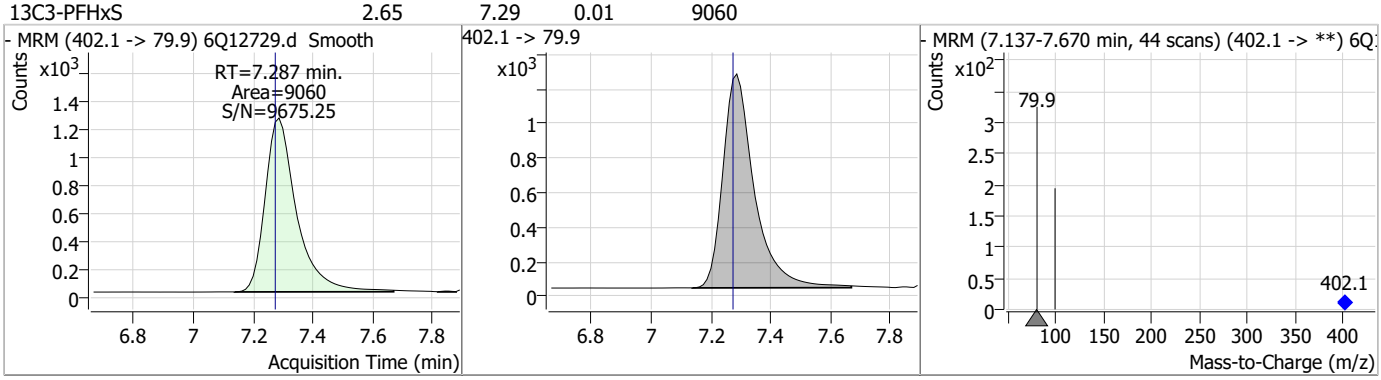
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.44	7.16	0.00	61120				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	26.38	7.16	0.00	710157	413.0 -> 169.0	13.1	6.8	20.5

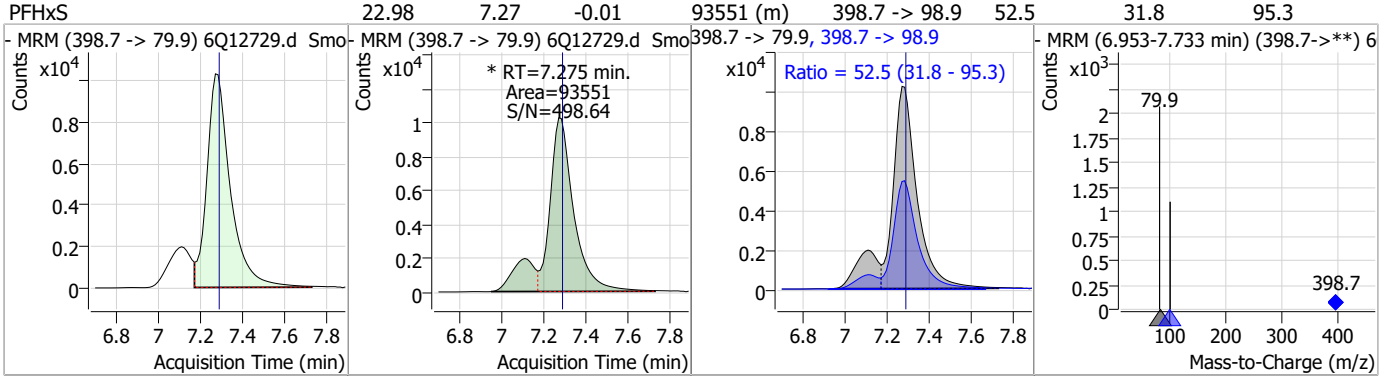


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.65	7.29	0.01	9060				

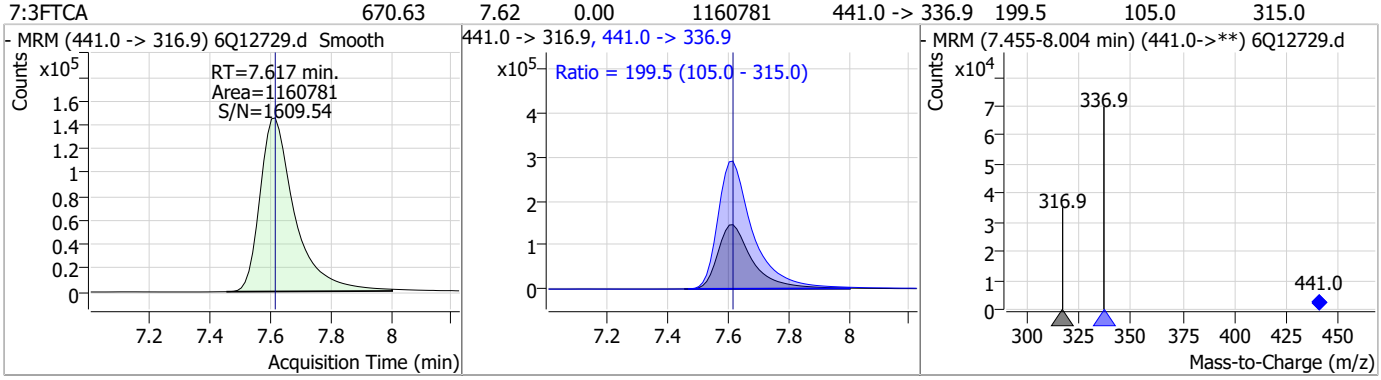


Perfluorinated Compounds by LC/MS/MS

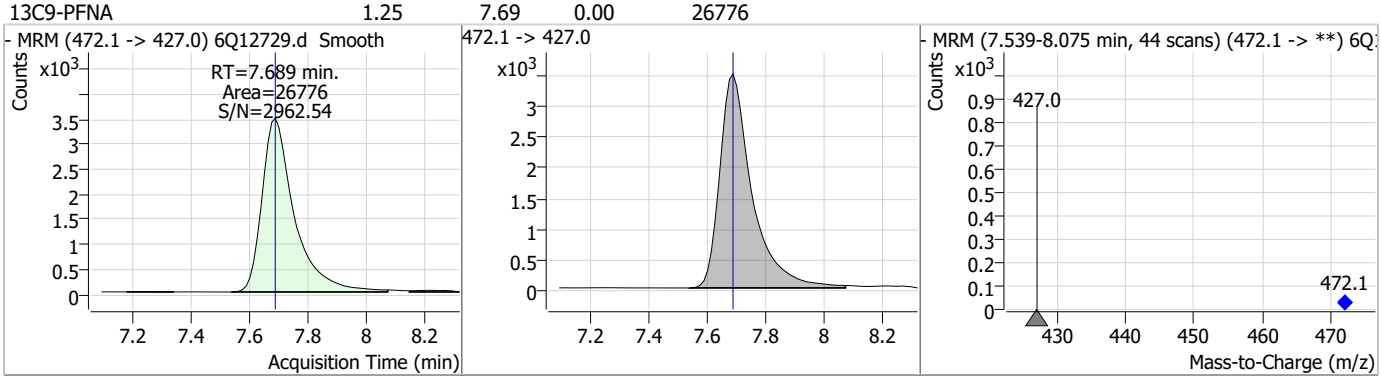
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	22.98	7.27	-0.01	93551 (m)	398.7 -> 98.9	52.5	31.8	95.3



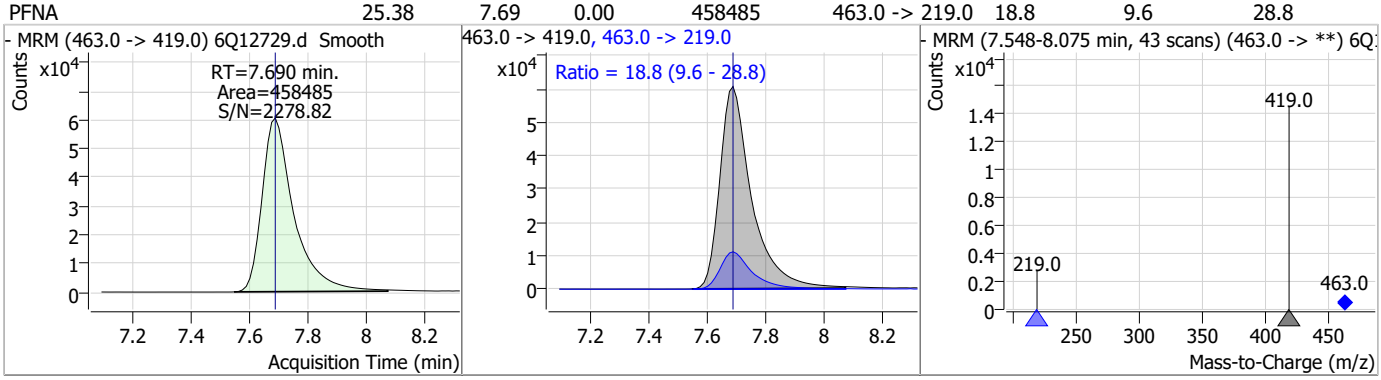
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	670.63	7.62	0.00	1160781	441.0 -> 336.9	199.5	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.69	0.00	26776				

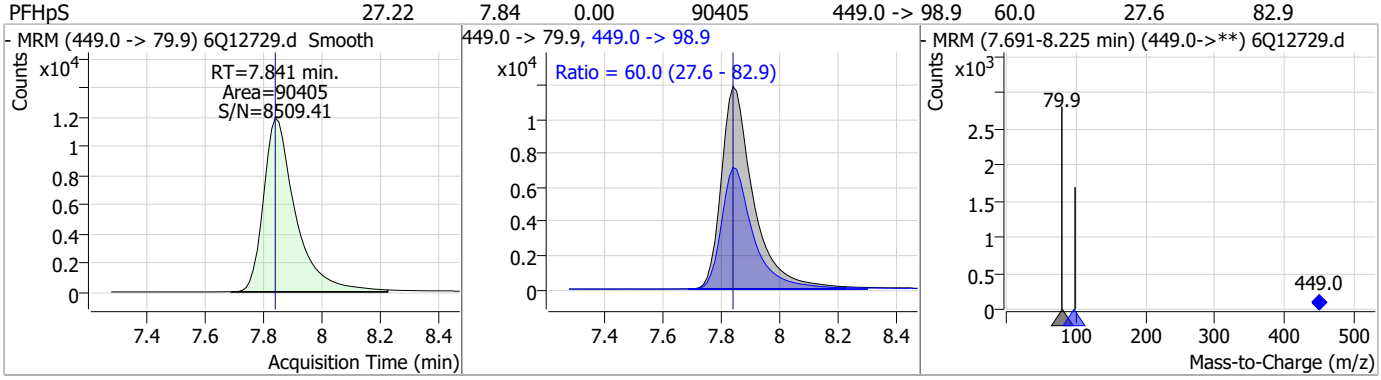


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.38	7.69	0.00	458485	463.0 -> 219.0	18.8	9.6	28.8

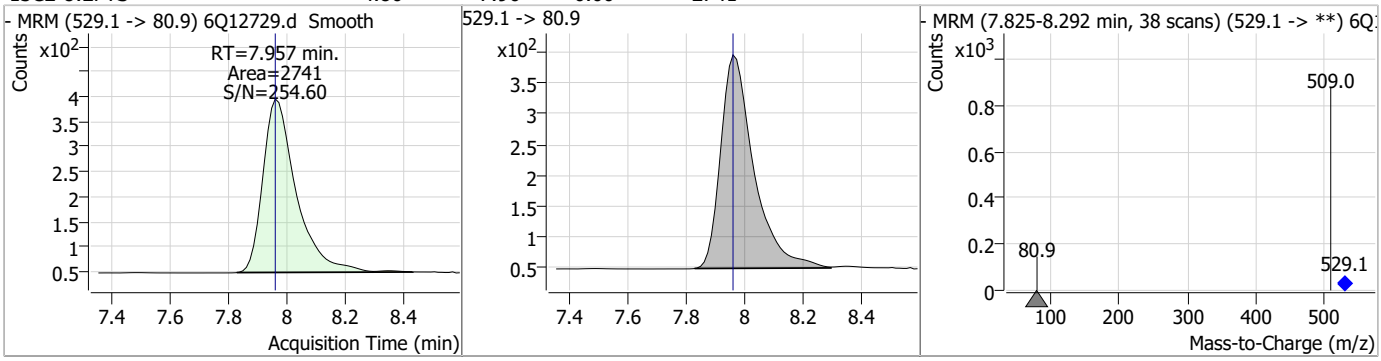


Perfluorinated Compounds by LC/MS/MS

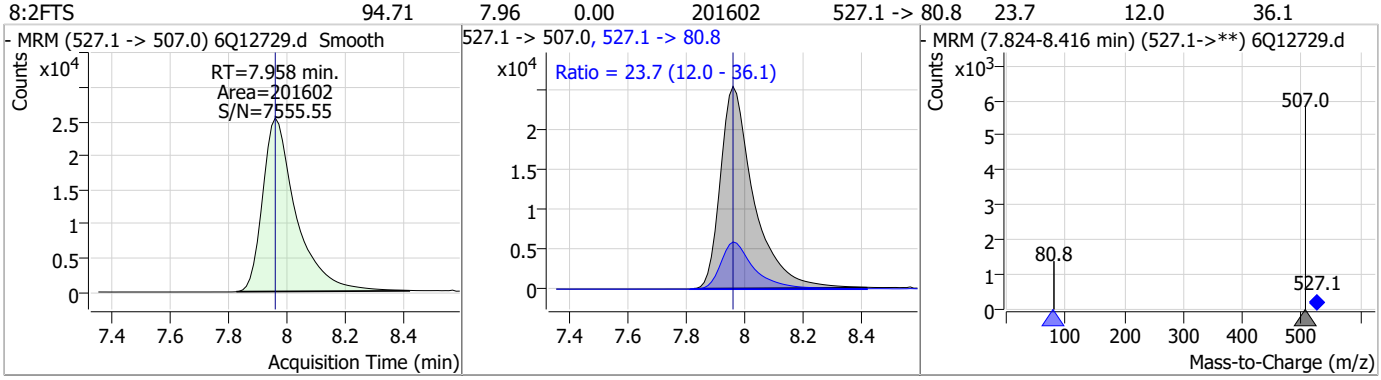
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	27.22	7.84	0.00	90405	449.0 -> 98.9	60.0	27.6	82.9



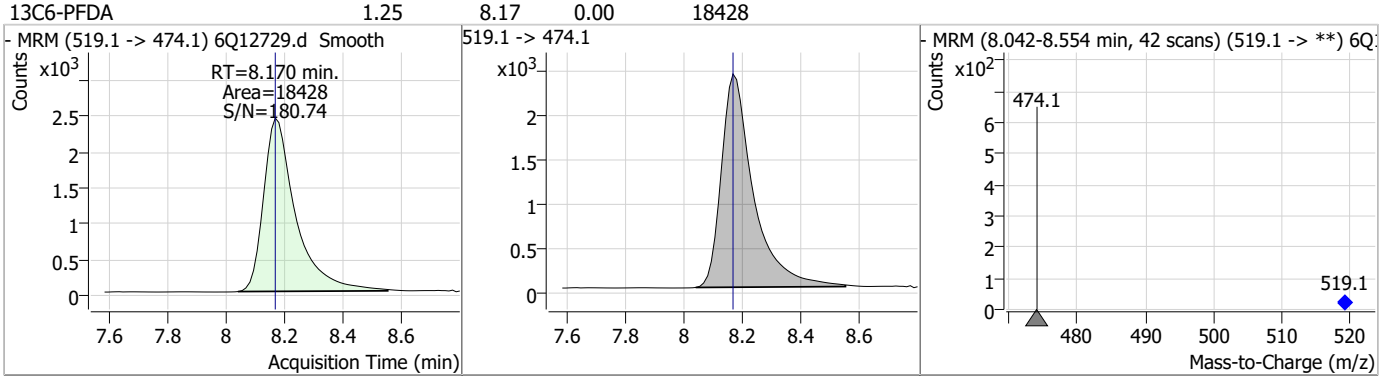
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.86	7.96	0.00	2741				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	94.71	7.96	0.00	201602	527.1 -> 80.8	23.7	12.0	36.1

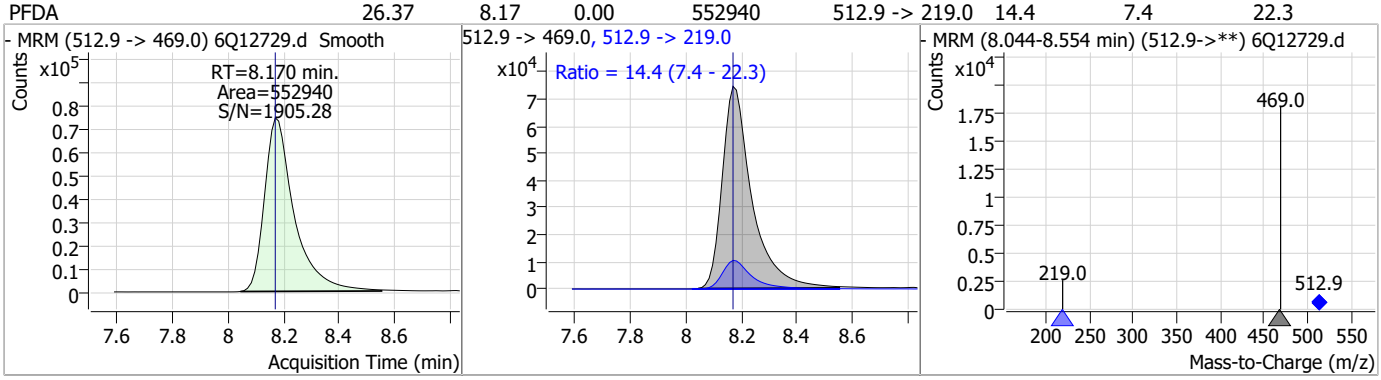


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.25	8.17	0.00	18428				

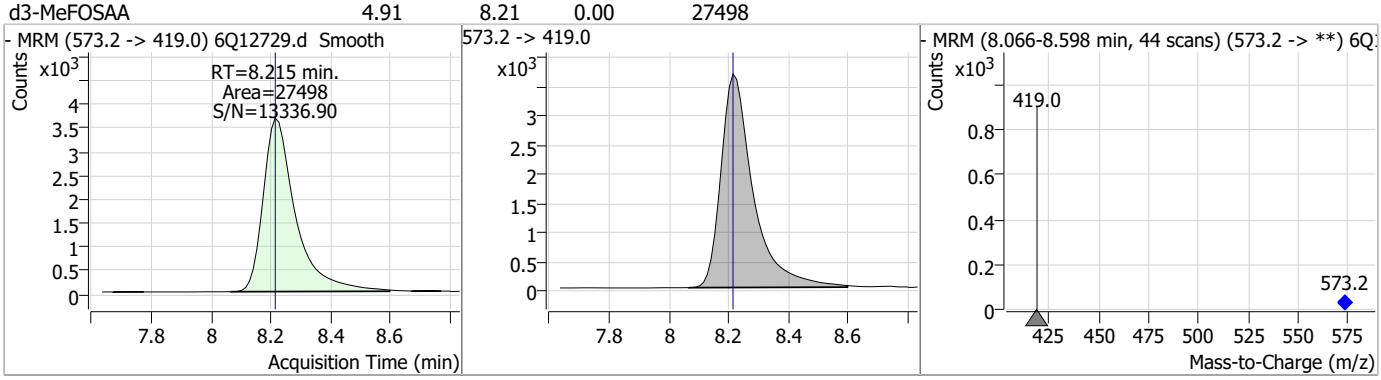


Perfluorinated Compounds by LC/MS/MS

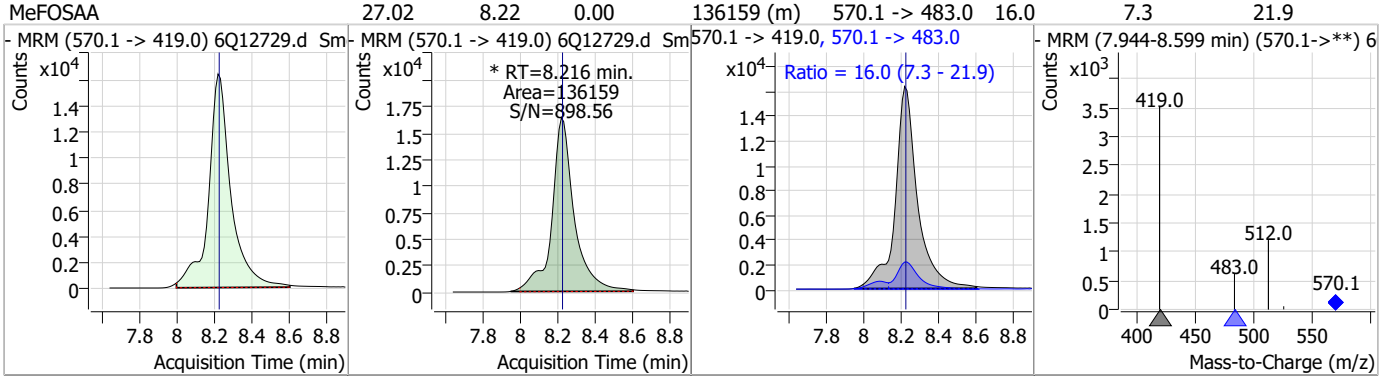
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.37	8.17	0.00	552940	512.9 -> 219.0	14.4	7.4	22.3



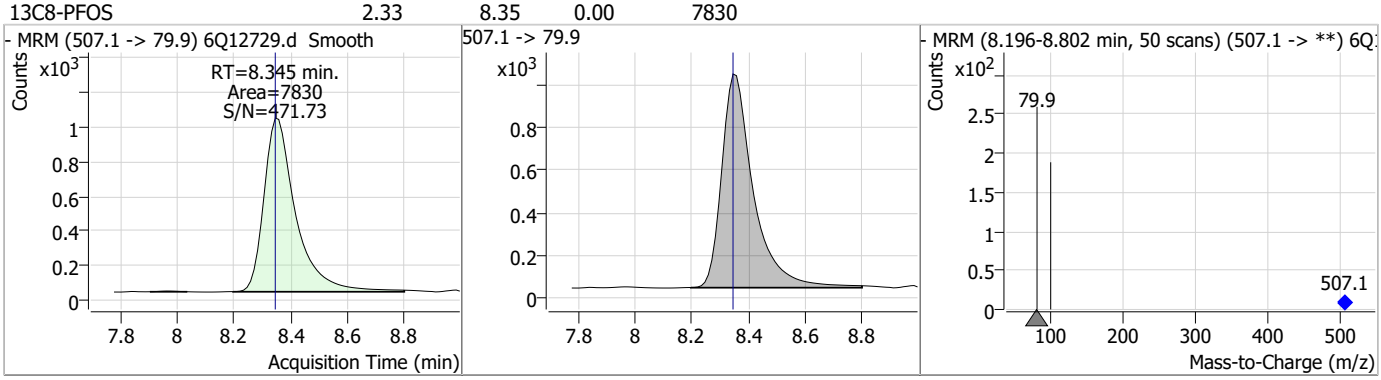
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.91	8.21	0.00	27498				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	27.02	8.22	0.00	136159 (m)	570.1 -> 483.0	16.0	7.3	21.9

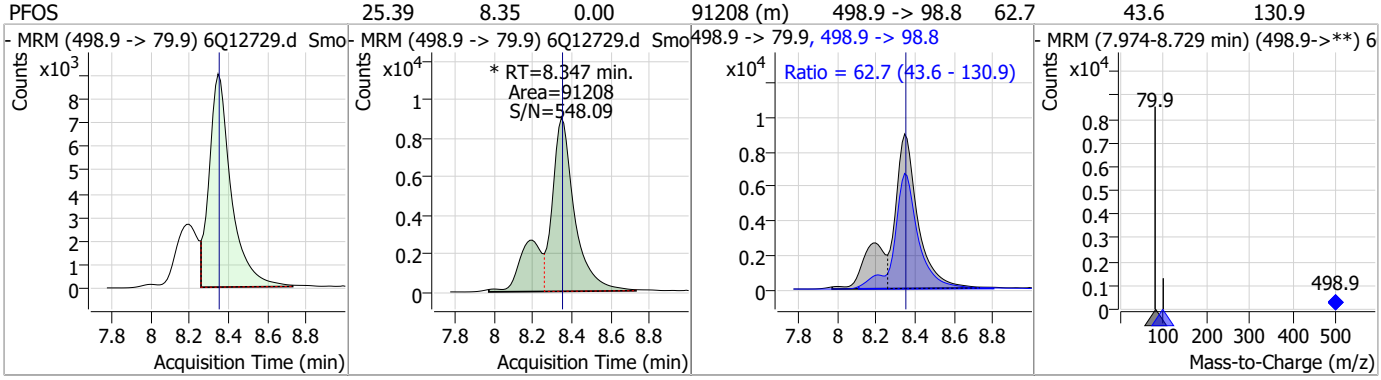


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.33	8.35	0.00	7830				

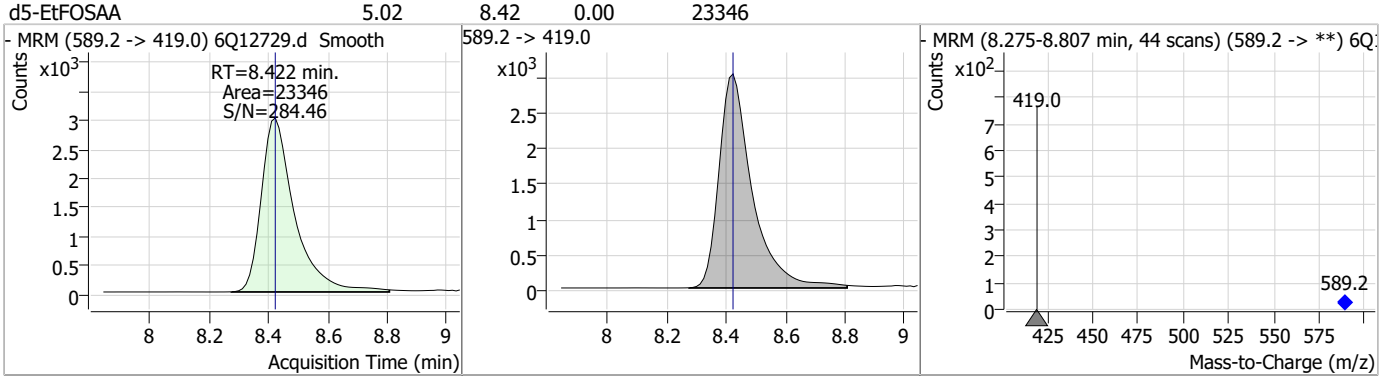


Perfluorinated Compounds by LC/MS/MS

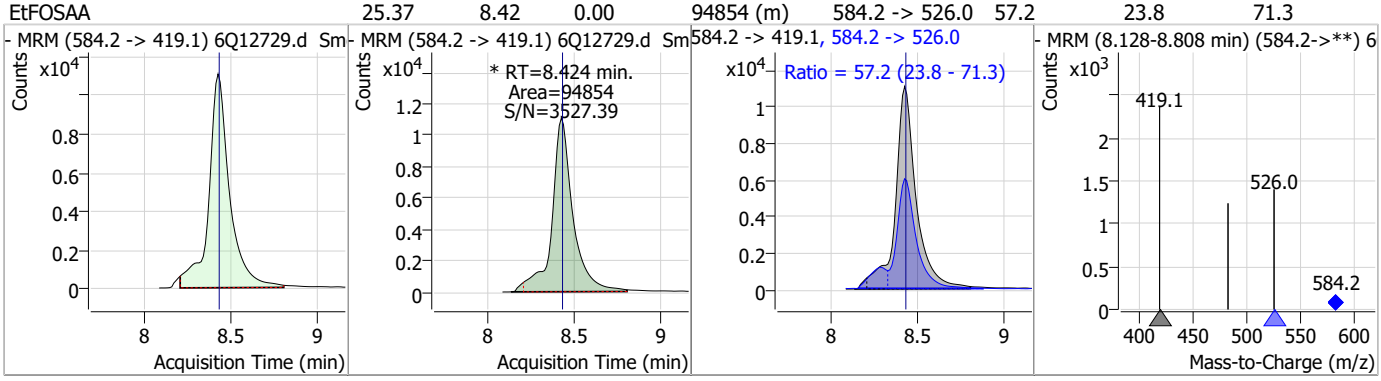
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	25.39	8.35	0.00	91208 (m)	498.9 -> 98.8	62.7	43.6	130.9



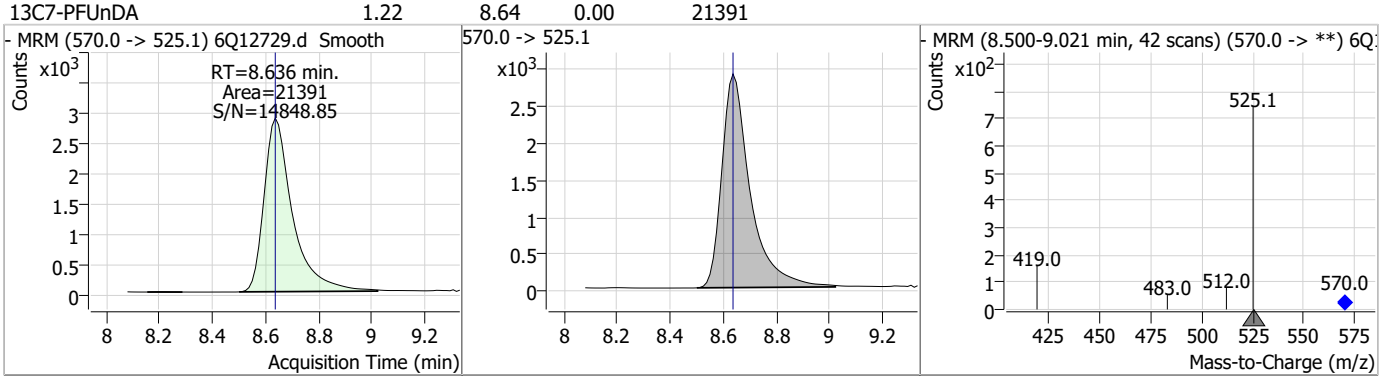
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.02	8.42	0.00	23346				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	25.37	8.42	0.00	94854 (m)	584.2 -> 526.0	57.2	23.8	71.3

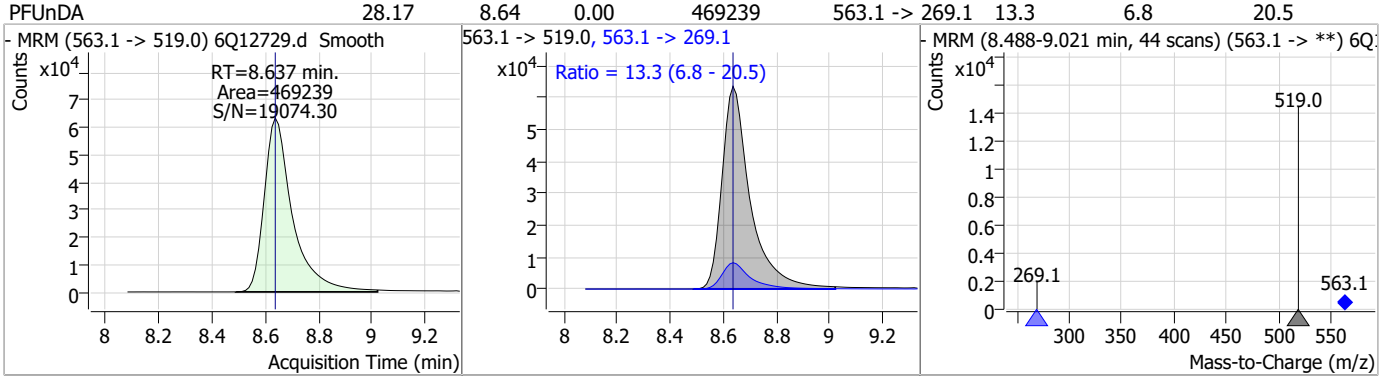


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.64	0.00	21391				

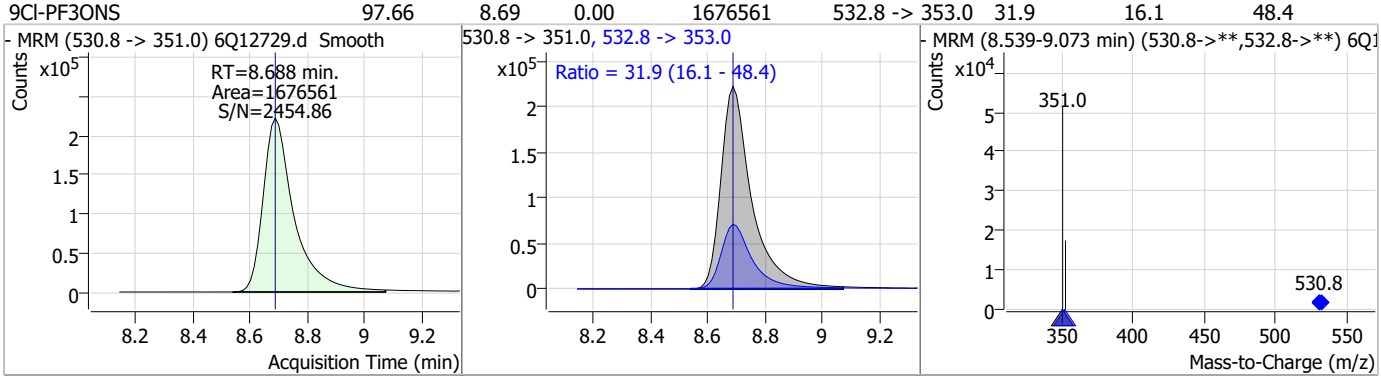


Perfluorinated Compounds by LC/MS/MS

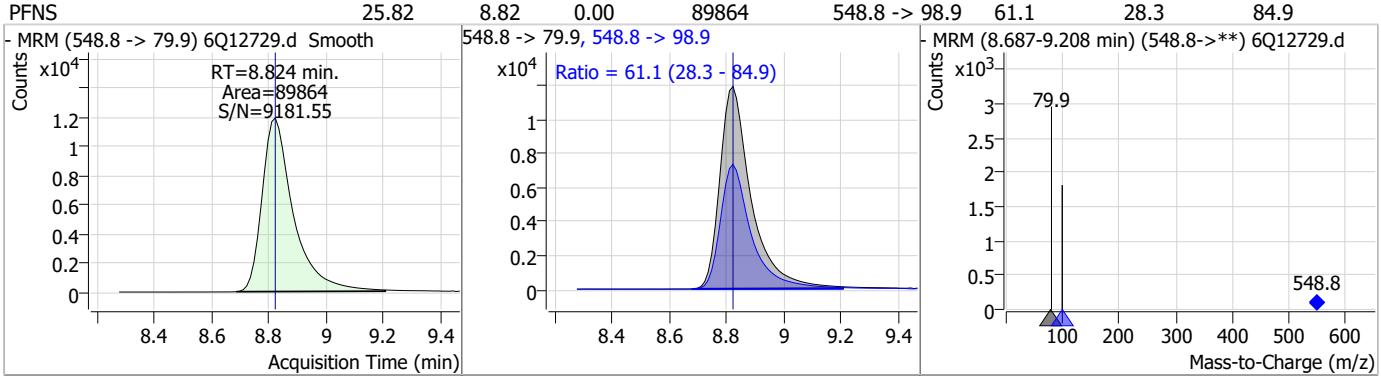
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	28.17	8.64	0.00	469239	563.1 -> 269.1	13.3	6.8	20.5



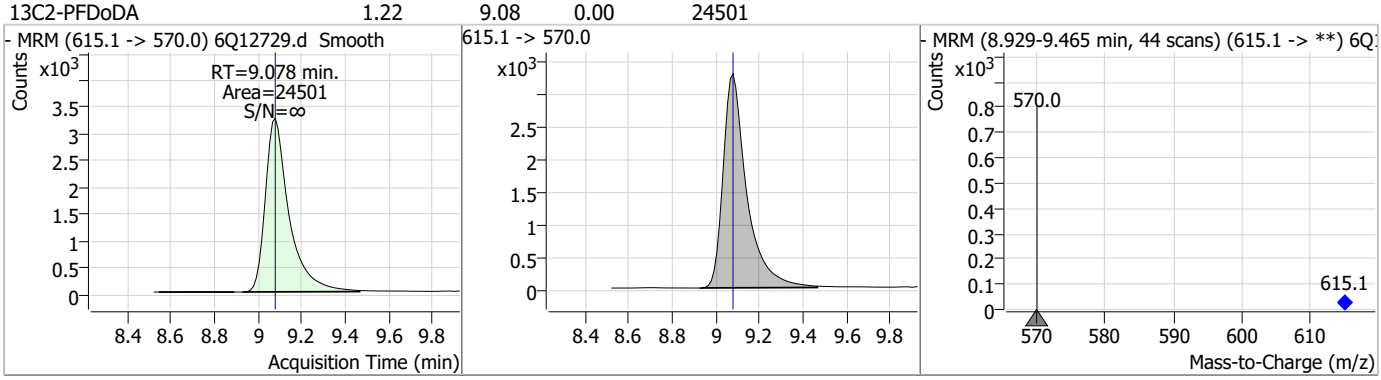
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	97.66	8.69	0.00	1676561	532.8 -> 353.0	31.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	25.82	8.82	0.00	89864	548.8 -> 98.9	61.1	28.3	84.9

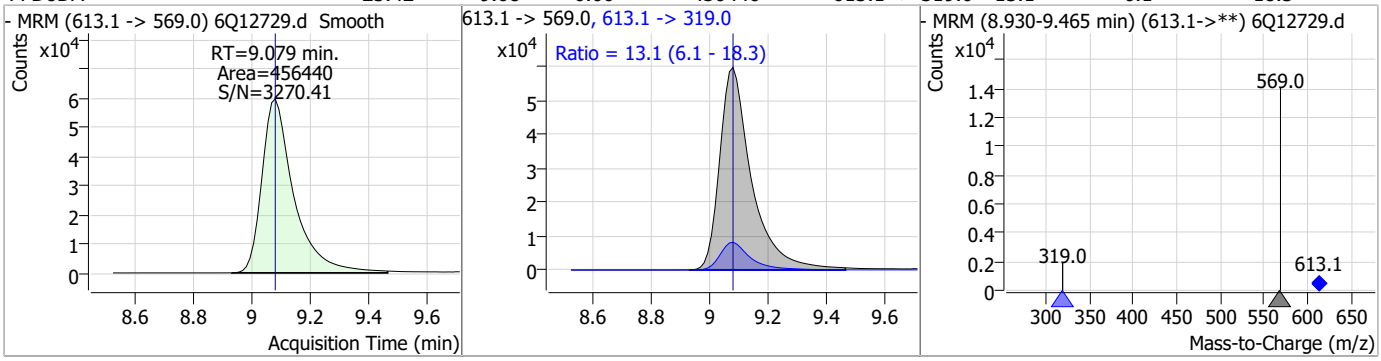


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.22	9.08	0.00	24501				

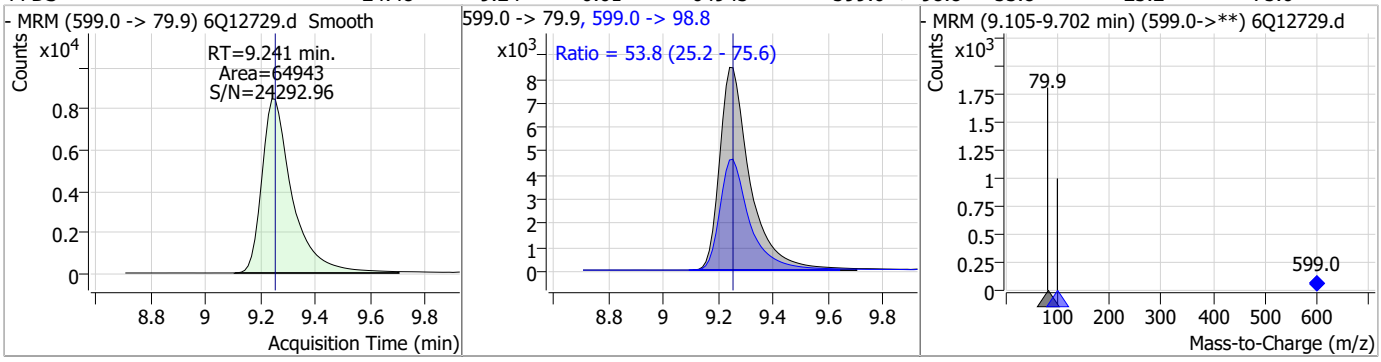


Perfluorinated Compounds by LC/MS/MS

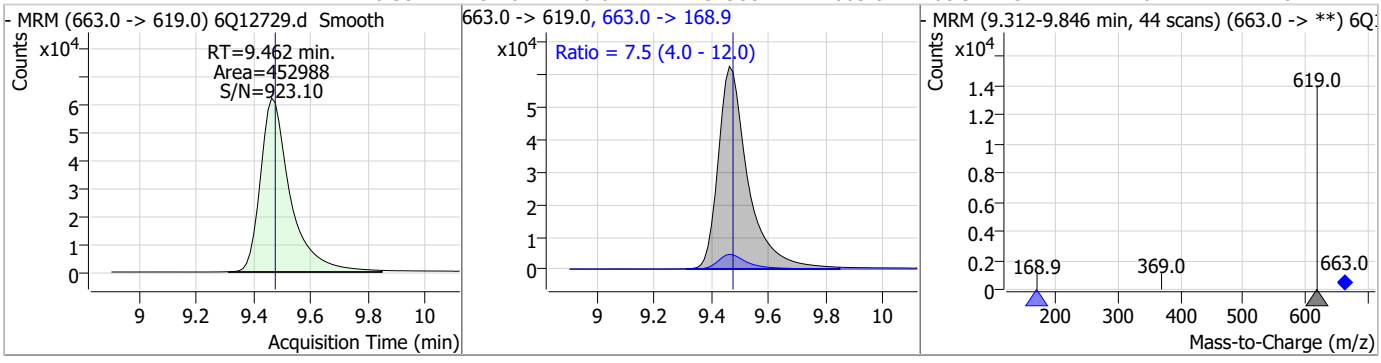
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	25.42	9.08	0.00	456440	613.1 -> 319.0	13.1	6.1	18.3



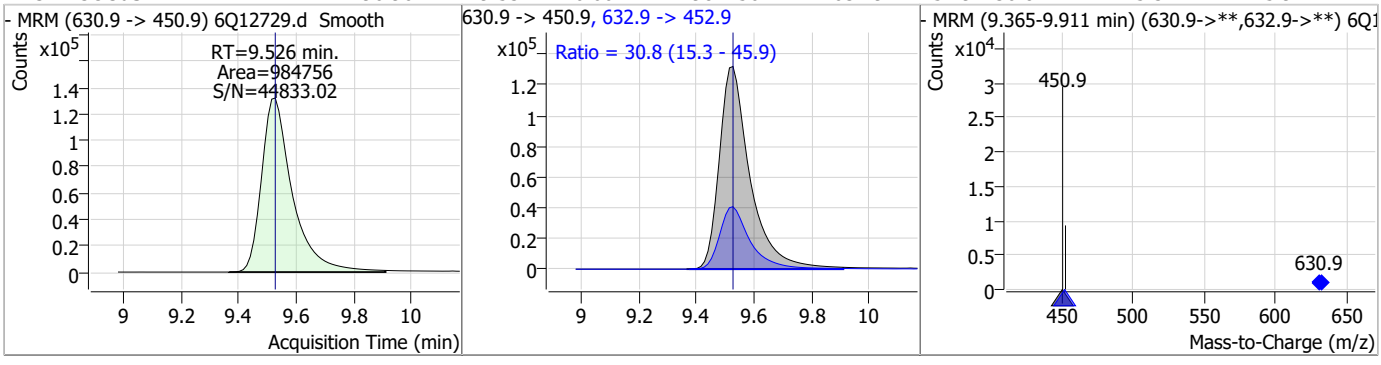
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	24.48	9.24	-0.01	64943	599.0 -> 98.8	53.8	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	26.38	9.46	-0.01	452988	663.0 -> 168.9	7.5	4.0	12.0

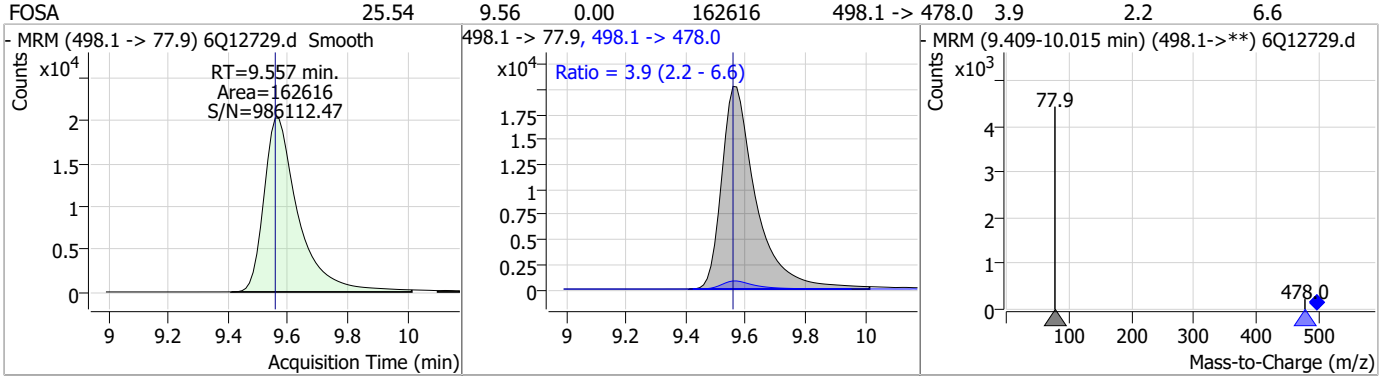


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	96.96	9.53	0.00	984756	632.9 -> 452.9	30.8	15.3	45.9

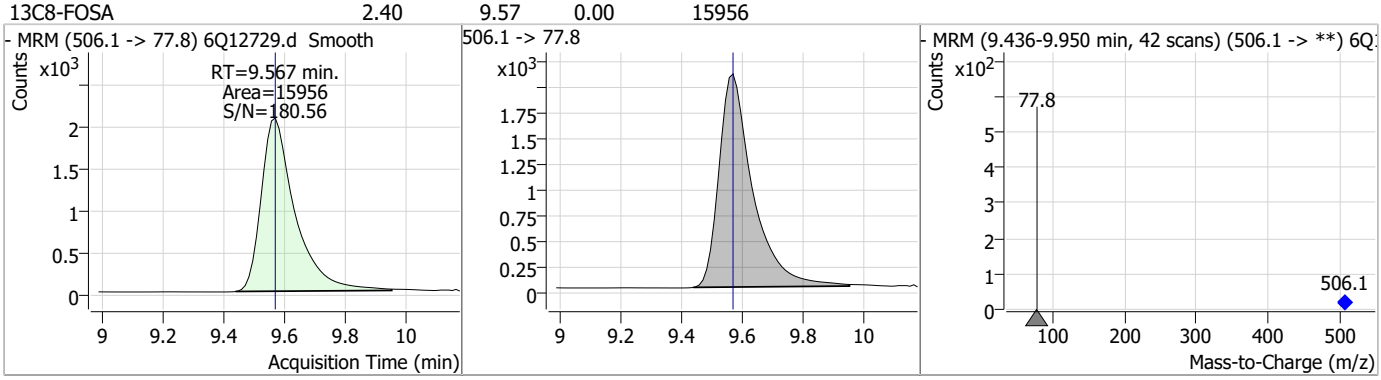


Perfluorinated Compounds by LC/MS/MS

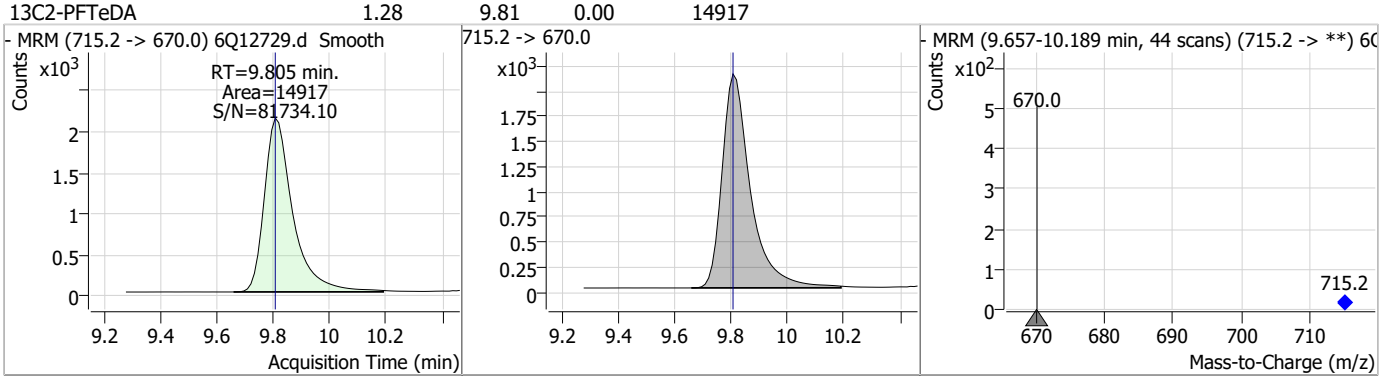
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	25.54	9.56	0.00	162616	498.1 -> 478.0	3.9	2.2	6.6



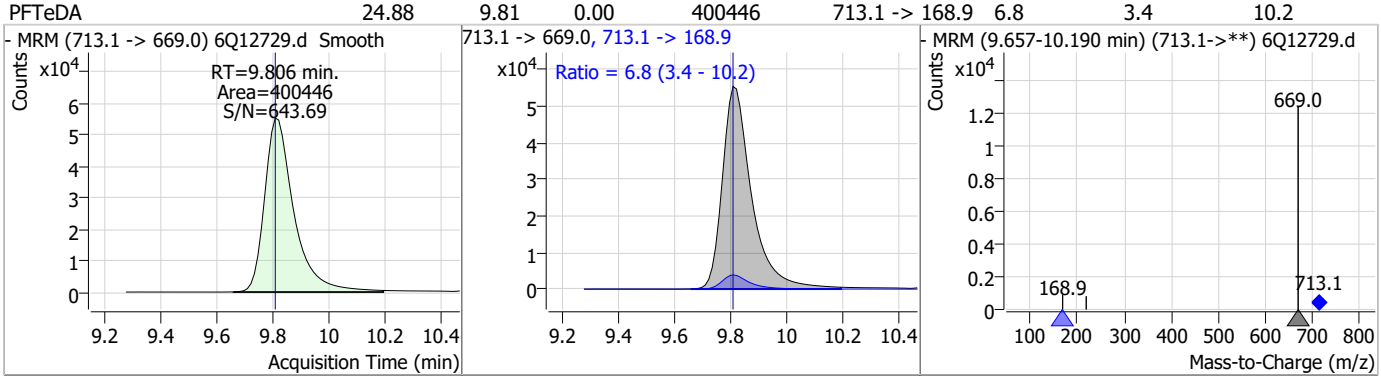
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.40	9.57	0.00	15956				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	9.81	0.00	14917				

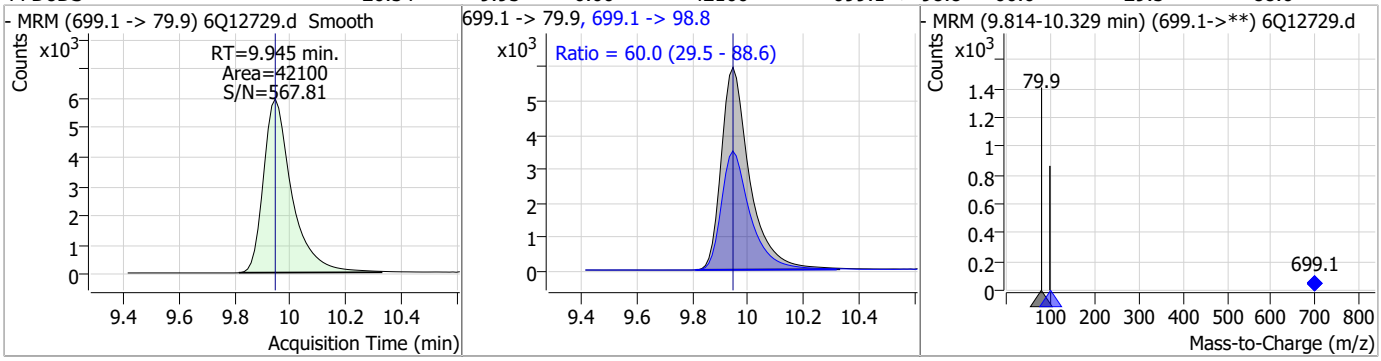


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	24.88	9.81	0.00	400446	713.1 -> 168.9	6.8	3.4	10.2

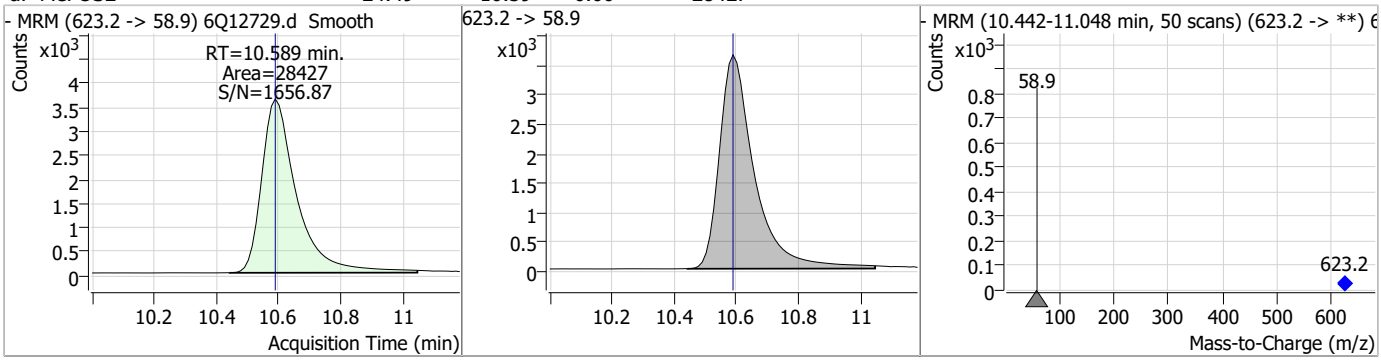


Perfluorinated Compounds by LC/MS/MS

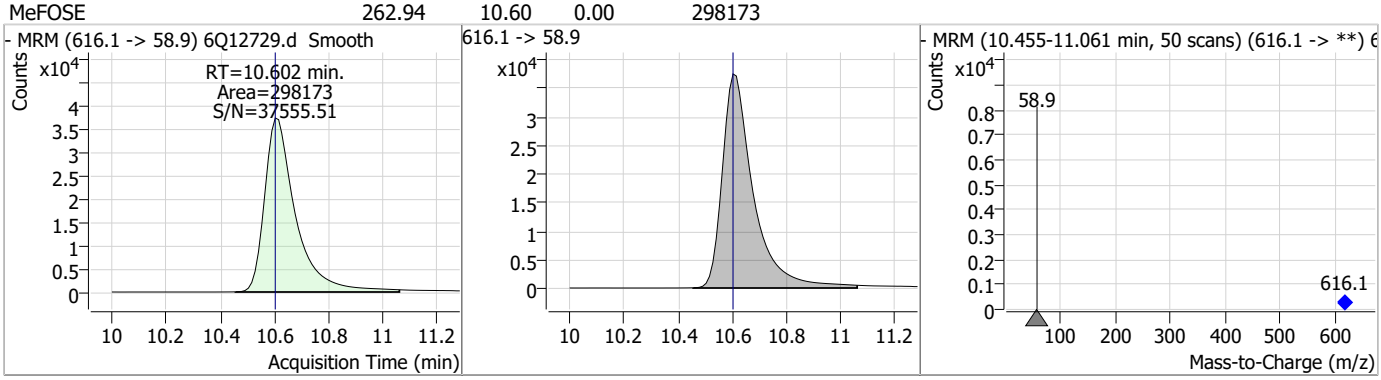
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	26.54	9.95	0.00	42100	699.1 -> 98.8	60.0	29.5	88.6



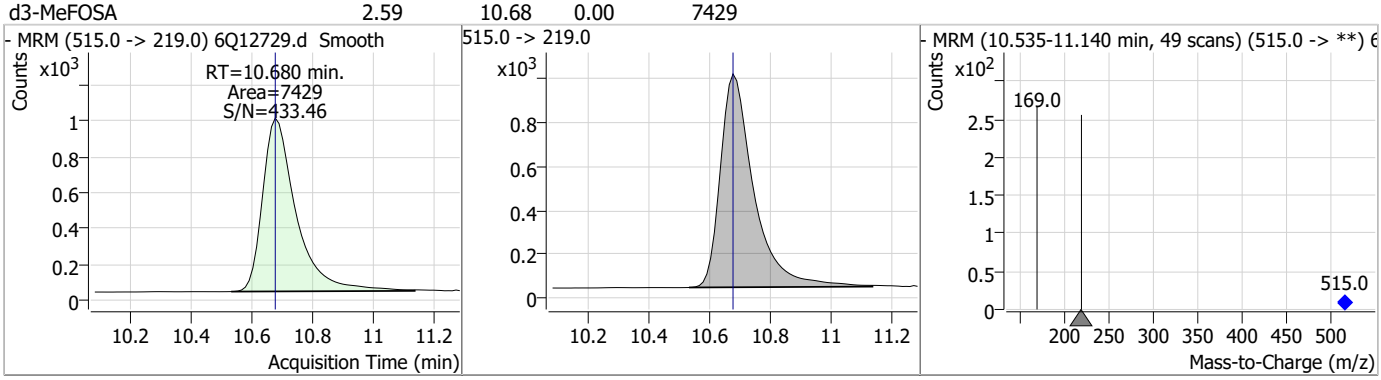
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.49	10.59	0.00	28427				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	262.94	10.60	0.00	298173				

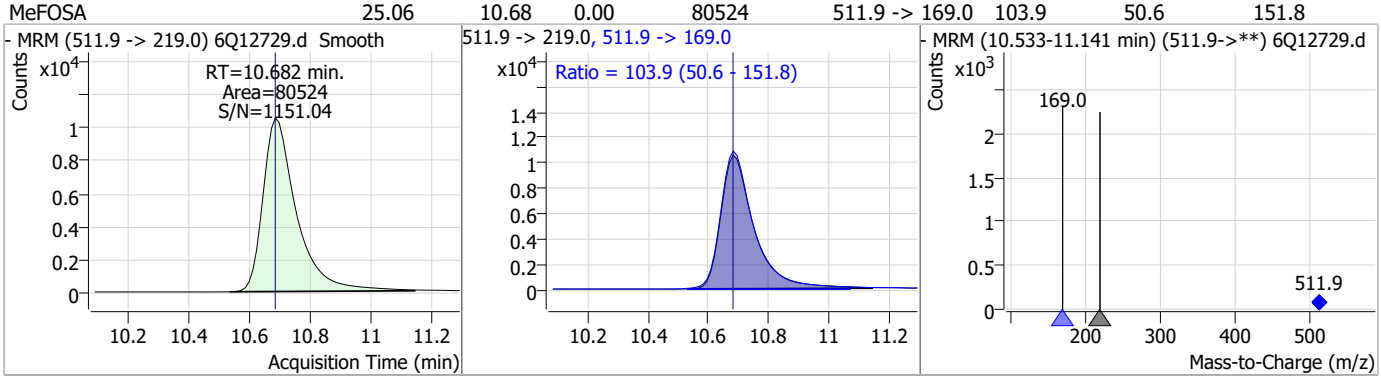


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.59	10.68	0.00	7429				

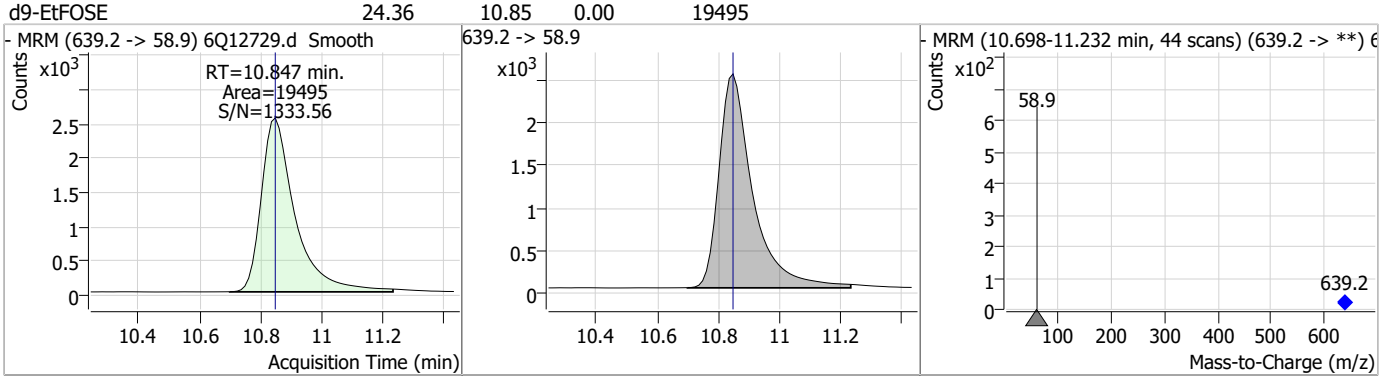


Perfluorinated Compounds by LC/MS/MS

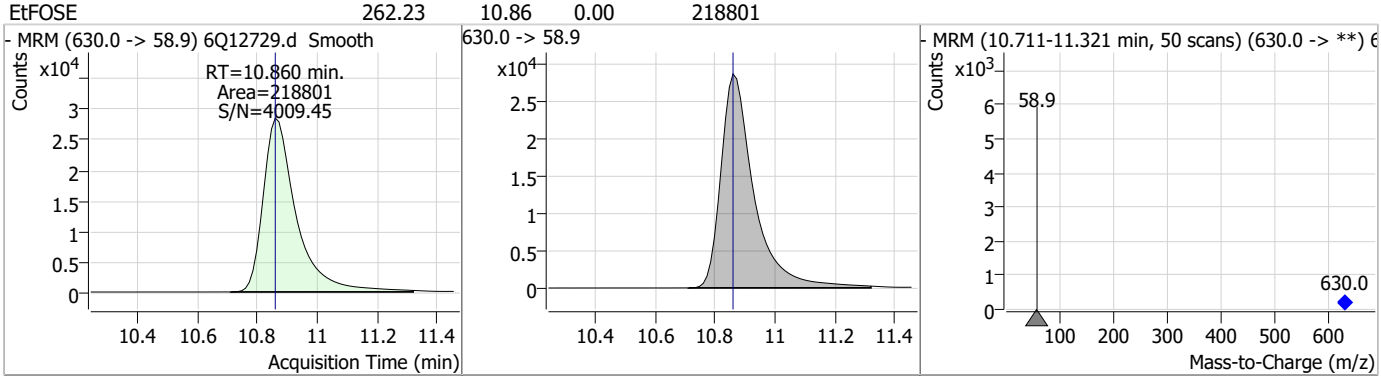
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	25.06	10.68	0.00	80524	511.9 -> 169.0	103.9	50.6	151.8



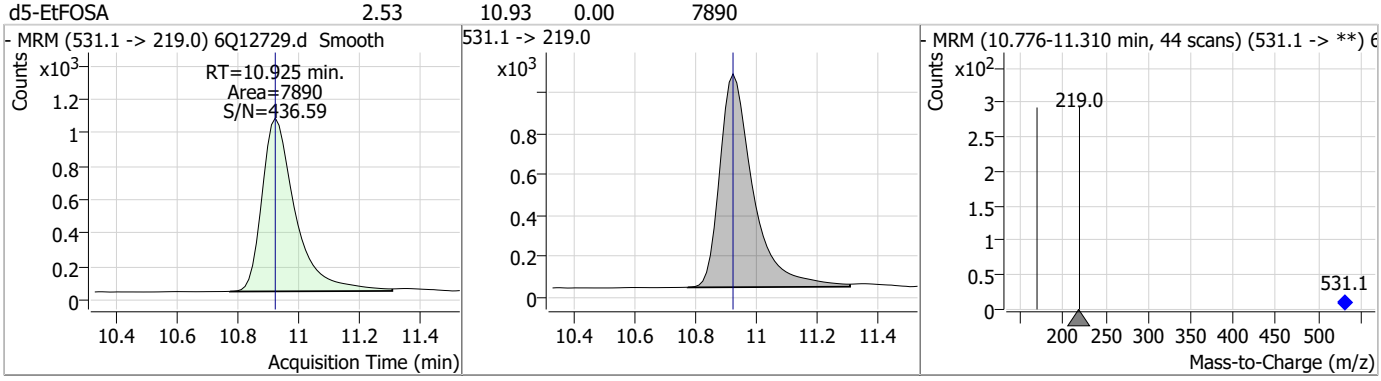
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.36	10.85	0.00	19495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	262.23	10.86	0.00	218801				

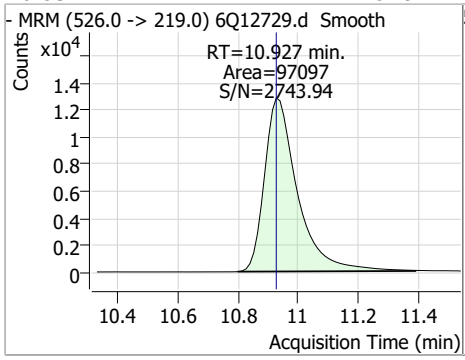


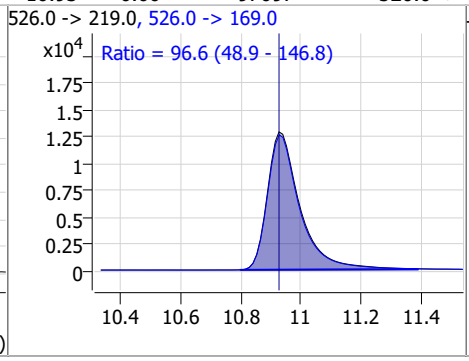
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.53	10.93	0.00	7890				

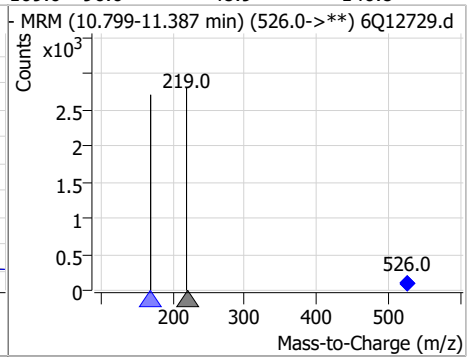


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	25.79	10.93	0.00	97097	526.0 -> 169.0	96.6	48.9	146.8







7.7.8

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12729.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 19:15	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12730.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 7:29:13 PM
Sample Name	:	ic196-8
Vial	:	P1-A9
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	65796	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	35855	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32433	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	33973	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58215	2.50	µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	26272	1.25	µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18077	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20265	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	25822	1.25	µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15224	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16196	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12393	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8575	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8262	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1635	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2257	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2579	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	25746	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	22746	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	26917	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17548	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7700	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7628	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10017	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	29600	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6361	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	71349	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26143	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	27794	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	32041	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	1635	3.95	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2257	4.11	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2579	4.68	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	25822	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15224	1.33	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C3-PFBS	5.518	302.1 -> 79.9	12393	2.39	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C3-PFHxS	7.274	402.1 -> 79.9	8575	2.56	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C4-PFBA	2.975	216.8 -> 171.9	65796	10.02 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C4-PFHpA	6.502	367.1 -> 322.0	33973	2.57 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C5-PFHxA	5.575	318.0 -> 273.0	32433	2.56 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	35855	5.02 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C6-PFDA	8.170	519.1 -> 474.1	18077	1.24 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C7-PFUnDA	8.636	570.0 -> 525.1	20265	1.17 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C8-FOSA	9.567	506.1 -> 77.8	16196	2.48 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-PFOA	7.146	421.1 -> 376.0	58215	2.44 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8262	2.51 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C9-PFNA	7.689	472.1 -> 427.0	26272	1.34 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	25746	4.69 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.03 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
d3-MeFOSA	10.680	515.0 -> 219.0	7628	2.71 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%		
d5-EtFOSAA	8.422	589.2 -> 419.0	22746	4.99 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
d7-MeFOSE	10.589	623.2 -> 58.9	26917	23.67 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	17548	22.39 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7700	2.52 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	832798	227.20 µg/L		100
		327.1 -> 80.9	183196			
6:2FTS	6.921	427.1 -> 407.0	754297	228.22 µg/L		96
		427.1 -> 80.9	127612			
8:2FTS	7.958	527.1 -> 507.0	421545	210.46 µg/L		98
		527.1 -> 80.8	97754			
EtFOSAA	8.424	584.2 -> 419.1	229619	63.03 µg/L	m	97
		584.2 -> 526.0	113897			
FOSA	9.570	498.1 -> 77.9	404801	62.63 µg/L		98
		498.1 -> 478.0	14930			
MeFOSAA	8.216	570.1 -> 419.0	315638	66.90 µg/L	m	95
		570.1 -> 483.0	53221			
PFBA	2.982	212.8 -> 168.9	392659	267.20 µg/L		100
PFBS	5.518	298.7 -> 79.9	283532	59.56 µg/L		98
		298.7 -> 98.8	127290			
PFDA	8.170	512.9 -> 469.0	1338537	65.07 µg/L		96
		512.9 -> 219.0	179133			
PFDoDA	9.079	613.1 -> 569.0	1143341	60.43 µg/L		98
		613.1 -> 319.0	131621			
PFDS	9.253	599.0 -> 79.9	168118	60.07 µg/L		100

Perfluorinated Compounds by LC/MS/MS

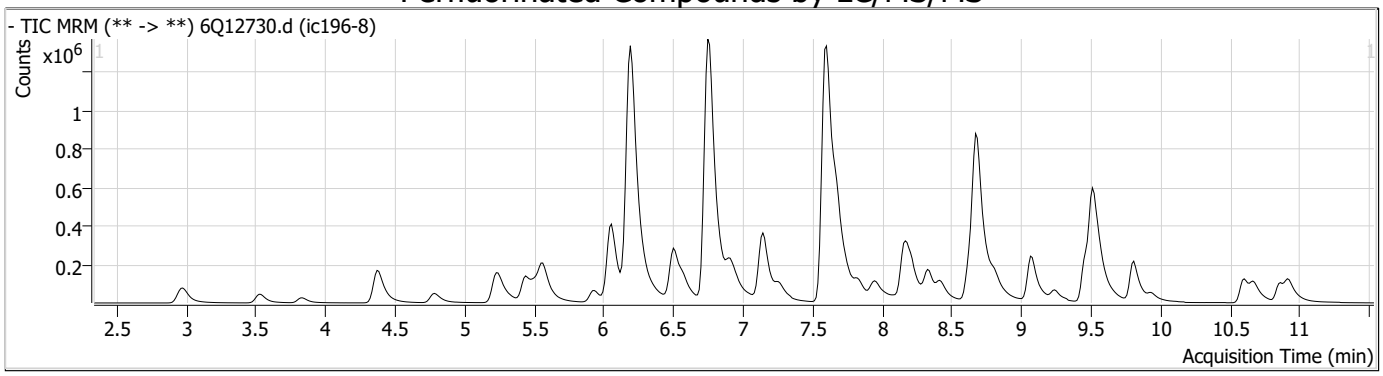
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	84809				
PFHpA	6.515	363.1 -> 319.0	1271519	63.19	µg/L		97
		363.1 -> 169.0	176413				
PFHpS	7.841	449.0 -> 79.9	213084	60.80	µg/L		96
		449.0 -> 98.9	123648				
PFHxA	5.566	313.0 -> 269.0	826785	64.98	µg/L		98
		313.0 -> 118.9	30538				
PFHxS	7.275	398.7 -> 79.9	219332	56.93	µg/L	m	92
		398.7 -> 98.9	125836				
PFNA	7.690	463.0 -> 419.0	1117587	63.06	µg/L		99
		463.0 -> 219.0	219745				
PFNS	8.824	548.8 -> 79.9	227034	61.82	µg/L		96
		548.8 -> 98.9	122330				
PFOA	7.148	413.0 -> 369.0	1634197	63.74	µg/L		100
		413.0 -> 169.0	223509				
PFOS	8.347	498.9 -> 79.9	218245	57.58	µg/L	m	74
		498.9 -> 98.8	137136				
PFPeA	4.388	263.0 -> 219.0	982715	129.80	µg/L		100
PFPeS	6.581	349.1 -> 79.9	264310	58.98	µg/L		97
		349.1 -> 98.9	141423				
PFTeDA	9.806	713.1 -> 669.0	949527	57.81	µg/L		99
		713.1 -> 168.9	59929				
PFTrDA	9.462	663.0 -> 619.0	1010146	55.82	µg/L		99
		663.0 -> 168.9	78347				
PFUnDA	8.637	563.1 -> 519.0	1010682	64.05	µg/L		98
		563.1 -> 269.1	146108				
11Cl-PF3OUdS	9.526	630.9 -> 450.9	2150650	228.15	µg/L		97
		632.9 -> 452.9	688124				
9Cl-PF3ONS	8.688	530.8 -> 351.0	3655612	229.41	µg/L		99
		532.8 -> 353.0	1157478				
ADONA	6.766	376.9 -> 250.9	6794261	238.41	µg/L		98
		376.9 -> 84.8	1452759				
HFPO-DA	5.940	284.9 -> 168.9	322984	262.87	µg/L		99
		284.9 -> 184.9	40921				
3:3FTCA	3.841	241.0 -> 177.0	129824	349.15	µg/L		97
		241.0 -> 117.0	17347				
5:3FTCA	6.206	341.0 -> 237.1	4278045	1608.30	µg/L		100
		341.0 -> 217.0	3749834				
7:3FTCA	7.605	441.0 -> 316.9	2791279	1605.47	µg/L		97
		441.0 -> 336.9	5752265				
EtFOSA	10.939	526.0 -> 219.0	235772	64.15	µg/L		99
		526.0 -> 169.0	232213				
EtFOSE	10.860	630.0 -> 58.9	549287	731.33	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	196977	59.69	µg/L		98
		511.9 -> 169.0	194643				
MeFOSE	10.602	616.1 -> 58.9	721504	671.93	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	96014	57.36	µg/L		92
		699.1 -> 98.8	62266				
NFDHA	5.457	295.0 -> 201.0	94335	125.43	µg/L		100
		295.0 -> 84.9	48440				
PFMBA	4.787	279.0 -> 85.1	286016	134.33	µg/L		100
PFMPA	3.541	229.0 -> 84.9	269264	133.35	µg/L		100
PFEESA	6.059	314.8 -> 134.9	2122021	115.87	µg/L		100
		314.8 -> 82.9	48044				

= Qualifier out of range, m = manually integrated, + = Area summed

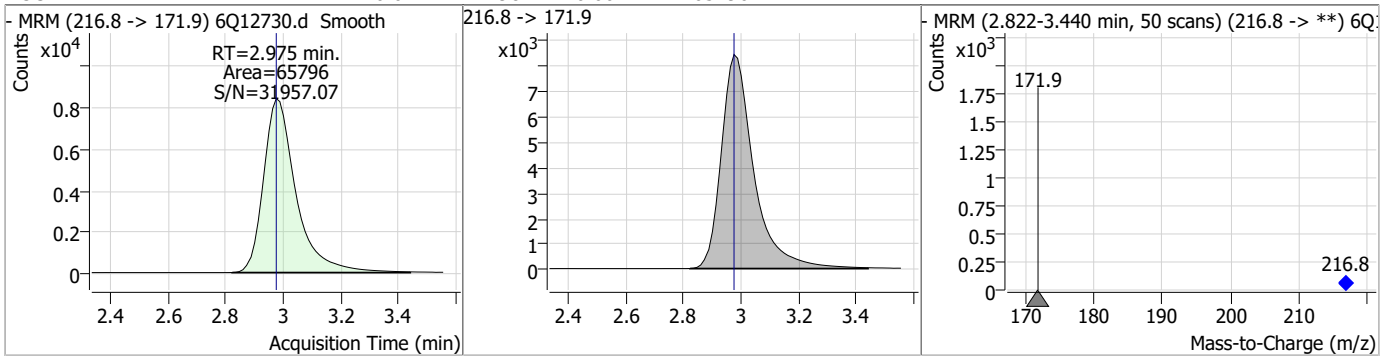
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

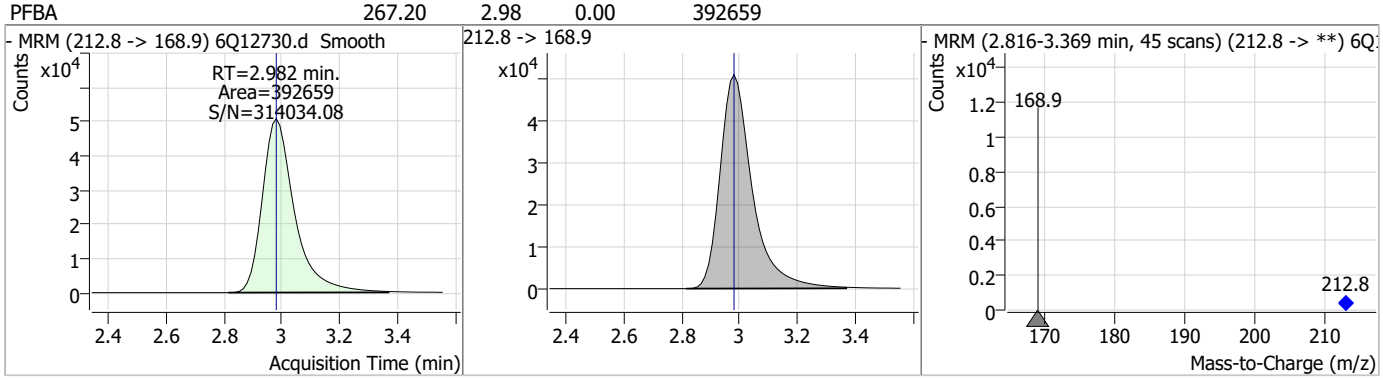
Perfluorinated Compounds by LC/MS/MS



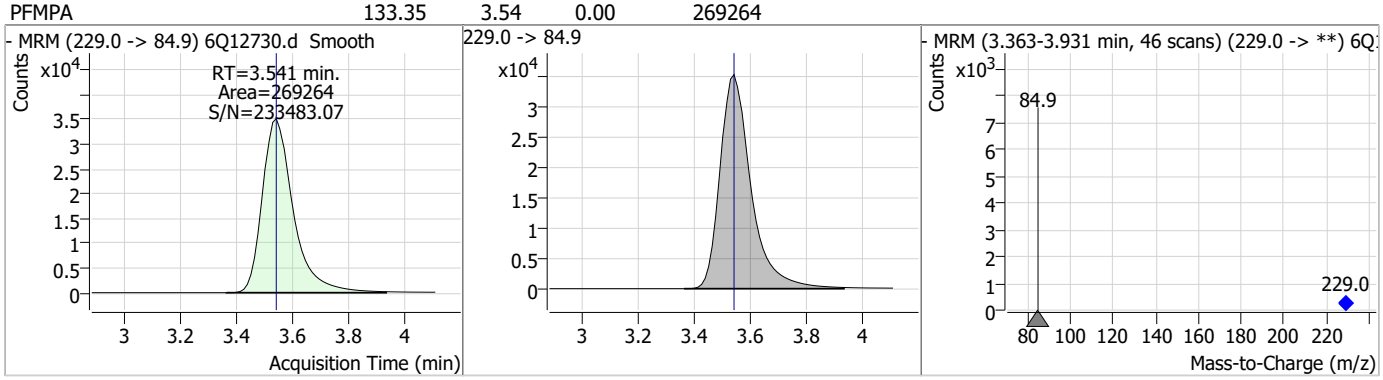
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.02	2.98	0.00	65796				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	267.20	2.98	0.00	392659				

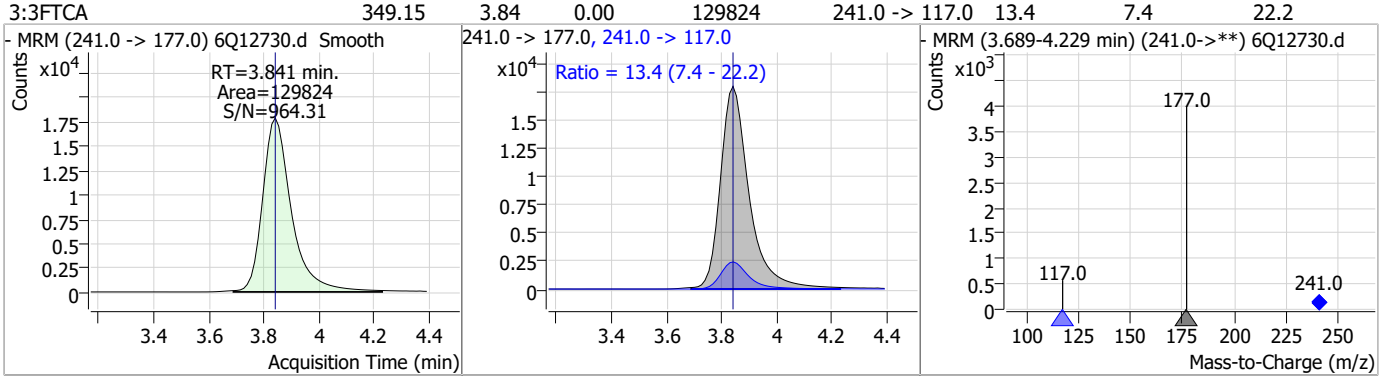


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	133.35	3.54	0.00	269264				

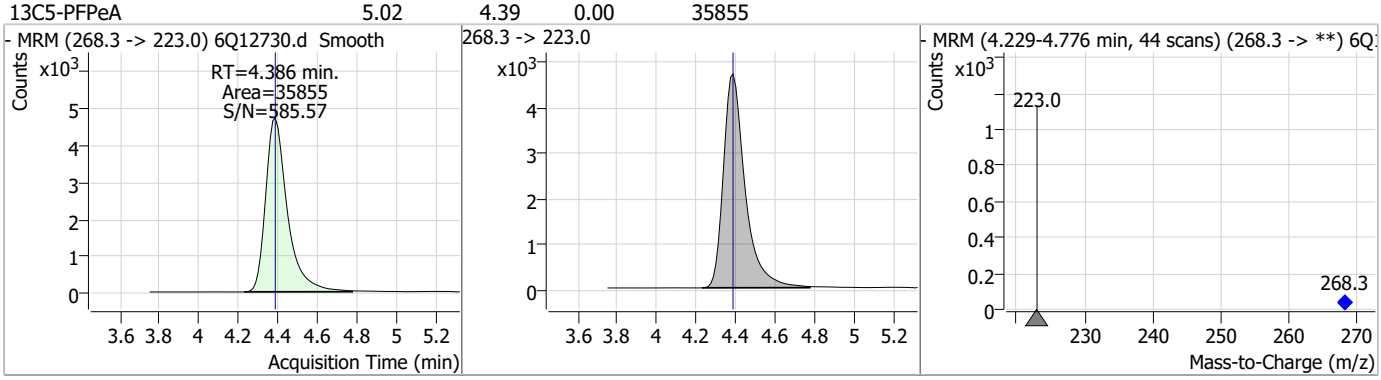


Perfluorinated Compounds by LC/MS/MS

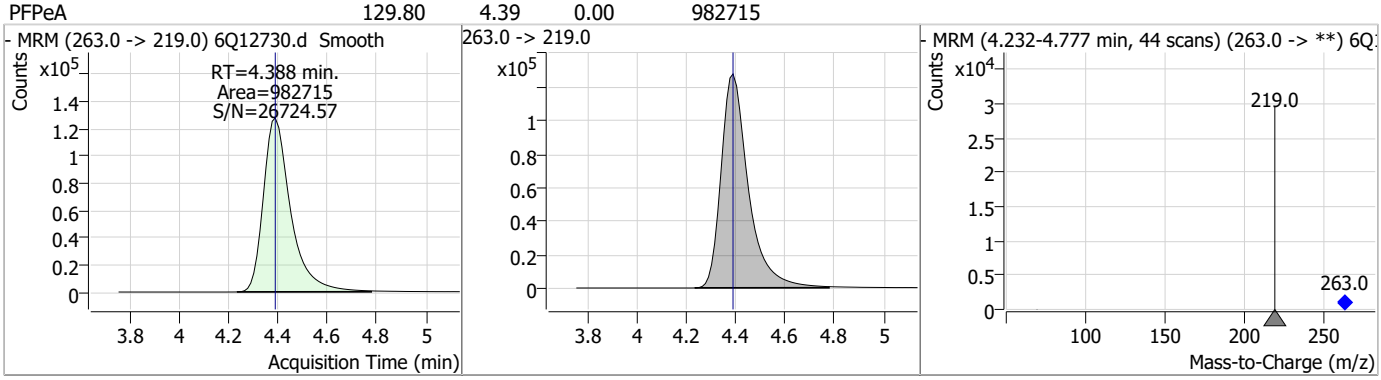
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	349.15	3.84	0.00	129824	241.0 -> 117.0	13.4	7.4	22.2



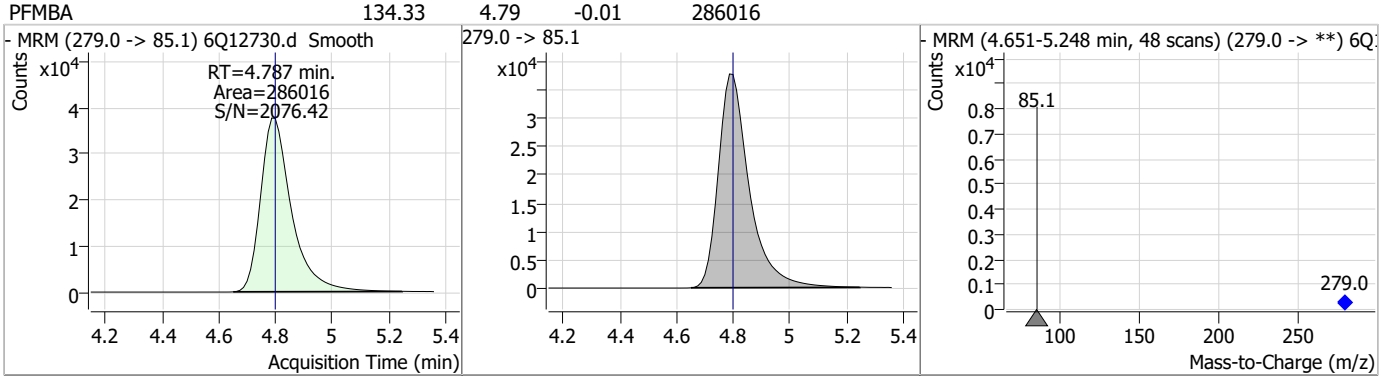
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.02	4.39	0.00	35855				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	129.80	4.39	0.00	982715				

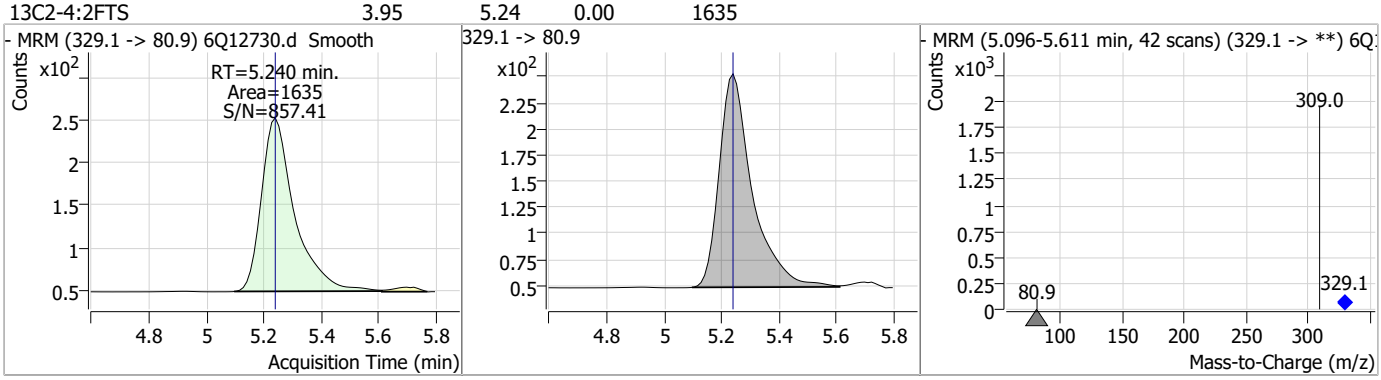


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	134.33	4.79	-0.01	286016				

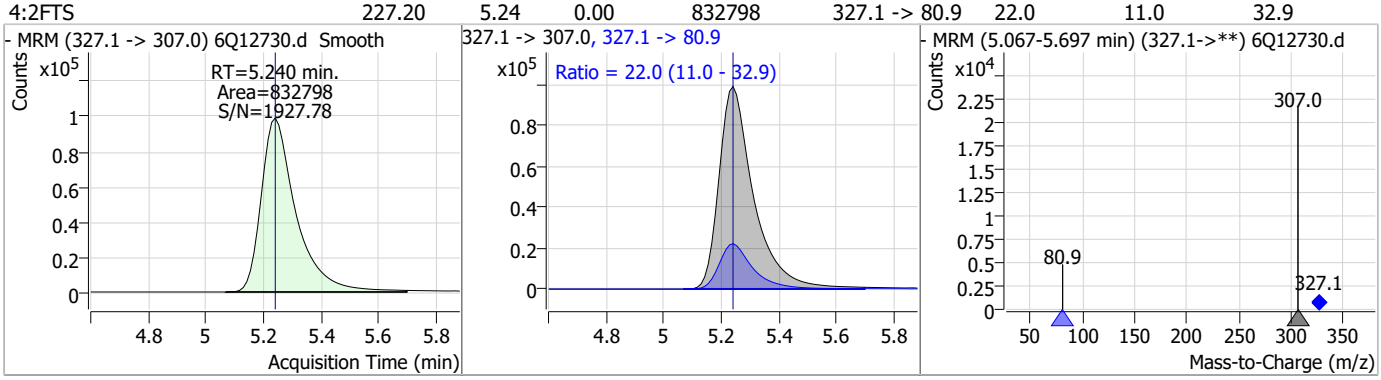


Perfluorinated Compounds by LC/MS/MS

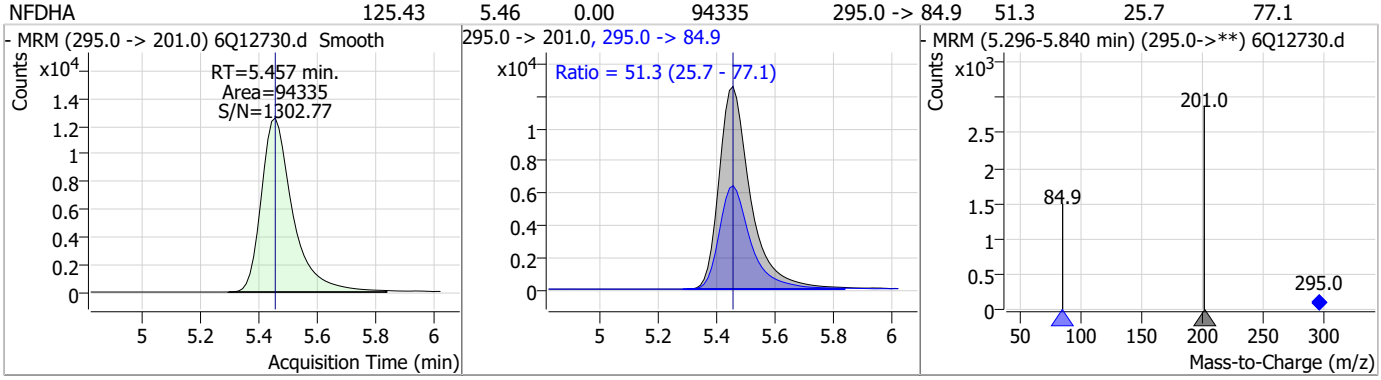
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	3.95	5.24	0.00	1635				



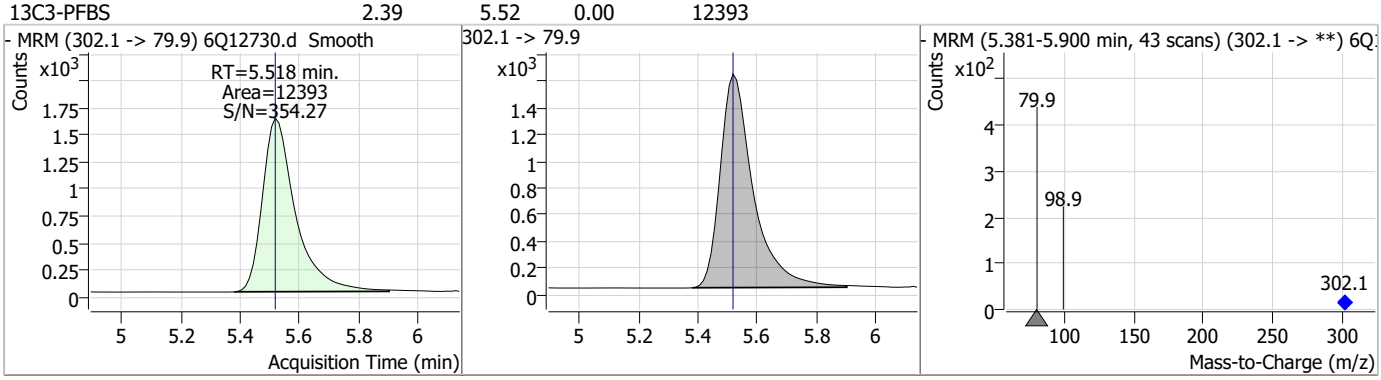
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	227.20	5.24	0.00	832798	327.1 -> 80.9	22.0	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	125.43	5.46	0.00	94335	295.0 -> 84.9	51.3	25.7	77.1

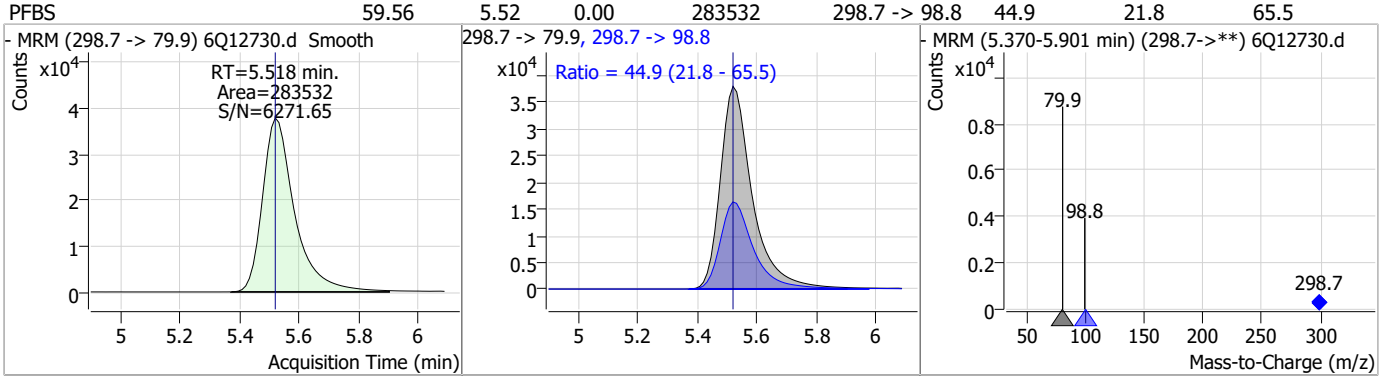


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.39	5.52	0.00	12393				

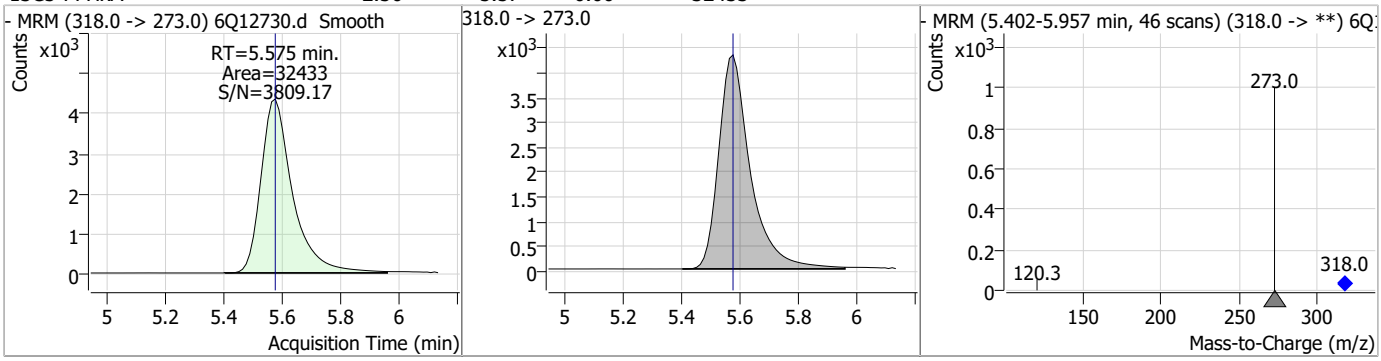


Perfluorinated Compounds by LC/MS/MS

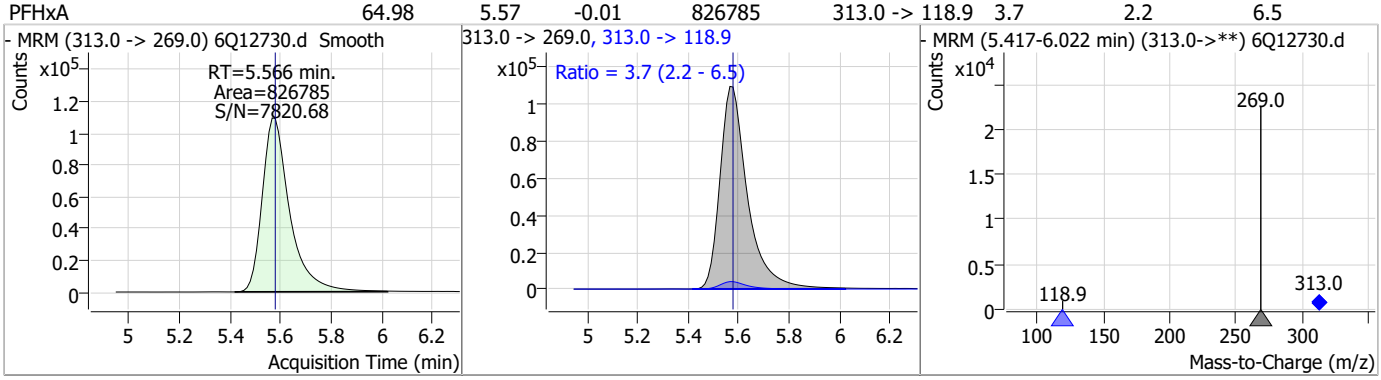
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	59.56	5.52	0.00	283532	298.7 -> 98.8	44.9	21.8	65.5



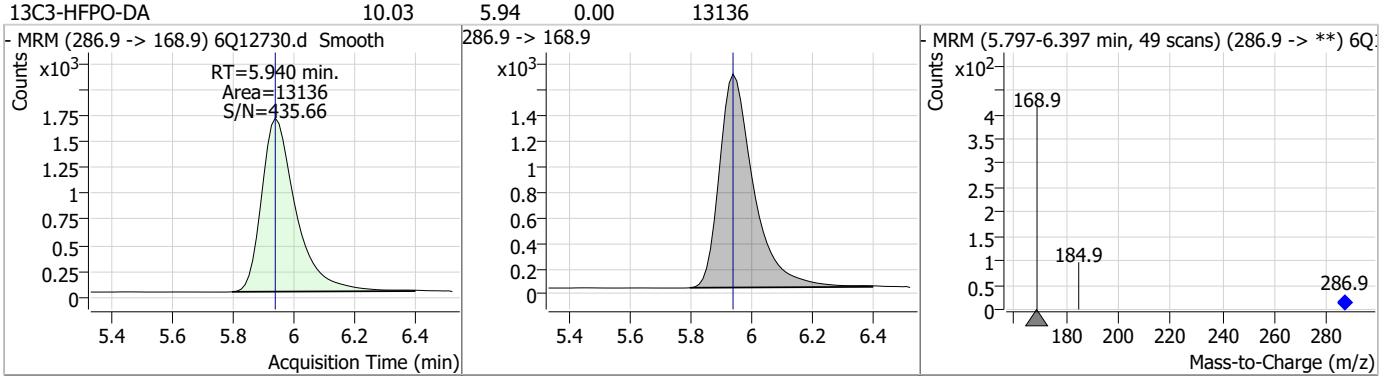
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.57	0.00	32433				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	64.98	5.57	-0.01	826785	313.0 -> 118.9	3.7	2.2	6.5

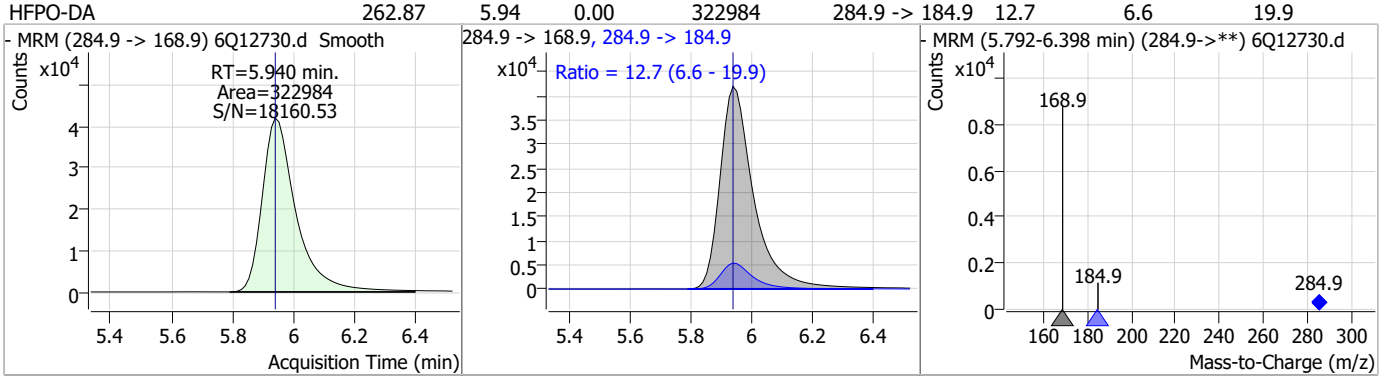


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.03	5.94	0.00	13136				

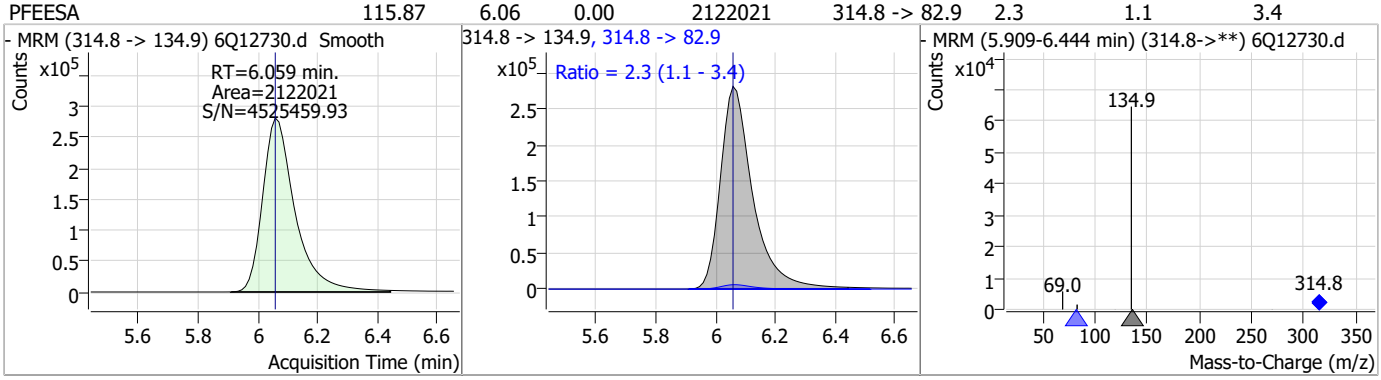


Perfluorinated Compounds by LC/MS/MS

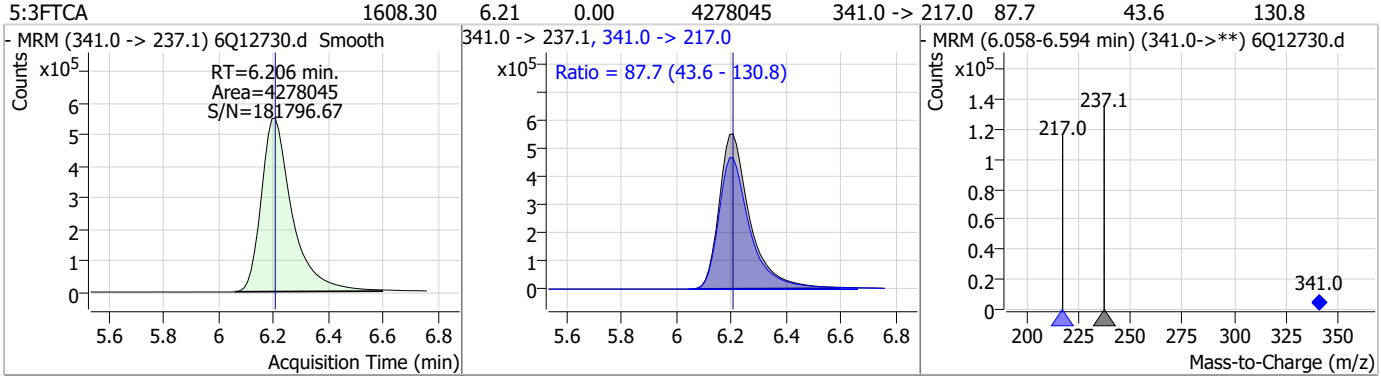
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	262.87	5.94	0.00	322984	284.9 -> 184.9	12.7	6.6	19.9



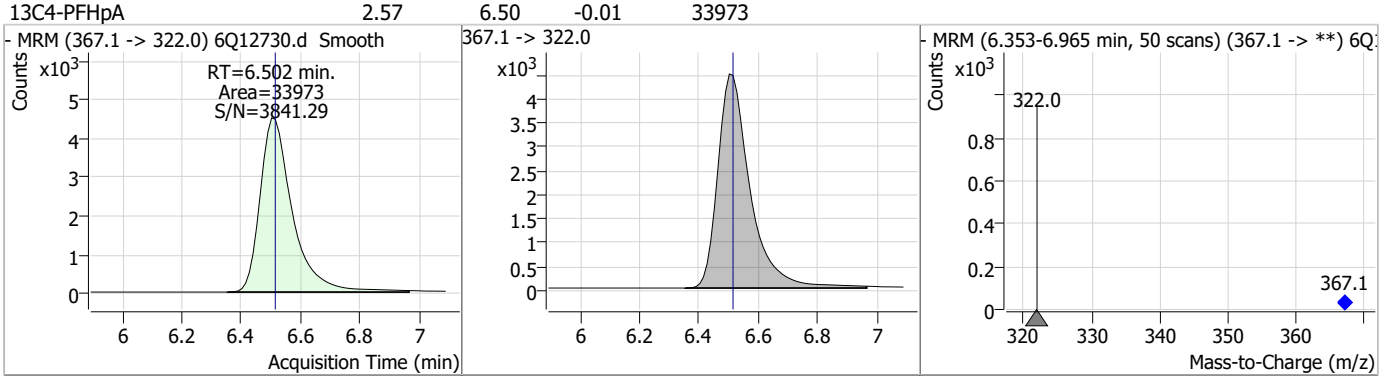
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	115.87	6.06	0.00	2122021	314.8 -> 82.9	2.3	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1608.30	6.21	0.00	4278045	341.0 -> 217.0	87.7	43.6	130.8

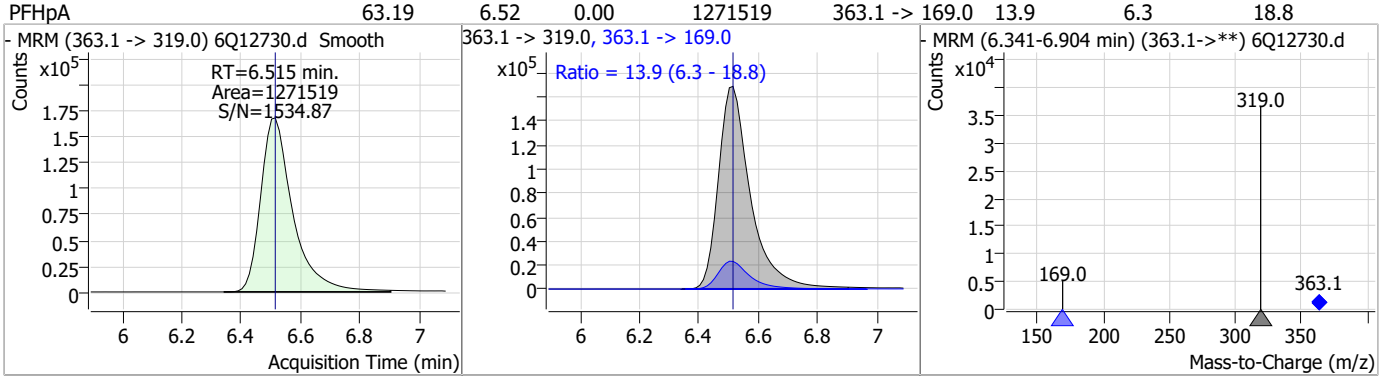


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.50	-0.01	33973				

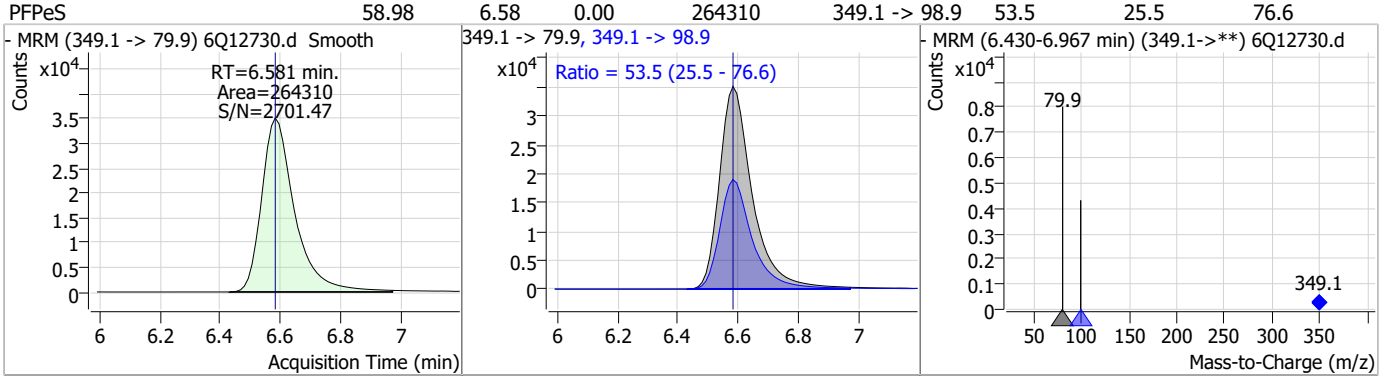


Perfluorinated Compounds by LC/MS/MS

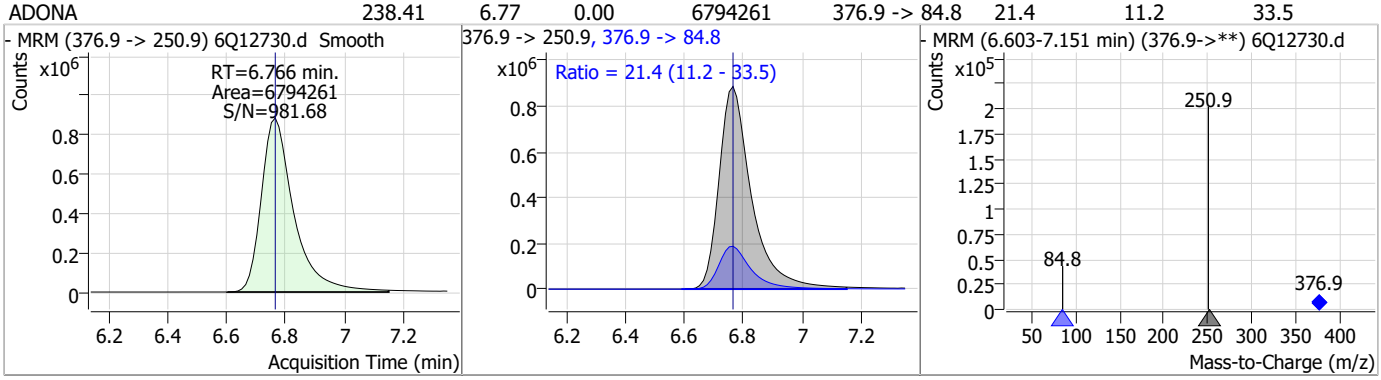
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	63.19	6.52	0.00	1271519	363.1 -> 169.0	13.9	6.3	18.8



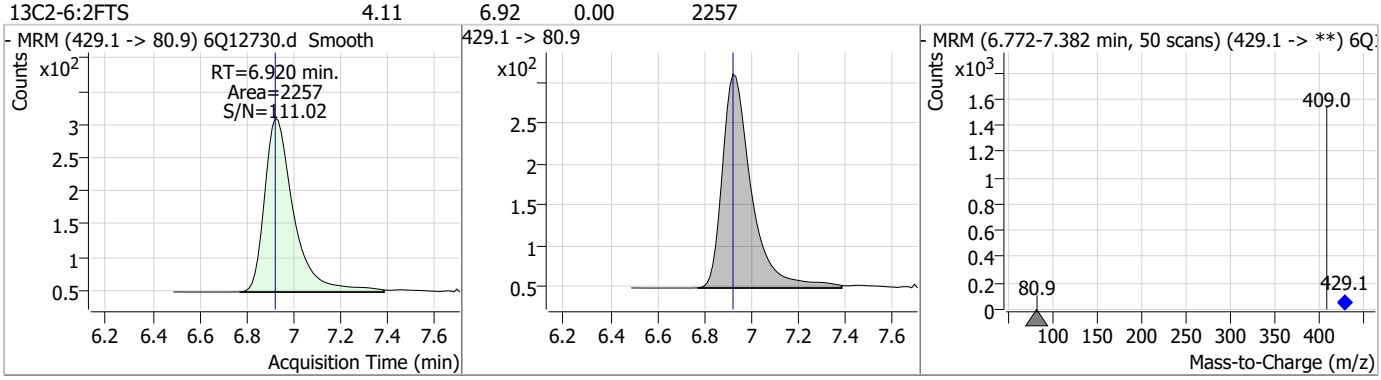
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	58.98	6.58	0.00	264310	349.1 -> 98.9	53.5	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	238.41	6.77	0.00	6794261	376.9 -> 84.8	21.4	11.2	33.5

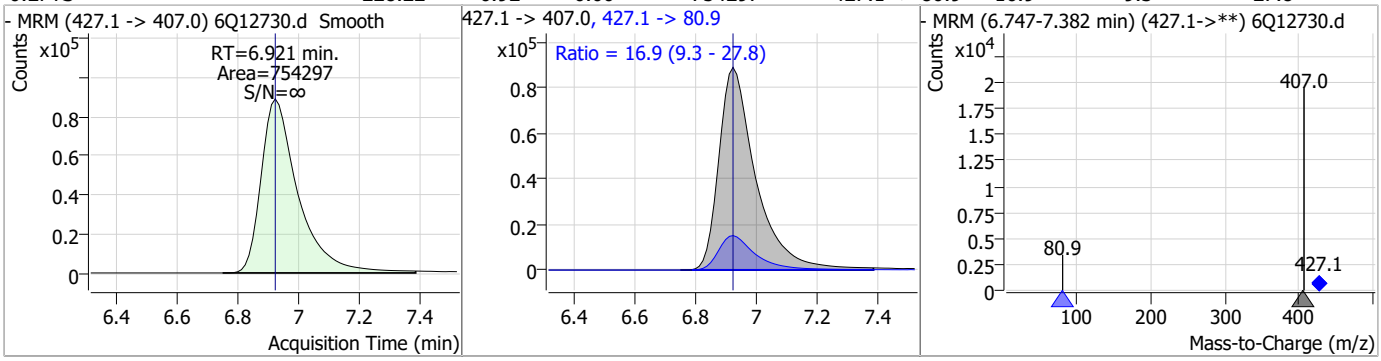


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.11	6.92	0.00	2257				

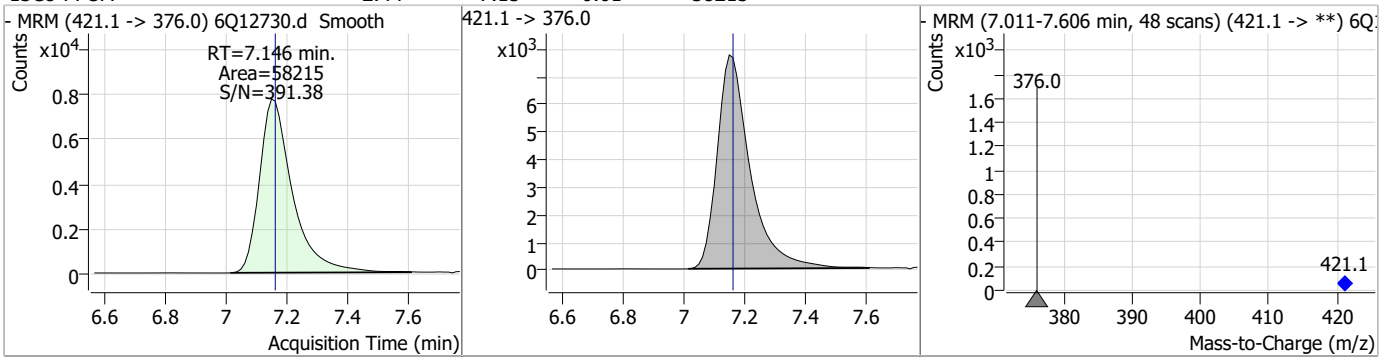


Perfluorinated Compounds by LC/MS/MS

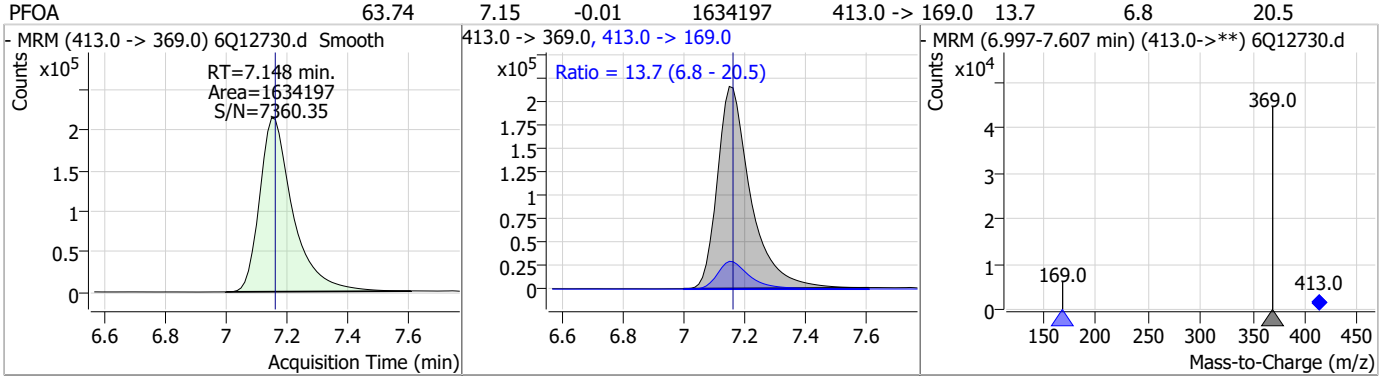
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	228.22	6.92	0.00	754297	427.1 -> 80.9	16.9	9.3	27.8



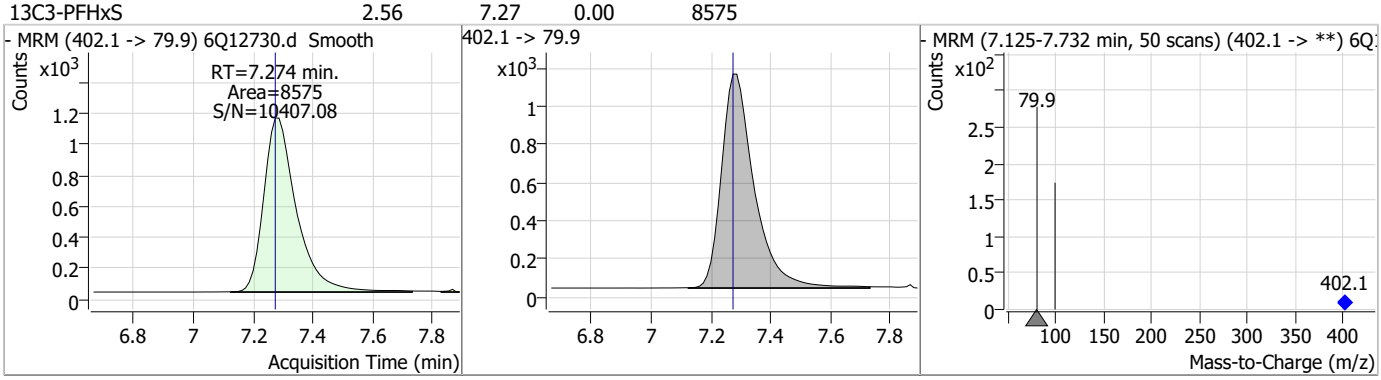
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.44	7.15	-0.01	58215				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	63.74	7.15	-0.01	1634197	413.0 -> 169.0	13.7	6.8	20.5

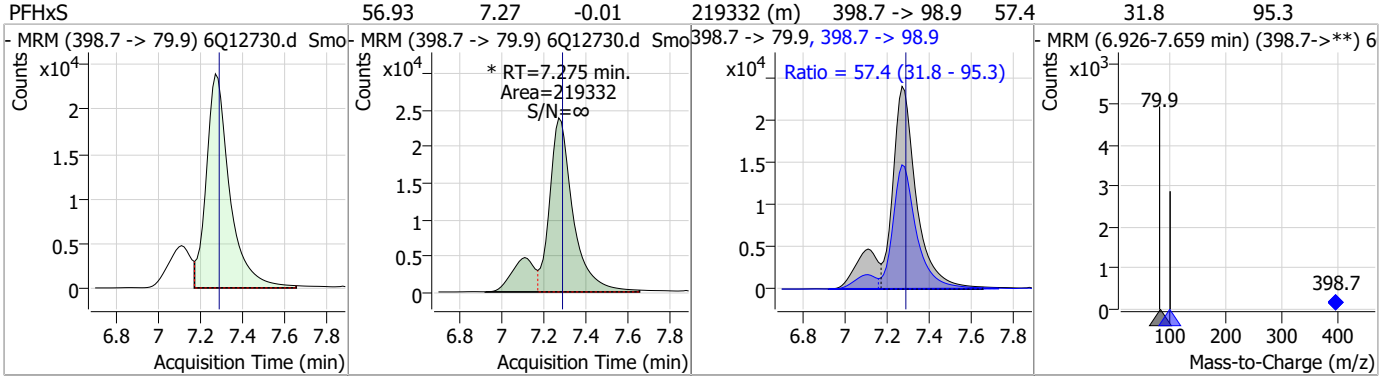


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.56	7.27	0.00	8575				

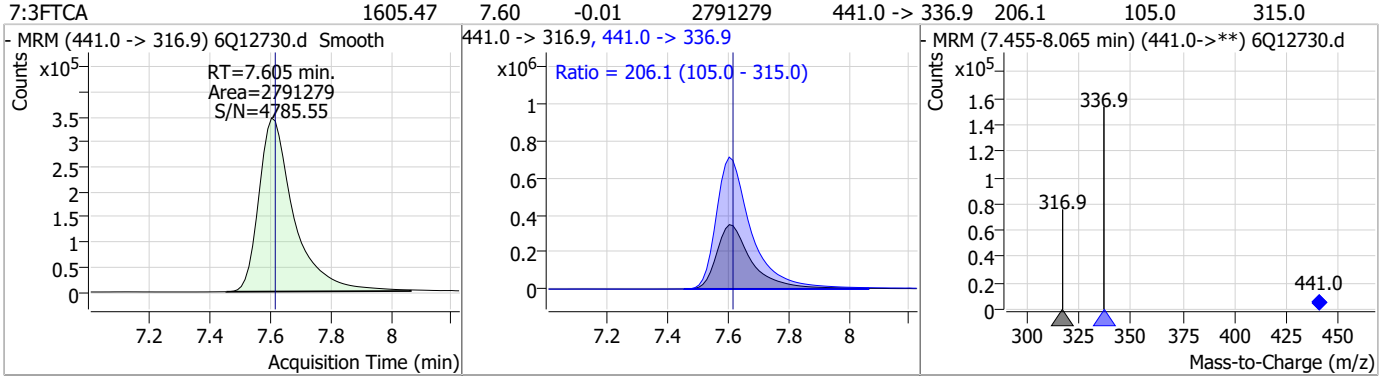


Perfluorinated Compounds by LC/MS/SS

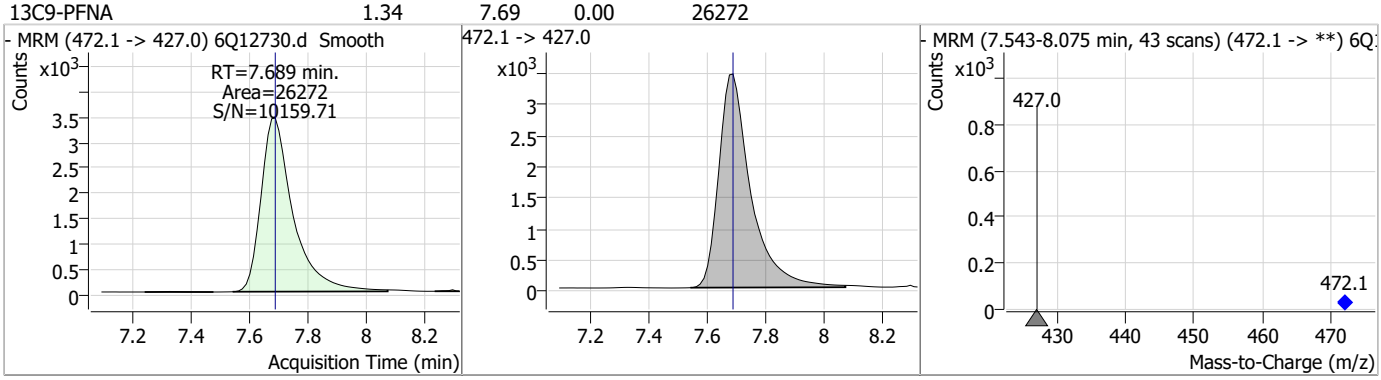
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	56.93	7.27	-0.01	219332 (m)	398.7 -> 98.9	57.4	31.8	95.3



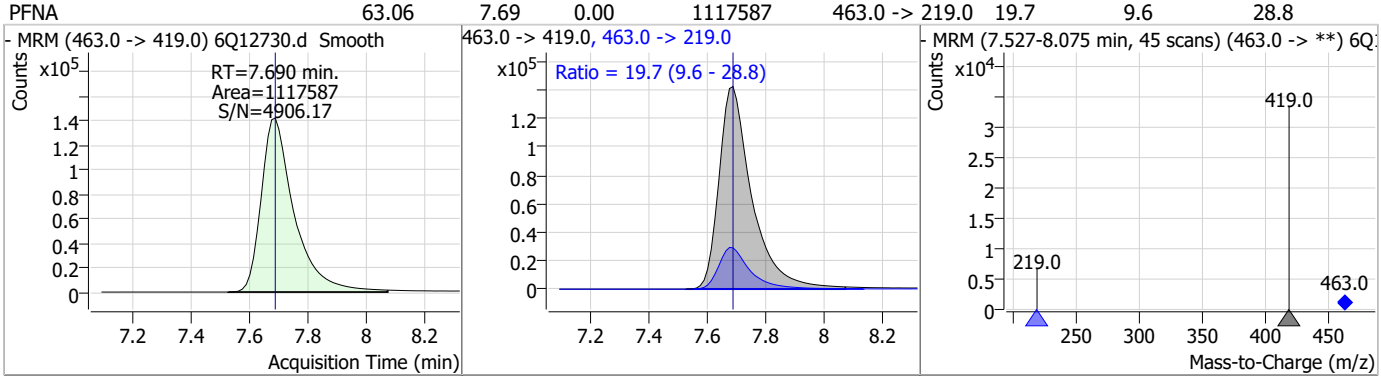
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1605.47	7.60	-0.01	2791279	441.0 -> 336.9	206.1	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.34	7.69	0.00	26272				

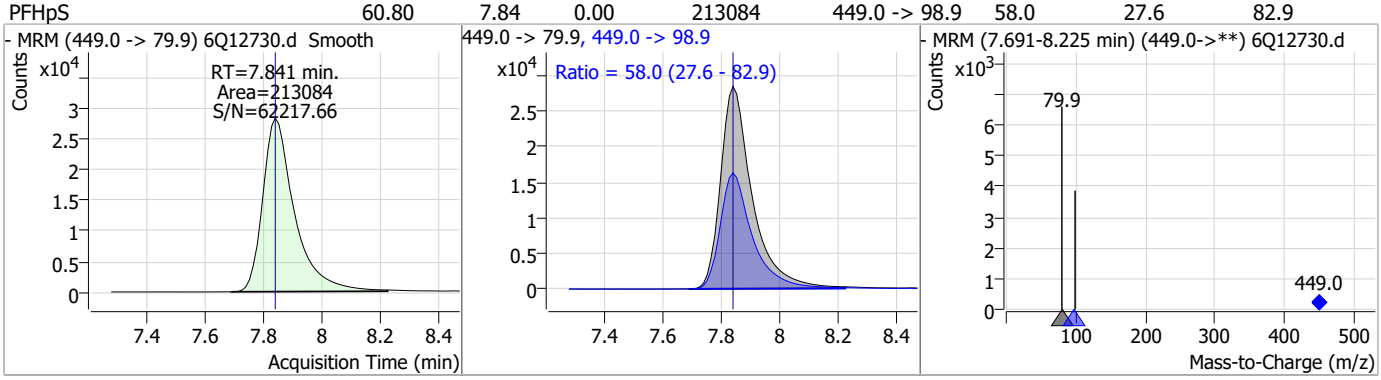


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	63.06	7.69	0.00	1117587	463.0 -> 219.0	19.7	9.6	28.8

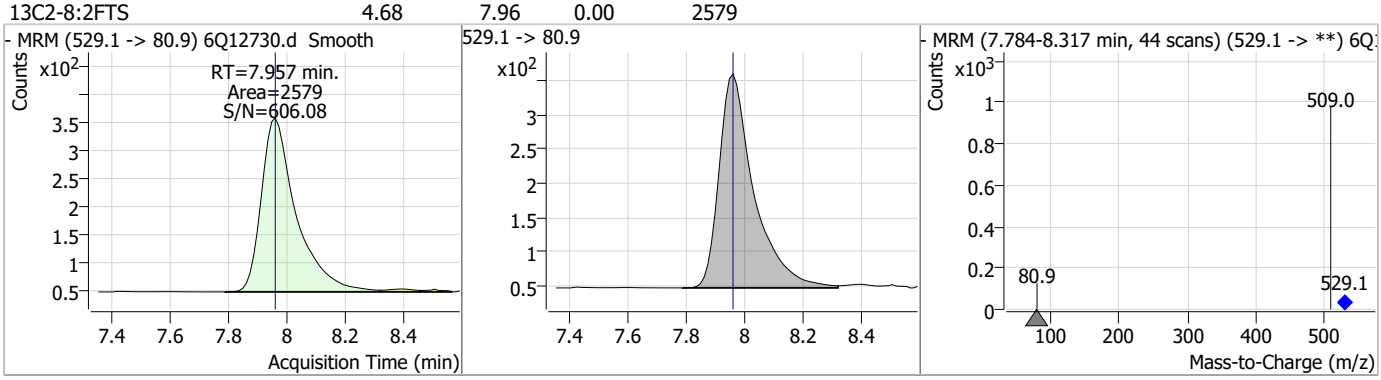


Perfluorinated Compounds by LC/MS/MS

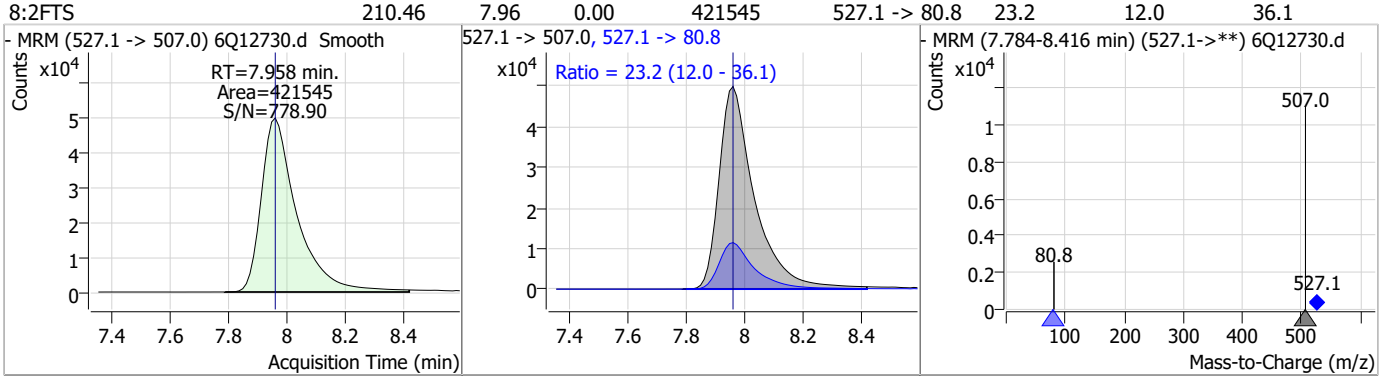
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	60.80	7.84	0.00	213084	449.0 -> 98.9	58.0	27.6	82.9



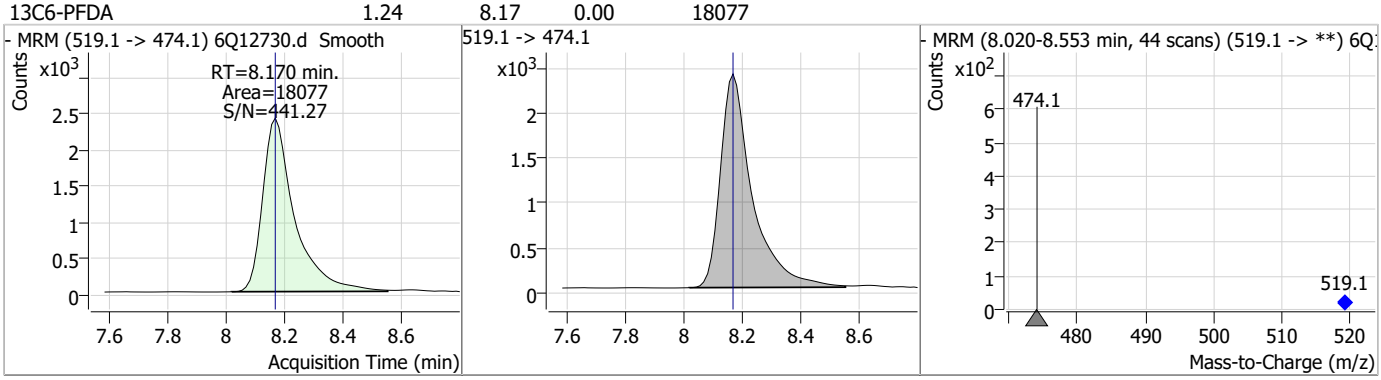
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.68	7.96	0.00	2579				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	210.46	7.96	0.00	421545	527.1 -> 80.8	23.2	12.0	36.1

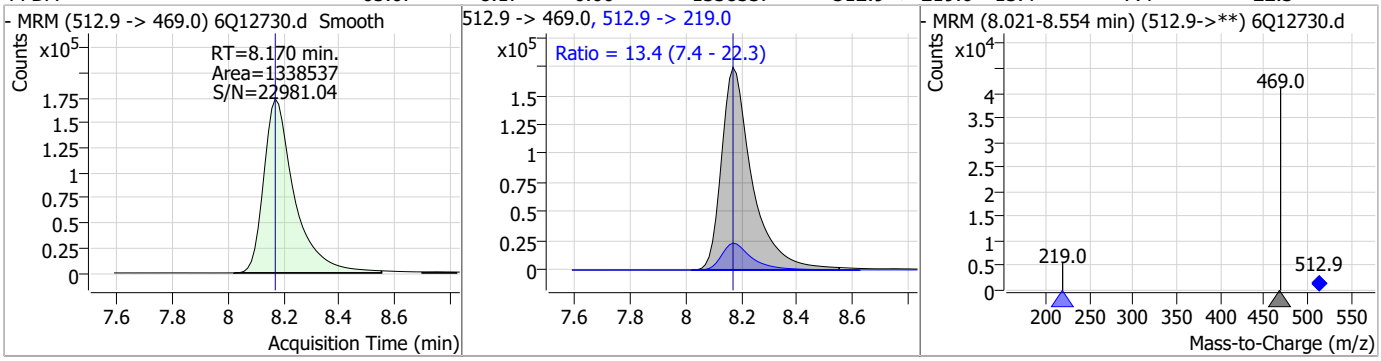


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.24	8.17	0.00	18077				

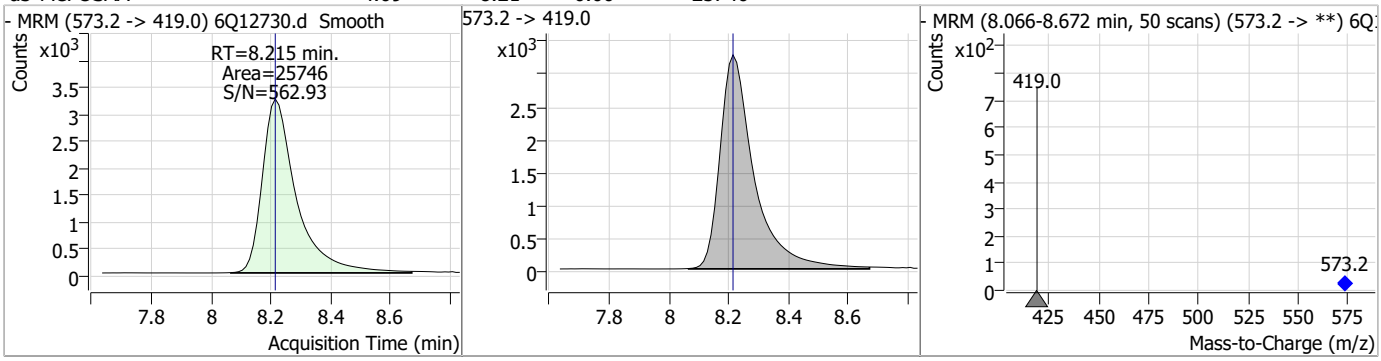


Perfluorinated Compounds by LC/MS/MS

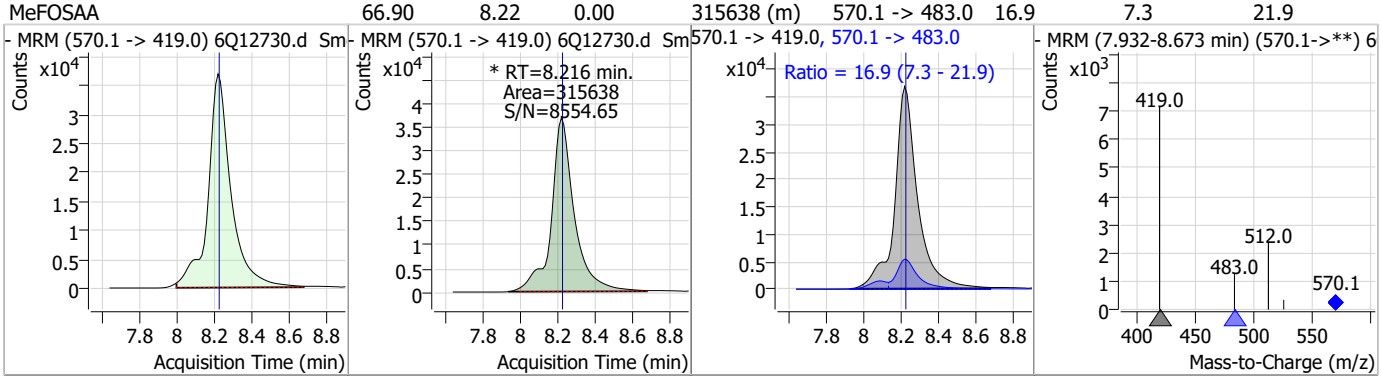
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	65.07	8.17	0.00	1338537	512.9 -> 219.0	13.4	7.4	22.3



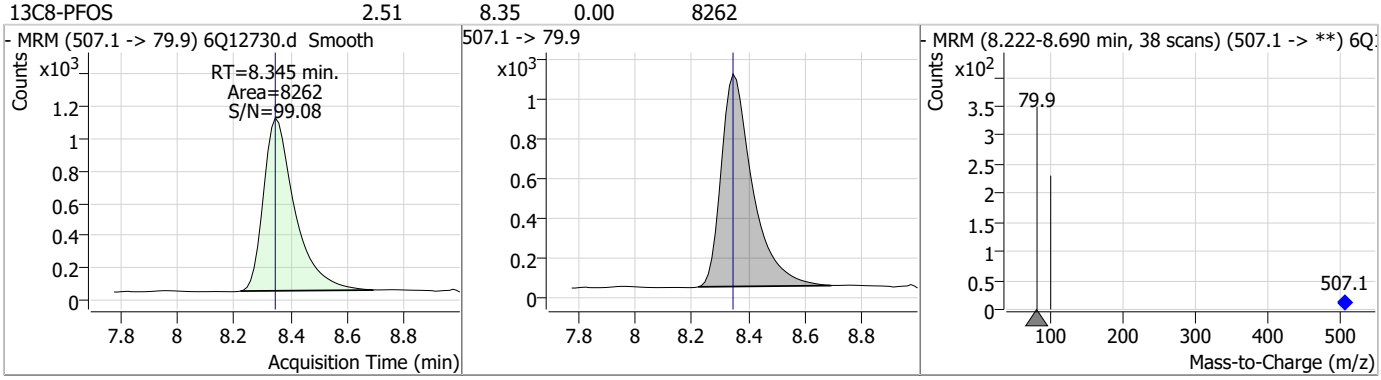
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.69	8.21	0.00	25746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	66.90	8.22	0.00	315638 (m)	570.1 -> 483.0	16.9	7.3	21.9

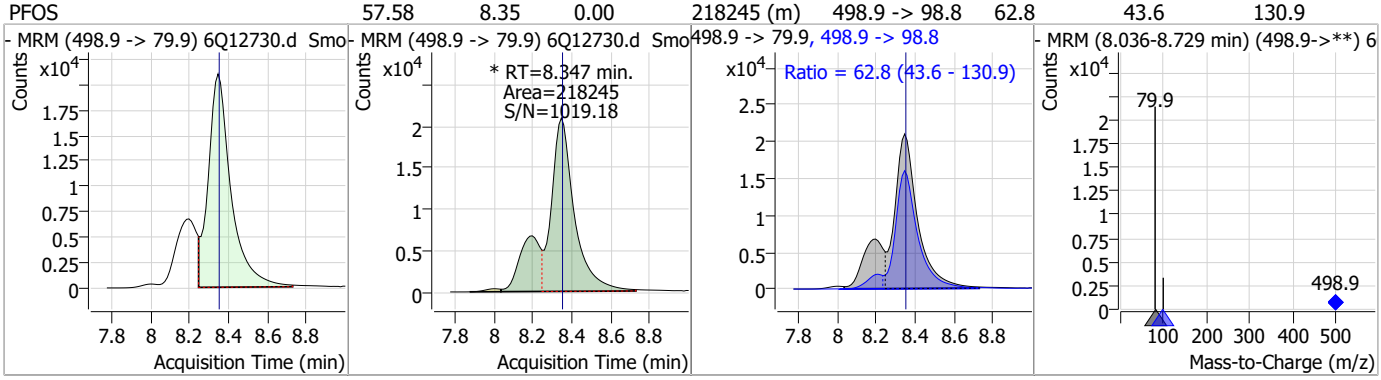


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.35	0.00	8262				

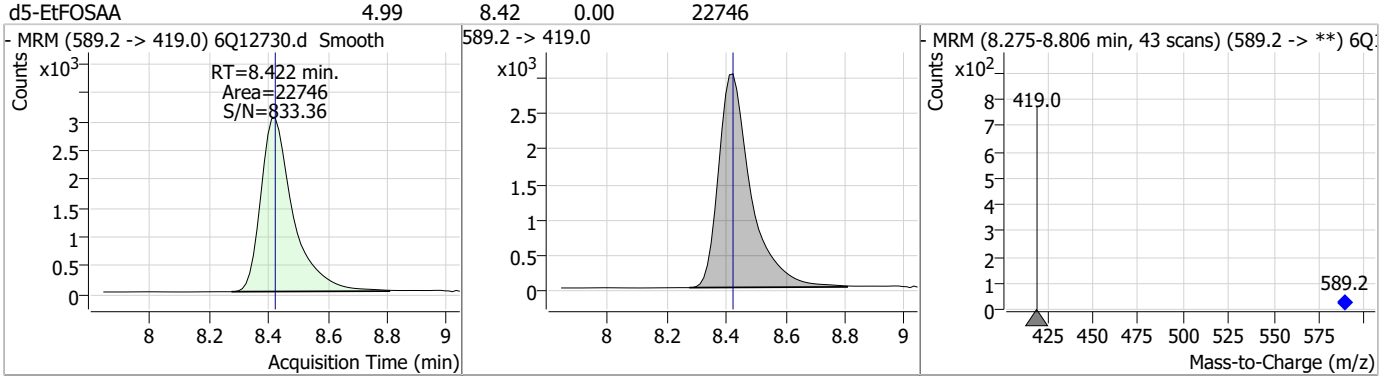


Perfluorinated Compounds by LC/MS/MS

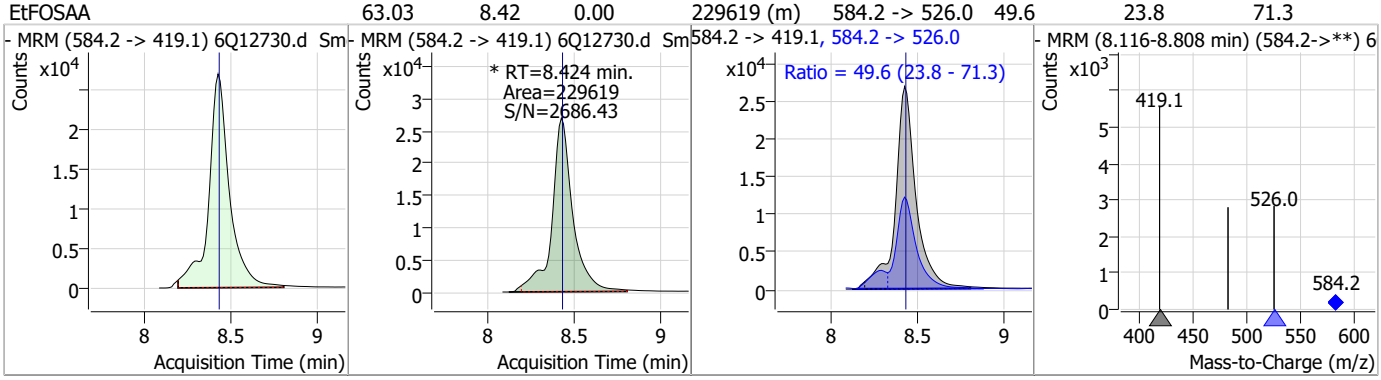
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	57.58	8.35	0.00	218245 (m)	498.9 -> 98.8	62.8	43.6	130.9



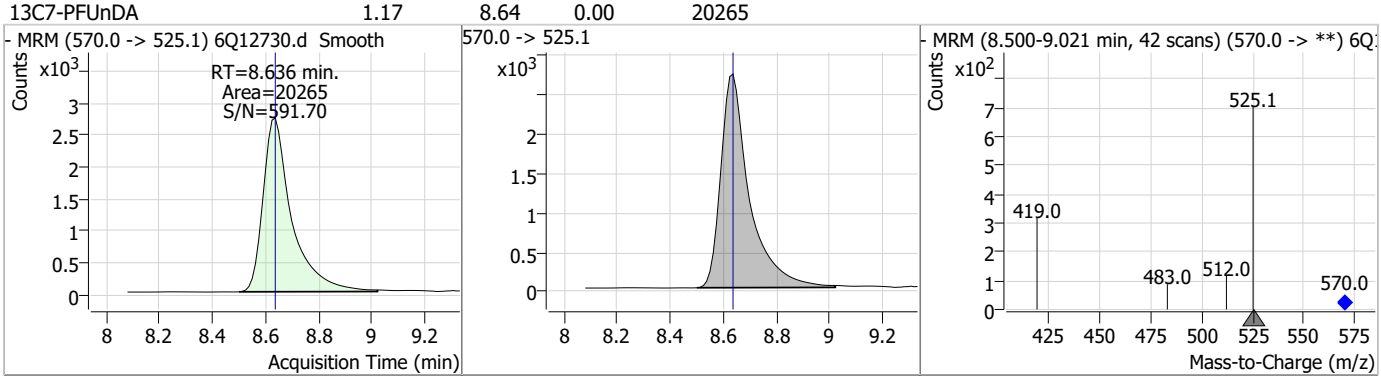
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.99	8.42	0.00	22746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	63.03	8.42	0.00	229619 (m)	584.2 -> 526.0	49.6	23.8	71.3

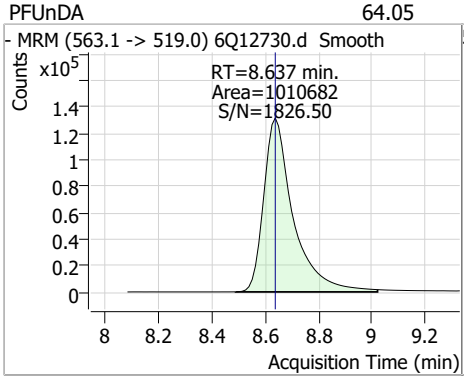


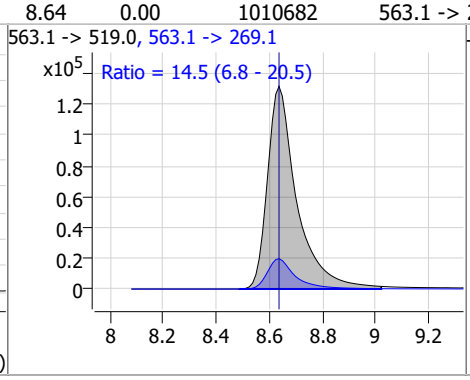
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.64	0.00	20265				

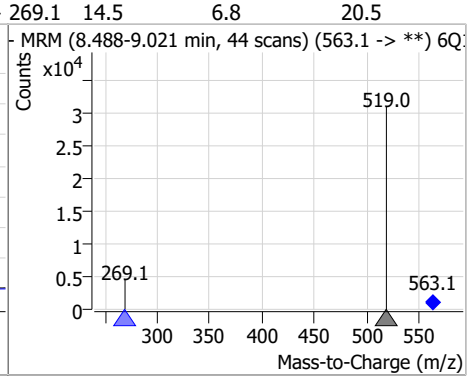


Perfluorinated Compounds by LC/MS/MS

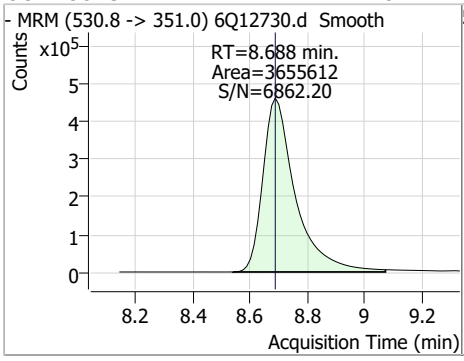
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	64.05	8.64	0.00	1010682	563.1 -> 269.1	14.5	6.8	20.5

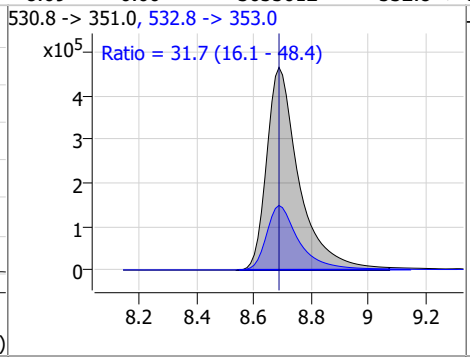


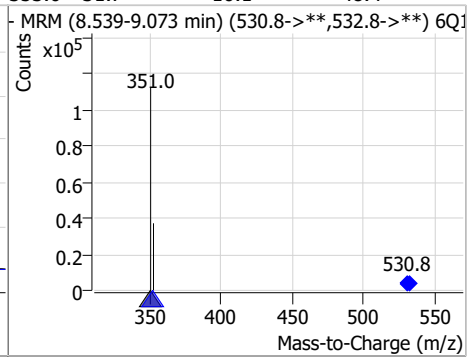




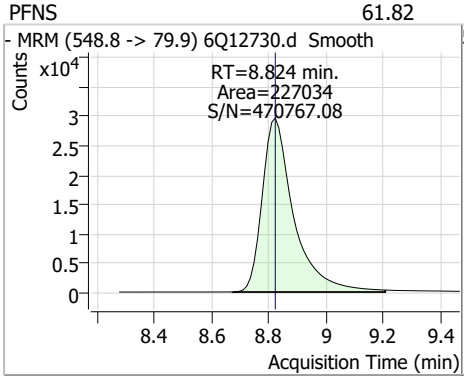
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	229.41	8.69	0.00	3655612	532.8 -> 353.0	31.7	16.1	48.4

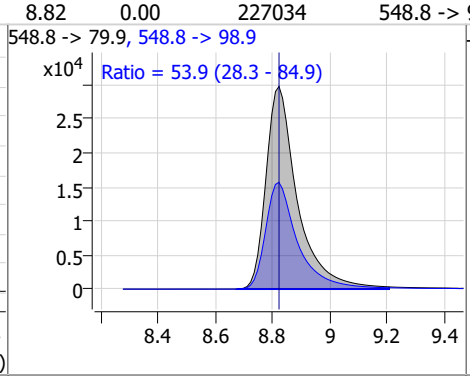


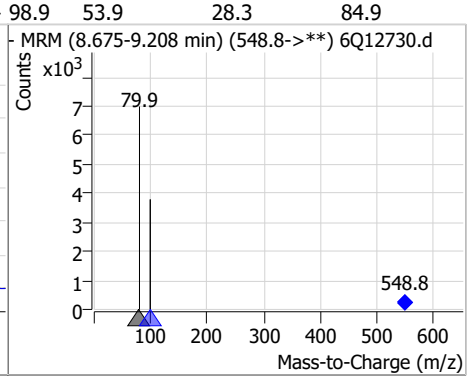




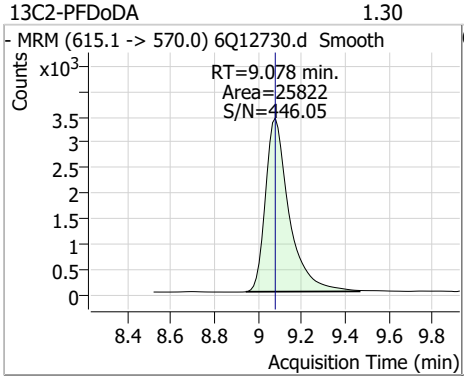
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	61.82	8.82	0.00	227034	548.8 -> 98.9	53.9	28.3	84.9

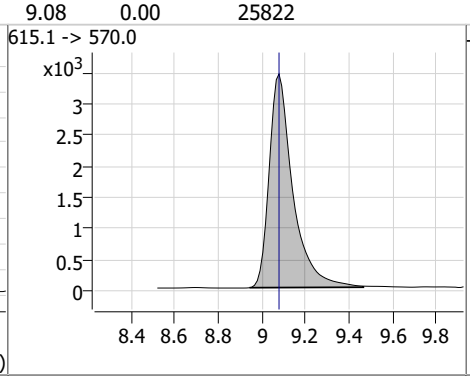


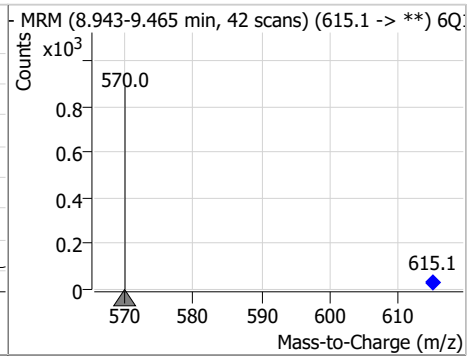




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	9.08	0.00	25822				

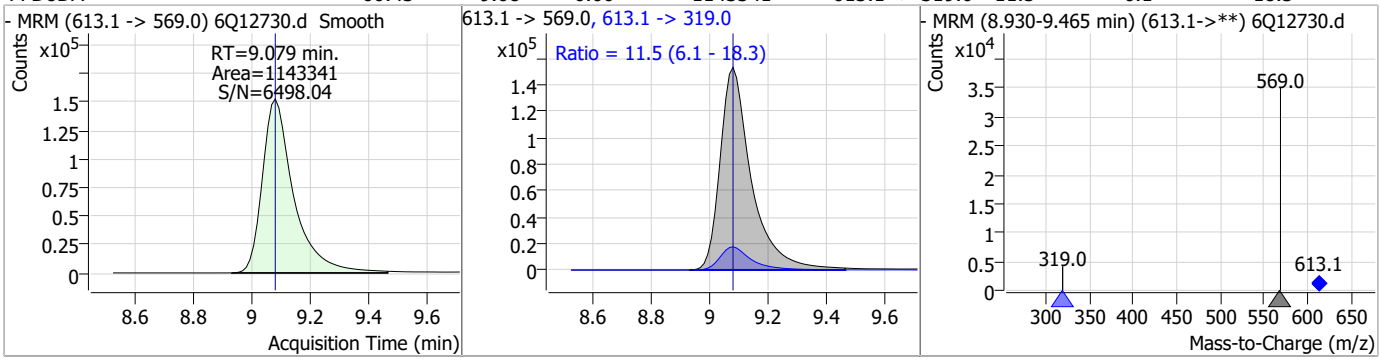




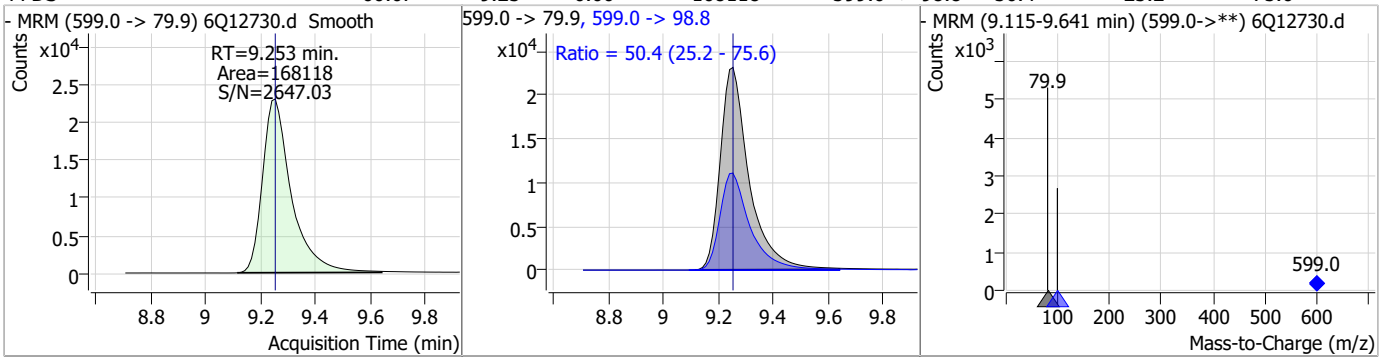


Perfluorinated Compounds by LC/MS/MS

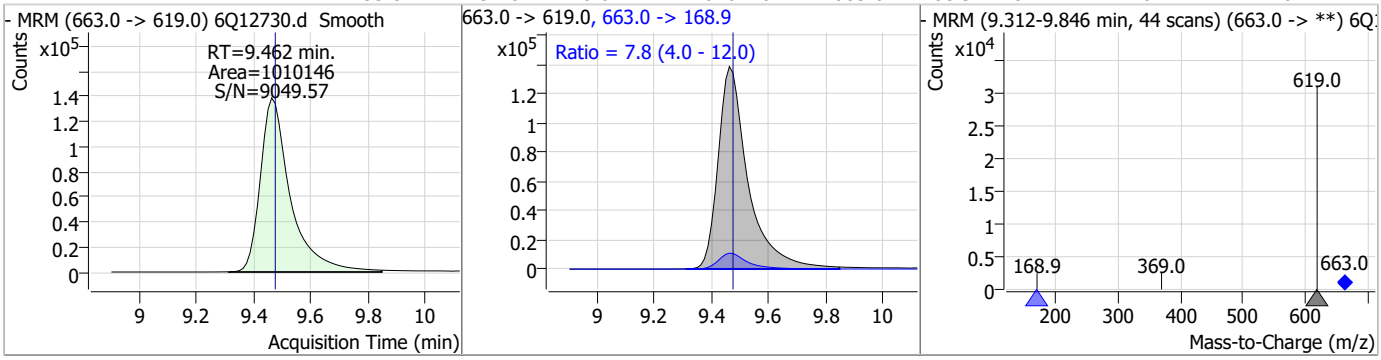
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	60.43	9.08	0.00	1143341	613.1 -> 319.0	11.5	6.1	18.3



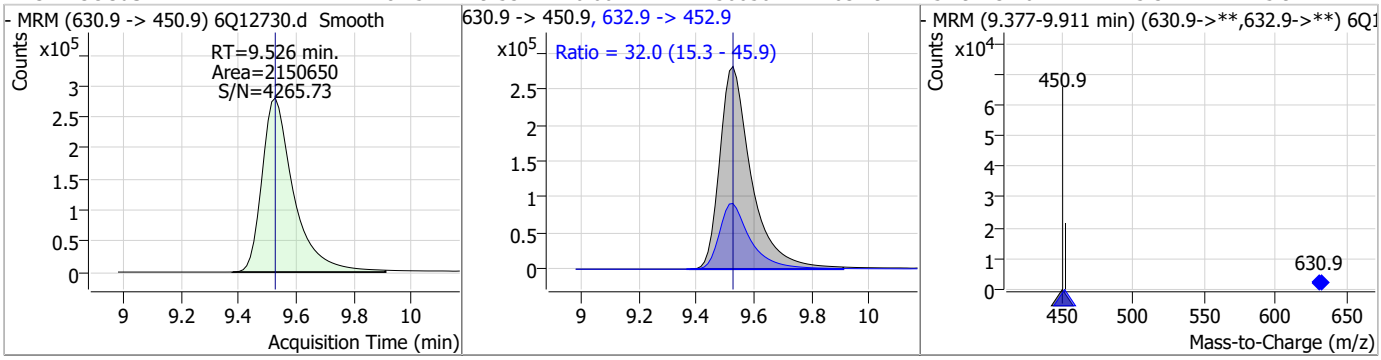
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	60.07	9.25	0.00	168118	599.0 -> 98.8	50.4	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	55.82	9.46	-0.01	1010146	663.0 -> 168.9	7.8	4.0	12.0

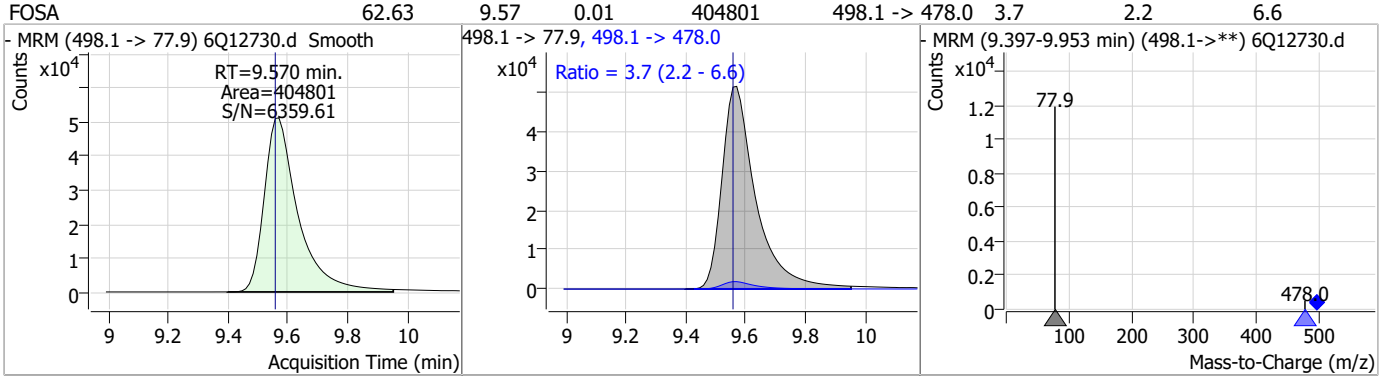


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	228.15	9.53	0.00	2150650	632.9 -> 452.9	32.0	15.3	45.9

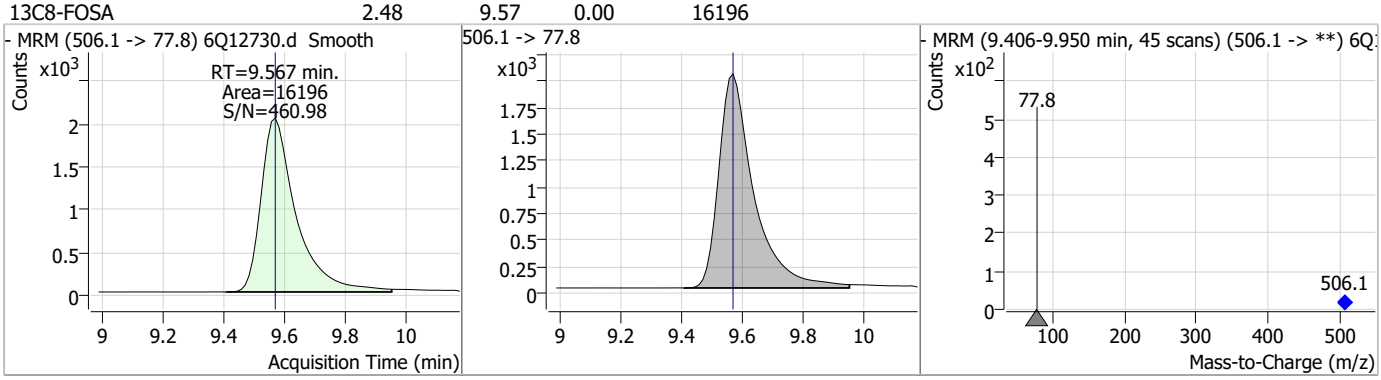


Perfluorinated Compounds by LC/MS/MS

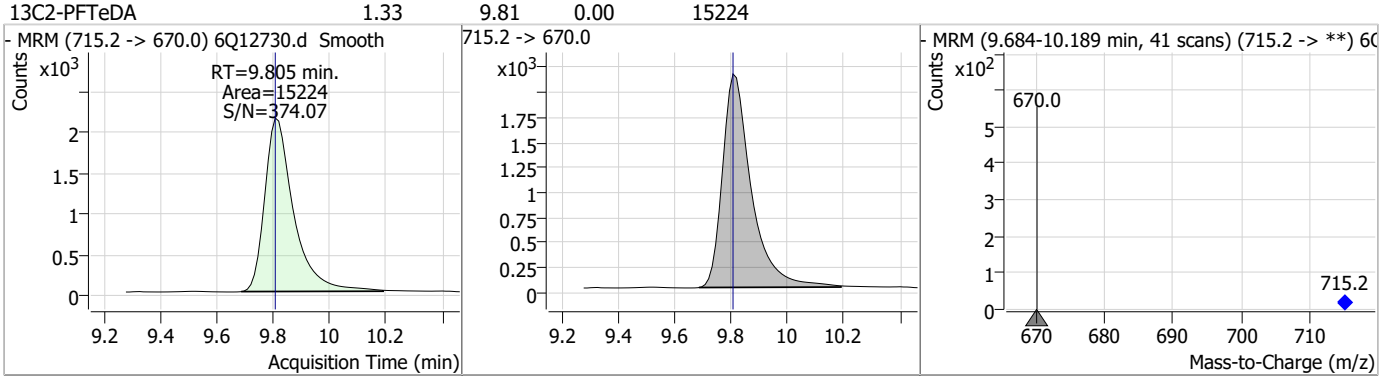
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	62.63	9.57	0.01	404801	498.1 -> 478.0	3.7	2.2	6.6



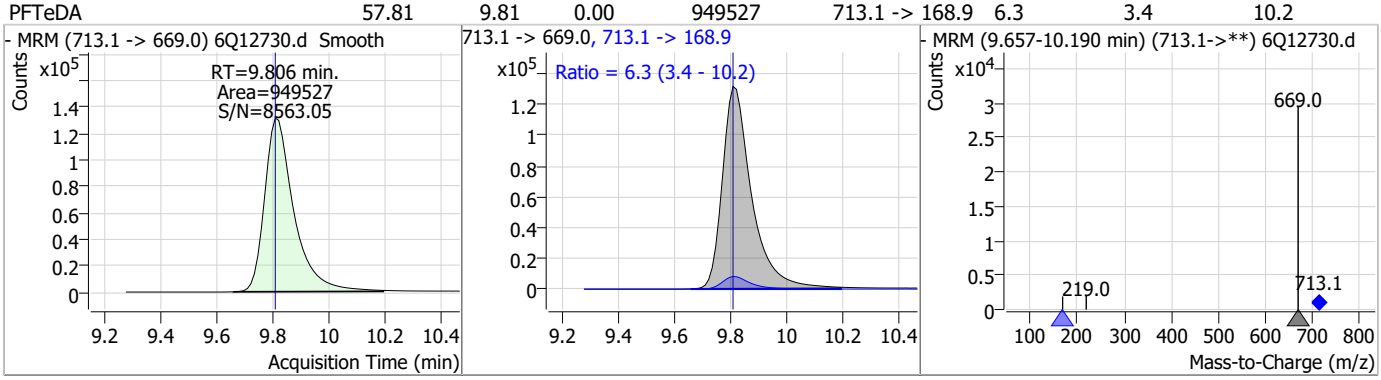
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.57	0.00	16196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	9.81	0.00	15224				

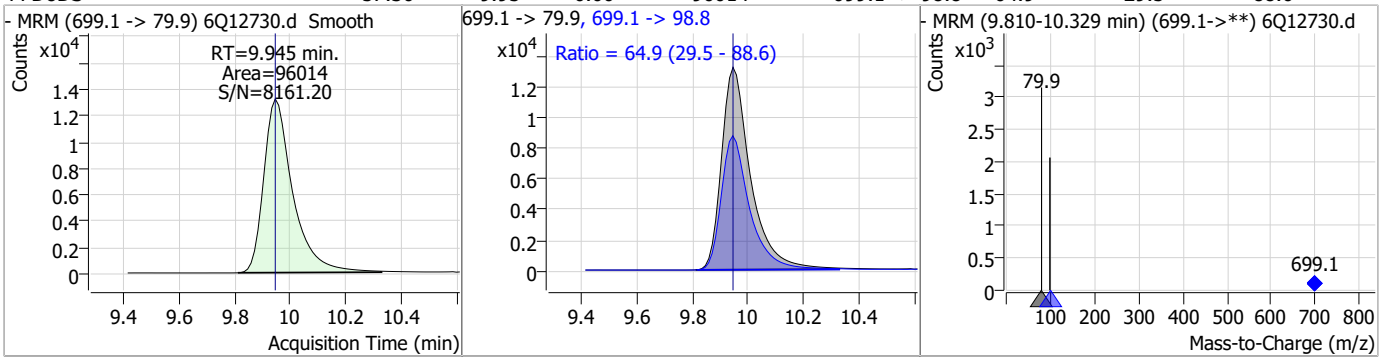


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	57.81	9.81	0.00	949527	713.1 -> 168.9	6.3	3.4	10.2

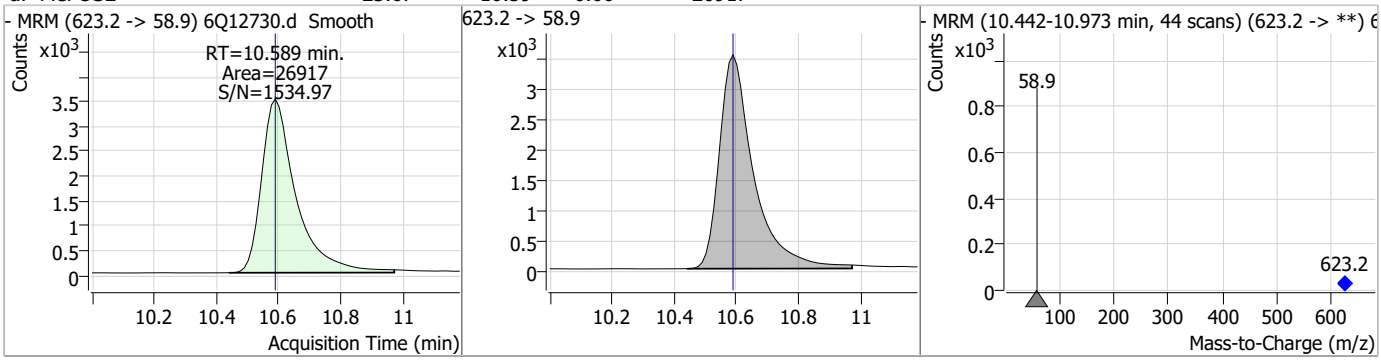


Perfluorinated Compounds by LC/MS/MS

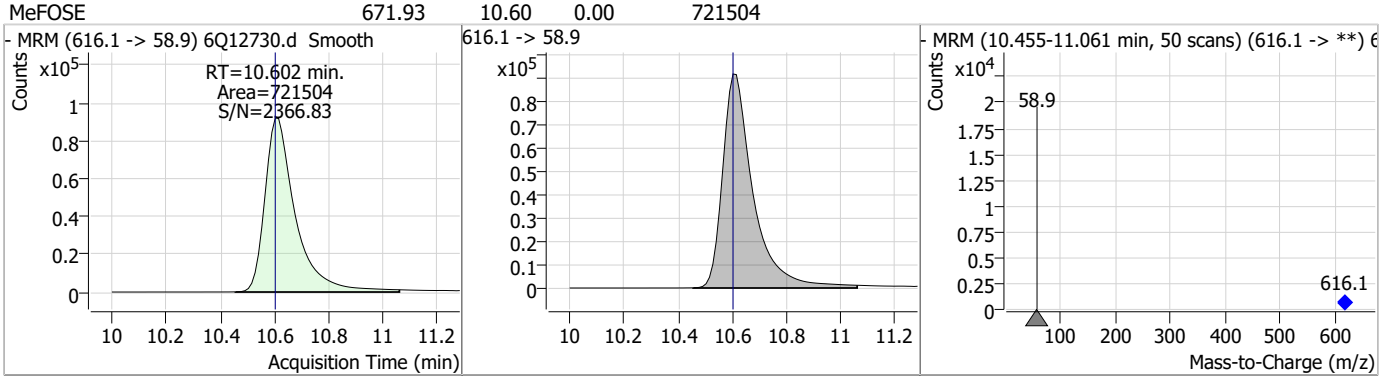
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	57.36	9.95	0.00	96014	699.1 -> 98.8	64.9	29.5	88.6



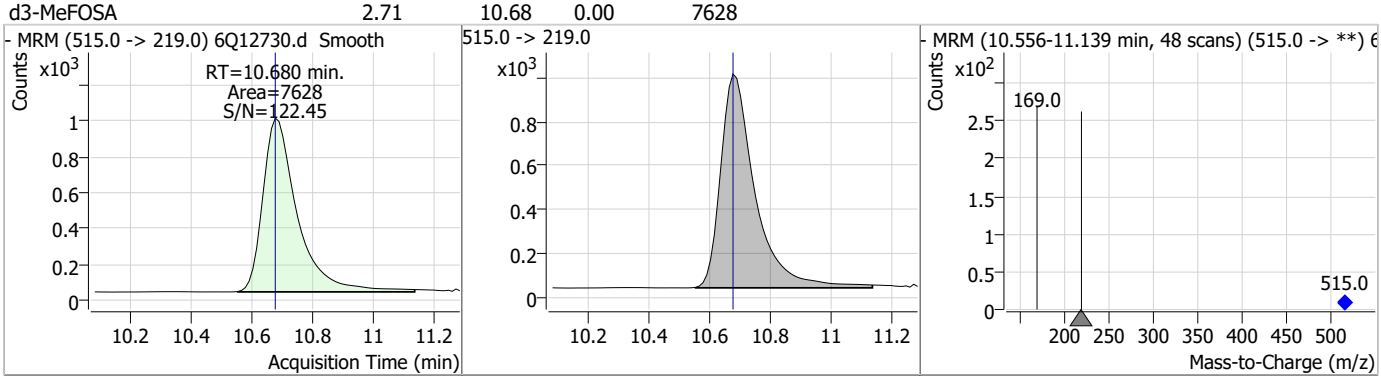
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.67	10.59	0.00	26917				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	671.93	10.60	0.00	721504				

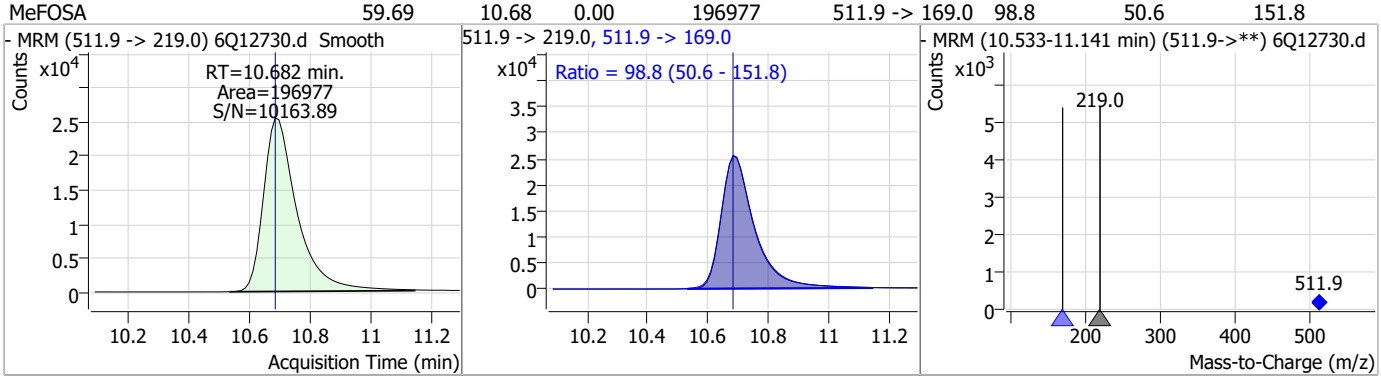


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.71	10.68	0.00	7628				

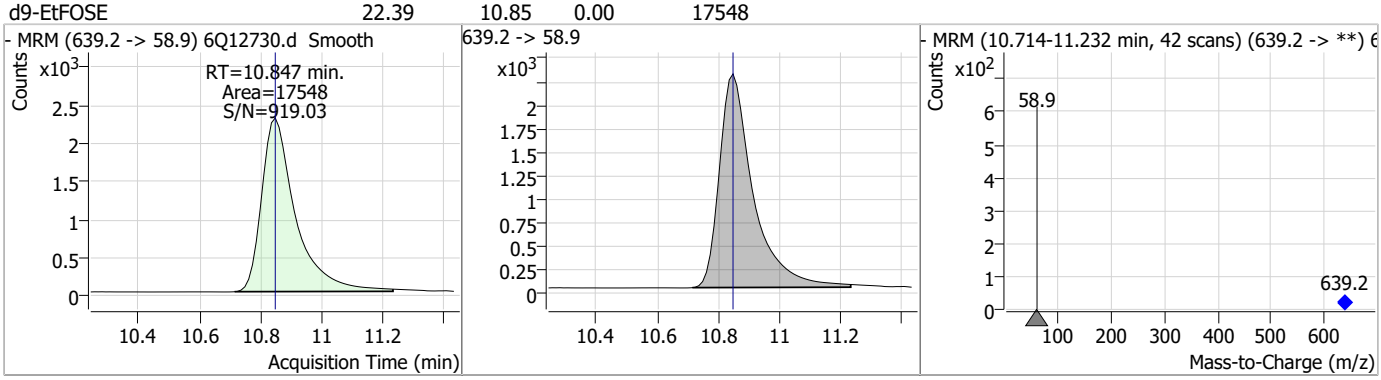


Perfluorinated Compounds by LC/MS/MS

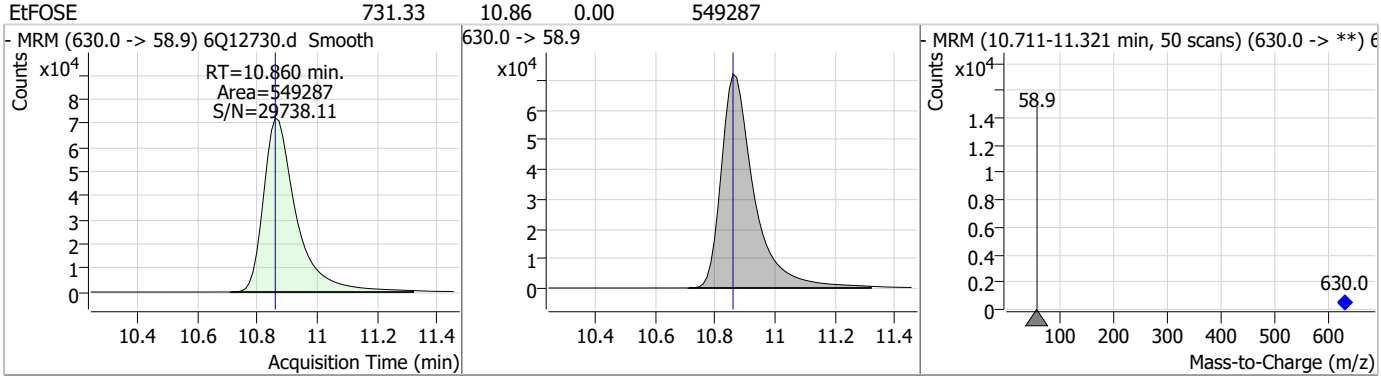
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	59.69	10.68	0.00	196977	511.9 -> 169.0	98.8	50.6	151.8



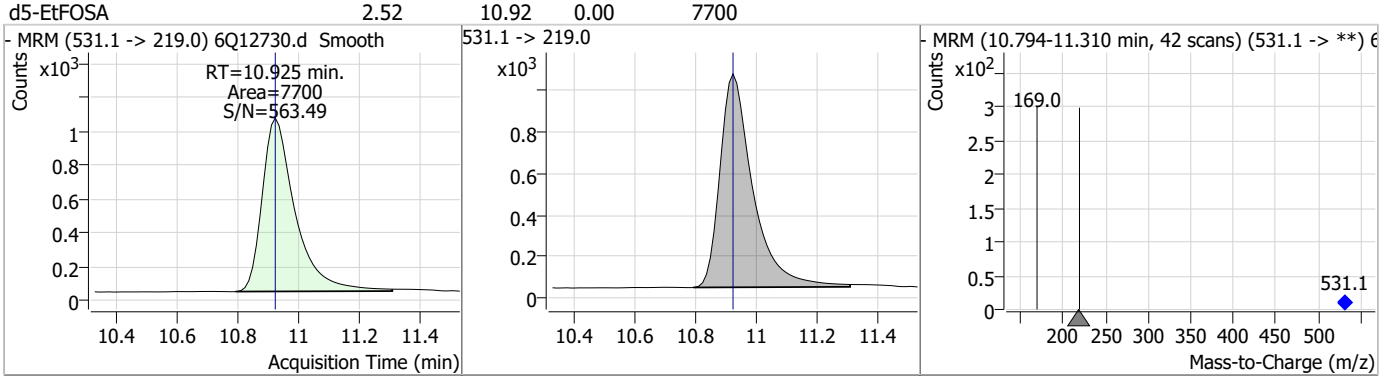
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.39	10.85	0.00	17548				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	731.33	10.86	0.00	549287				

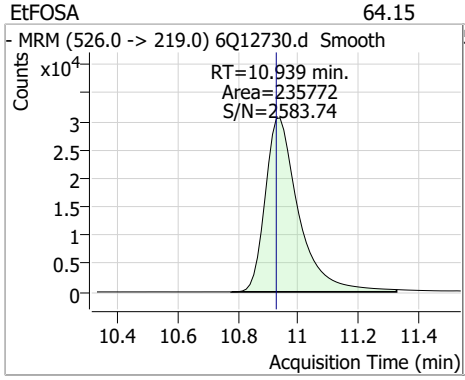


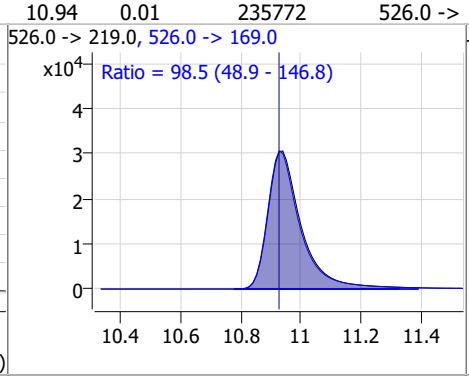
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	10.92	0.00	7700				

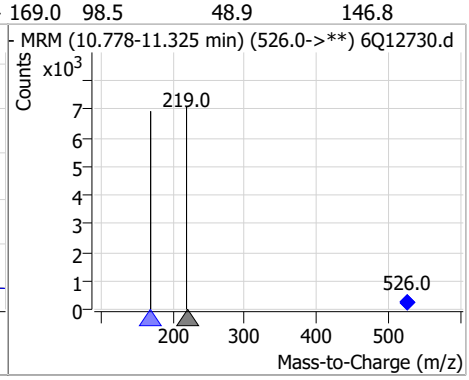


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	64.15	10.94	0.01	235772	526.0 -> 169.0	98.5	48.9	146.8







7.7.9

7

Manual Integration Approval Summary

Sample Number:	S6Q196-IC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12730.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 19:29	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12732.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 7:57:14 PM
Sample Name	:	icv196-4
Vial	:	P1-B1
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	79637	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39774	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	36427	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37827	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65553	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	30548	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19568	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24768	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26321	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	15807	1.25	µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18601	2.50	µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13944	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9696	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8327	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2406	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2933	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3302	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29558	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25108	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30032	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22341	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8200	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7736	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11794	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35336	5.00	µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7109	2.50	µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79806	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28497	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32809	1.25	µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35632	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2406	5.20	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2933	4.78	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3302	5.36	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26321	1.21	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15807	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13944	2.41	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9696	2.59	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C4-PFBA	2.975	216.8 -> 171.9	79637	10.15 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	37827	2.57 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C5-PFHxA	5.575	318.0 -> 273.0	36427	2.58 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	39774	5.01 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C6-PFDA	8.170	519.1 -> 474.1	19568	1.23 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C7-PFUnDA	8.636	570.0 -> 525.1	24768	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C8-FOSA	9.555	506.1 -> 77.8	18601	2.42 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%		
13C8-PFOA	7.146	421.1 -> 376.0	65553	2.46 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C8-PFOS	8.345	507.1 -> 79.9	8327	2.15 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%		
13C9-PFNA	7.677	472.1 -> 427.0	30548	1.32 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29558	4.57 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.4%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.09 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
d3-MeFOSA	10.680	515.0 -> 219.0	7736	2.34 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%		
d5-EtFOSAA	8.410	589.2 -> 419.0	25108	4.68 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
d7-MeFOSE	10.589	623.2 -> 58.9	30032	22.43 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	22341	24.21 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	8200	2.28 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	50479	9.36 µg/L		99
		327.1 -> 80.9	10798			
6:2FTS	6.921	427.1 -> 407.0	44010	10.25 µg/L		99
		427.1 -> 80.9	8402			
8:2FTS	7.958	527.1 -> 507.0	22980	8.96 µg/L		97
		527.1 -> 80.8	5851			
EtFOSAA	8.424	584.2 -> 419.1	9675	2.41 µg/L	m	89
		584.2 -> 526.0	5322			
FOSA	9.557	498.1 -> 77.9	17943	2.42 µg/L		98
		498.1 -> 478.0	668			
MeFOSAA	8.216	570.1 -> 419.0	13724	2.53 µg/L		88
		570.1 -> 483.0	2670			
PFBA	2.982	212.8 -> 168.9	17507	9.84 µg/L		100
PFBS	5.518	298.7 -> 79.9	11817	2.21 µg/L		95
		298.7 -> 98.8	5567			
PFDA	8.170	512.9 -> 469.0	55527	2.49 µg/L		99
		512.9 -> 219.0	8015			
PFDoDA	9.067	613.1 -> 569.0	48734	2.53 µg/L		98
		613.1 -> 319.0	5563			
PFDS	9.241	599.0 -> 79.9	6938	2.46 µg/L		93

Perfluorinated Compounds by LC/MS/MS

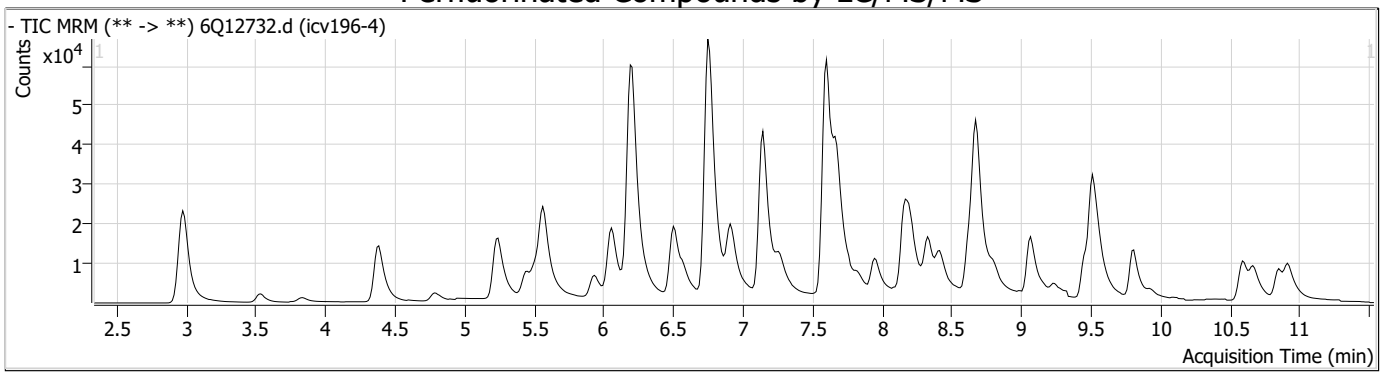
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3835				
PFHpA	6.515	363.1 -> 319.0	51704	2.31	µg/L		95
		363.1 -> 169.0	7390				
PFHpS	7.841	449.0 -> 79.9	8976	2.54	µg/L		94
		449.0 -> 98.9	5385				
PFHxA	5.578	313.0 -> 269.0	34300	2.40	µg/L		98
		313.0 -> 118.9	1269				
PFHxS	7.275	398.7 -> 79.9	8961	2.06	µg/L	m	91
		398.7 -> 98.9	5058				
PFNA	7.677	463.0 -> 419.0	47751	2.32	µg/L		100
		463.0 -> 219.0	9195				
PFNS	8.811	548.8 -> 79.9	9944	2.69	µg/L		100
		548.8 -> 98.9	5610				
PFOA	7.148	413.0 -> 369.0	68664	2.38	µg/L		100
		413.0 -> 169.0	9310				
PFOS	8.347	498.9 -> 79.9	9727	2.55	µg/L	m	67
		498.9 -> 98.8	5483				
PFPeA	4.388	263.0 -> 219.0	42065	5.01	µg/L		100
PFPeS	6.581	349.1 -> 79.9	11283	2.23	µg/L		97
		349.1 -> 98.9	6039				
PFTeDA	9.806	713.1 -> 669.0	40836	2.39	µg/L		99
		713.1 -> 168.9	2965				
PFTrDA	9.462	663.0 -> 619.0	46631	2.53	µg/L		100
		663.0 -> 168.9	3767				
PFUnDA	8.637	563.1 -> 519.0	47272	2.45	µg/L		99
		563.1 -> 269.1	6635				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	97942	9.29	µg/L		95
		632.9 -> 452.9	32489				
9Cl-PF3ONS	8.688	530.8 -> 351.0	161780	9.08	µg/L		97
		532.8 -> 353.0	49889				
ADONA	6.766	376.9 -> 250.9	299321	9.39	µg/L		98
		376.9 -> 84.8	64098				
HFPO-DA	5.940	284.9 -> 168.9	13752	10.01	µg/L		97
		284.9 -> 184.9	1662				
3:3FTCA	3.841	241.0 -> 177.0	4965	12.04	µg/L		98
		241.0 -> 117.0	699				
5:3FTCA	6.206	341.0 -> 237.1	179549	60.10	µg/L		97
		341.0 -> 217.0	161221				
7:3FTCA	7.605	441.0 -> 316.9	119235	61.06	µg/L		91
		441.0 -> 336.9	233157				
EtFOSA	10.927	526.0 -> 219.0	10099	2.58	µg/L		95
		526.0 -> 169.0	9437				
EtFOSE	10.860	630.0 -> 58.9	22303	23.32	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	8419	2.52	µg/L		98
		511.9 -> 169.0	8333				
MeFOSE	10.602	616.1 -> 58.9	31337	26.16	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	4121	2.44	µg/L		91
		699.1 -> 98.8	2701				
NFDHA	5.457	295.0 -> 201.0	4286	5.07	µg/L		99
		295.0 -> 84.9	2175				
PFMBA	4.800	279.0 -> 85.1	11930	5.05	µg/L		100
PFMPA	3.541	229.0 -> 84.9	11247	5.02	µg/L		100
PFEESA	6.059	314.8 -> 134.9	89034	4.33	µg/L		100
		314.8 -> 82.9	2098				

= Qualifier out of range, m = manually integrated, + = Area summed

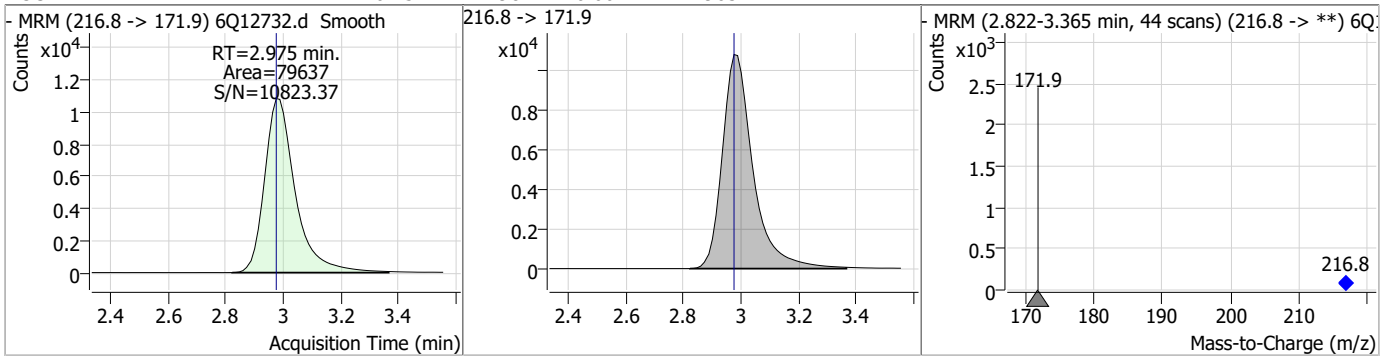
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

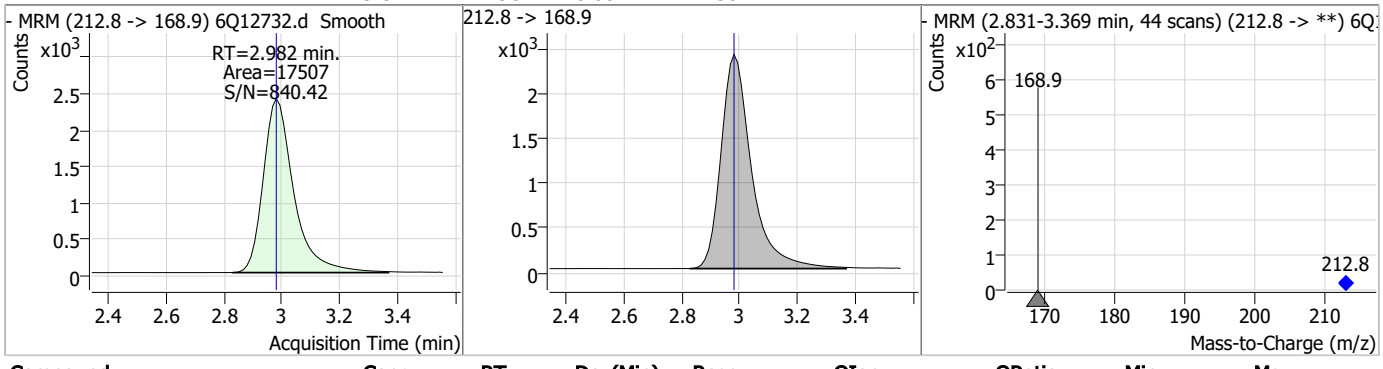
Perfluorinated Compounds by LC/MS/MS



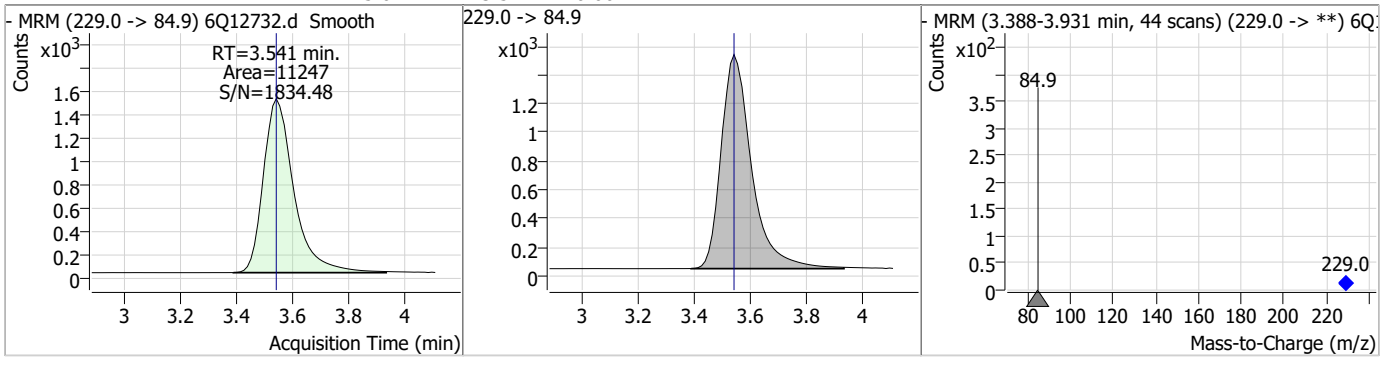
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.15	2.98	0.00	79637				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.84	2.98	0.00	17507				

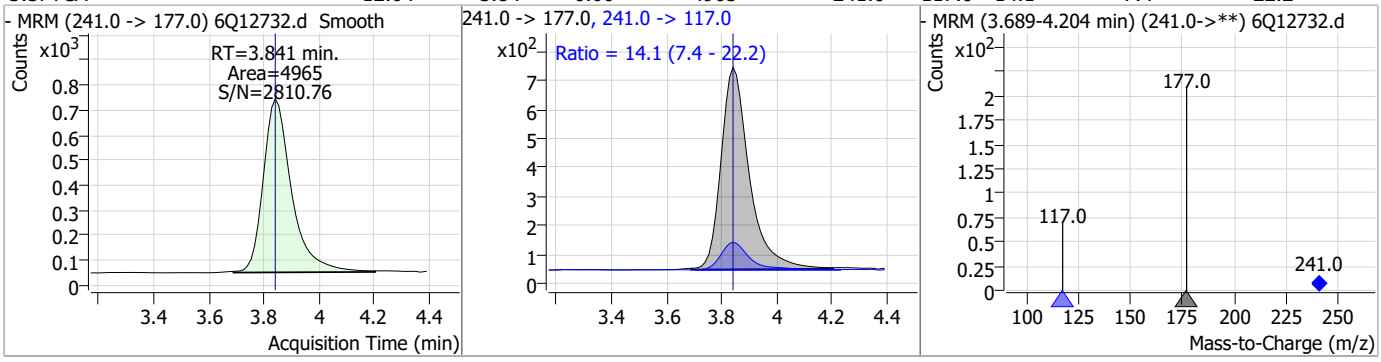


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	5.02	3.54	0.00	11247				

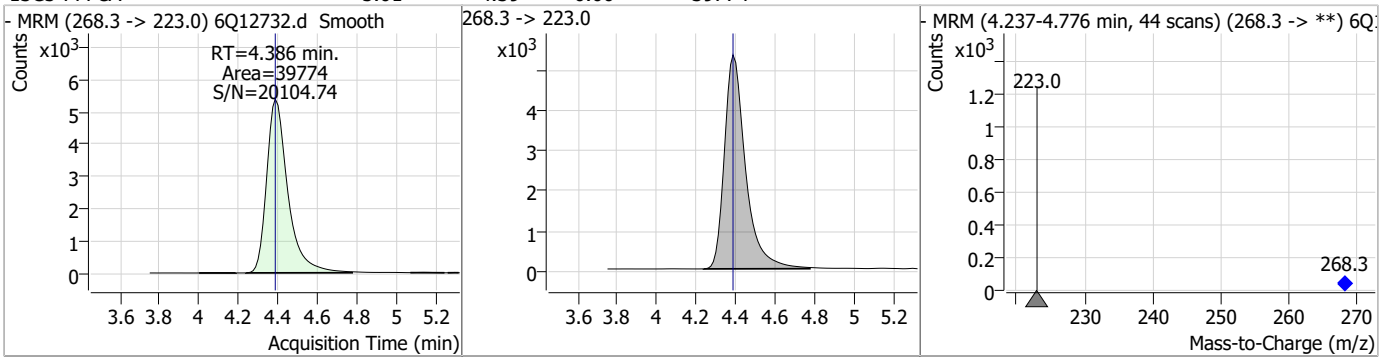


Perfluorinated Compounds by LC/MS/MS

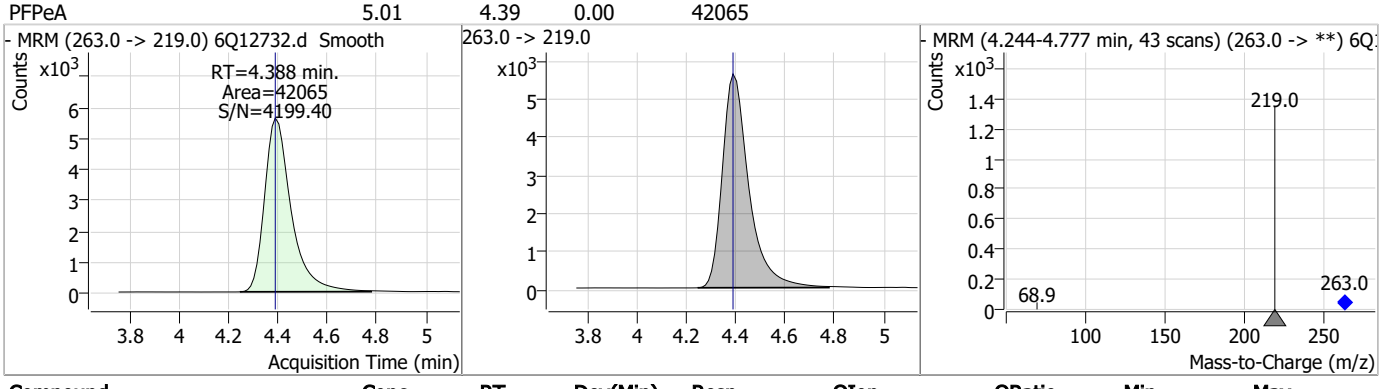
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.04	3.84	0.00	4965	241.0 -> 117.0	14.1	7.4	22.2



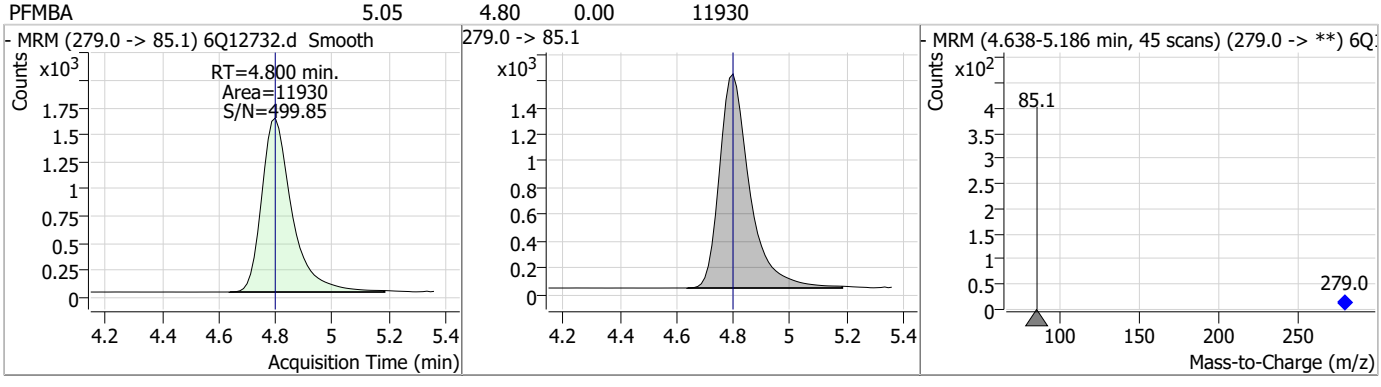
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.01	4.39	0.00	39774				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.01	4.39	0.00	42065				

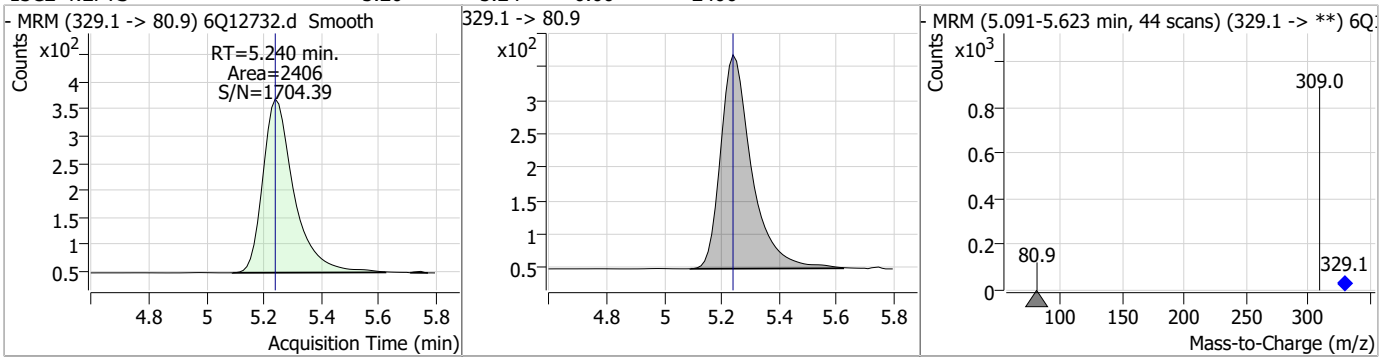


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.05	4.80	0.00	11930				

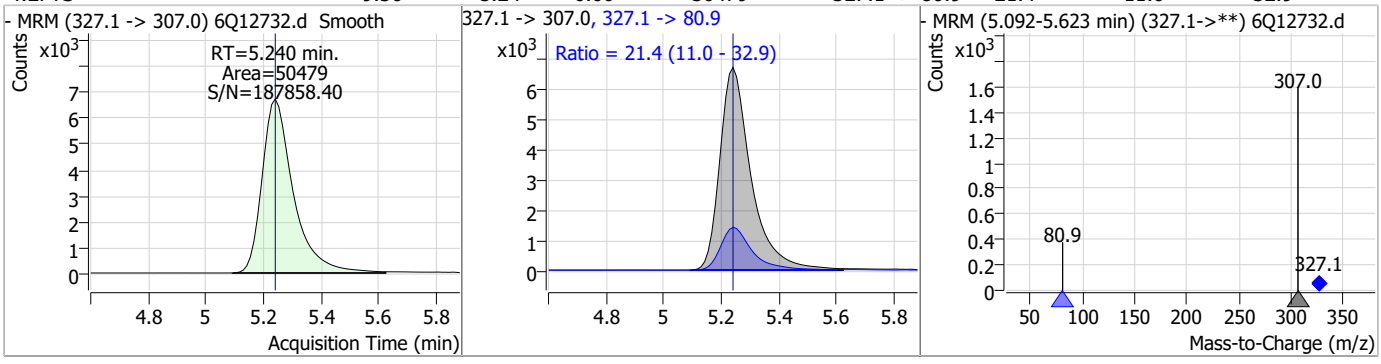


Perfluorinated Compounds by LC/MS/MS

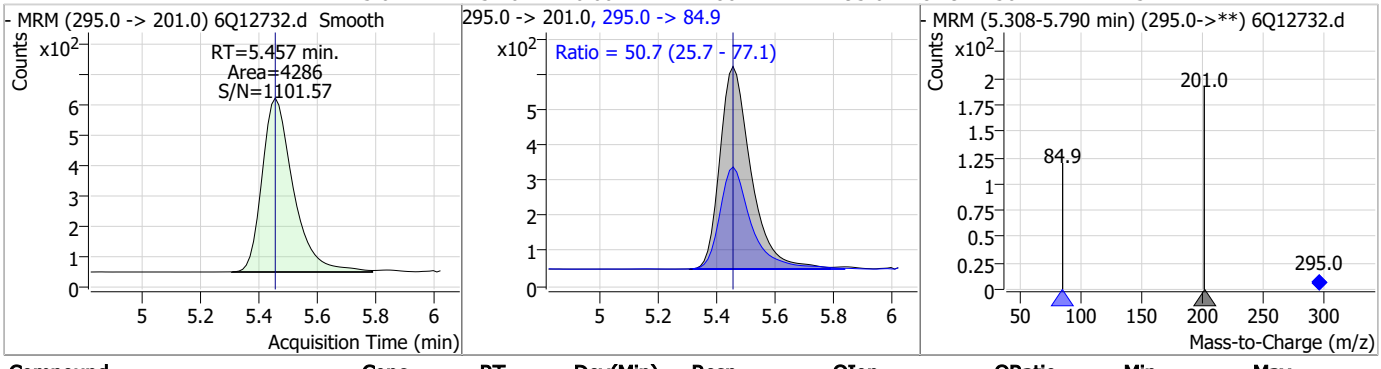
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.20	5.24	0.00	2406				



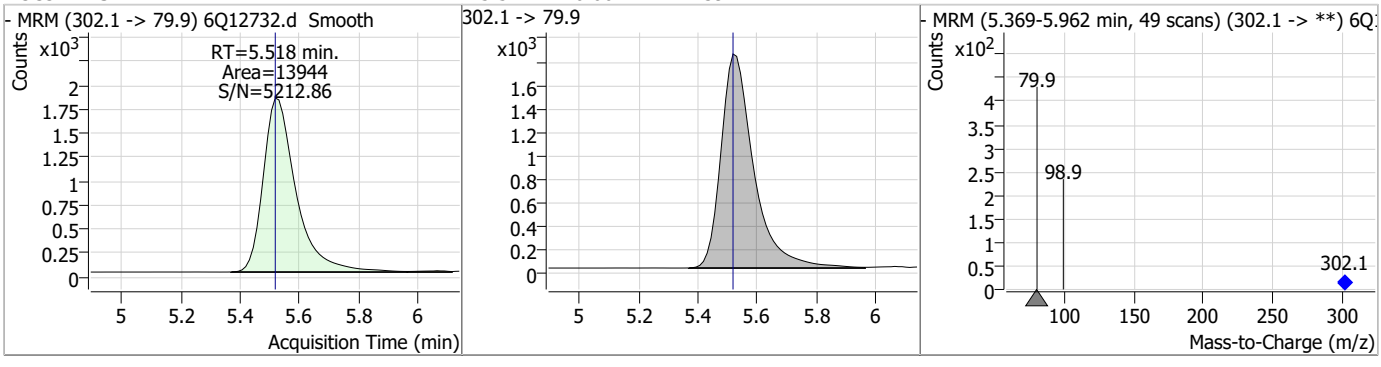
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.36	5.24	0.00	50479	327.1 -> 80.9	21.4	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.07	5.46	0.00	4286	295.0 -> 84.9	50.7	25.7	77.1

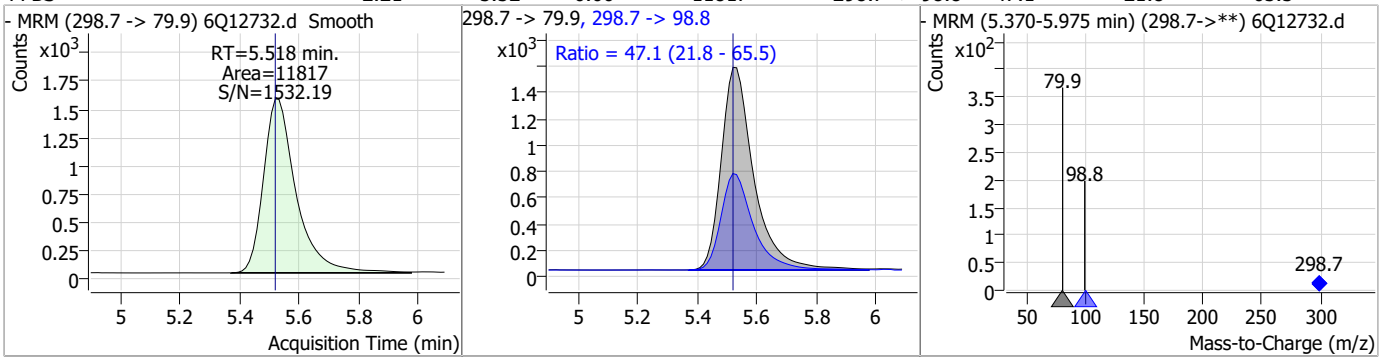


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.41	5.52	0.00	13944				

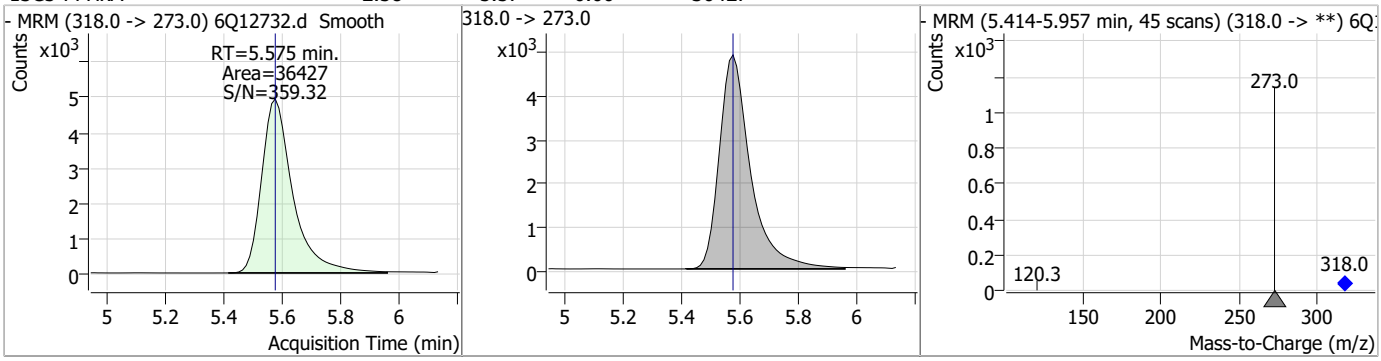


Perfluorinated Compounds by LC/MS/MS

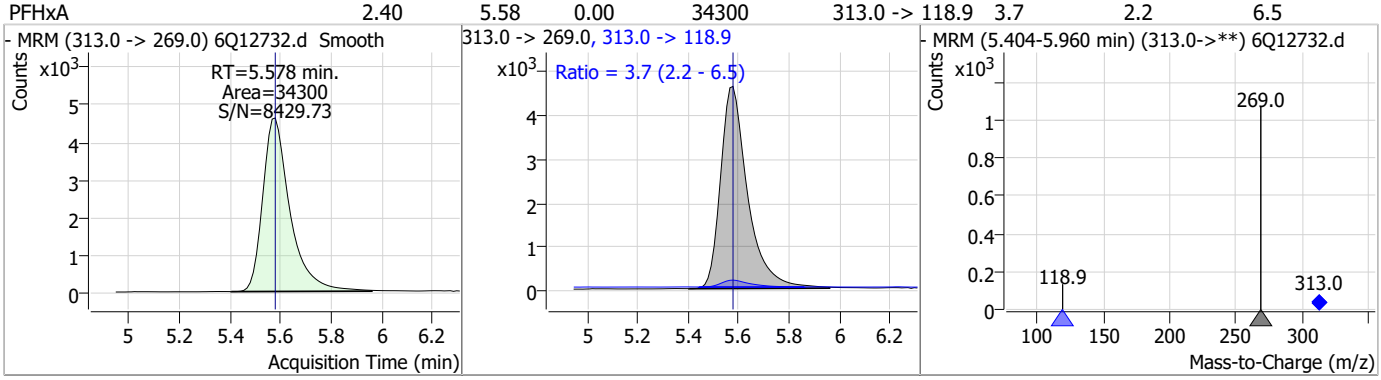
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.52	0.00	11817	298.7 -> 98.8	47.1	21.8	65.5



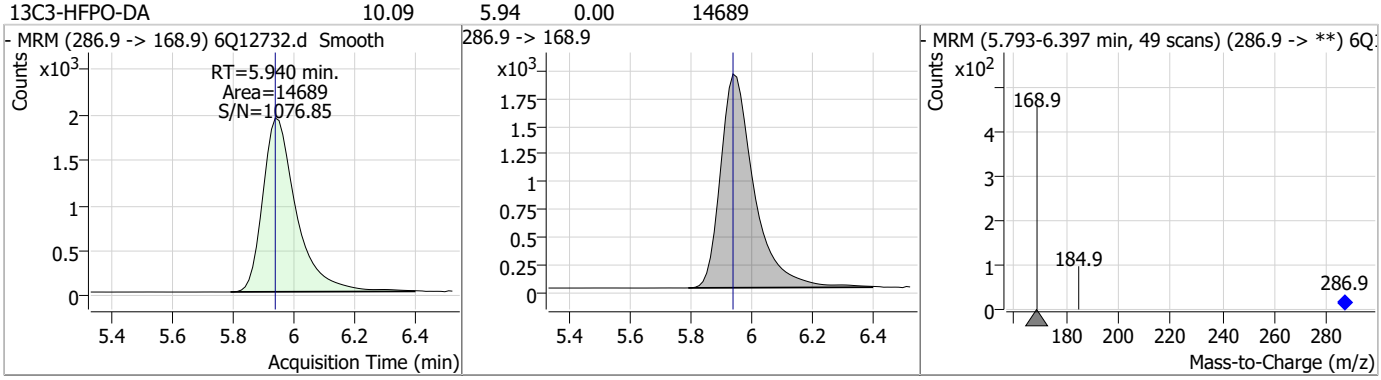
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.58	5.57	0.00	36427				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.58	0.00	34300	313.0 -> 118.9	3.7	2.2	6.5

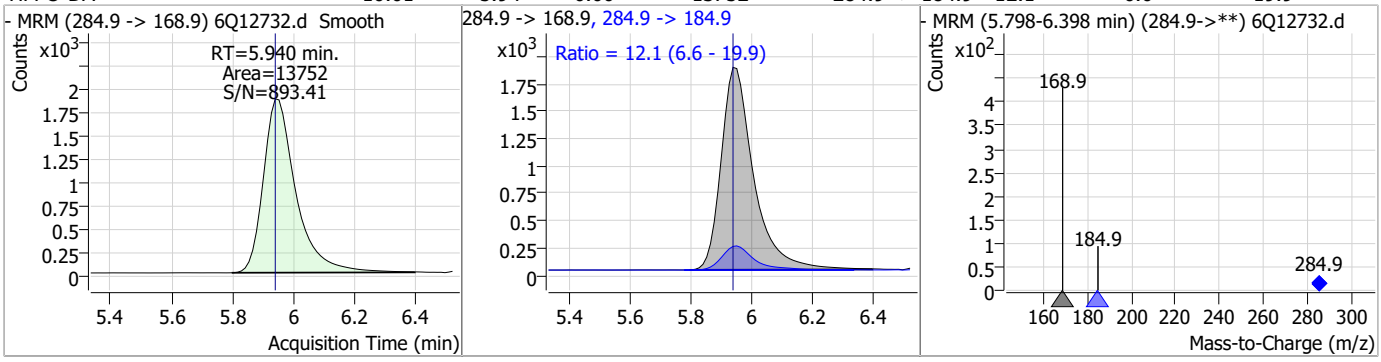


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.09	5.94	0.00	14689				

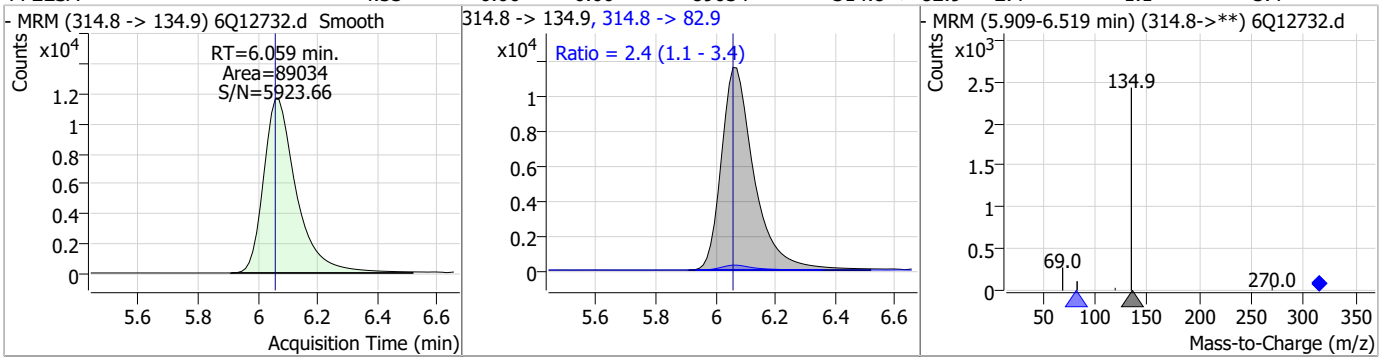


Perfluorinated Compounds by LC/MS/MS

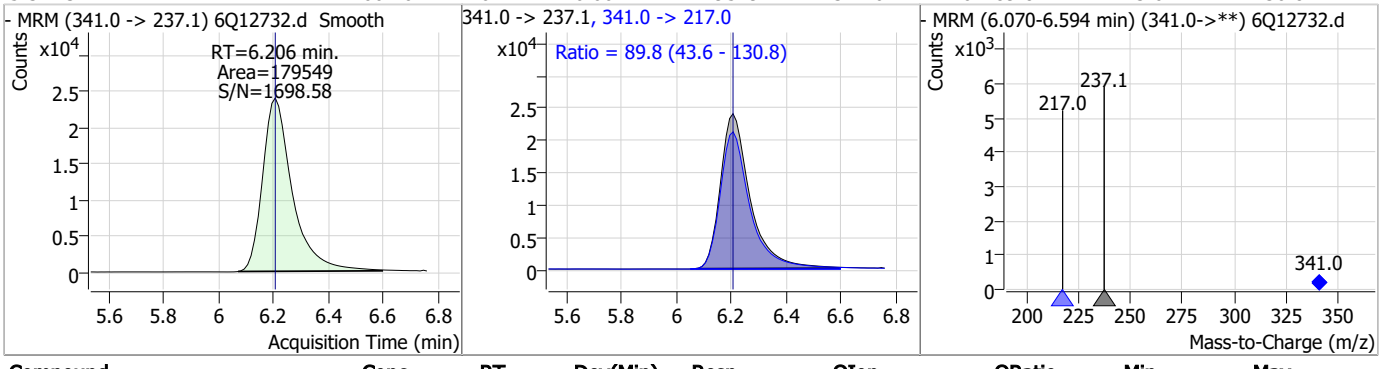
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.01	5.94	0.00	13752	284.9 -> 184.9	12.1	6.6	19.9



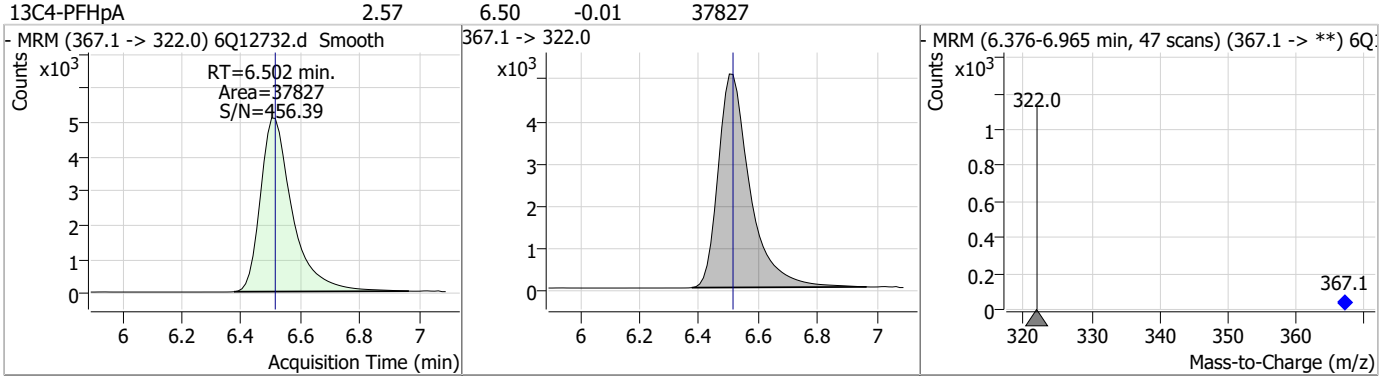
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.33	6.06	0.00	89034	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.10	6.21	0.00	179549	341.0 -> 217.0	89.8	43.6	130.8

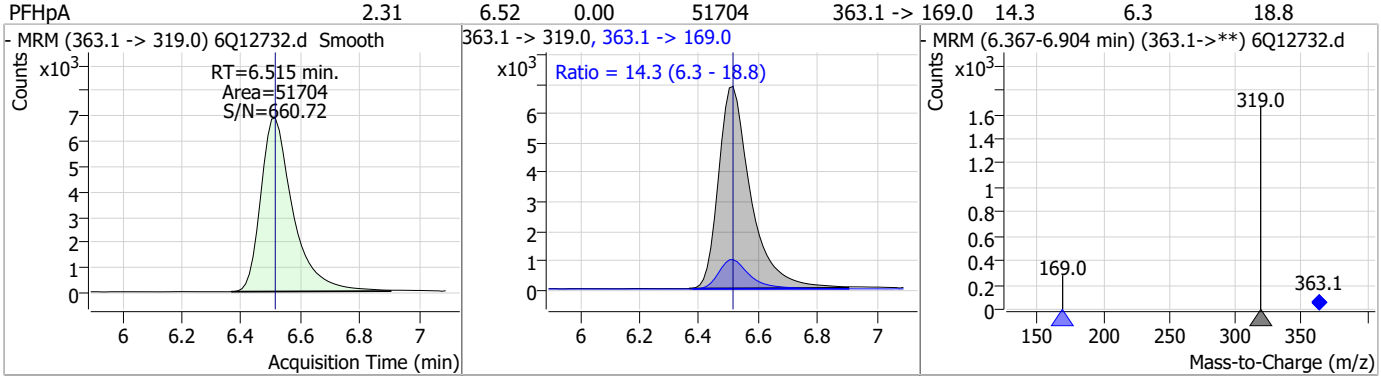


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.50	-0.01	37827				

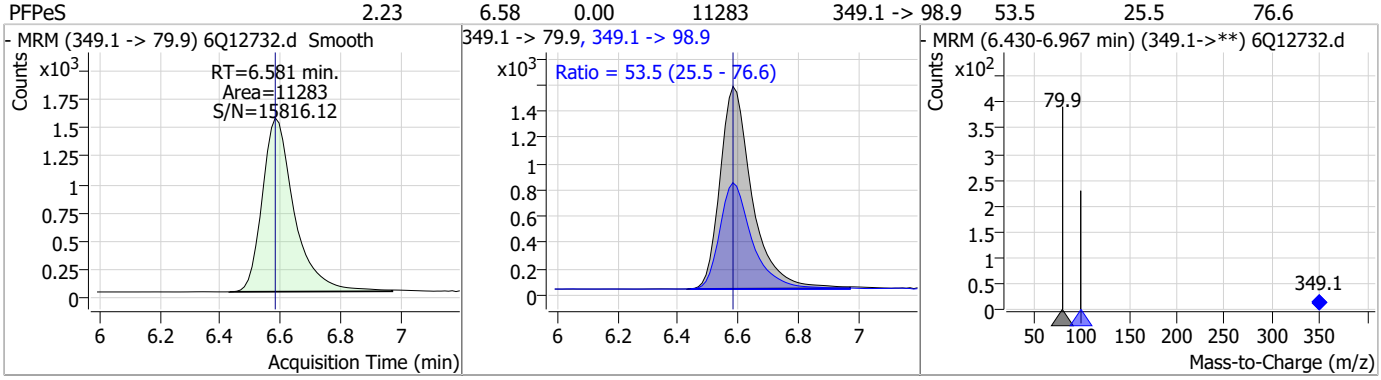


Perfluorinated Compounds by LC/MS/MS

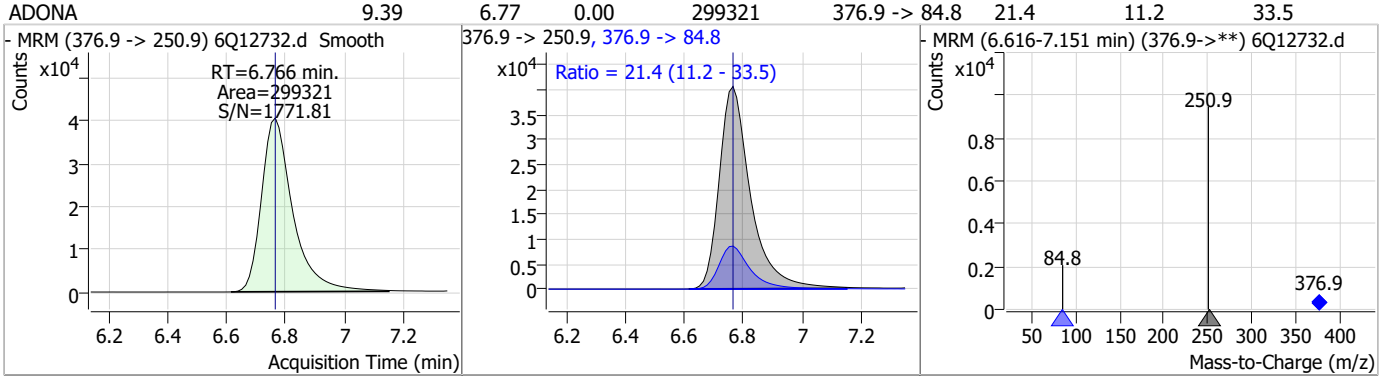
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.31	6.52	0.00	51704	363.1 -> 169.0	14.3	6.3	18.8



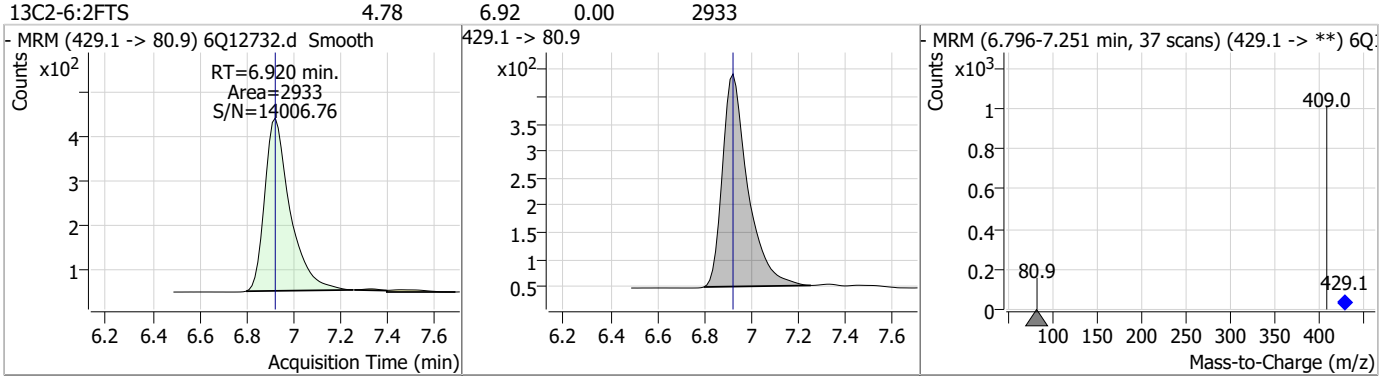
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.23	6.58	0.00	11283	349.1 -> 98.9	53.5	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.39	6.77	0.00	299321	376.9 -> 84.8	21.4	11.2	33.5

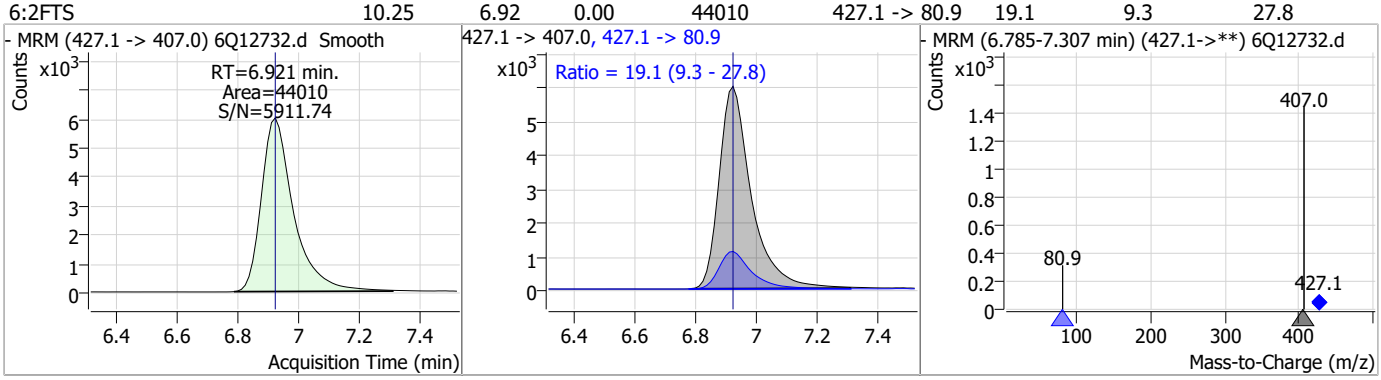


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.78	6.92	0.00	2933				

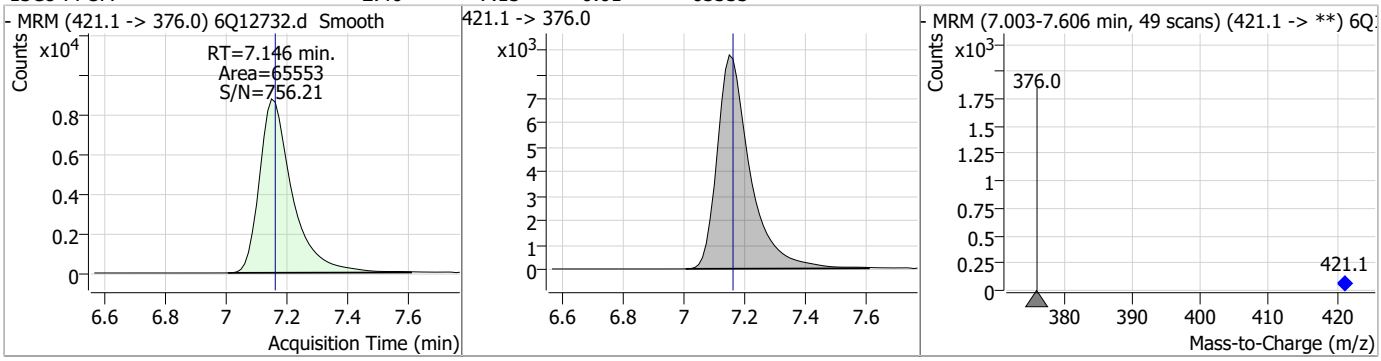


Perfluorinated Compounds by LC/MS/MS

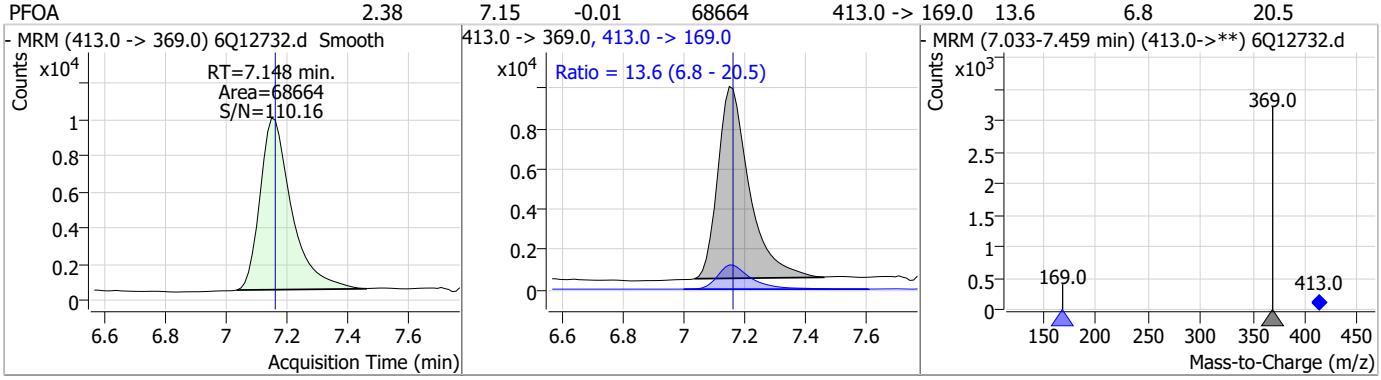
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.25	6.92	0.00	44010	427.1 -> 80.9	19.1	9.3	27.8



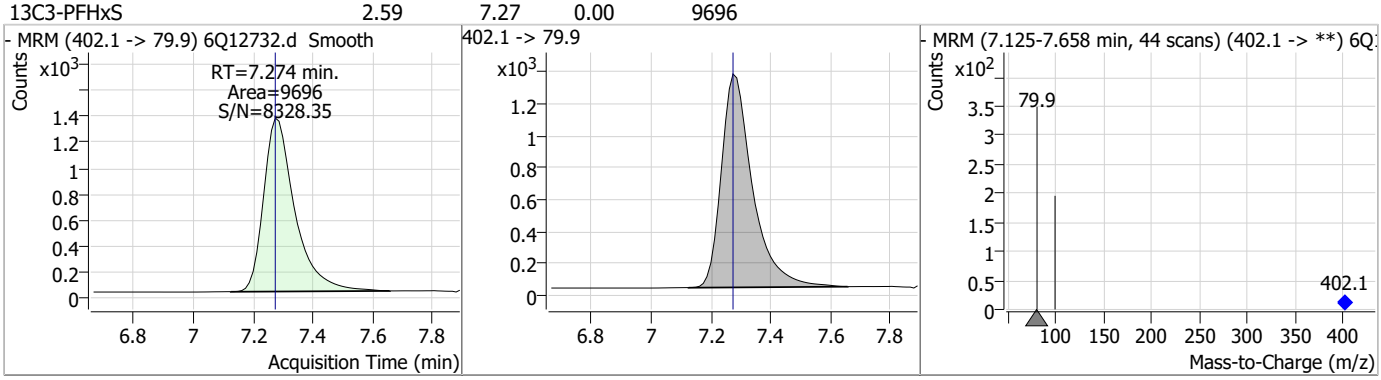
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.46	7.15	-0.01	65553				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.38	7.15	-0.01	68664	413.0 -> 169.0	13.6	6.8	20.5

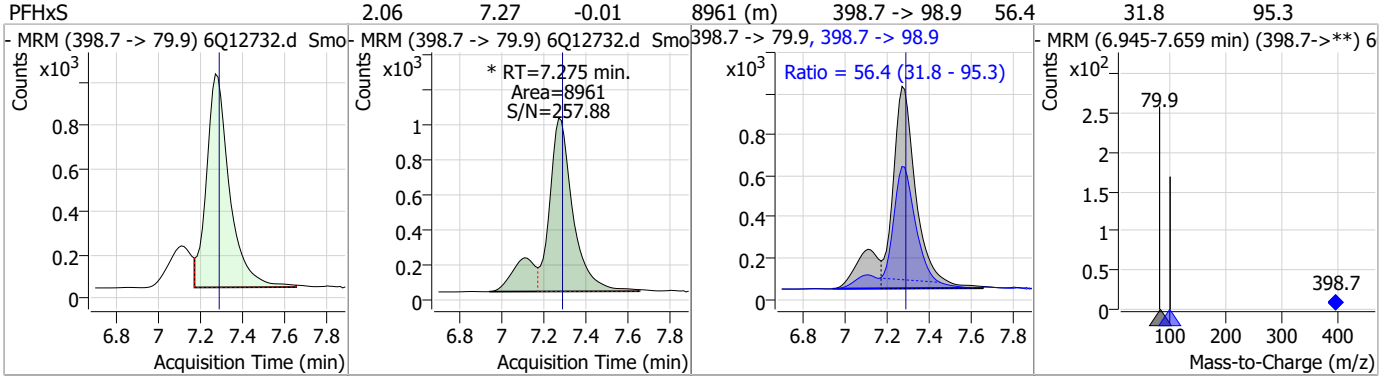


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.59	7.27	0.00	9696				

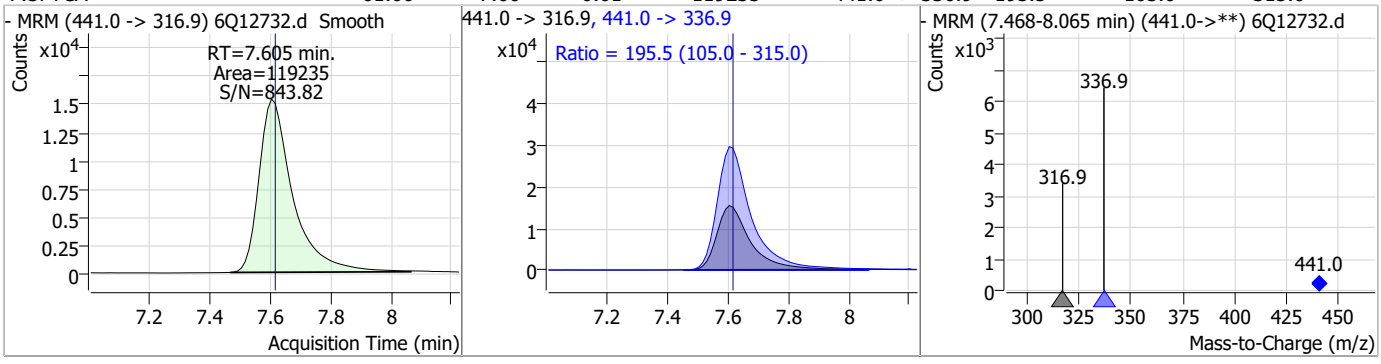


Perfluorinated Compounds by LC/MS/MS

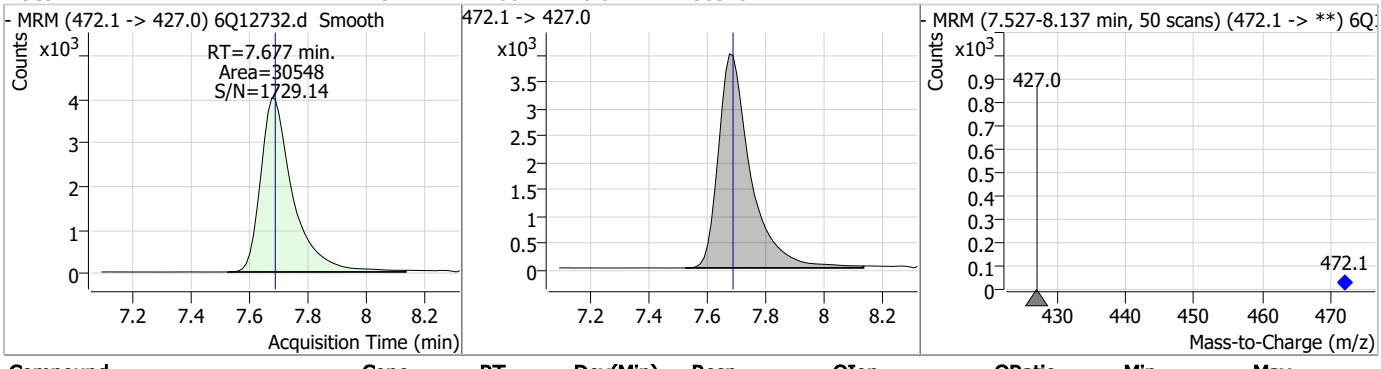
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.06	7.27	-0.01	8961 (m)	398.7 -> 98.9	56.4	31.8	95.3



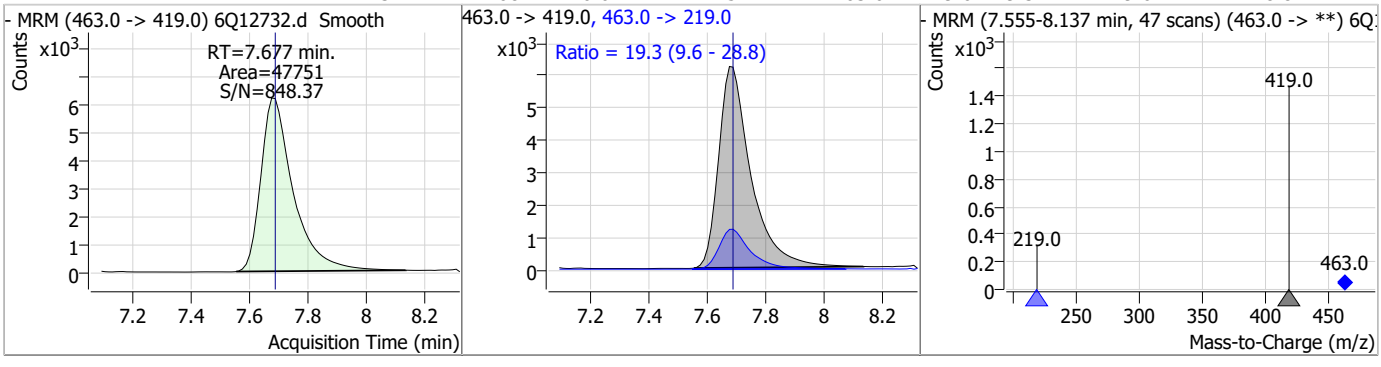
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	61.06	7.60	-0.01	119235	441.0 -> 336.9	195.5	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.68	-0.01	30548				

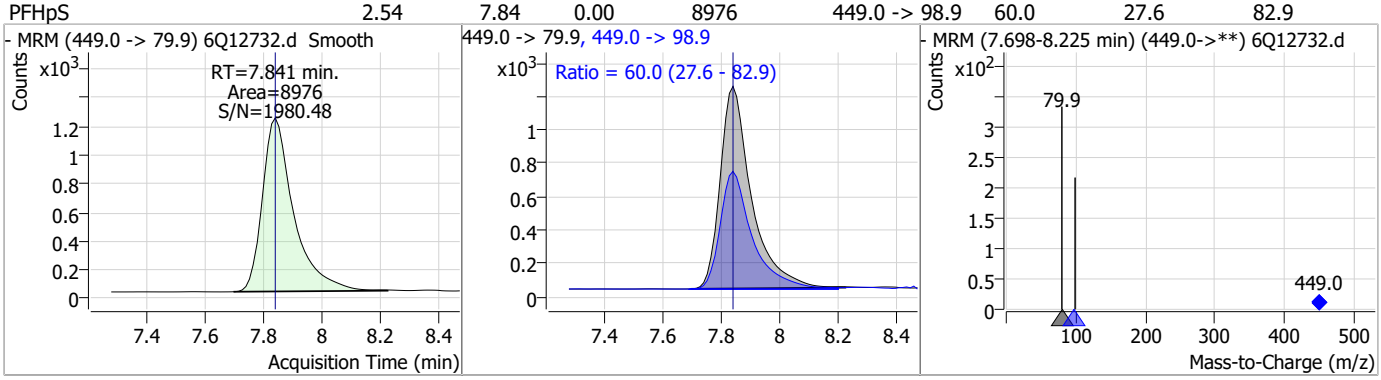


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.32	7.68	-0.01	47751	463.0 -> 219.0	19.3	9.6	28.8

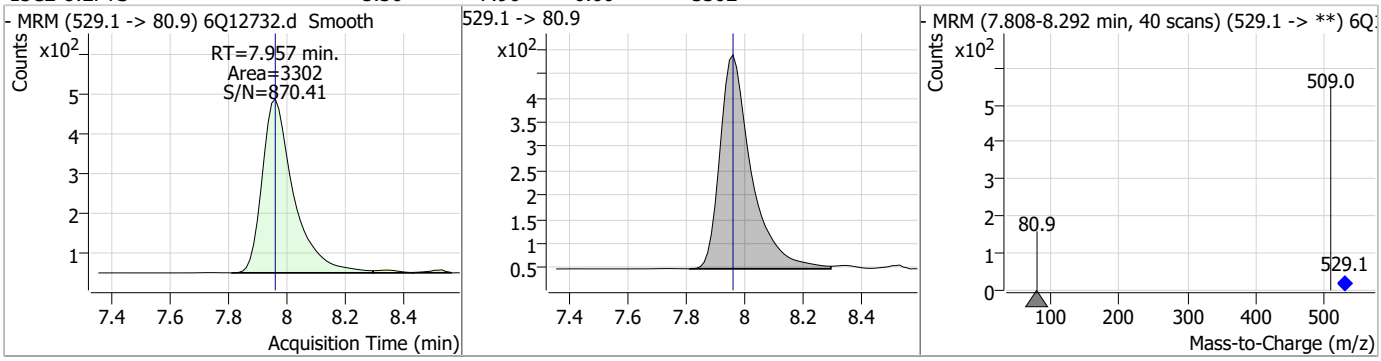


Perfluorinated Compounds by LC/MS/MS

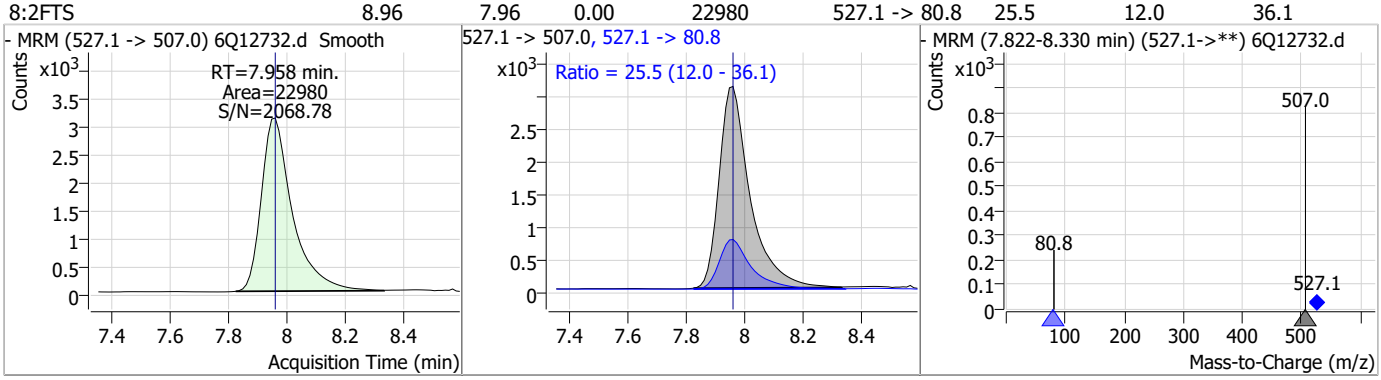
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.54	7.84	0.00	8976	449.0 -> 98.9	60.0	27.6	82.9



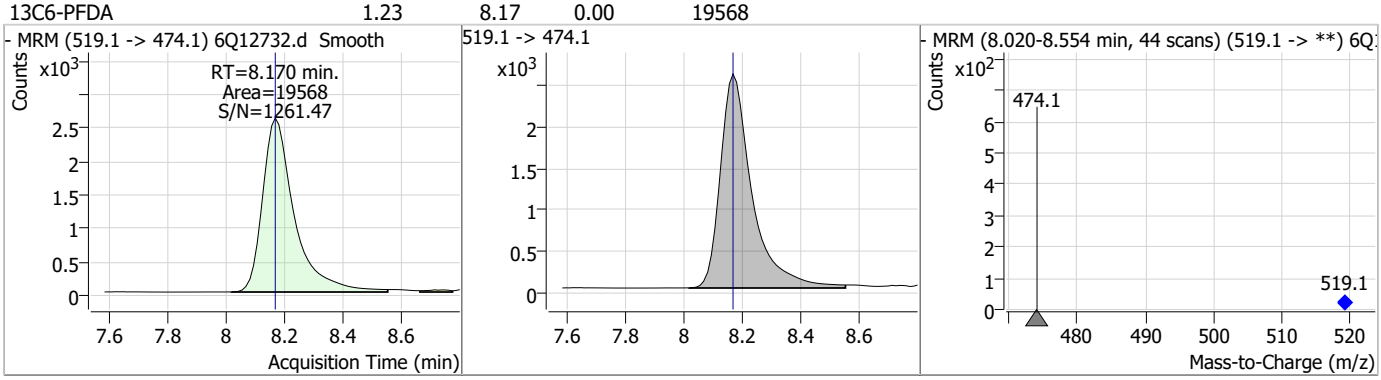
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.36	7.96	0.00	3302				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	8.96	7.96	0.00	22980	527.1 -> 80.8	25.5	12.0	36.1

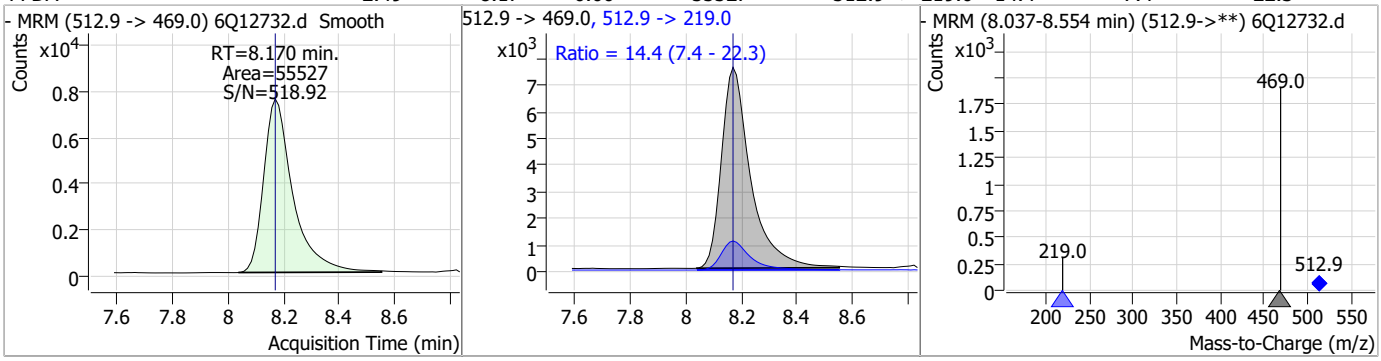


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.23	8.17	0.00	19568				

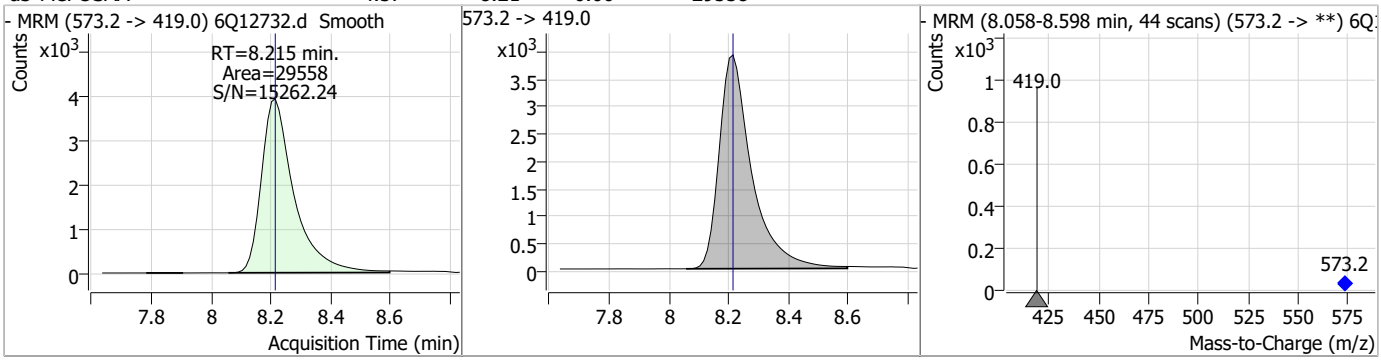


Perfluorinated Compounds by LC/MS/MS

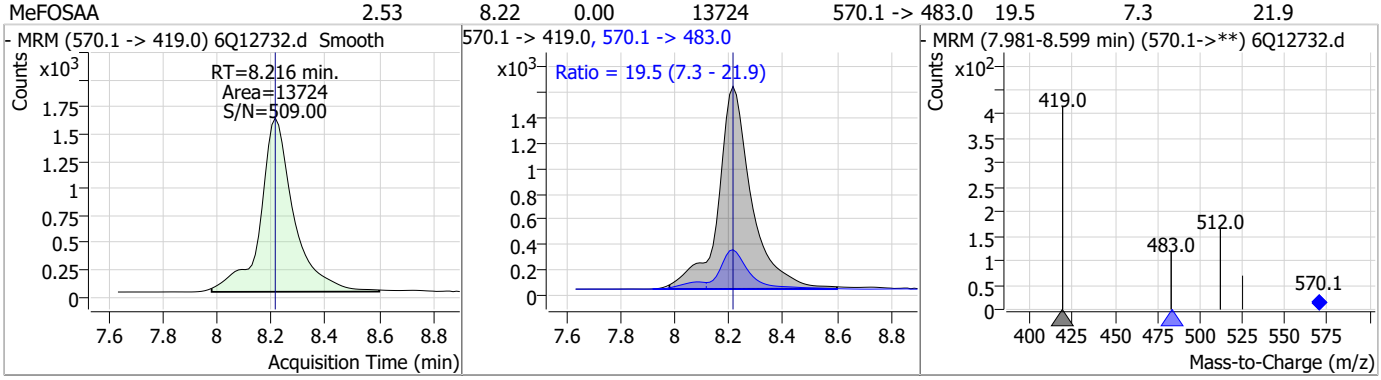
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.49	8.17	0.00	55527	512.9 -> 219.0	14.4	7.4	22.3



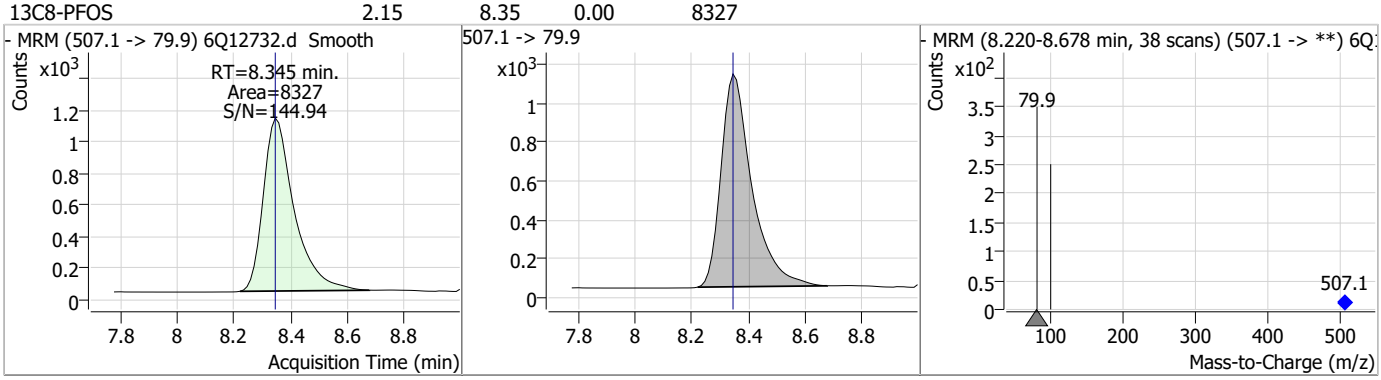
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.57	8.21	0.00	29558				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.53	8.22	0.00	13724	570.1 -> 483.0	19.5	7.3	21.9

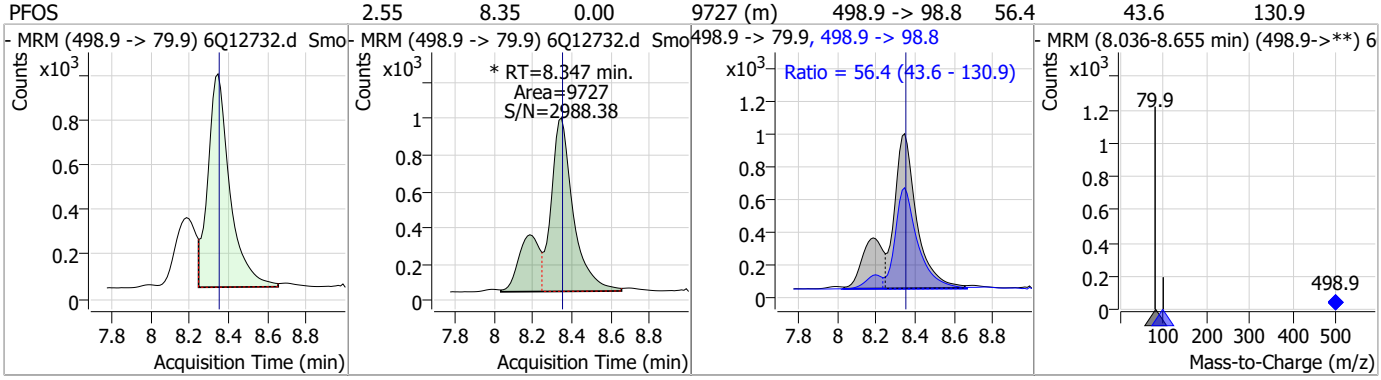


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.15	8.35	0.00	8327				

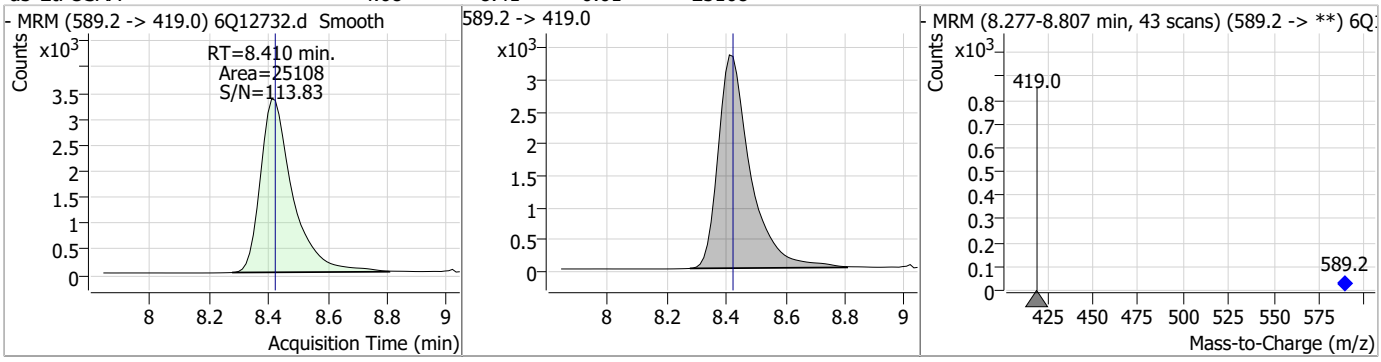


Perfluorinated Compounds by LC/MS/MS

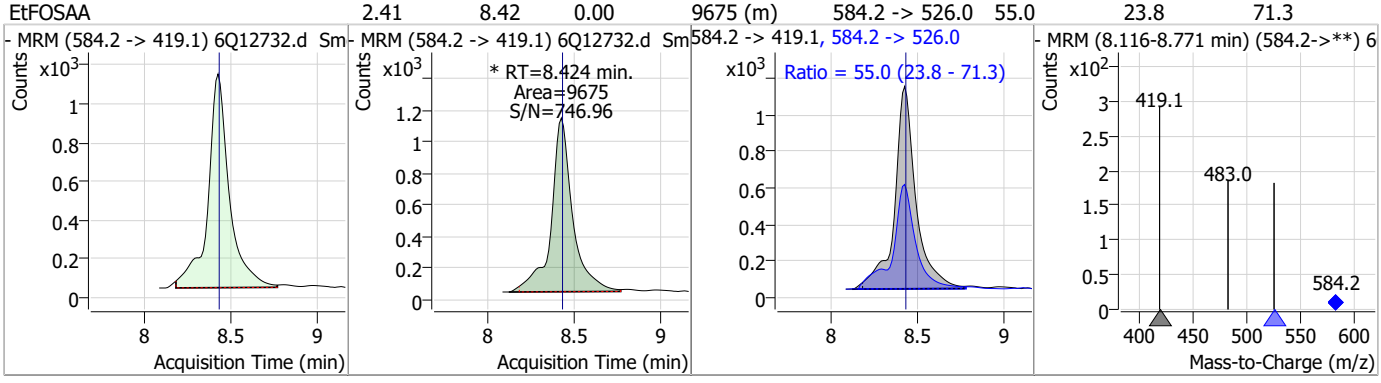
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.55	8.35	0.00	9727 (m)	498.9 -> 98.8	56.4	43.6	130.9



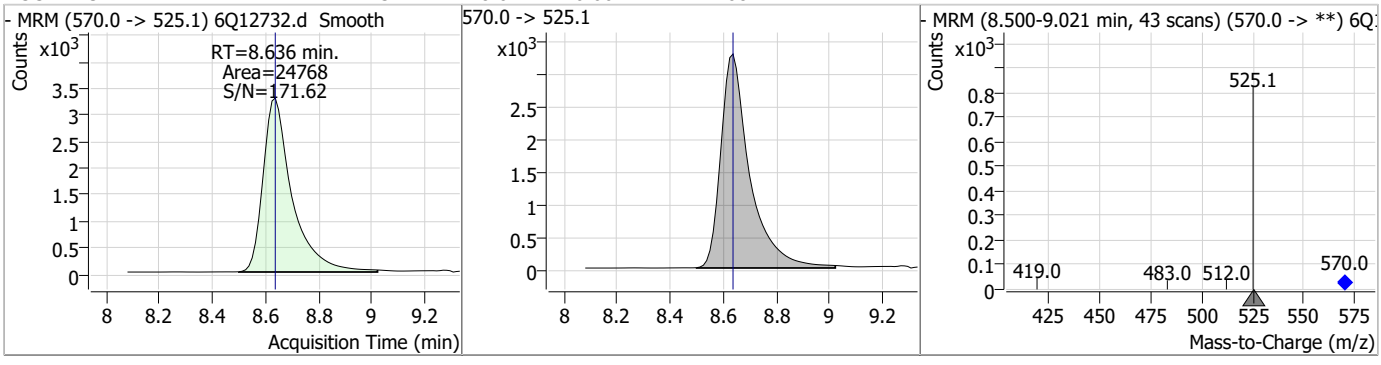
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.68	8.41	-0.01	25108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.41	8.42	0.00	9675 (m)	584.2 -> 526.0	55.0	23.8	71.3

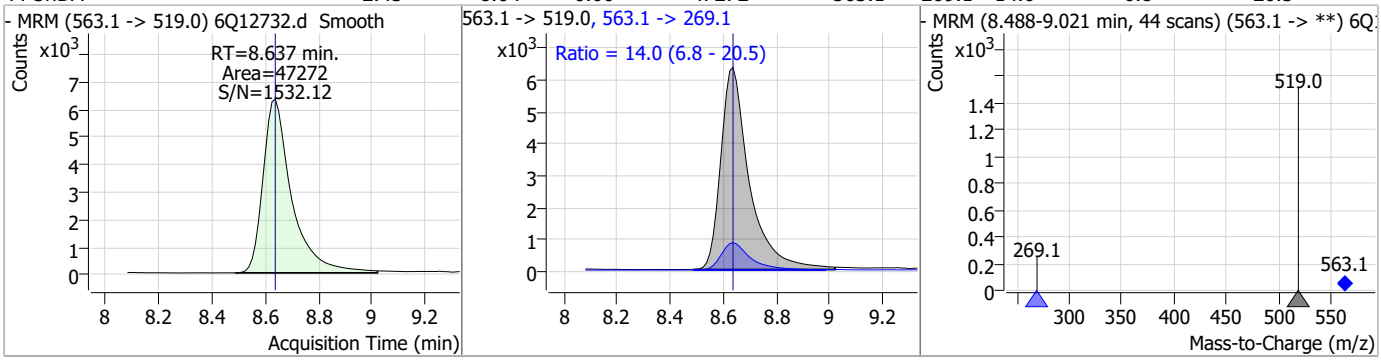


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	24768				

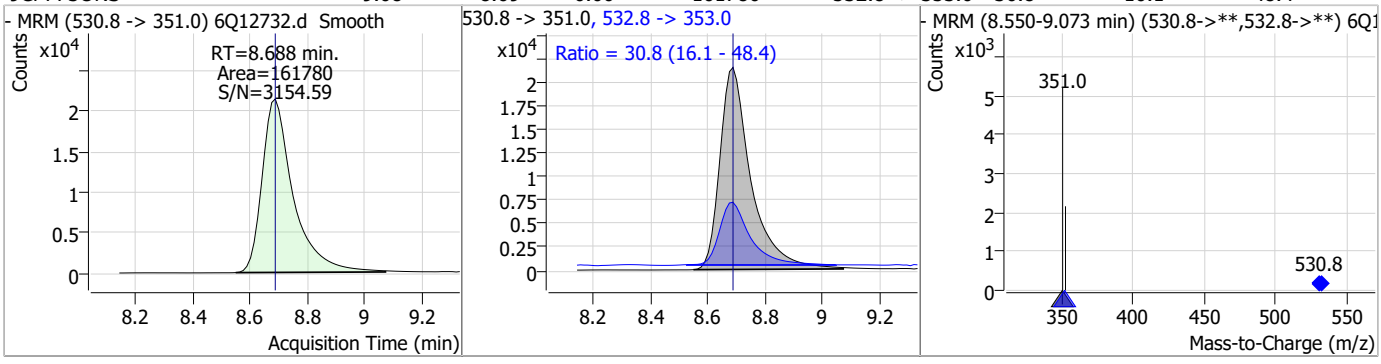


Perfluorinated Compounds by LC/MS/MS

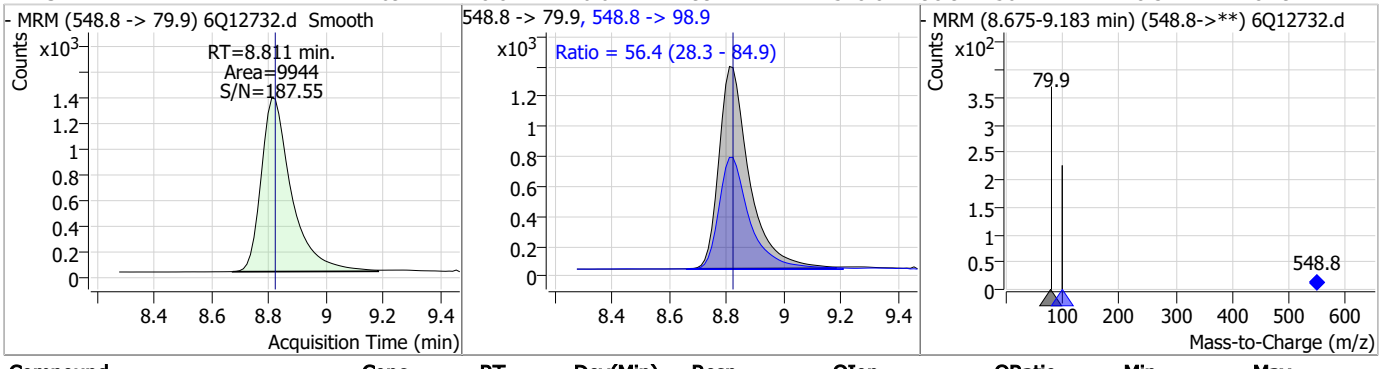
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.45	8.64	0.00	47272	563.1 -> 269.1	14.0	6.8	20.5



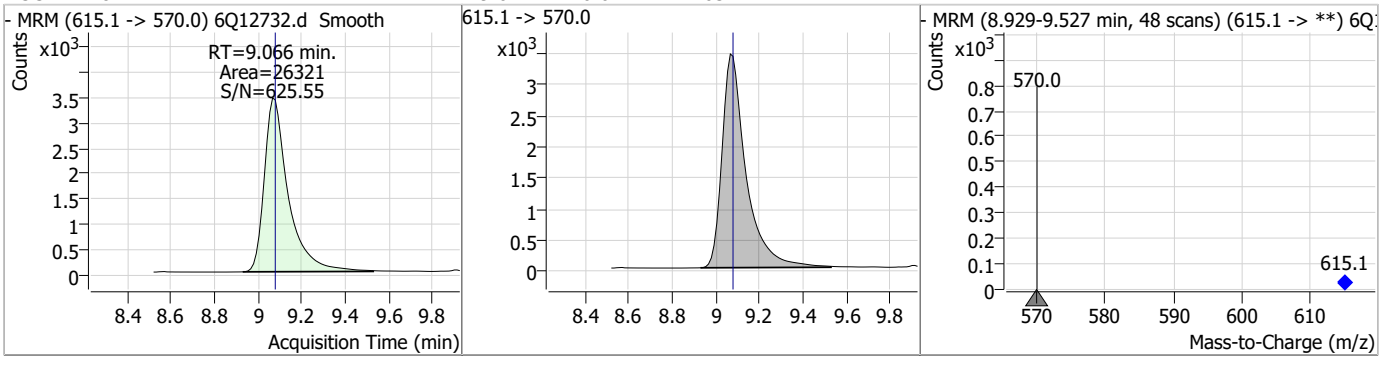
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	9.08	8.69	0.00	161780	532.8 -> 353.0	30.8	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.69	8.81	-0.01	9944	548.8 -> 98.9	56.4	28.3	84.9

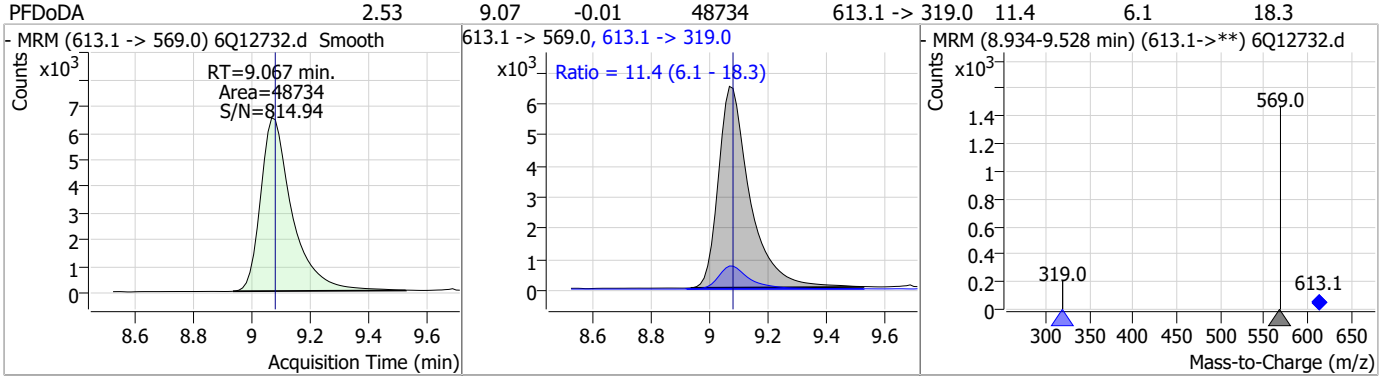


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	9.07	-0.01	26321				

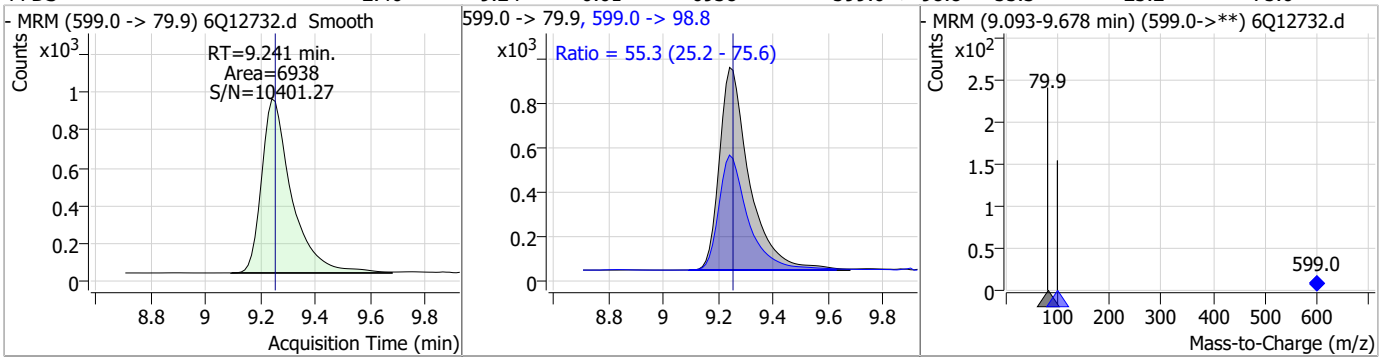


Perfluorinated Compounds by LC/MS/MS

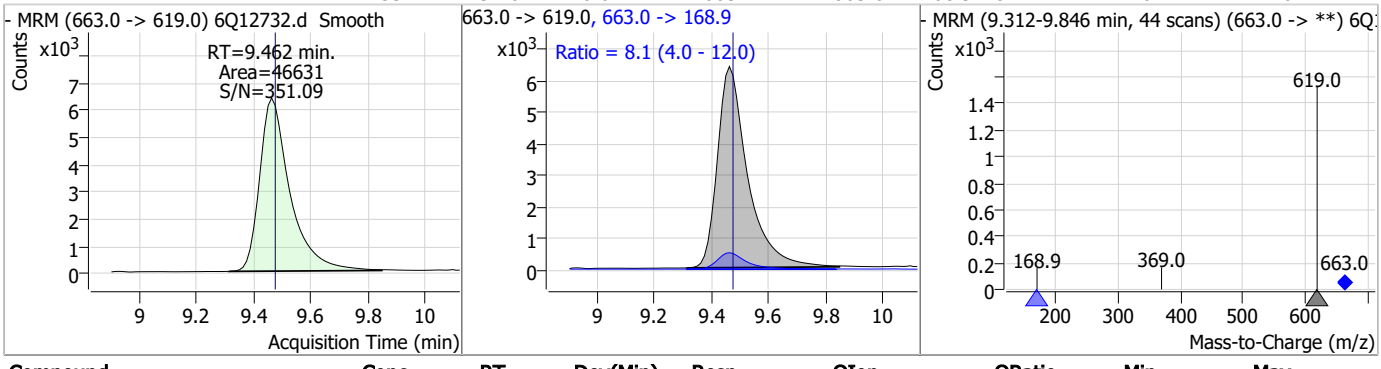
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.53	9.07	-0.01	48734	613.1 -> 319.0	11.4	6.1	18.3



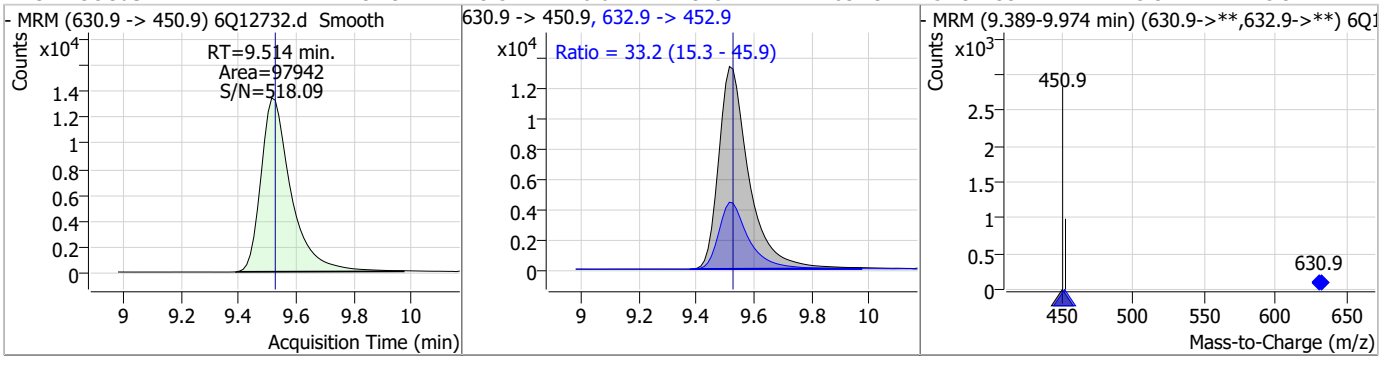
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.46	9.24	-0.01	6938	599.0 -> 98.8	55.3	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.53	9.46	-0.01	46631	663.0 -> 168.9	8.1	4.0	12.0

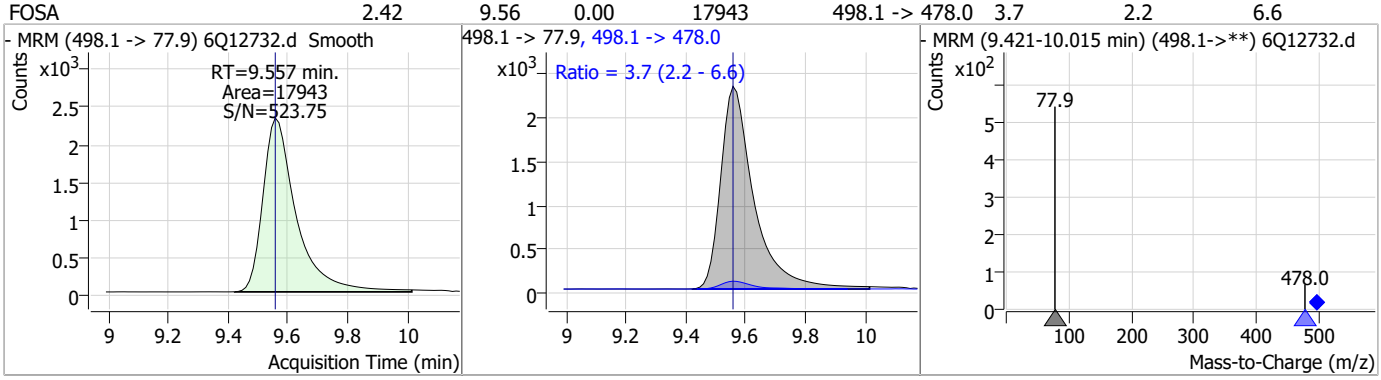


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.29	9.51	-0.01	97942	632.9 -> 452.9	33.2	15.3	45.9

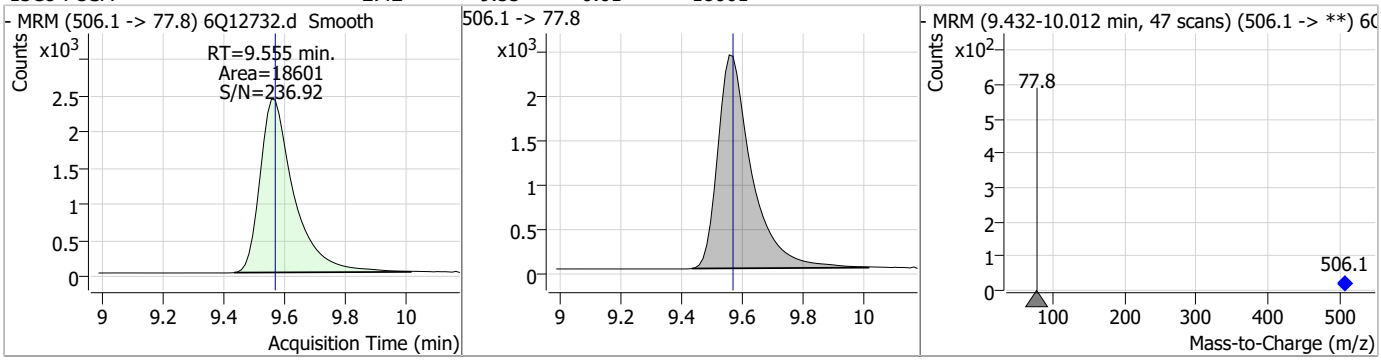


Perfluorinated Compounds by LC/MS/MS

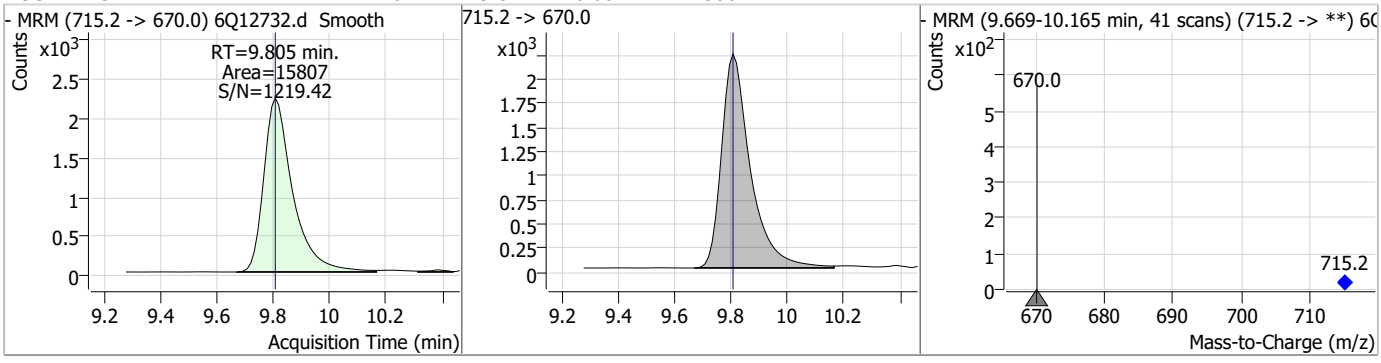
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.42	9.56	0.00	17943	498.1 -> 478.0	3.7	2.2	6.6



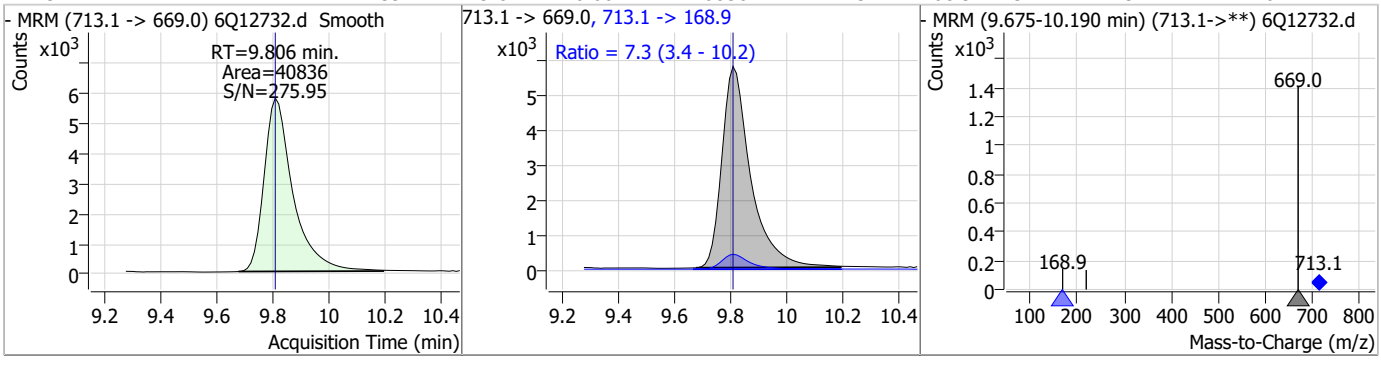
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.42	9.55	-0.01	18601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.81	0.00	15807				

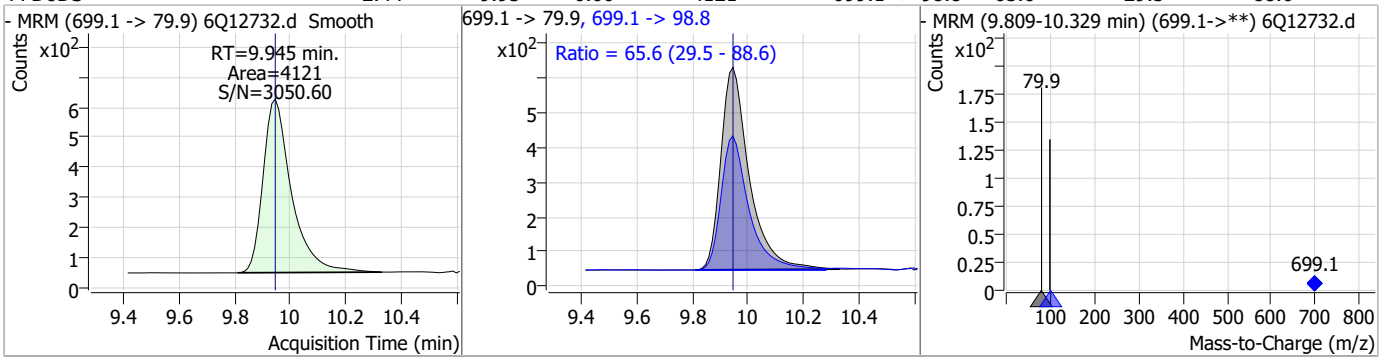


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.39	9.81	0.00	40836	713.1 -> 168.9	7.3	3.4	10.2

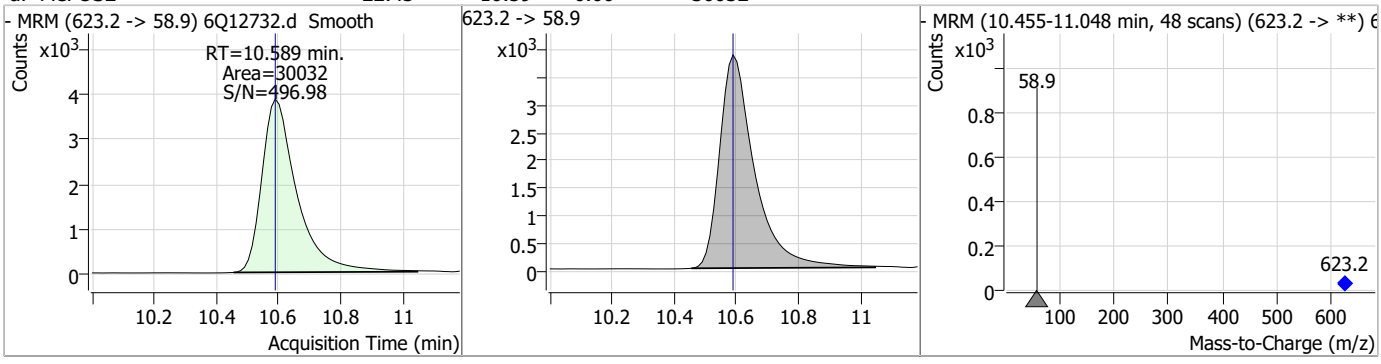


Perfluorinated Compounds by LC/MS/MS

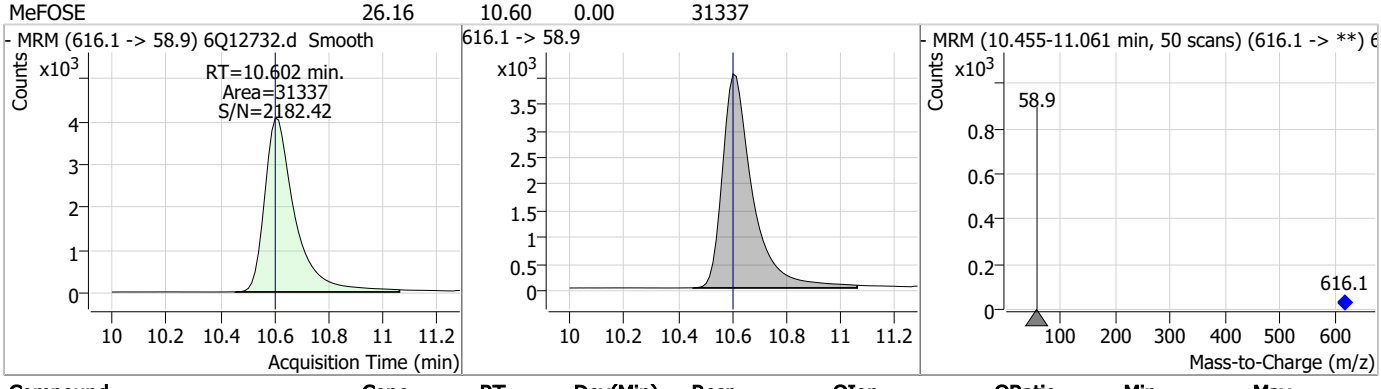
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.44	9.95	0.00	4121	699.1 -> 98.8	65.6	29.5	88.6



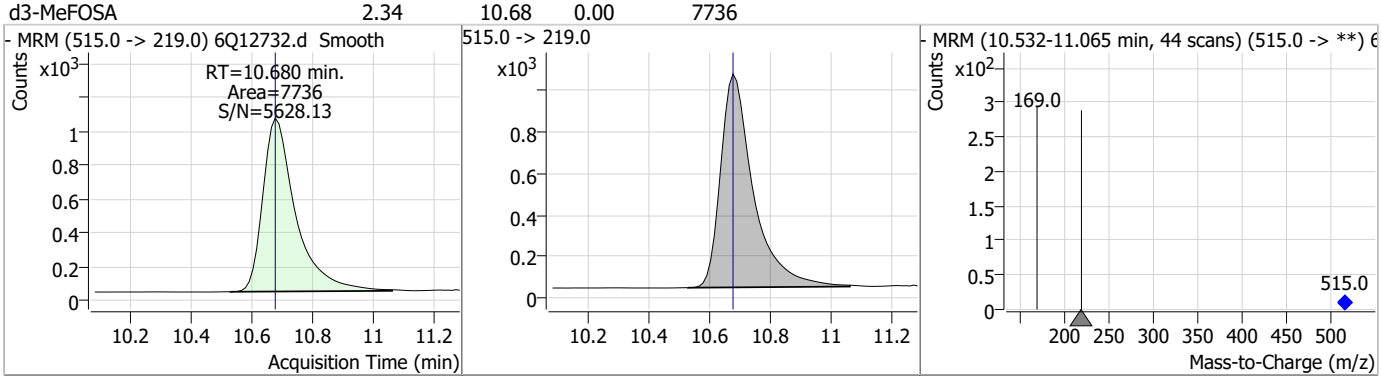
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.43	10.59	0.00	30032				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	26.16	10.60	0.00	31337				

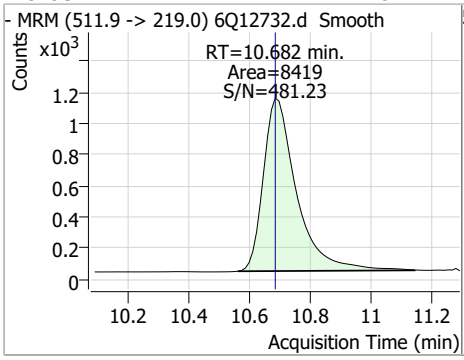


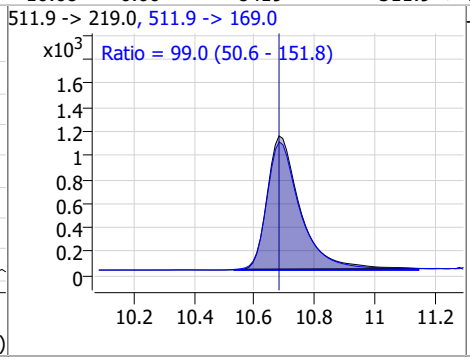
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	10.68	0.00	7736				

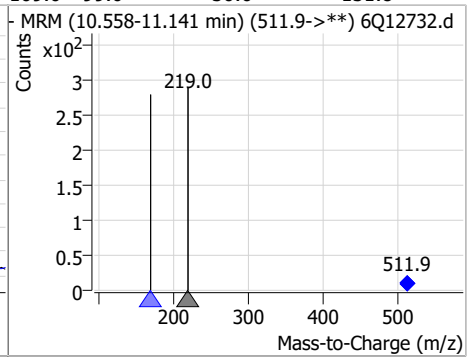


Perfluorinated Compounds by LC/MS/MS

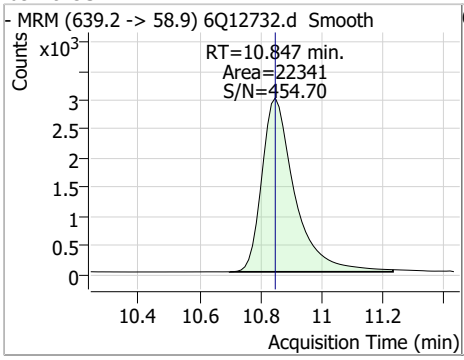
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.52	10.68	0.00	8419	511.9 -> 169.0	99.0	50.6	151.8

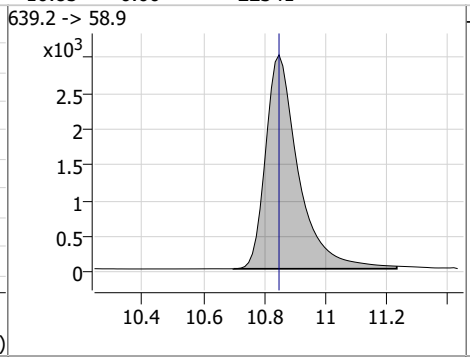


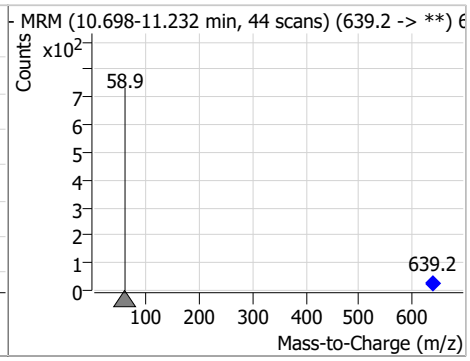




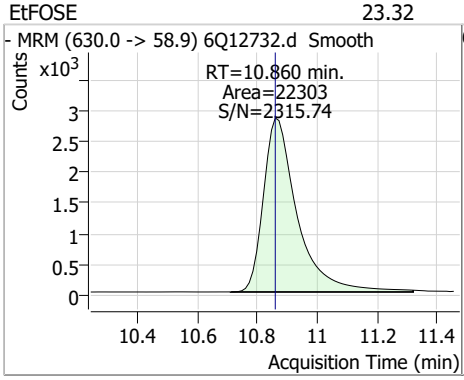
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.21	10.85	0.00	22341				

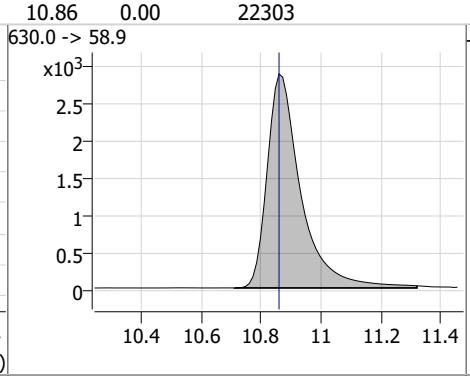


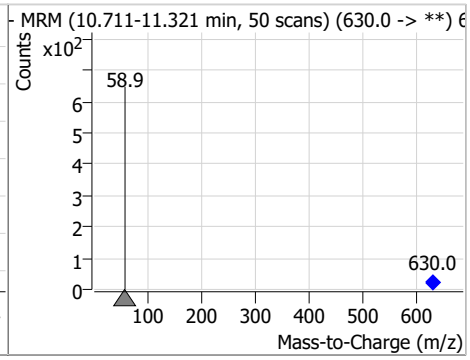




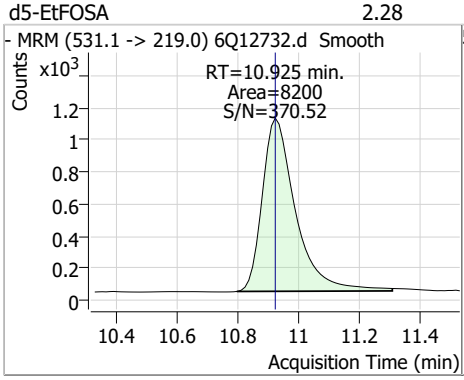
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	23.32	10.86	0.00	22303				

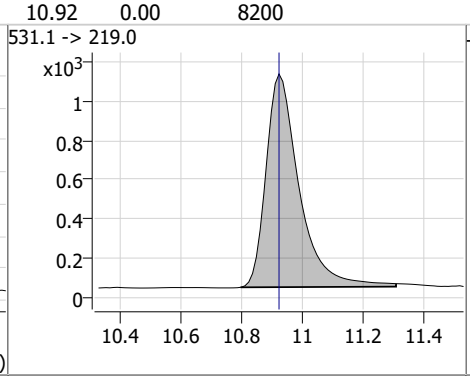


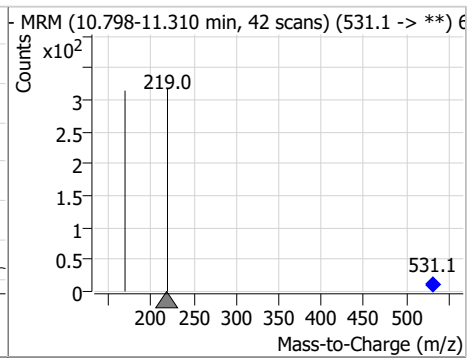




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.28	10.92	0.00	8200				

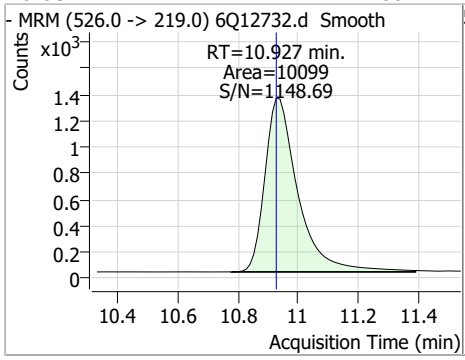


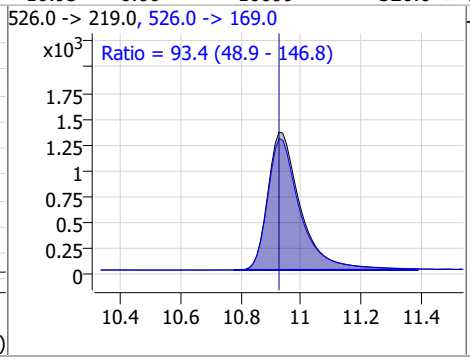


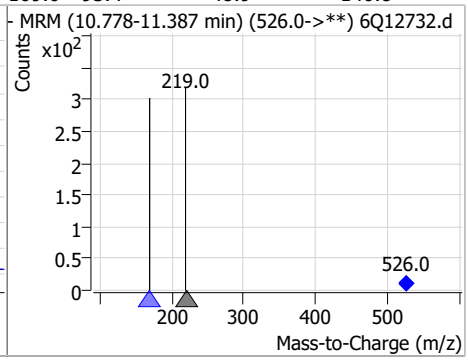


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.58	10.93	0.00	10099	526.0 -> 169.0	93.4	48.9	146.8







7.7.10

7

Manual Integration Approval Summary

Sample Number:	S6Q196-ICV196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12732.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 19:57	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12733.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/1/2023 8:11:13 PM
Sample Name	:	icv196-4
Vial	:	P1-B2
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	S6Q196.batch.bin
Sample Information	:	OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.988	216.8 -> 171.9	79952	10.00	µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	39491	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	34792	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37437	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66233	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	29034	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19754	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22594	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14615	1.25	µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17751	2.50	µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14354	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9092	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8633	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2354	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2893	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3080	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29368	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23579	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30073	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21166	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8141	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7394	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11067	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35466	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6473	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	78778	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27701	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31251	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34246	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2354	5.59	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2893	5.18	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3080	5.49	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14615	1.20	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14354	2.72	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	9092	2.67	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C4-PFBA	2.988	216.8 -> 171.9	79952	10.16 µg/L		0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C4-PFHpA	6.502	367.1 -> 322.0	37437	2.65 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C5-PFHxA	5.575	318.0 -> 273.0	34792	2.57 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C5-PFPeA	4.386	268.3 -> 223.0	39491	5.17 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19754	1.28 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22594	1.23 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C8-FOSA	9.555	506.1 -> 77.8	17751	2.46 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C8-PFOA	7.146	421.1 -> 376.0	66233	2.52 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8633	2.37 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C9-PFNA	7.677	472.1 -> 427.0	29034	1.32 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29368	4.84 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.81 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7394	2.38 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23579	4.68 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	30073	23.93 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	21166	24.44 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	8141	2.41 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	101970	19.32 µg/L		98
		327.1 -> 80.9	21342			
6:2FTS	6.908	427.1 -> 407.0	87375	20.62 µg/L		99
		427.1 -> 80.9	15878			
8:2FTS	7.958	527.1 -> 507.0	48914	20.45 µg/L		100
		527.1 -> 80.8	11691			
EtFOSAA	8.424	584.2 -> 419.1	75476	19.99 µg/L	m	92
		584.2 -> 526.0	40031			
FOSA	9.557	498.1 -> 77.9	138240	19.51 µg/L		99
		498.1 -> 478.0	5722			
MeFOSAA	8.216	570.1 -> 419.0	101435	18.85 µg/L		94
		570.1 -> 483.0	17390			
PFBA	2.982	212.8 -> 168.9	32215	18.04 µg/L		100
PFBS	5.518	298.7 -> 79.9	103885	18.84 µg/L		96
		298.7 -> 98.8	48007			
PFDA	8.170	512.9 -> 469.0	429530	19.11 µg/L		97
		512.9 -> 219.0	59110			
PFDoDA	9.067	613.1 -> 569.0	337429	17.45 µg/L		97
		613.1 -> 319.0	37730			
PFDS	9.241	599.0 -> 79.9	54229	18.54 µg/L		100

Perfluorinated Compounds by LC/MS/MS

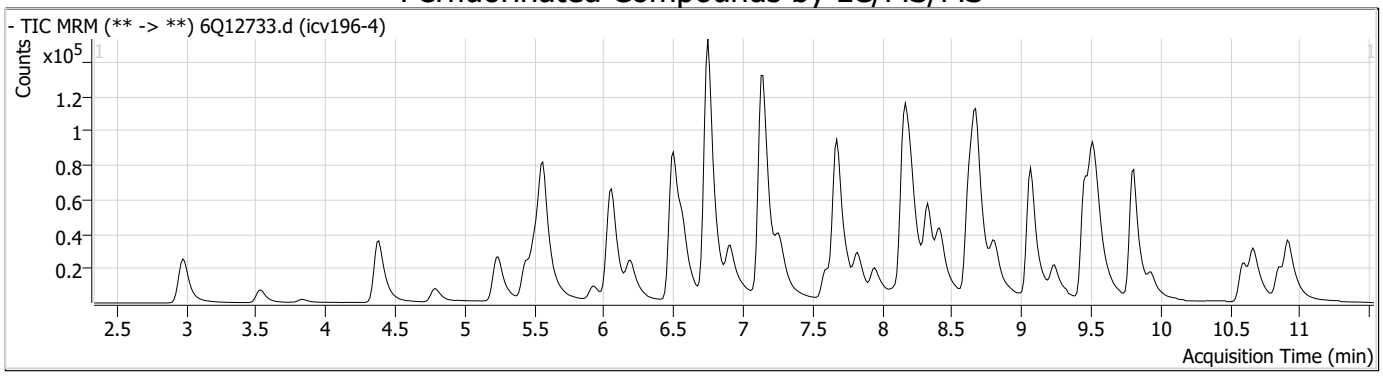
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	27466				
PFHpA	6.503	363.1 -> 319.0	390510	17.61	µg/L		95
		363.1 -> 169.0	56801				
PFHpS	7.841	449.0 -> 79.9	71508	19.53	µg/L		96
		449.0 -> 98.9	41650				
PFHxA	5.566	313.0 -> 269.0	289962	21.24	µg/L		97
		313.0 -> 118.9	9630				
PFHxS	7.275	398.7 -> 79.9	79906	19.56	µg/L	m	91
		398.7 -> 98.9	45517				
PFNA	7.677	463.0 -> 419.0	374102	19.10	µg/L		99
		463.0 -> 219.0	73687				
PFNS	8.824	548.8 -> 79.9	75978	19.80	µg/L		99
		548.8 -> 98.9	42325				
PFOA	7.148	413.0 -> 369.0	522846	17.92	µg/L		100
		413.0 -> 169.0	71492				
PFOS	8.334	498.9 -> 79.9	64767	16.35	µg/L	m	68
		498.9 -> 98.8	37069				
PFPeA	4.388	263.0 -> 219.0	170278	20.42	µg/L		100
PFPeS	6.581	349.1 -> 79.9	95006	20.00	µg/L		98
		349.1 -> 98.9	49612				
PFTeDA	9.806	713.1 -> 669.0	330527	20.96	µg/L		99
		713.1 -> 168.9	21227				
PFTrDA	9.462	663.0 -> 619.0	319271	17.26	µg/L		98
		663.0 -> 168.9	23448				
PFUnDA	8.637	563.1 -> 519.0	322562	18.33	µg/L		98
		563.1 -> 269.1	46295				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	222884	20.53	µg/L		97
		632.9 -> 452.9	64982				
9Cl-PF3ONS	8.688	530.8 -> 351.0	337382	18.39	µg/L		96
		532.8 -> 353.0	101290				
ADONA	6.753	376.9 -> 250.9	652420	19.88	µg/L		97
		376.9 -> 84.8	135036				
HFPO-DA	5.940	284.9 -> 168.9	26601	18.80	µg/L		97
		284.9 -> 184.9	3186				
3:3FTCA	3.841	241.0 -> 177.0	7970	19.46	µg/L		97
		241.0 -> 117.0	1079				
5:3FTCA	6.206	341.0 -> 237.1	57017	19.98	µg/L		99
		341.0 -> 217.0	49158				
7:3FTCA	7.605	441.0 -> 316.9	35397	18.98	µg/L		86
		441.0 -> 336.9	66676				
EtFOSA	10.927	526.0 -> 219.0	74265	19.11	µg/L		98
		526.0 -> 169.0	71604				
EtFOSE	10.860	630.0 -> 58.9	84979	93.80	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	64363	20.12	µg/L		96
		511.9 -> 169.0	62497				
MeFOSE	10.602	616.1 -> 58.9	107130	89.30	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	31906	18.24	µg/L		97
		699.1 -> 98.8	19499				
NFDHA	5.457	295.0 -> 201.0	14673	18.19	µg/L		95
		295.0 -> 84.9	8016				
PFMBA	4.800	279.0 -> 85.1	45072	19.22	µg/L		100
PFMPA	3.541	229.0 -> 84.9	42282	19.01	µg/L		100
PFEESA	6.059	314.8 -> 134.9	339828	17.30	µg/L		100
		314.8 -> 82.9	8276				

= Qualifier out of range, m = manually integrated, + = Area summed

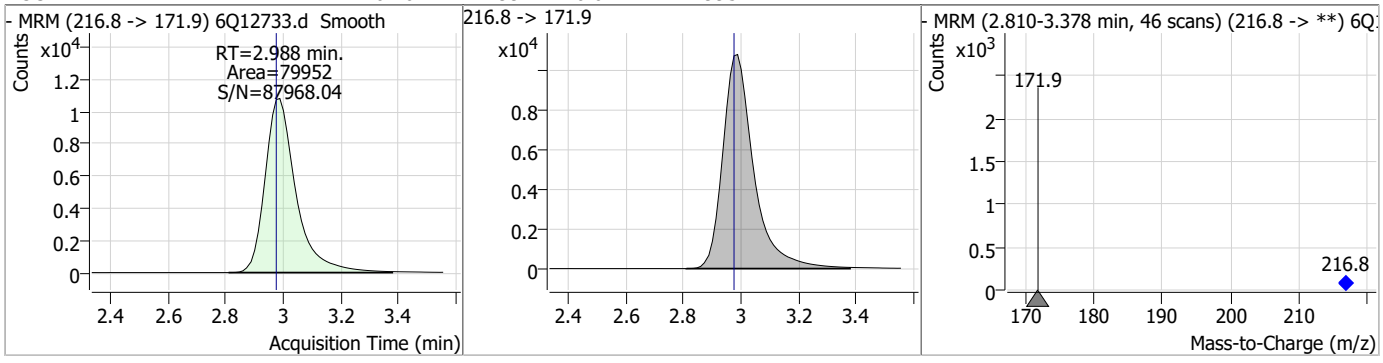
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

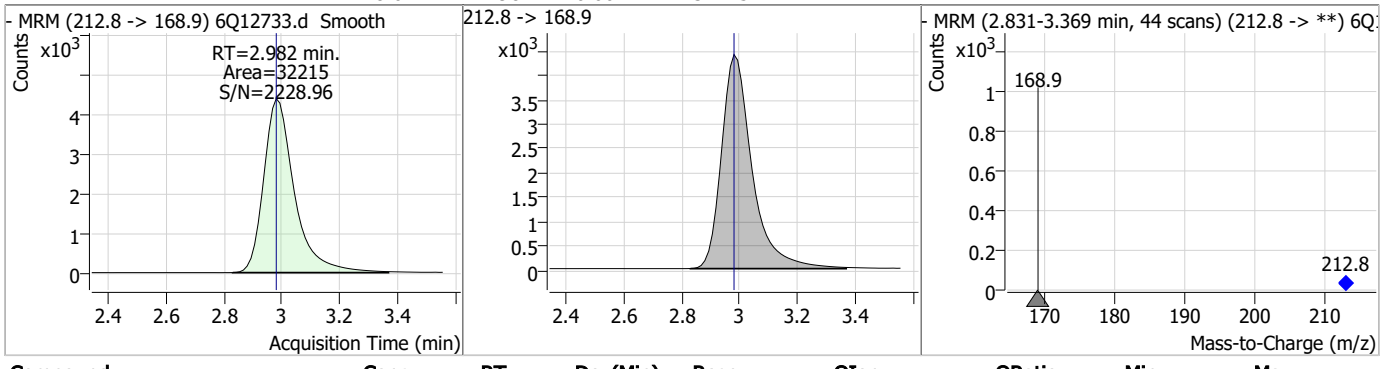
Perfluorinated Compounds by LC/MS/MS



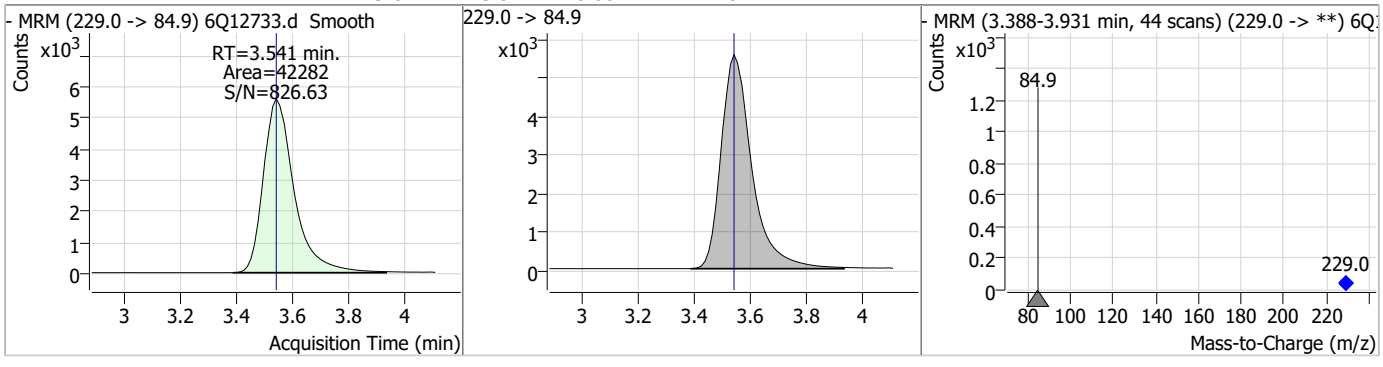
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.16	2.99	0.01	79952				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.04	2.98	0.00	32215				

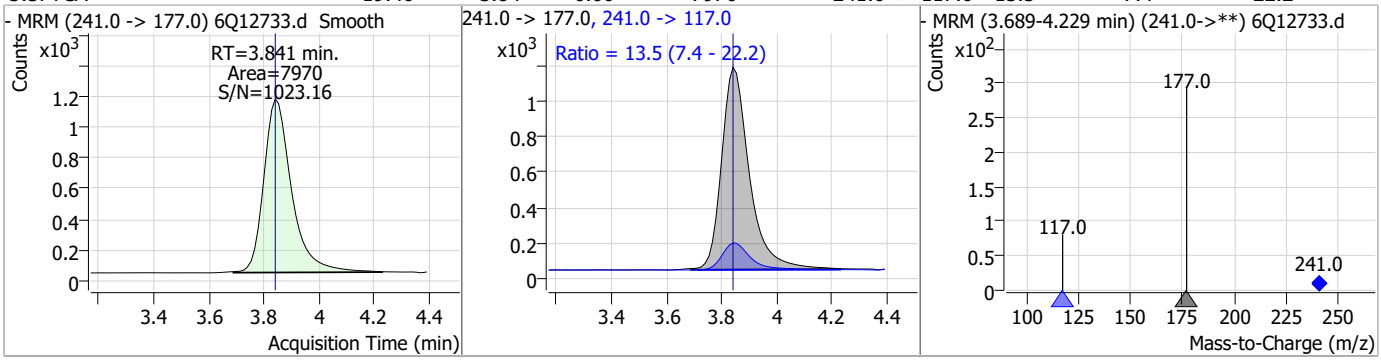


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.01	3.54	0.00	42282				

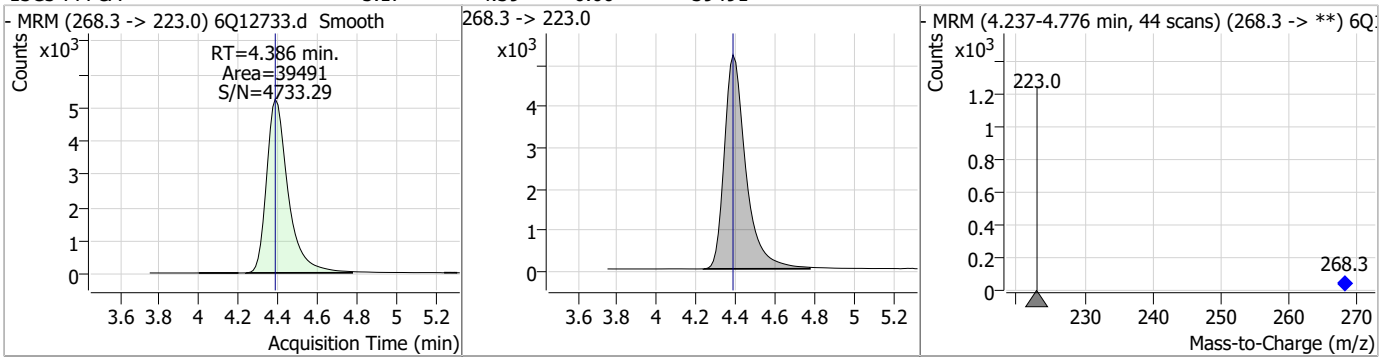


Perfluorinated Compounds by LC/MS/MS

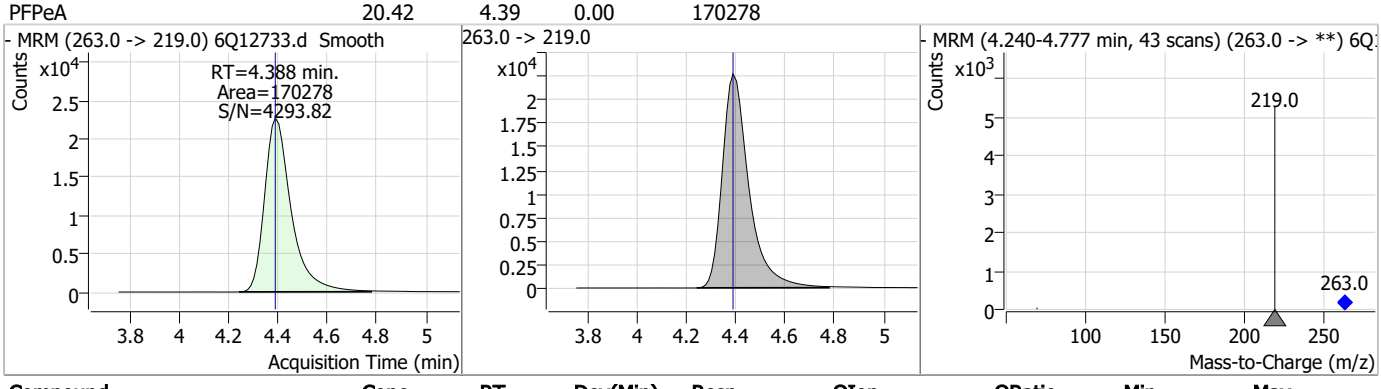
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	19.46	3.84	0.00	7970	241.0 -> 117.0	13.5	7.4	22.2



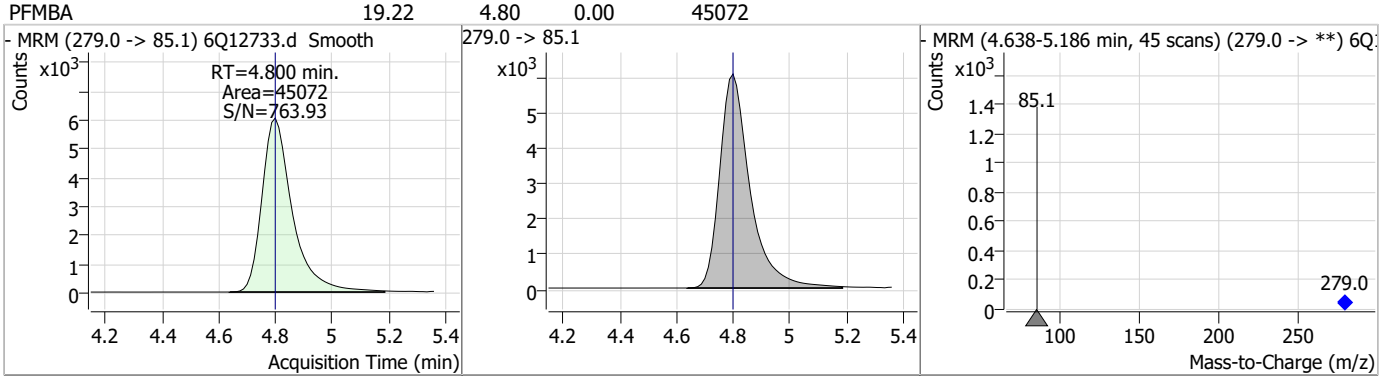
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.39	0.00	39491				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.42	4.39	0.00	170278				

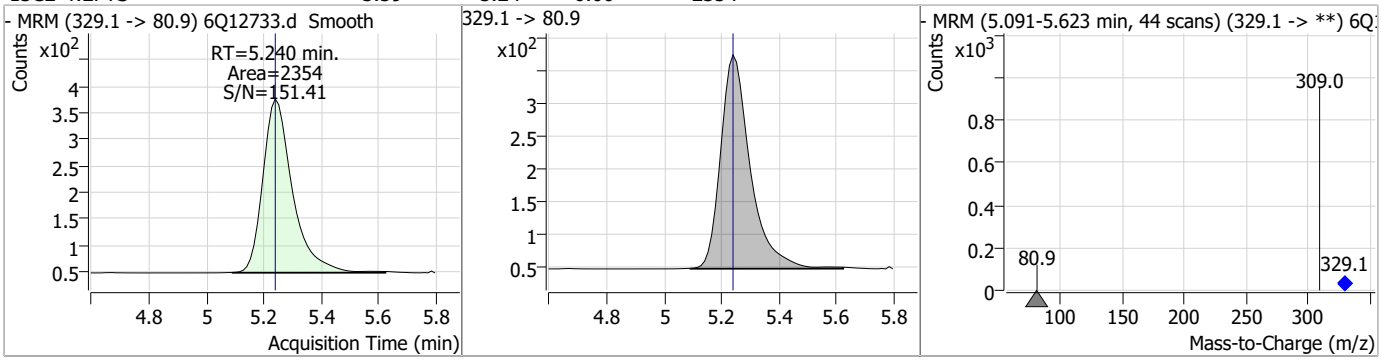


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.22	4.80	0.00	45072				

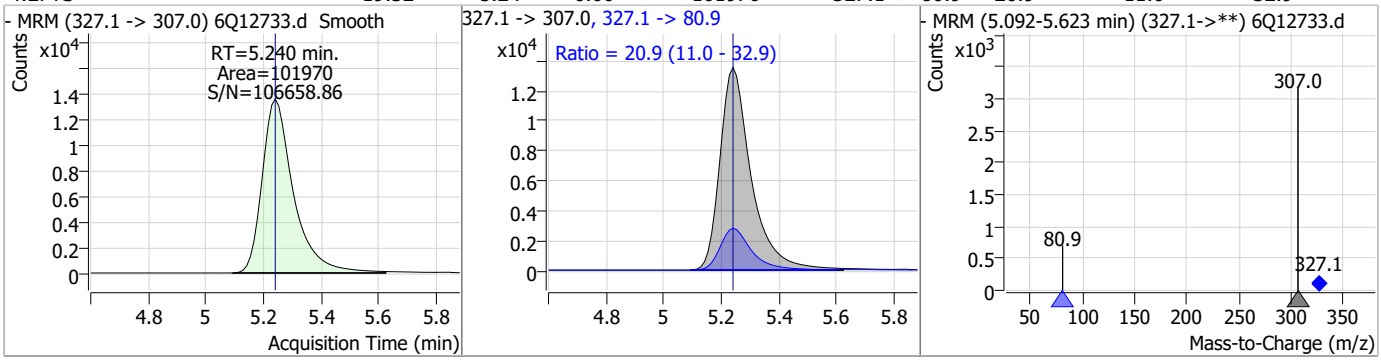


Perfluorinated Compounds by LC/MS/MS

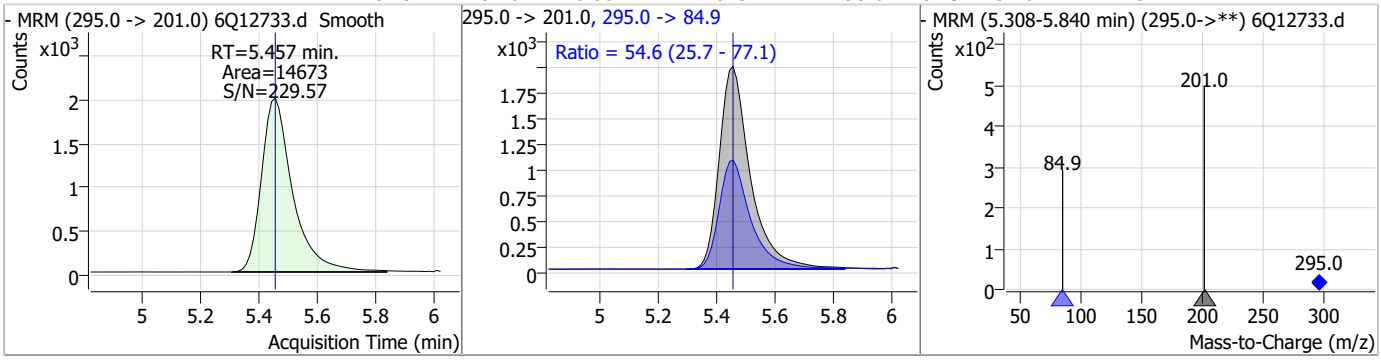
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.59	5.24	0.00	2354				



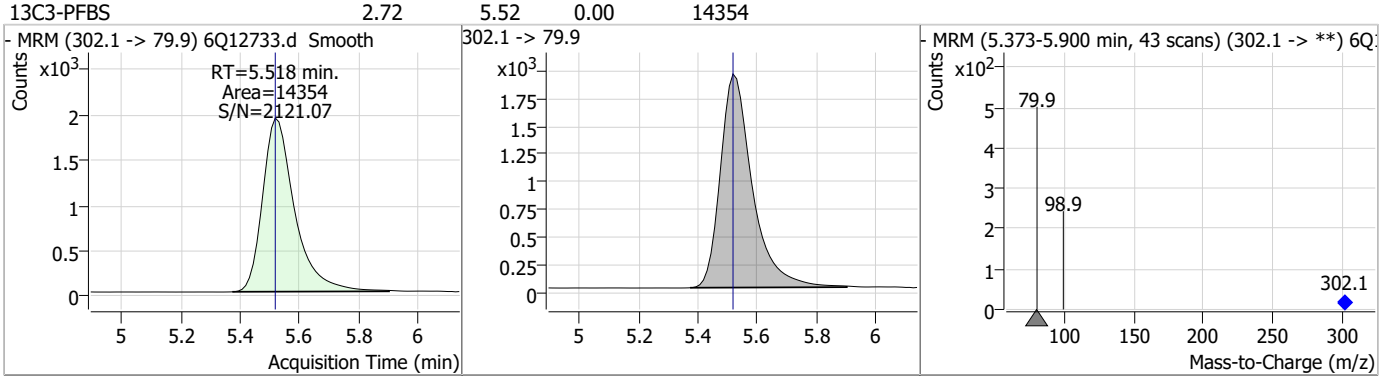
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.32	5.24	0.00	101970	327.1 -> 80.9	20.9	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	18.19	5.46	0.00	14673	295.0 -> 84.9	54.6	25.7	77.1

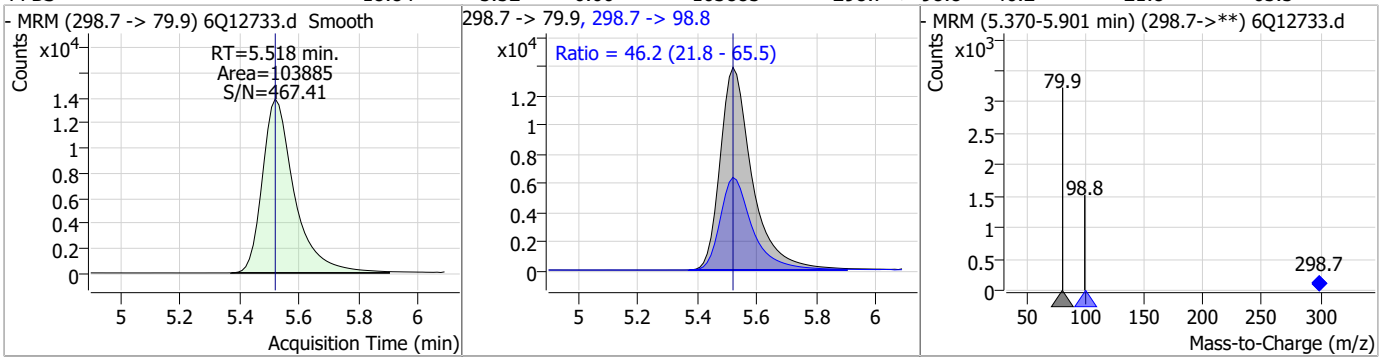


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.72	5.52	0.00	14354				

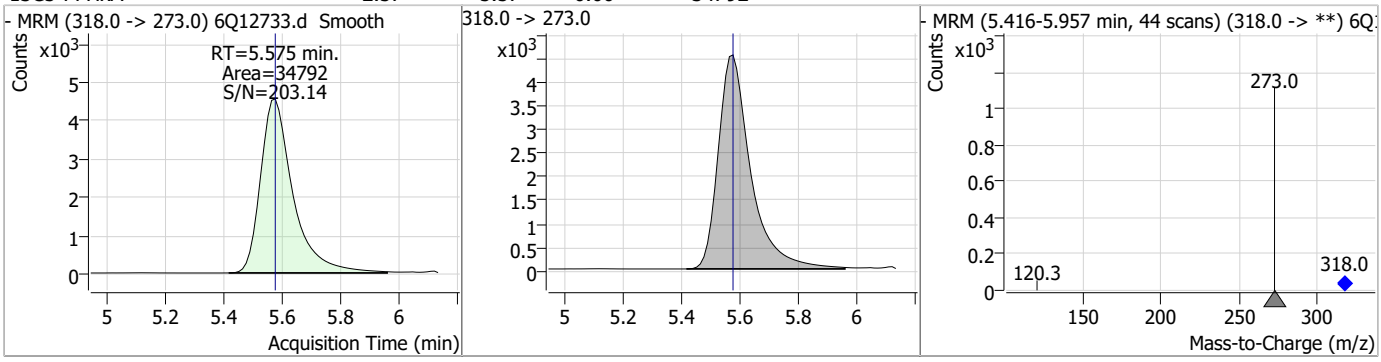


Perfluorinated Compounds by LC/MS/MS

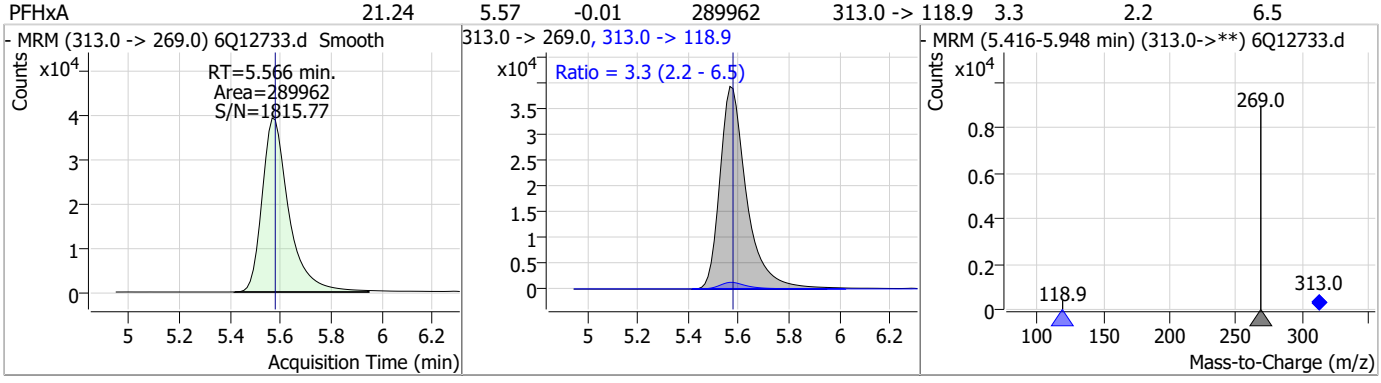
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.84	5.52	0.00	103885	298.7 -> 98.8	46.2	21.8	65.5



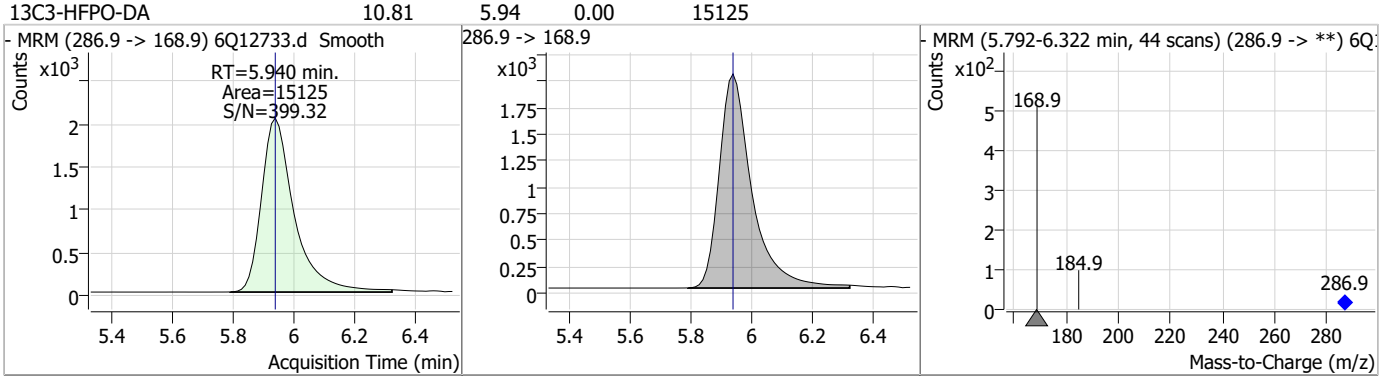
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.57	0.00	34792				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.24	5.57	-0.01	289962	313.0 -> 118.9	3.3	2.2	6.5

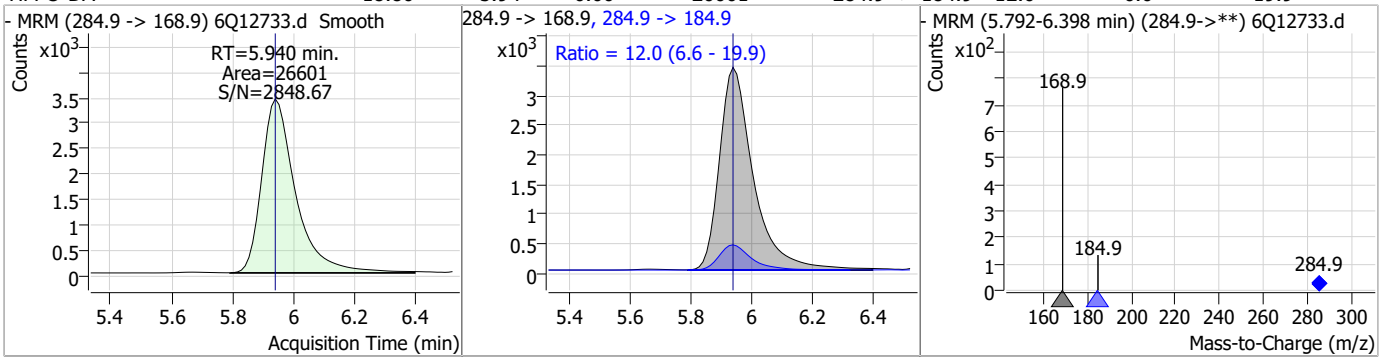


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.81	5.94	0.00	15125				

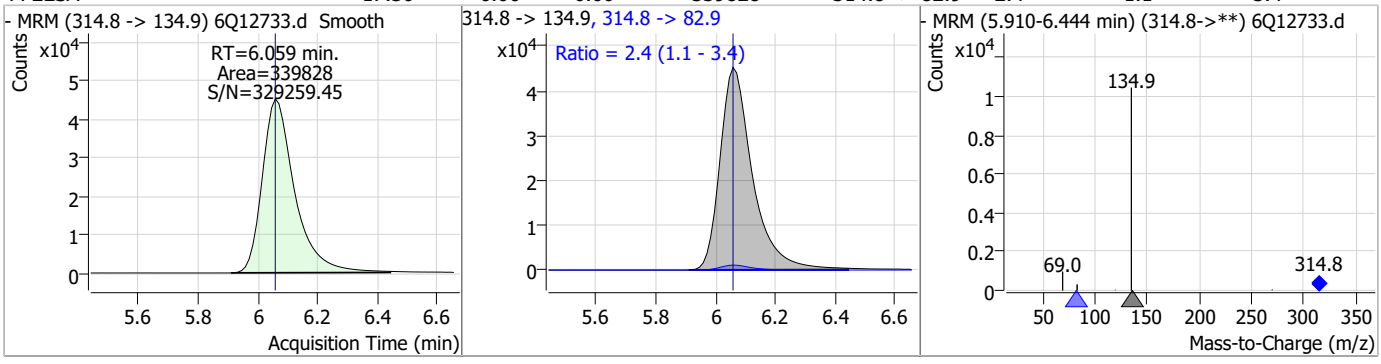


Perfluorinated Compounds by LC/MS/MS

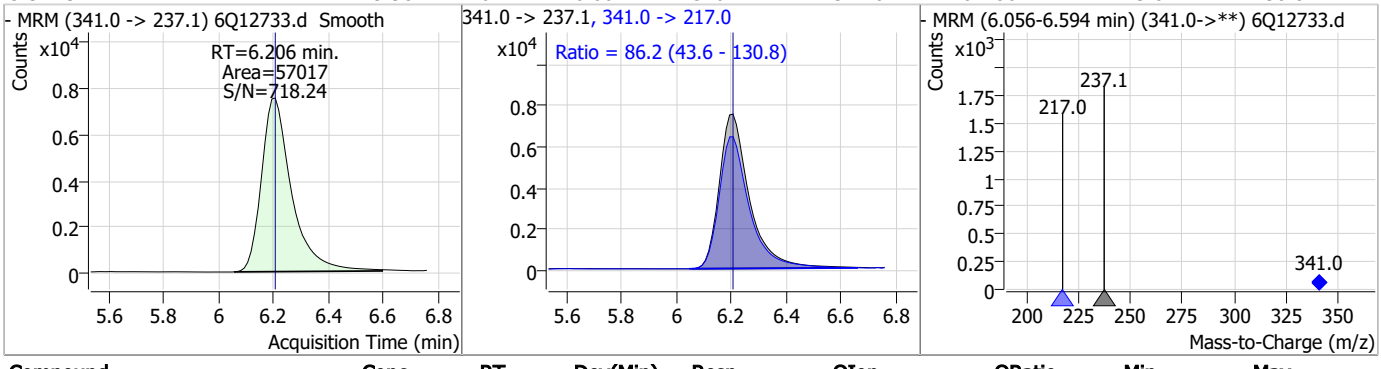
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.80	5.94	0.00	26601	284.9 -> 184.9	12.0	6.6	19.9



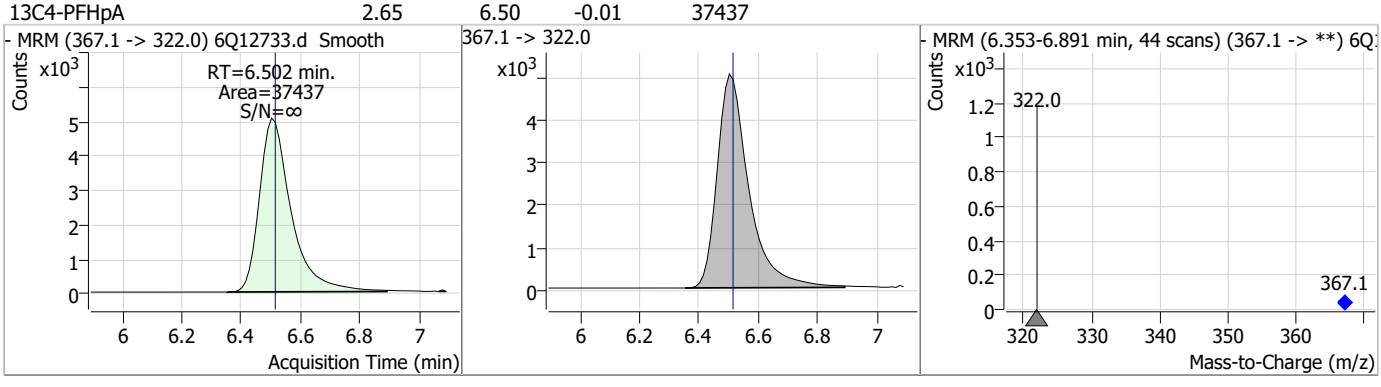
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	17.30	6.06	0.00	339828	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.98	6.21	0.00	57017	341.0 -> 217.0	86.2	43.6	130.8

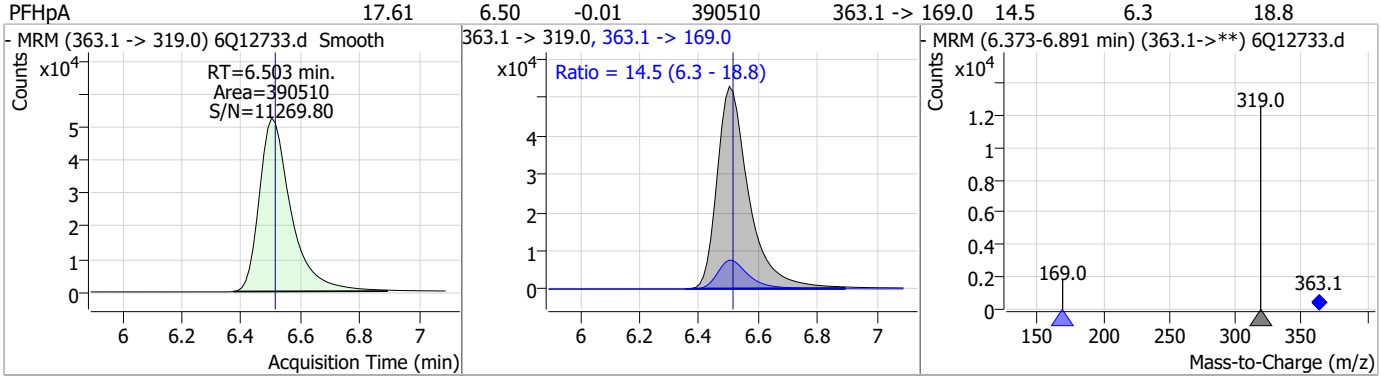


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.65	6.50	-0.01	37437				

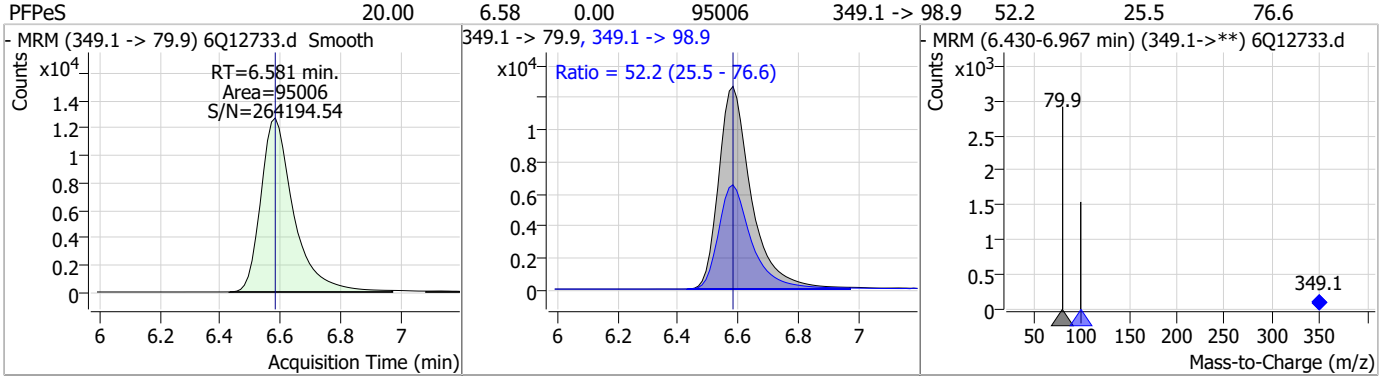


Perfluorinated Compounds by LC/MS/MS

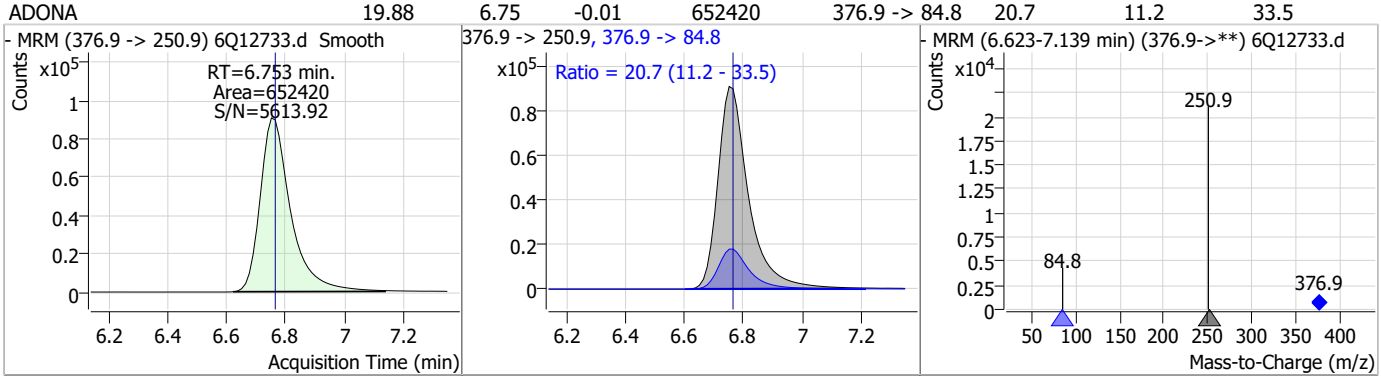
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	17.61	6.50	-0.01	390510	363.1 -> 169.0	14.5	6.3	18.8



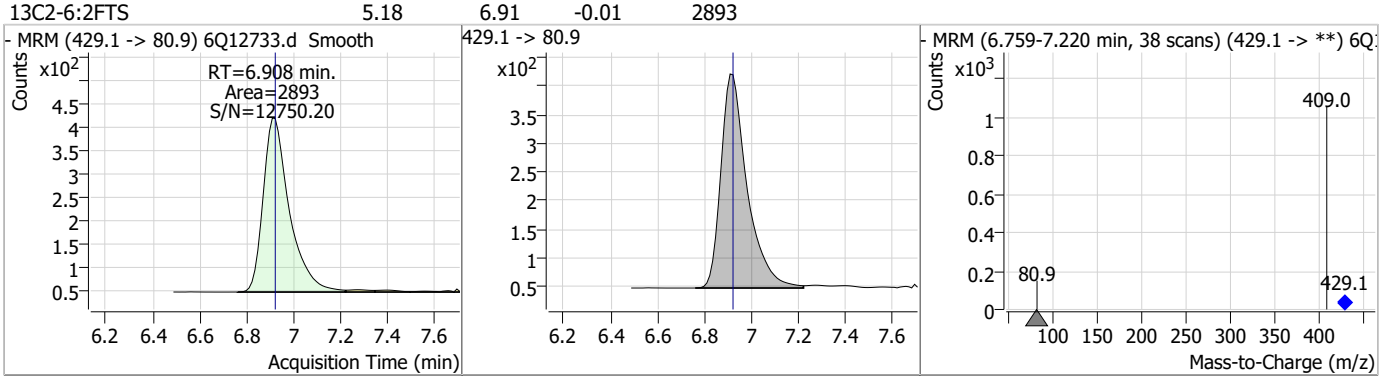
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.00	6.58	0.00	95006	349.1 -> 98.9	52.2	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.88	6.75	-0.01	652420	376.9 -> 84.8	20.7	11.2	33.5

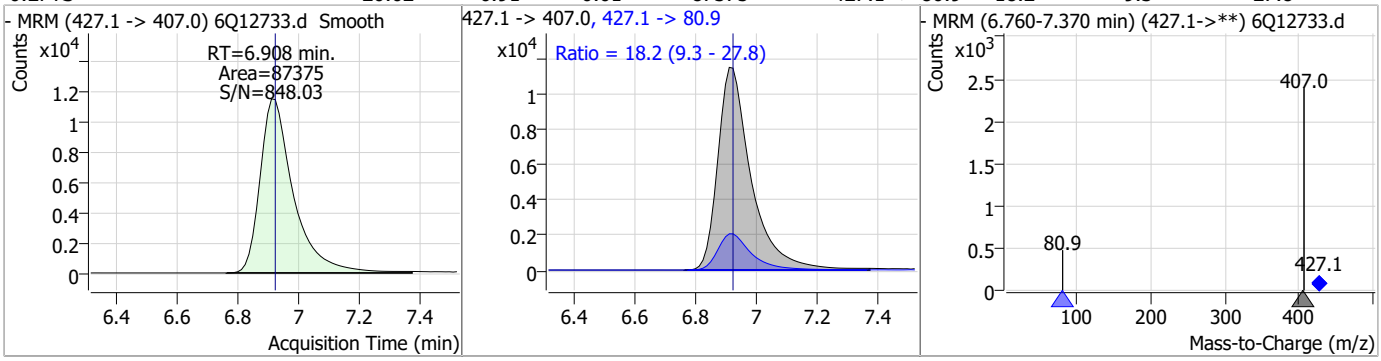


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.18	6.91	-0.01	2893				

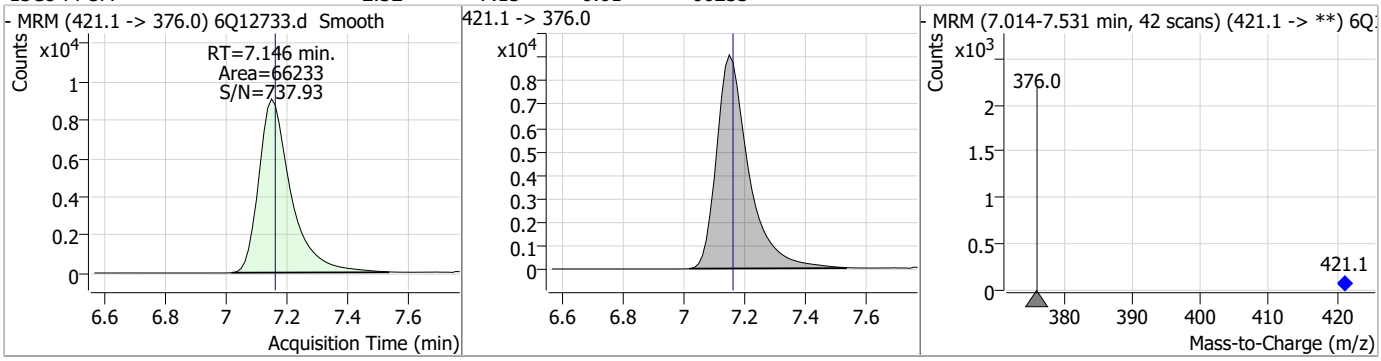


Perfluorinated Compounds by LC/MS/MS

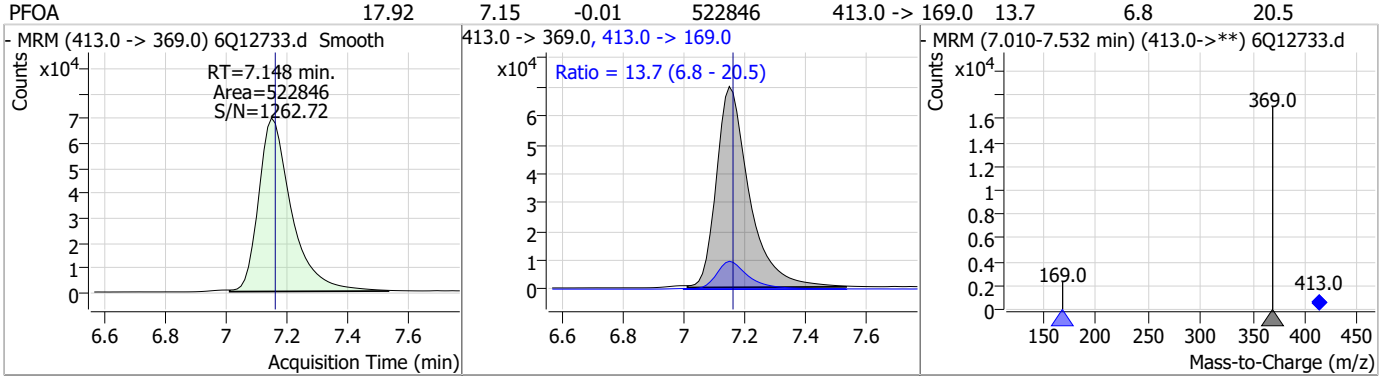
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.62	6.91	-0.01	87375	427.1 -> 80.9	18.2	9.3	27.8



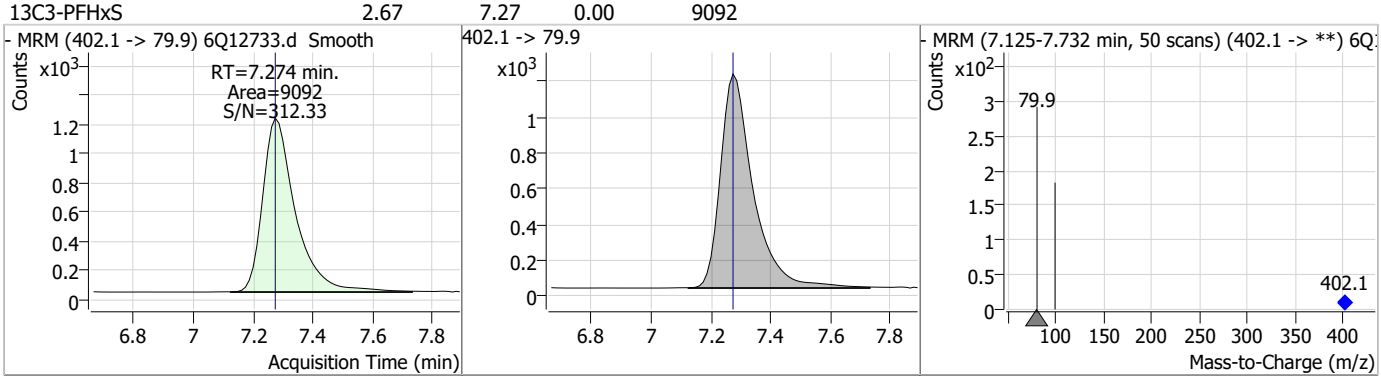
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.52	7.15	-0.01	66233				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.92	7.15	-0.01	522846	413.0 -> 169.0	13.7	6.8	20.5

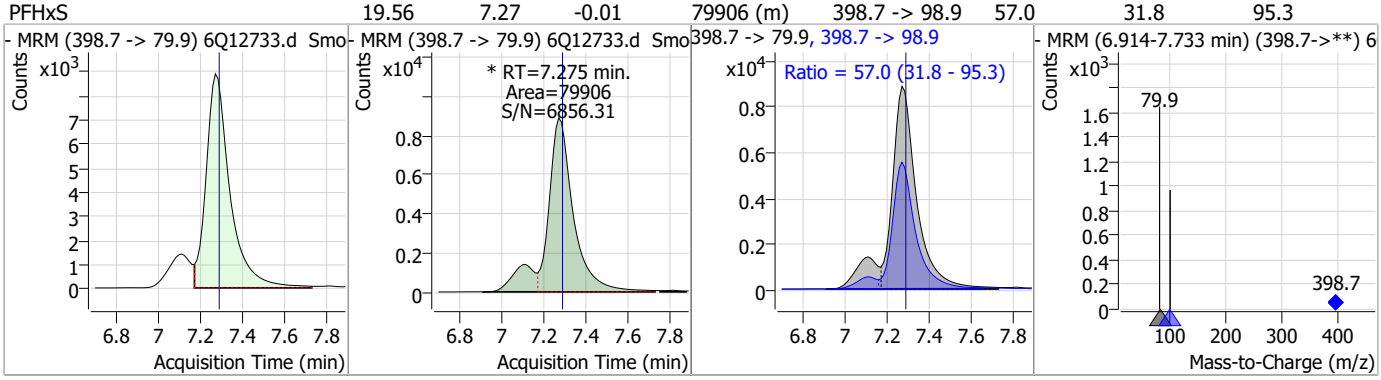


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.67	7.27	0.00	9092				

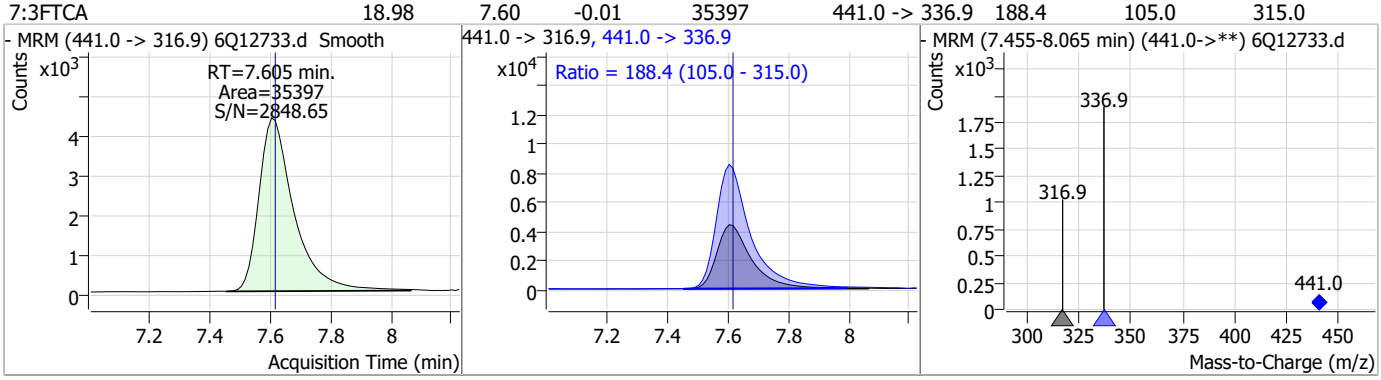


Perfluorinated Compounds by LC/MS/MS

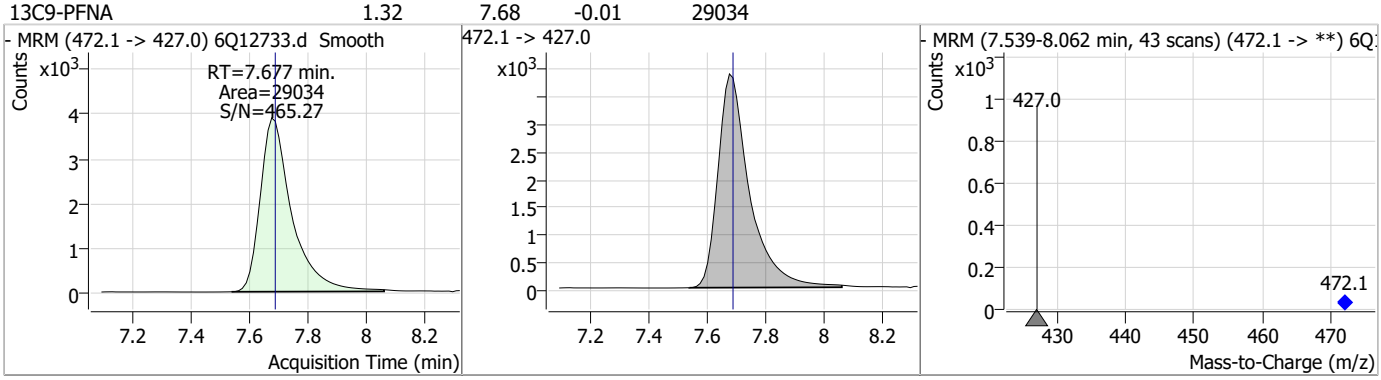
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.56	7.27	-0.01	79906 (m)	398.7 -> 98.9	57.0	31.8	95.3



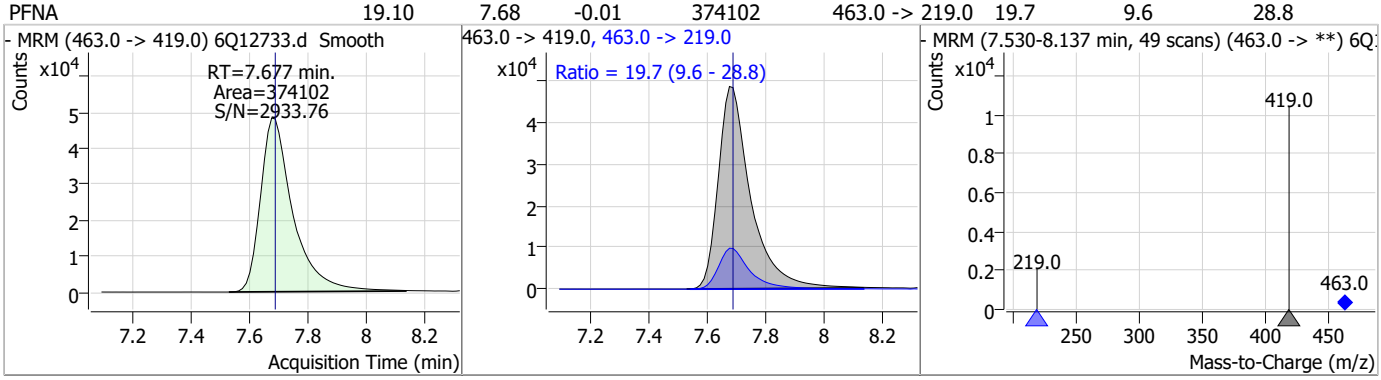
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	18.98	7.60	-0.01	35397	441.0 -> 336.9	188.4	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.68	-0.01	29034				

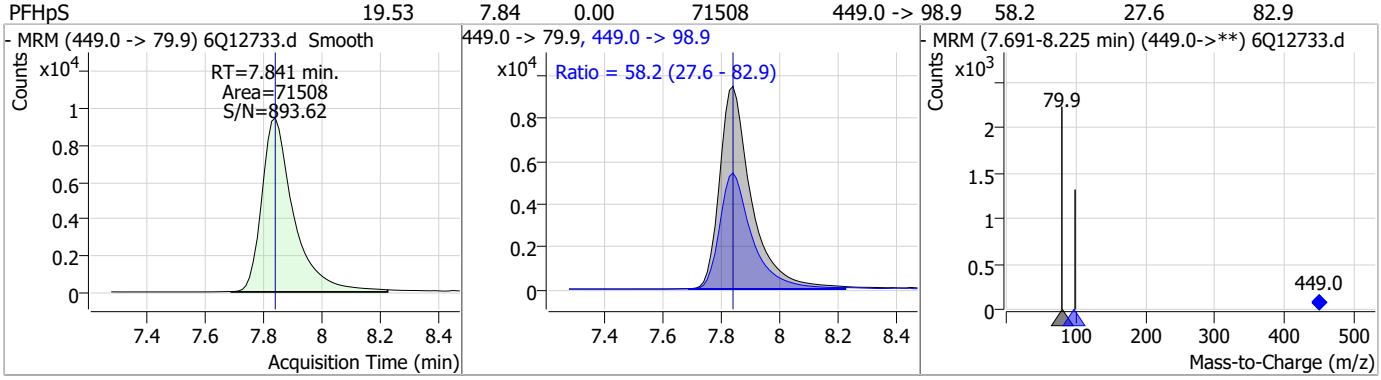


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.10	7.68	-0.01	374102	463.0 -> 219.0	19.7	9.6	28.8

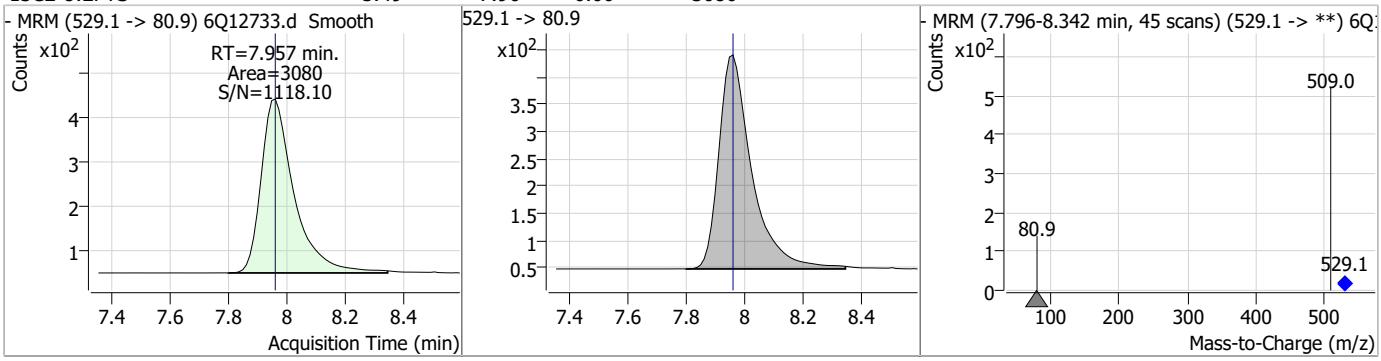


Perfluorinated Compounds by LC/MS/MS

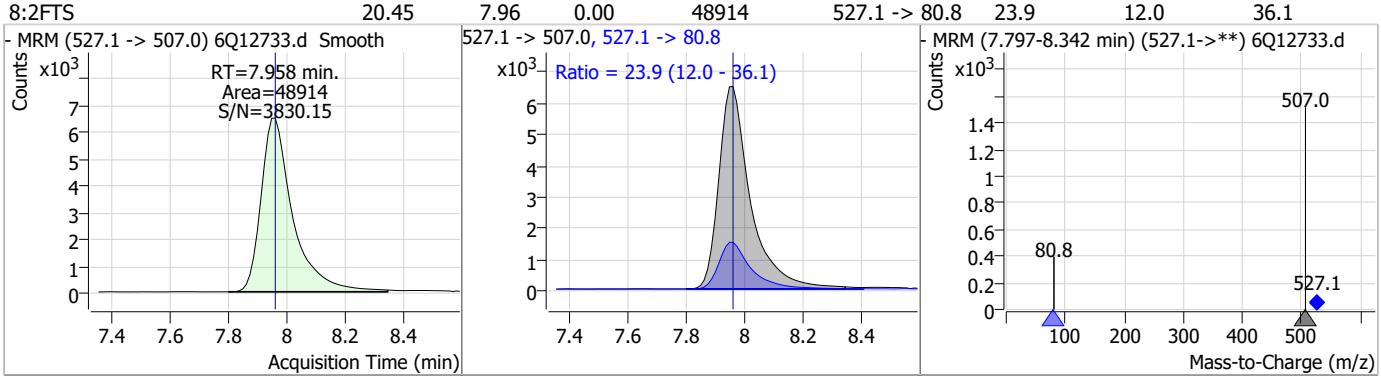
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.53	7.84	0.00	71508	449.0 -> 98.9	58.2	27.6	82.9



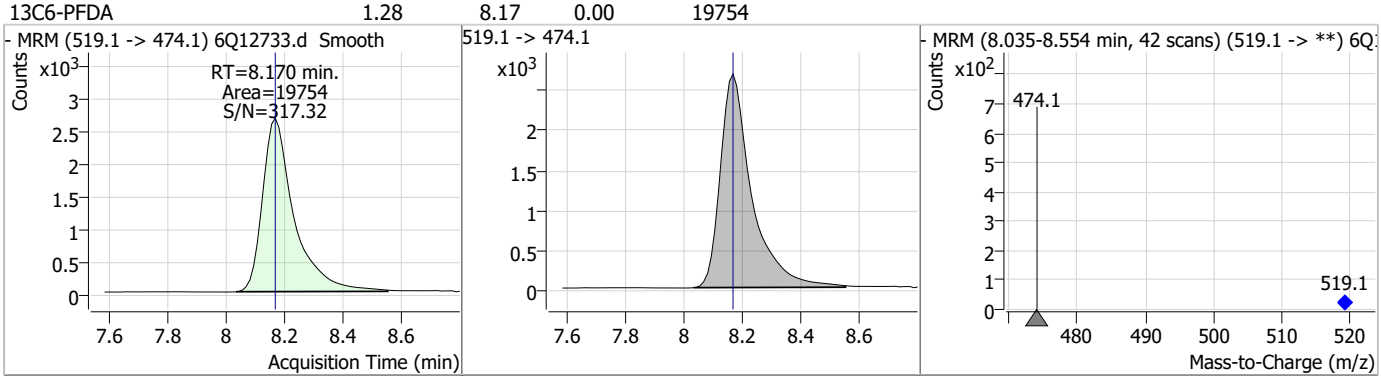
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.49	7.96	0.00	3080				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.45	7.96	0.00	48914	527.1 -> 80.8	23.9	12.0	36.1

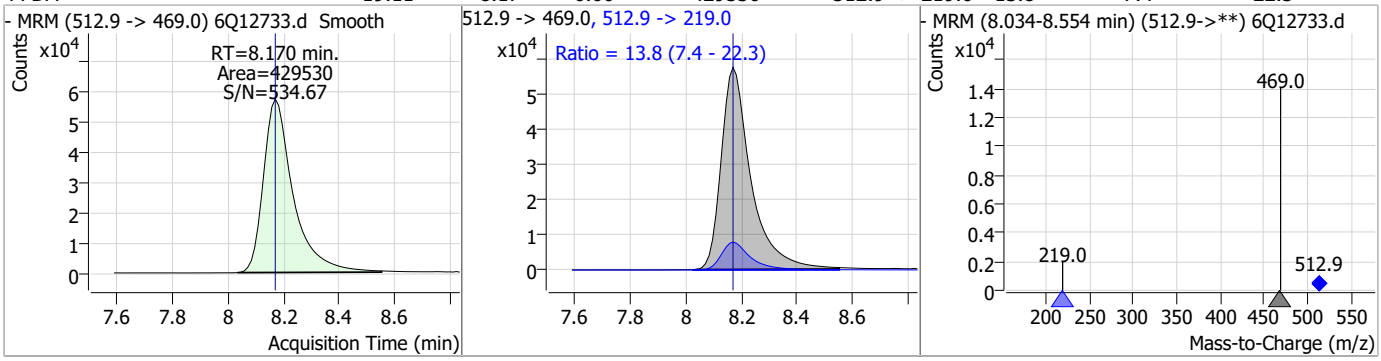


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.28	8.17	0.00	19754				

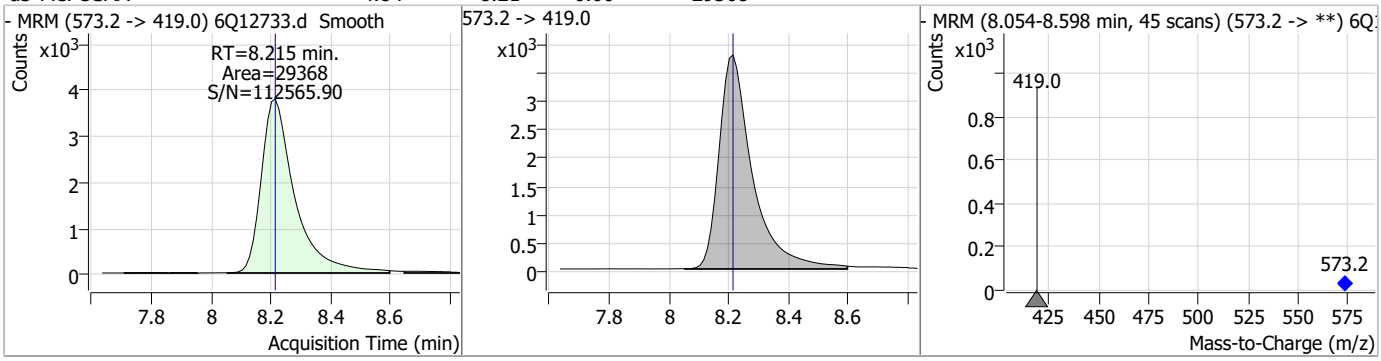


Perfluorinated Compounds by LC/MS/MS

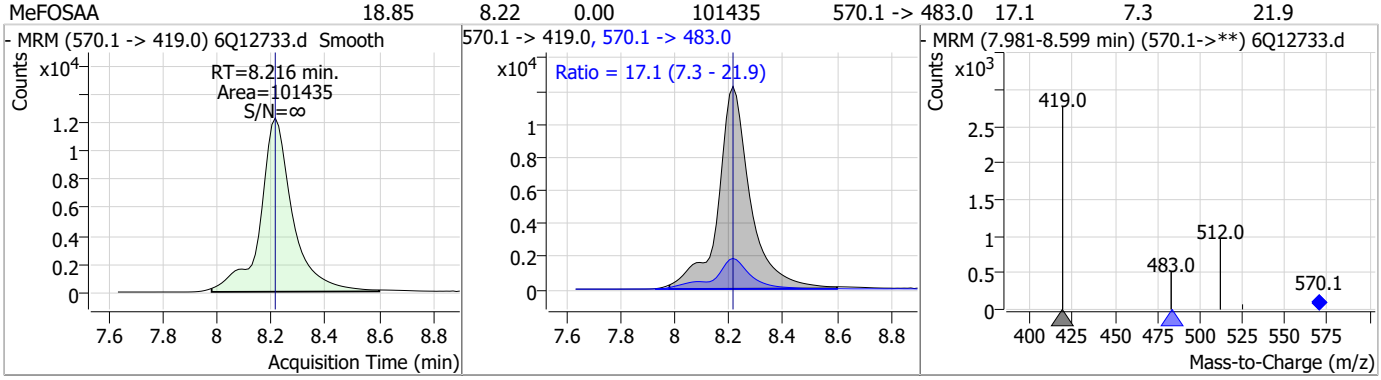
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.11	8.17	0.00	429530	512.9 -> 219.0	13.8	7.4	22.3



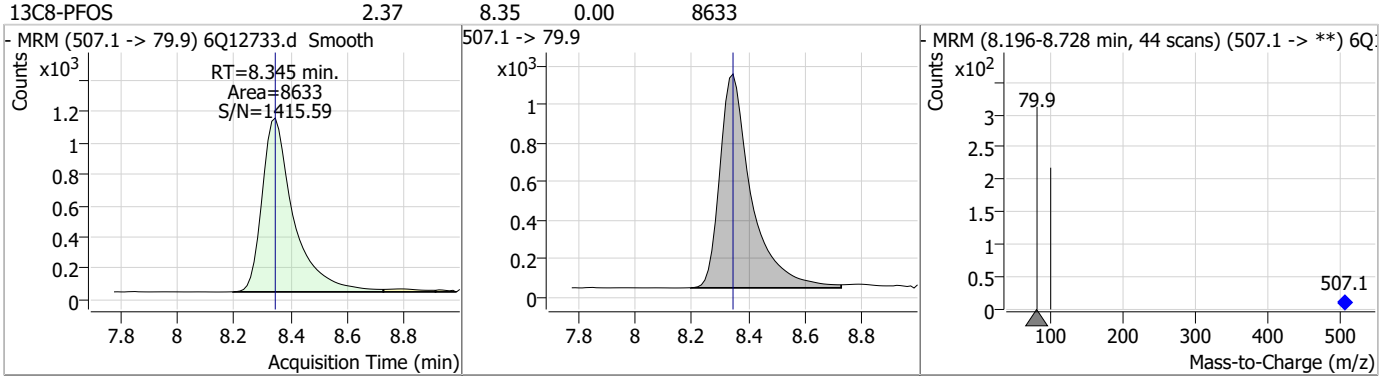
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.84	8.21	0.00	29368				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.85	8.22	0.00	101435	570.1 -> 483.0	17.1	7.3	21.9

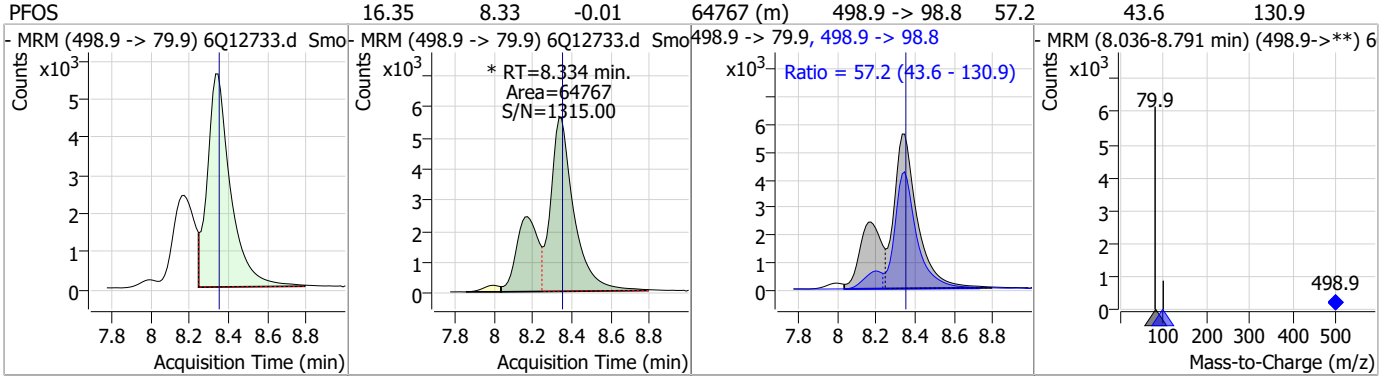


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.37	8.35	0.00	8633				

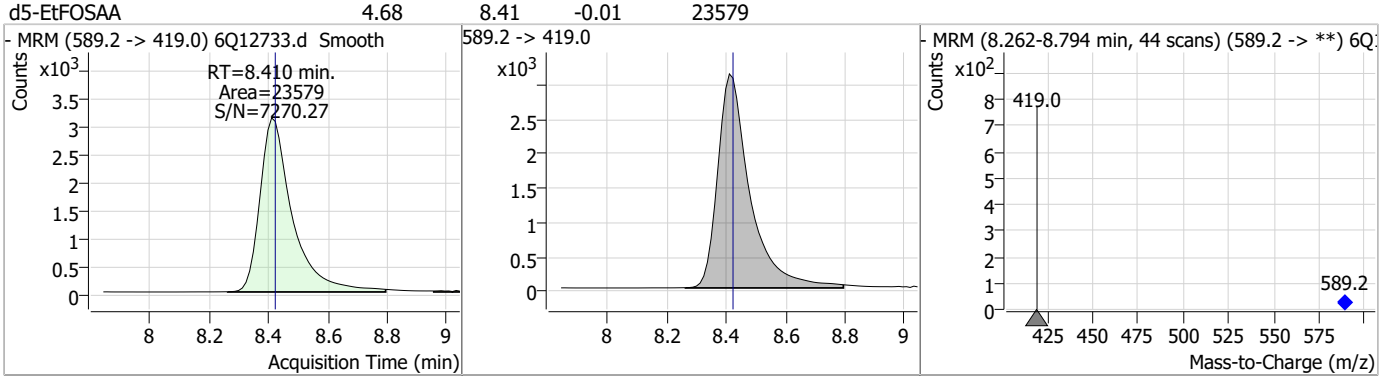


Perfluorinated Compounds by LC/MS/MS

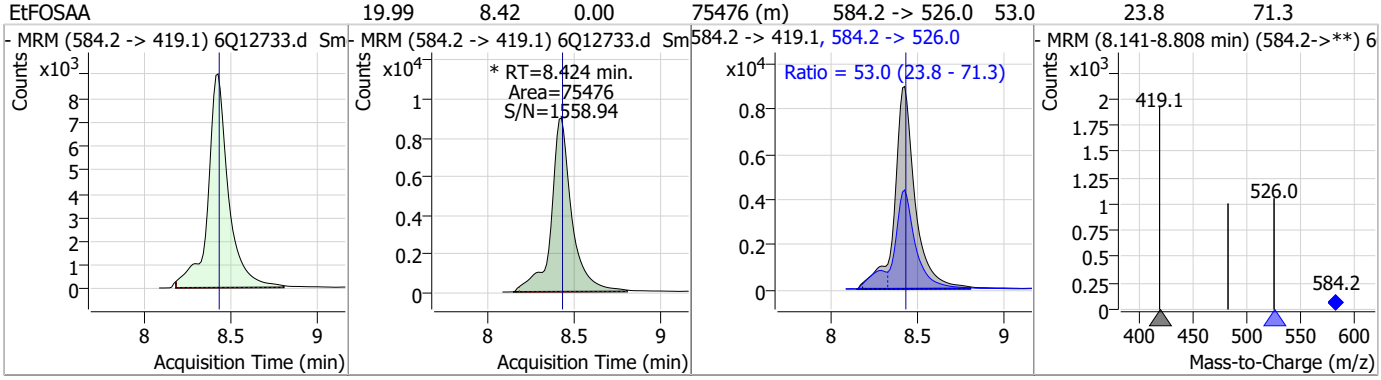
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.35	8.33	-0.01	64767 (m)	498.9 -> 98.8	57.2	43.6	130.9



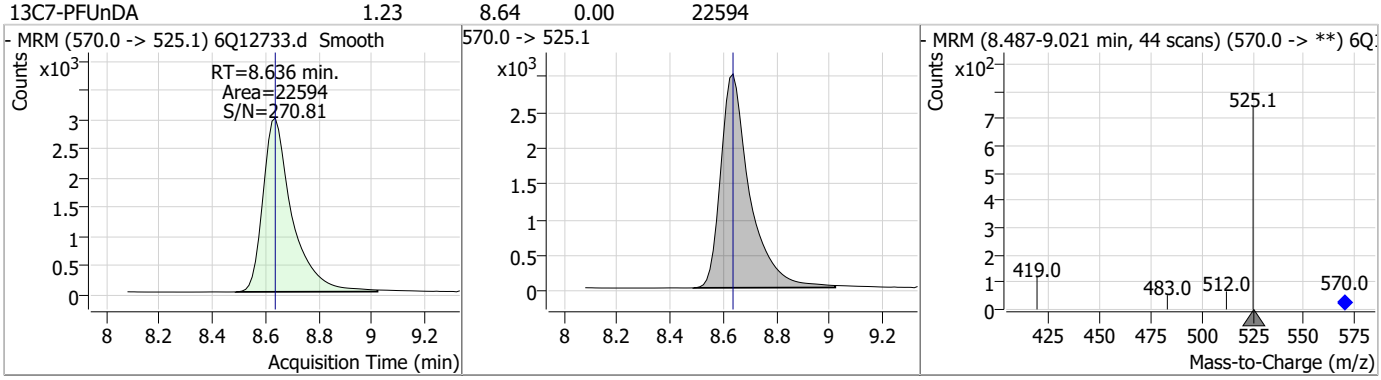
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.68	8.41	-0.01	23579				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.99	8.42	0.00	75476 (m)	584.2 -> 526.0	53.0	23.8	71.3

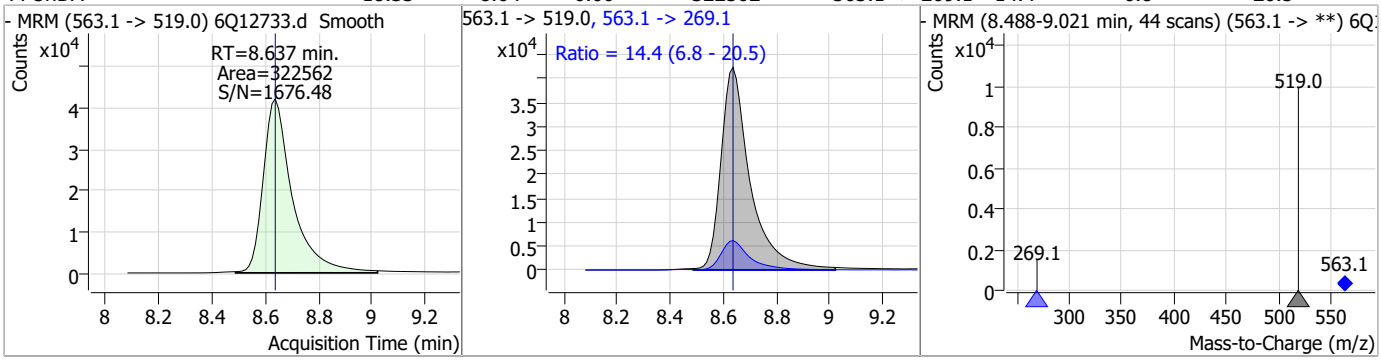


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	0.00	22594				

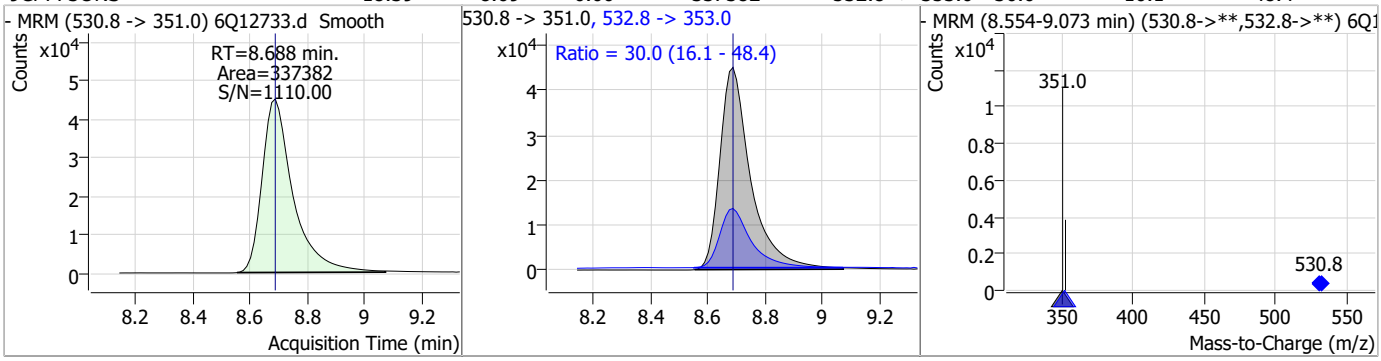


Perfluorinated Compounds by LC/MS/MS

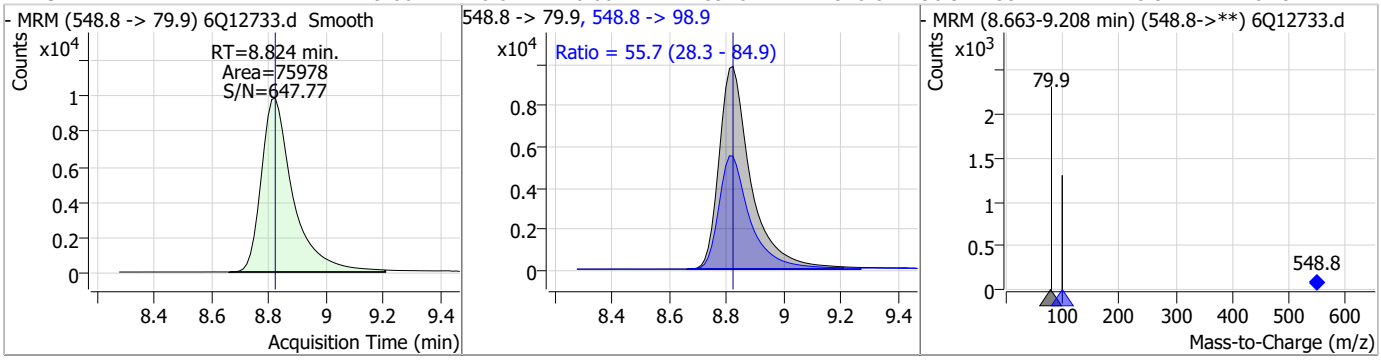
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.33	8.64	0.00	322562	563.1 -> 269.1	14.4	6.8	20.5



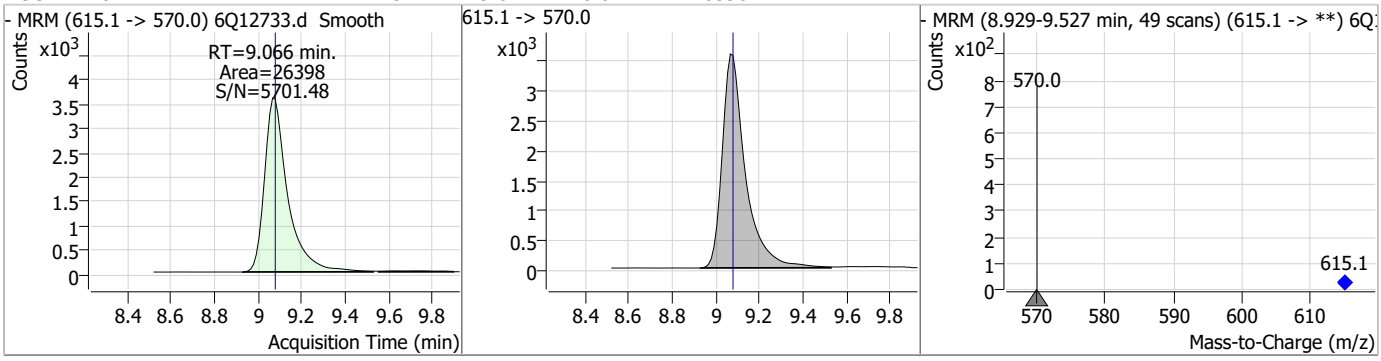
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.39	8.69	0.00	337382	532.8 -> 353.0	30.0	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	19.80	8.82	0.00	75978	548.8 -> 98.9	55.7	28.3	84.9

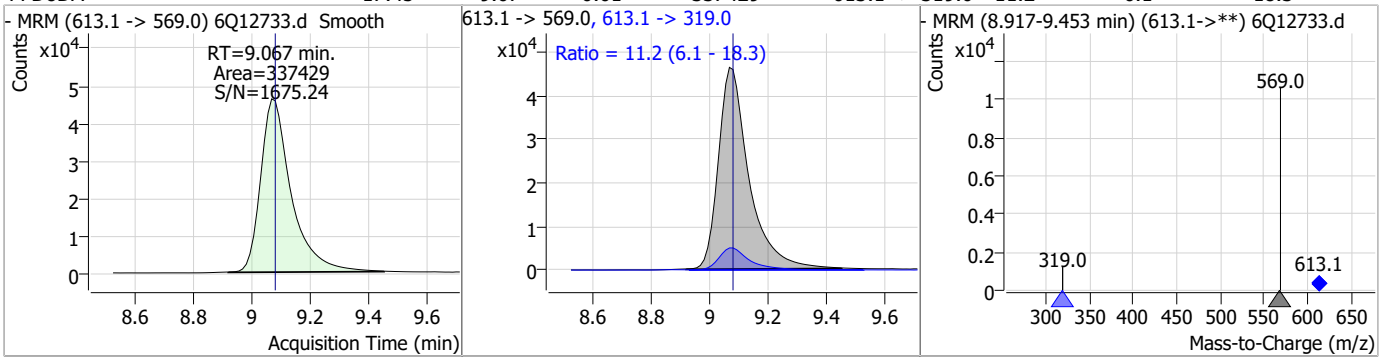


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.07	-0.01	26398				

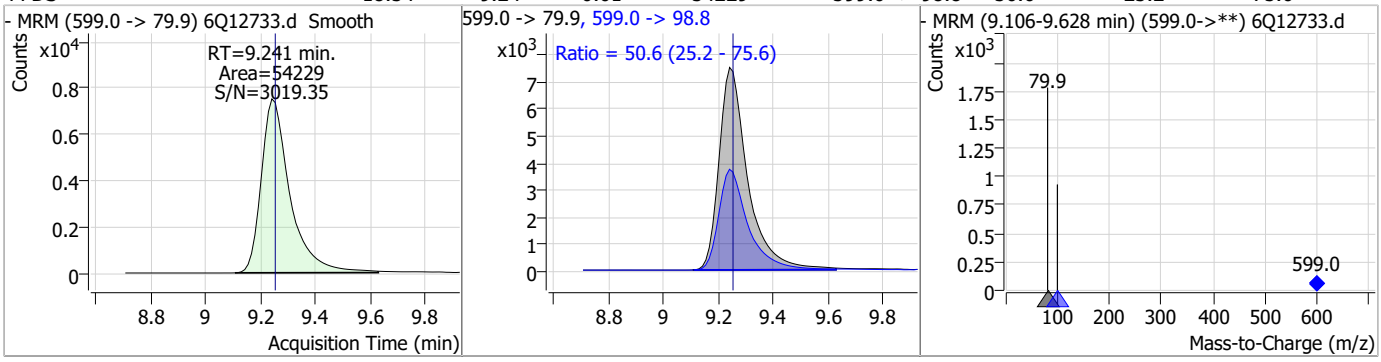


Perfluorinated Compounds by LC/MS/MS

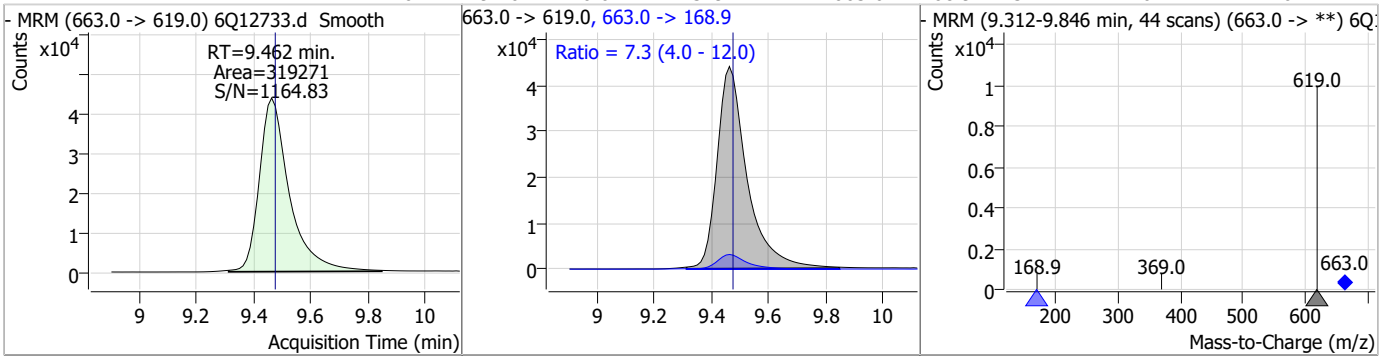
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	17.45	9.07	-0.01	337429	613.1 -> 319.0	11.2	6.1	18.3



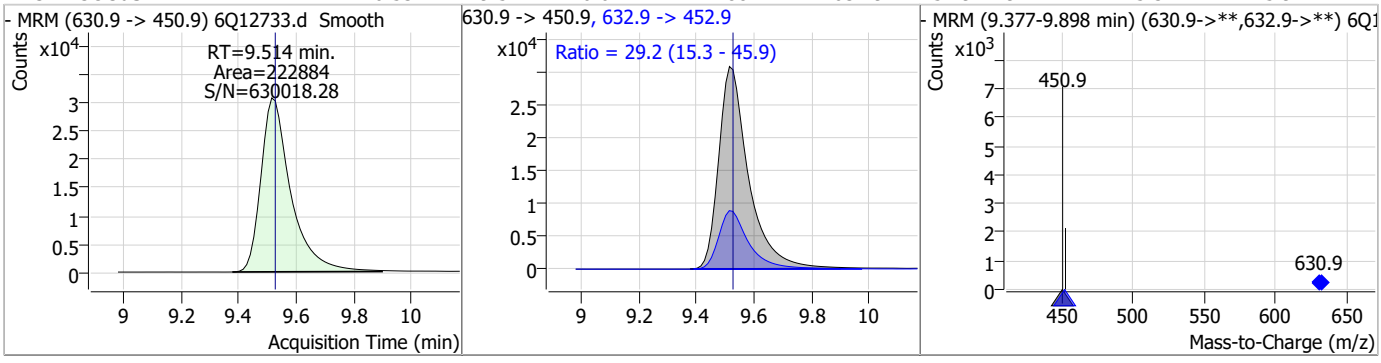
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	18.54	9.24	-0.01	54229	599.0 -> 98.8	50.6	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	17.26	9.46	-0.01	319271	663.0 -> 168.9	7.3	4.0	12.0

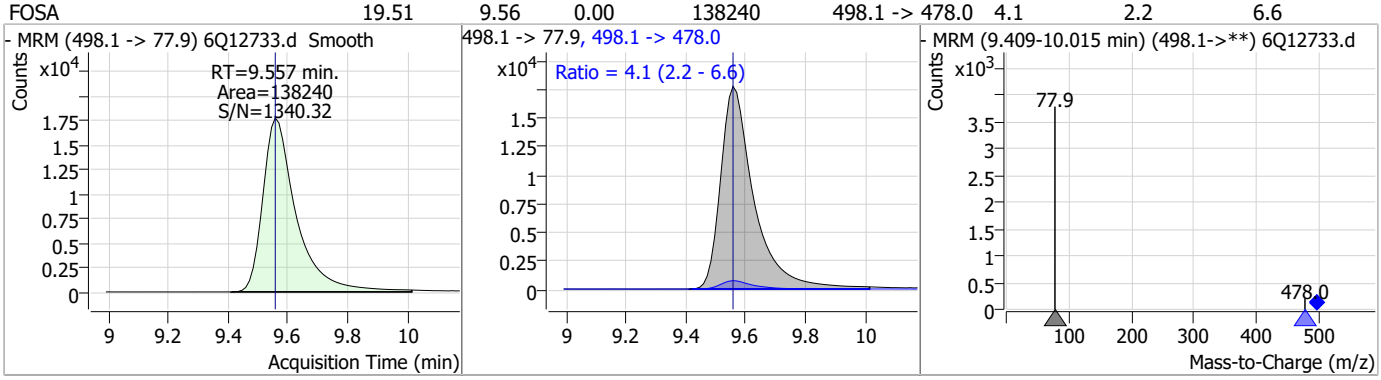


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.53	9.51	-0.01	222884	632.9 -> 452.9	29.2	15.3	45.9

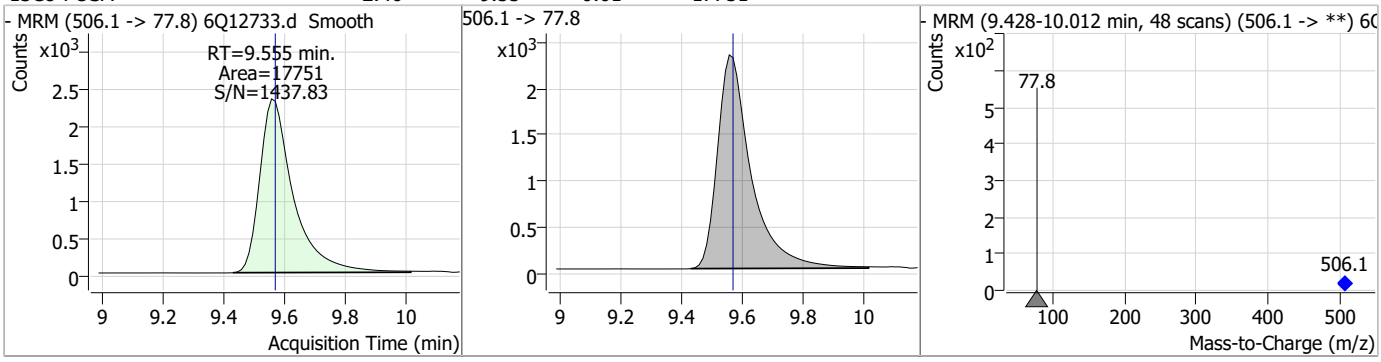


Perfluorinated Compounds by LC/MS/MS

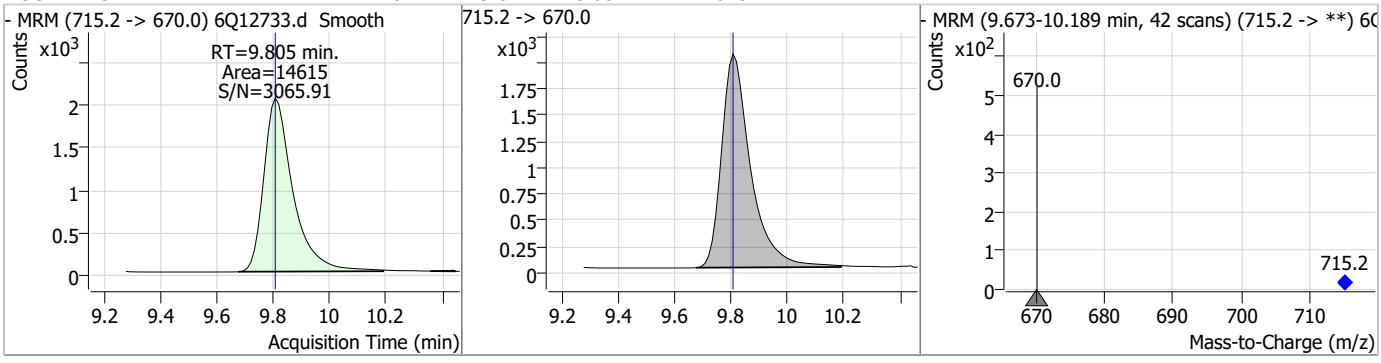
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.51	9.56	0.00	138240	498.1 -> 478.0	4.1	2.2	6.6



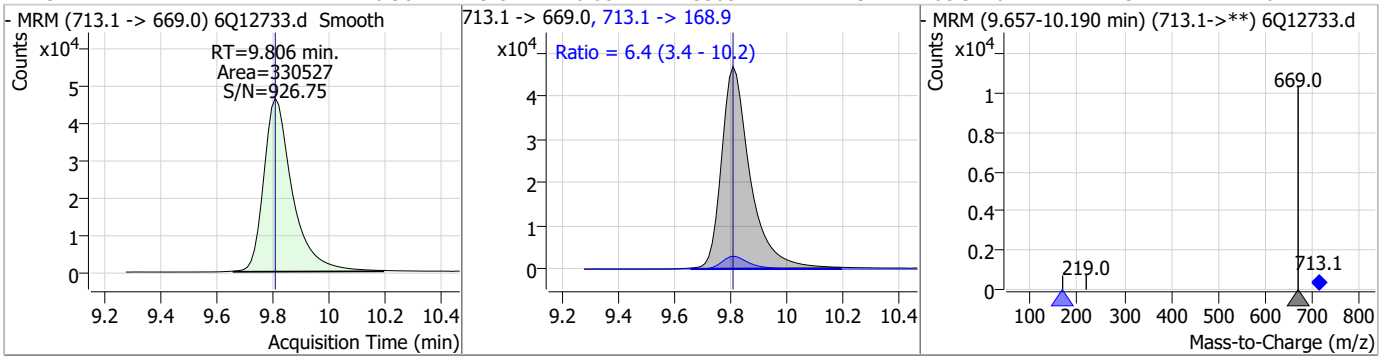
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.46	9.55	-0.01	17751				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.81	0.00	14615				

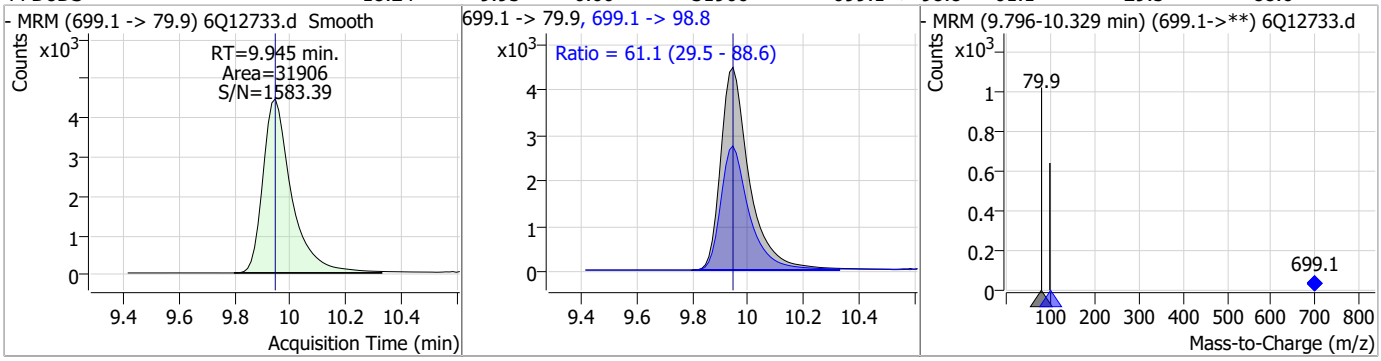


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.96	9.81	0.00	330527	713.1 -> 168.9	6.4	3.4	10.2

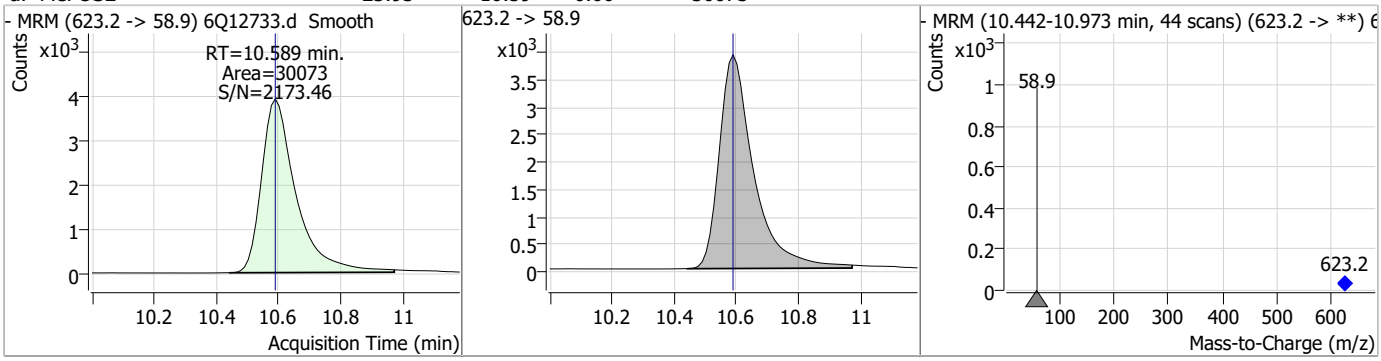


Perfluorinated Compounds by LC/MS/MS

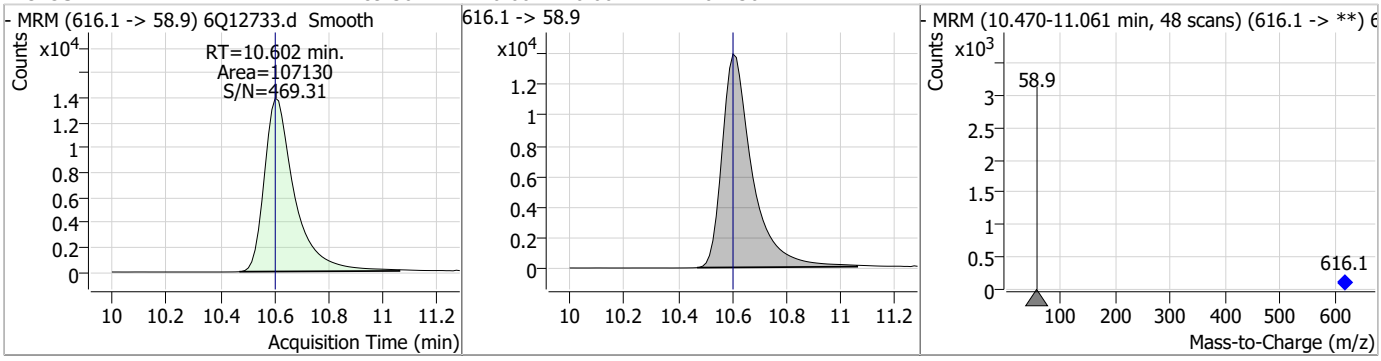
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	18.24	9.95	0.00	31906	699.1 -> 98.8	61.1	29.5	88.6



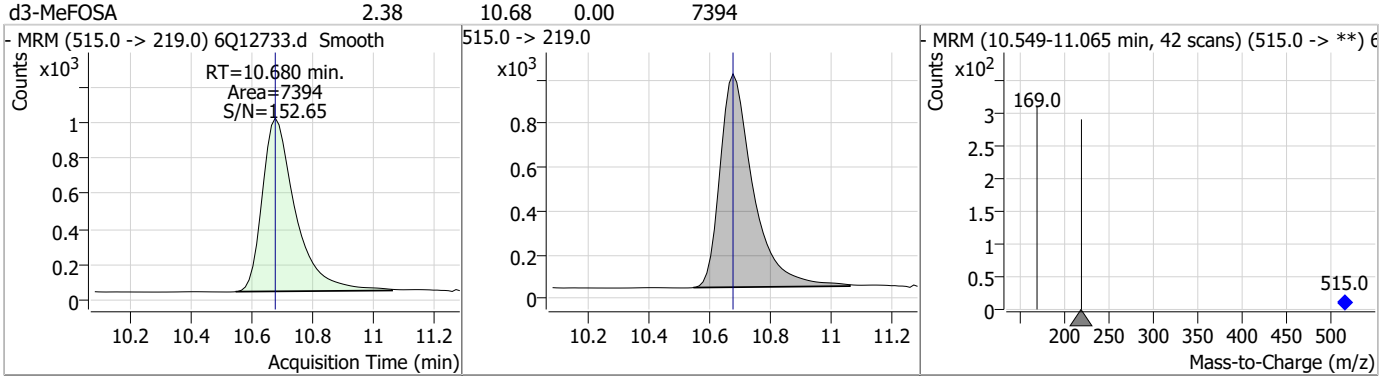
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.93	10.59	0.00	30073				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	89.30	10.60	0.00	107130				

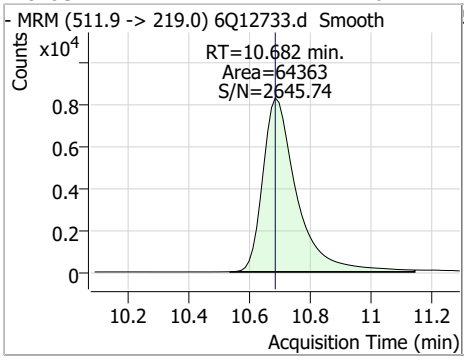


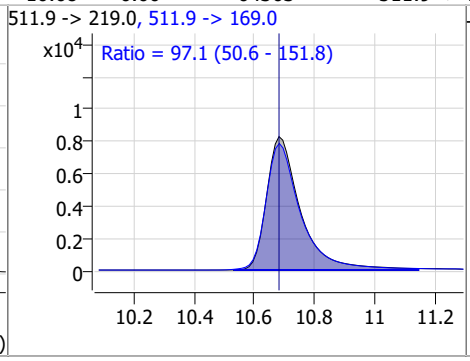
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.68	0.00	7394				

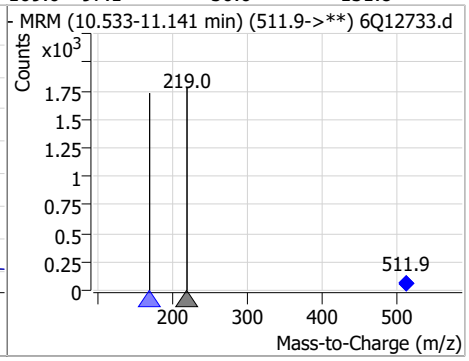


Perfluorinated Compounds by LC/MS/MS

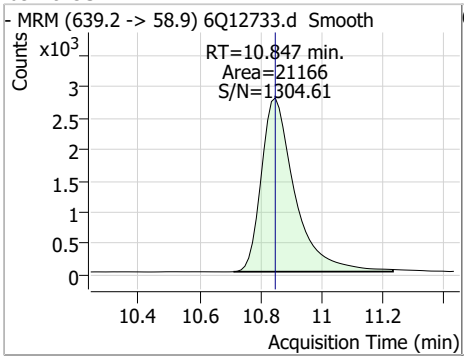
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	20.12	10.68	0.00	64363	511.9 -> 169.0	97.1	50.6	151.8

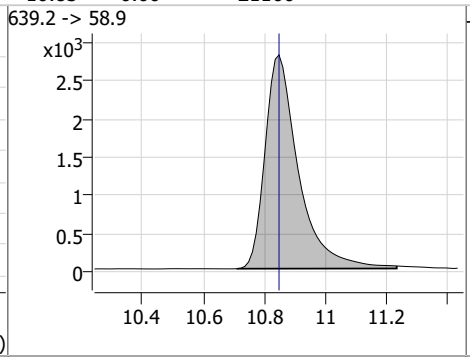


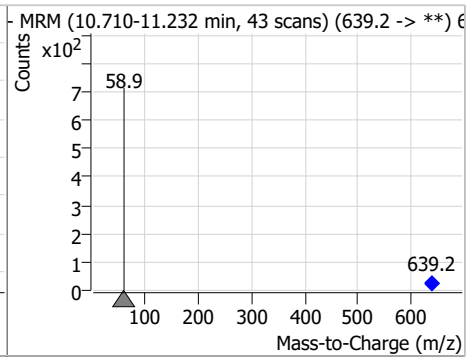




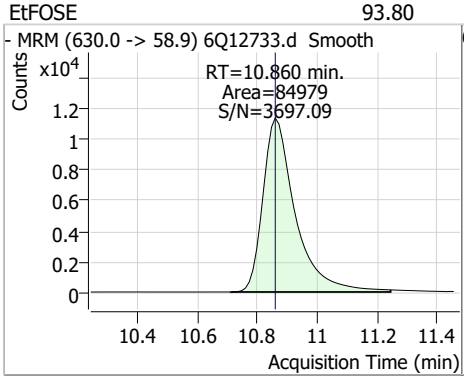
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.44	10.85	0.00	21166				

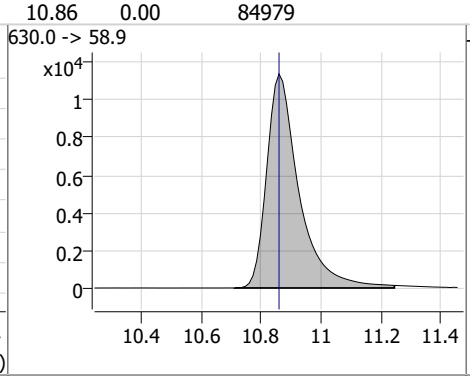


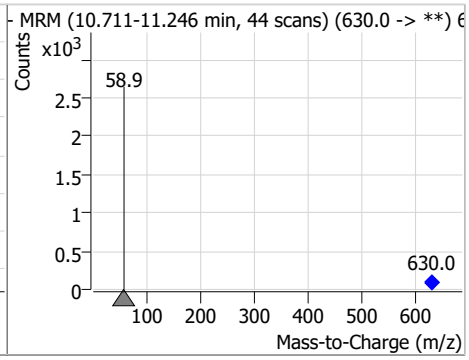




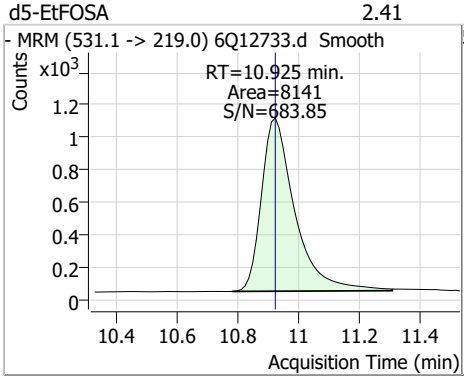
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	93.80	10.86	0.00	84979				

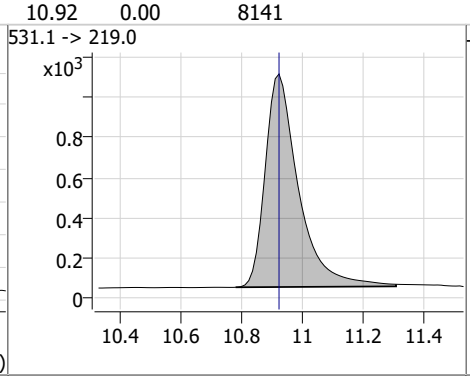


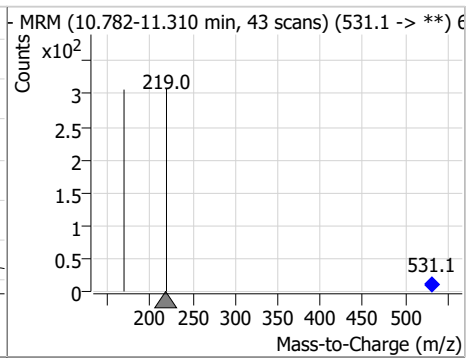




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.41	10.92	0.00	8141				

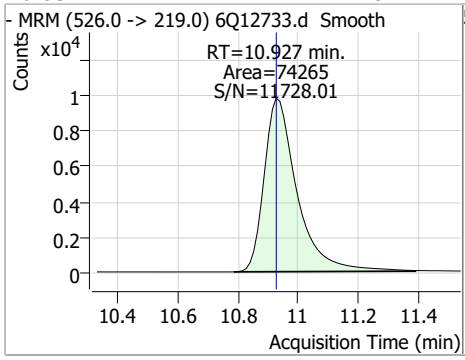


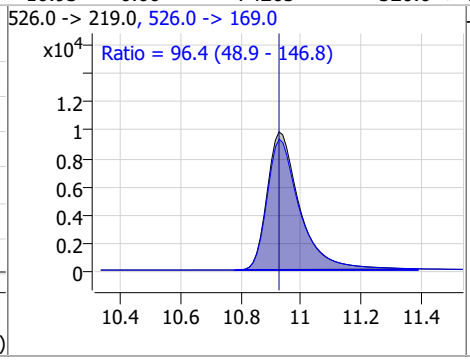


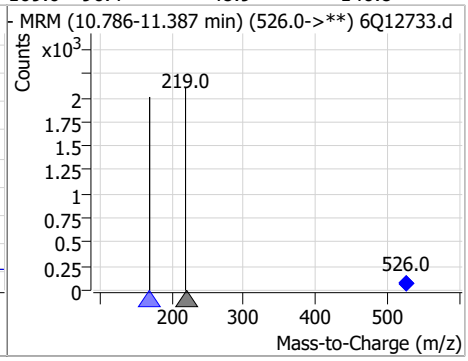


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	19.11	10.93	0.00	74265	526.0 -> 169.0	96.4	48.9	146.8







7.7.11

7

Manual Integration Approval Summary

Sample Number:	S6Q196-ICV196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12733.D	**Analyst approved:**	02/02/23 11:53 Martha Valls
Injection Time:	02/01/23 20:11	**Supervisor approved:**	02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12888.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 10:58:08 AM
Sample Name	:	cc196-4
Vial	:	P1-A5
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	78434	10.00	µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	40512	5.00	µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	37416	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36388	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	67260	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28723	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19051	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22948	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	24088	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14562	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17662	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13307	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8292	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8762	2.50	µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2306	5.00	µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3367	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2839	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30361	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14180	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25561	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31502	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21588	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8459	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7321	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10625	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35403	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7014	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	80369	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26364	1.25	µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	31704	1.25	µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	34451	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.227	329.1 -> 80.9	2306	5.05	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3367	5.56	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2839	4.67	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%		
13C2-PFDoDA	9.066	615.1 -> 570.0	24088	1.20	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14562	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-PFBS	5.518	302.1 -> 79.9	13307	2.33	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8292	2.25	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%		
13C4-PFBA	2.975	216.8 -> 171.9	78434	9.98 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	36388	2.56 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C5-PFHxA	5.563	318.0 -> 273.0	37416	2.74 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C5-PFPeA	4.374	268.3 -> 223.0	40512	5.28 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19051	1.30 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22948	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C8-FOSA	9.567	506.1 -> 77.8	17662	2.55 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-PFOA	7.146	421.1 -> 376.0	67260	2.51 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C8-PFOS	8.345	507.1 -> 79.9	8762	2.51 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C9-PFNA	7.677	472.1 -> 427.0	28723	1.29 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30361	5.21 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14180	10.07 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
d3-MeFOSA	10.680	515.0 -> 219.0	7321	2.46 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%		
d5-EtFOSAA	8.410	589.2 -> 419.0	25561	5.29 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	31502	26.11 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%		
d9-EtFOSE	10.847	639.2 -> 58.9	21588	25.96 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
d5-EtFOSA	10.925	531.1 -> 219.0	8459	2.61 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%		
Target Compounds						**QValue**
4:2FTS	5.228	327.1 -> 307.0	49650	9.60 µg/L		96
		327.1 -> 80.9	9996			
6:2FTS	6.908	427.1 -> 407.0	41094	8.33 µg/L		100
		427.1 -> 80.9	7702			
8:2FTS	7.958	527.1 -> 507.0	22456	10.19 µg/L		99
		527.1 -> 80.8	5538			
EtFOSAA	8.424	584.2 -> 419.1	9568	2.34 µg/L	m	91
		584.2 -> 526.0	5092			
FOSA	9.557	498.1 -> 77.9	16109	2.29 µg/L		98
		498.1 -> 478.0	595			
MeFOSAA	8.216	570.1 -> 419.0	12326	2.22 µg/L	m	87
		570.1 -> 483.0	2450			
PFBA	2.982	212.8 -> 168.9	16387	9.35 µg/L		100
PFBS	5.518	298.7 -> 79.9	11500	2.25 µg/L		99
		298.7 -> 98.8	5063			
PFDA	8.170	512.9 -> 469.0	53539	2.47 µg/L		94
		512.9 -> 219.0	6674			
PFDoDA	9.067	613.1 -> 569.0	42727	2.42 µg/L		100
		613.1 -> 319.0	5274			
PFDS	9.241	599.0 -> 79.9	6433	2.17 µg/L		98

Perfluorinated Compounds by LC/MS/MS

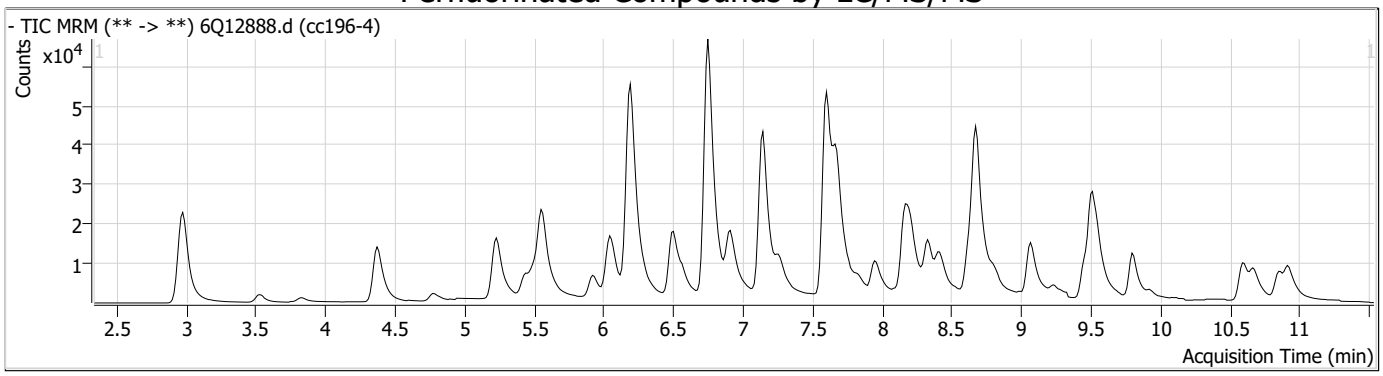
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3347				
PFHpA	6.503	363.1 -> 319.0	48140	2.23	µg/L		95
		363.1 -> 169.0	6944				
PFHpS	7.841	449.0 -> 79.9	8385	2.26	µg/L		98
		449.0 -> 98.9	4777				
PFHxA	5.566	313.0 -> 269.0	32407	2.21	µg/L		99
		313.0 -> 118.9	1242				
PFHxS	7.275	398.7 -> 79.9	8409	2.26	µg/L	m	93
		398.7 -> 98.9	4859				
PFNA	7.677	463.0 -> 419.0	45311	2.34	µg/L		97
		463.0 -> 219.0	8078				
PFNS	8.811	548.8 -> 79.9	8885	2.28	µg/L		98
		548.8 -> 98.9	5178				
PFOA	7.148	413.0 -> 369.0	63572	2.15	µg/L		100
		413.0 -> 169.0	8696				
PFOS	8.347	498.9 -> 79.9	8585	2.14	µg/L	m	73
		498.9 -> 98.8	5327				
PFPeA	4.375	263.0 -> 219.0	38573	4.51	µg/L		100
PFPeS	6.569	349.1 -> 79.9	10368	2.39	µg/L		97
		349.1 -> 98.9	5519				
PFTeDA	9.806	713.1 -> 669.0	37636	2.40	µg/L		99
		713.1 -> 168.9	2459				
PFTrDA	9.462	663.0 -> 619.0	41643	2.47	µg/L		99
		663.0 -> 168.9	3419				
PFUnDA	8.637	563.1 -> 519.0	43322	2.42	µg/L		99
		563.1 -> 269.1	6046				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	89779	8.82	µg/L		96
		632.9 -> 452.9	29226				
9Cl-PF3ONS	8.688	530.8 -> 351.0	149831	8.71	µg/L		94
		532.8 -> 353.0	53749				
ADONA	6.753	376.9 -> 250.9	290239	9.43	µg/L		96
		376.9 -> 84.8	59466				
HFPO-DA	5.940	284.9 -> 168.9	13405	10.11	µg/L		99
		284.9 -> 184.9	1718				
3:3FTCA	3.841	241.0 -> 177.0	4756	11.32	µg/L		95
		241.0 -> 117.0	607				
5:3FTCA	6.193	341.0 -> 237.1	163325	53.22	µg/L		99
		341.0 -> 217.0	144104				
7:3FTCA	7.605	441.0 -> 316.9	108969	54.33	µg/L		87
		441.0 -> 336.9	206726				
EtFOSA	10.939	526.0 -> 219.0	8898	2.20	µg/L		99
		526.0 -> 169.0	8808				
EtFOSE	10.860	630.0 -> 58.9	20364	22.04	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	7436	2.35	µg/L		100
		511.9 -> 169.0	7535				
MeFOSE	10.615	616.1 -> 58.9	27626	21.98	µg/L		100
PFDoDS	9.933	699.1 -> 79.9	3801	2.14	µg/L		89
		699.1 -> 98.8	2564				
NFDHA	5.445	295.0 -> 201.0	3844	4.43	µg/L		99
		295.0 -> 84.9	2014				
PFMBA	4.787	279.0 -> 85.1	11362	4.72	µg/L		100
PFMPA	3.541	229.0 -> 84.9	10416	4.57	µg/L		100
PFEESA	6.059	314.8 -> 134.9	80175	3.79	µg/L		99
		314.8 -> 82.9	2063				

= Qualifier out of range, m = manually integrated, + = Area summed

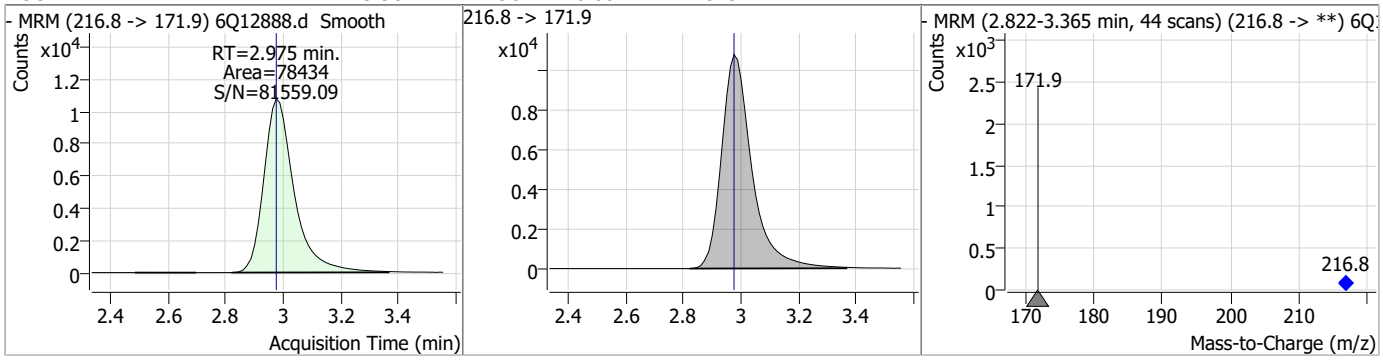
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

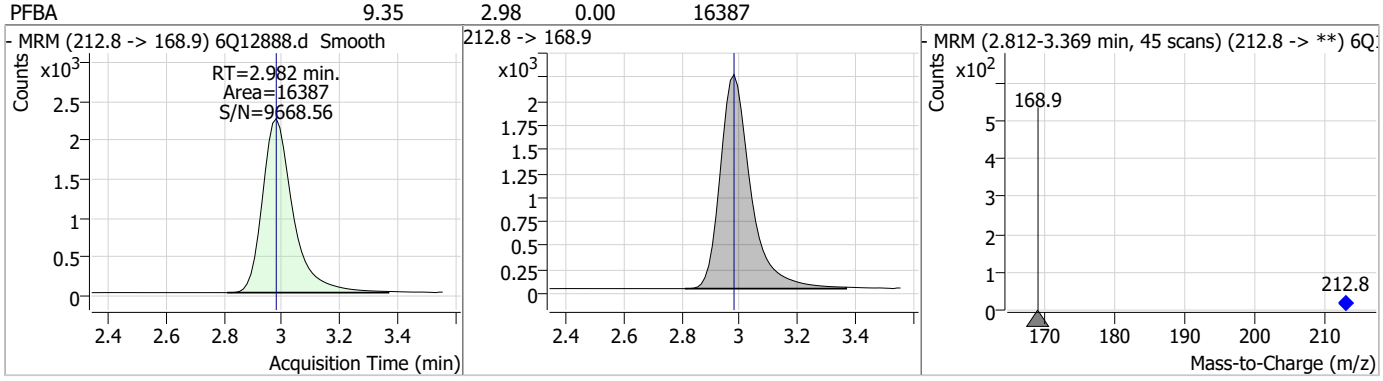
Perfluorinated Compounds by LC/MS/MS



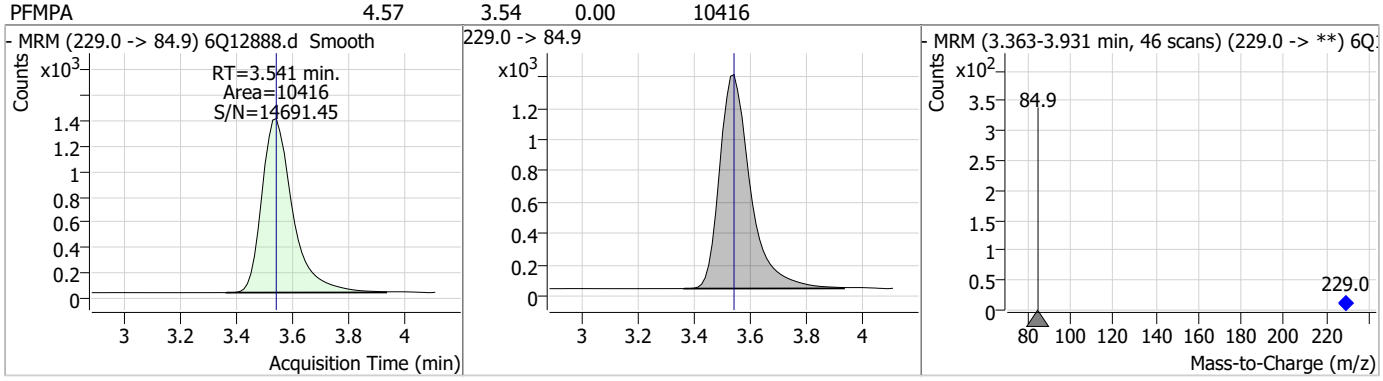
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.98	2.98	0.00	78434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.35	2.98	0.00	16387				

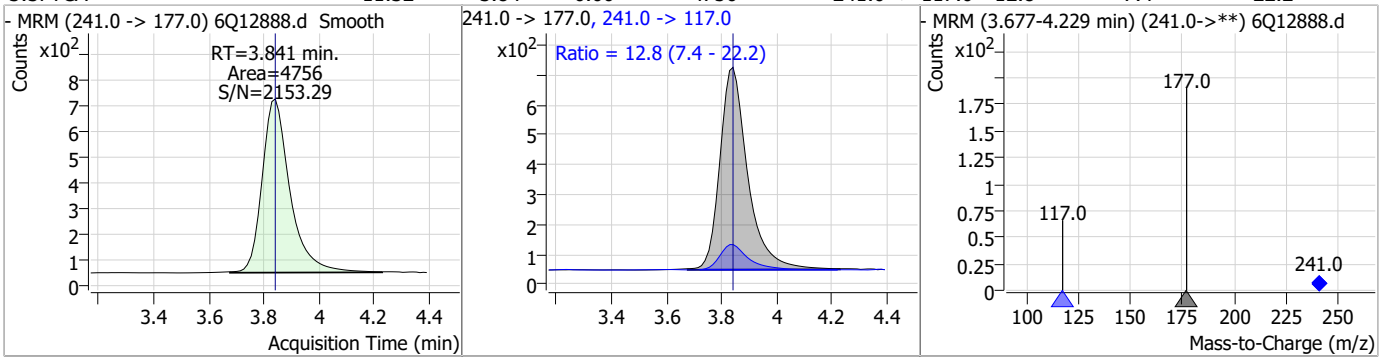


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	4.57	3.54	0.00	10416				

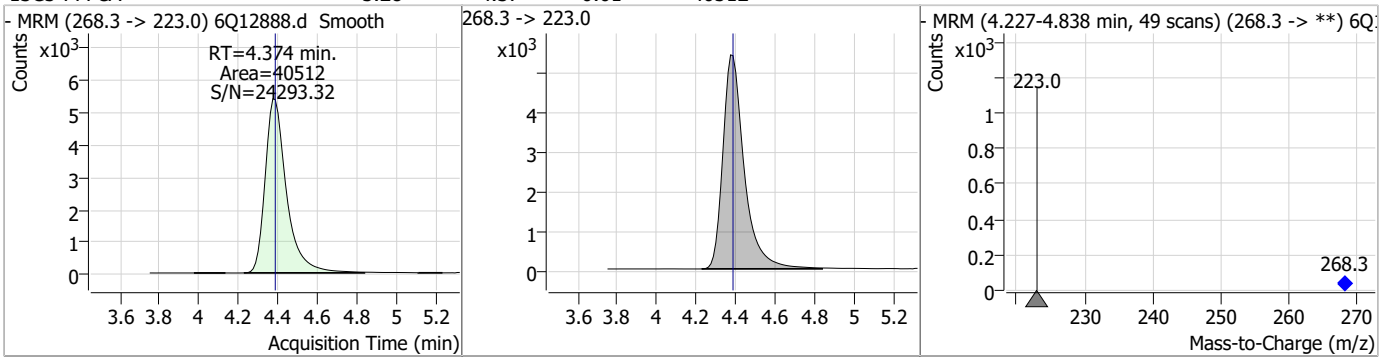


Perfluorinated Compounds by LC/MS/MS

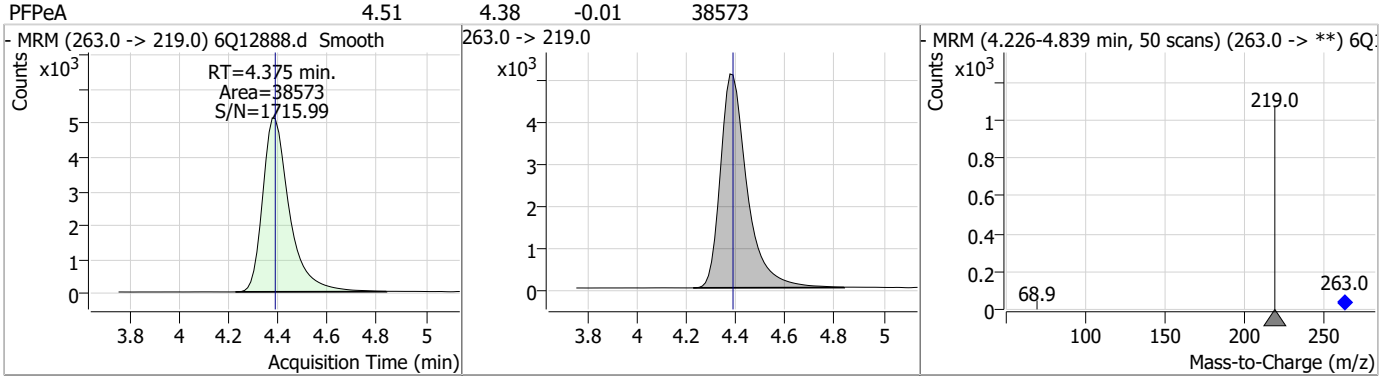
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.32	3.84	0.00	4756	241.0 -> 117.0	12.8	7.4	22.2



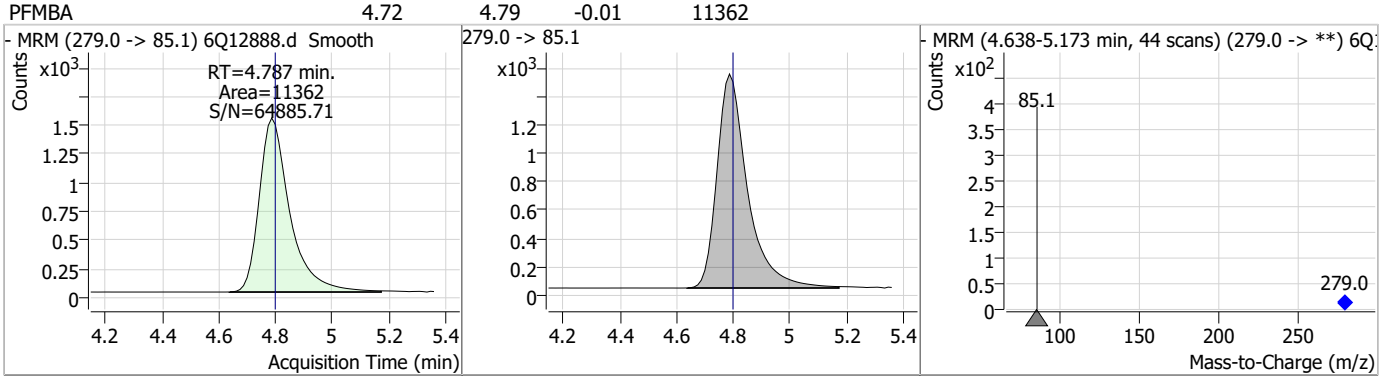
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.28	4.37	-0.01	40512				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.51	4.38	-0.01	38573				

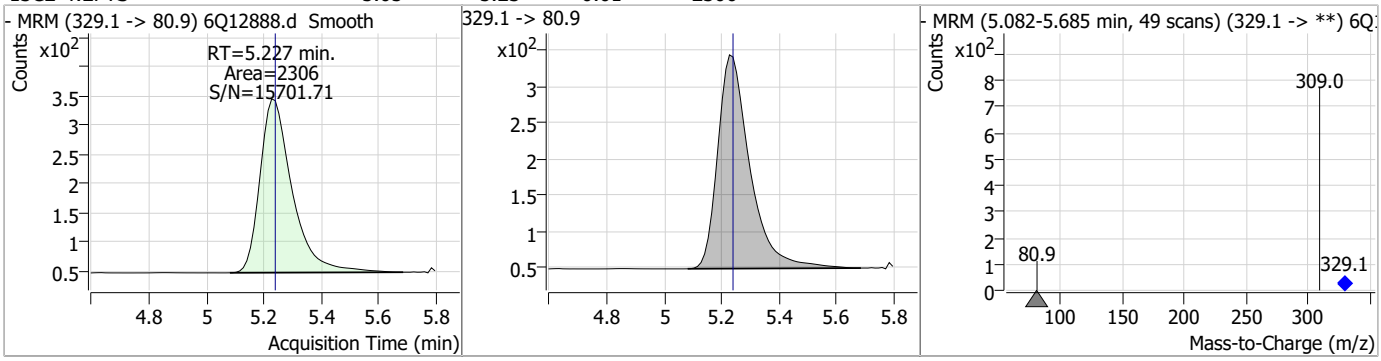


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.72	4.79	-0.01	11362				

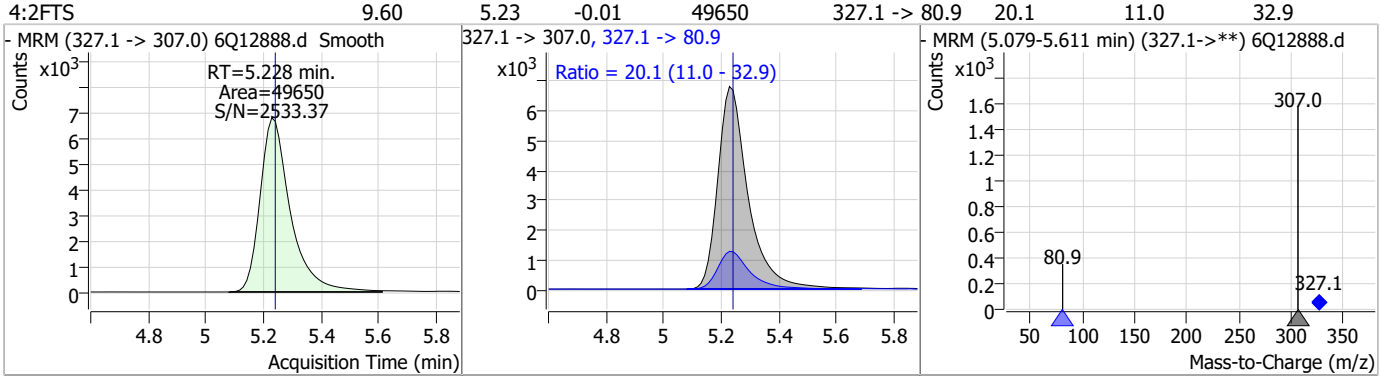


Perfluorinated Compounds by LC/MS/MS

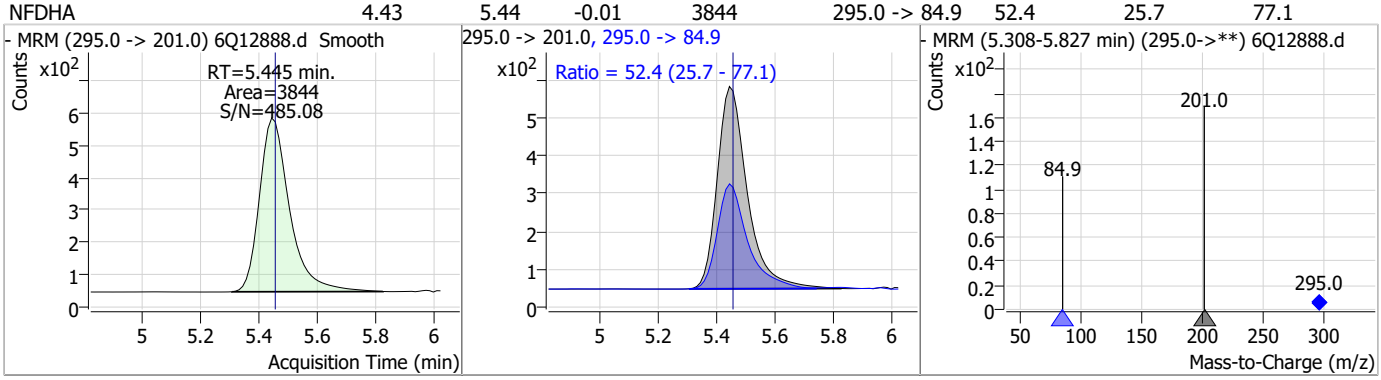
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.05	5.23	-0.01	2306				



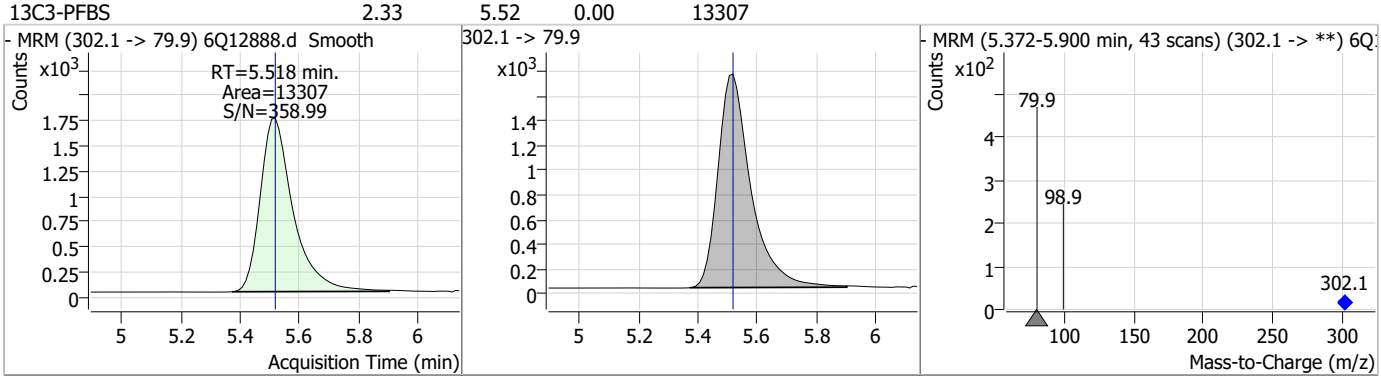
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.60	5.23	-0.01	49650	327.1 -> 80.9	20.1	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.43	5.44	-0.01	3844	295.0 -> 84.9	52.4	25.7	77.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.33	5.52	0.00	13307				

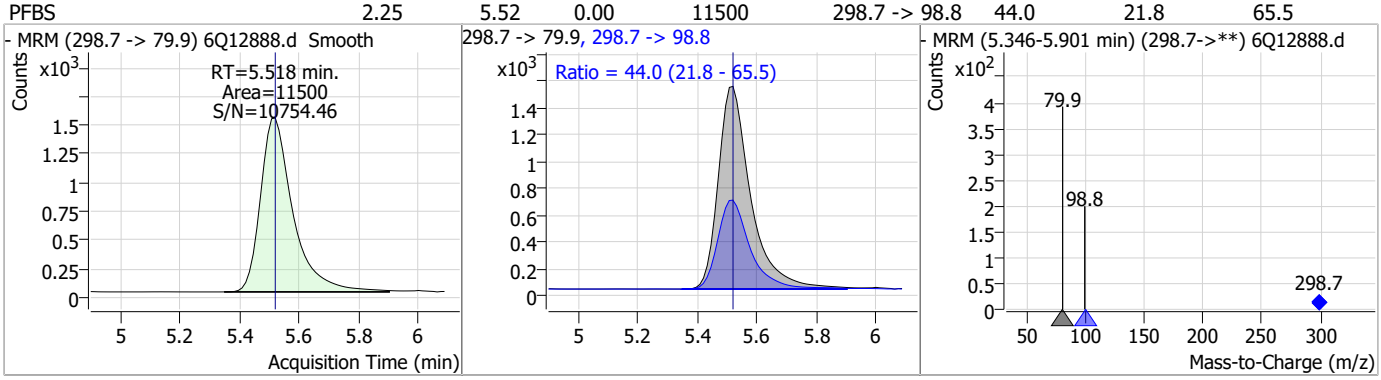


7.7.12

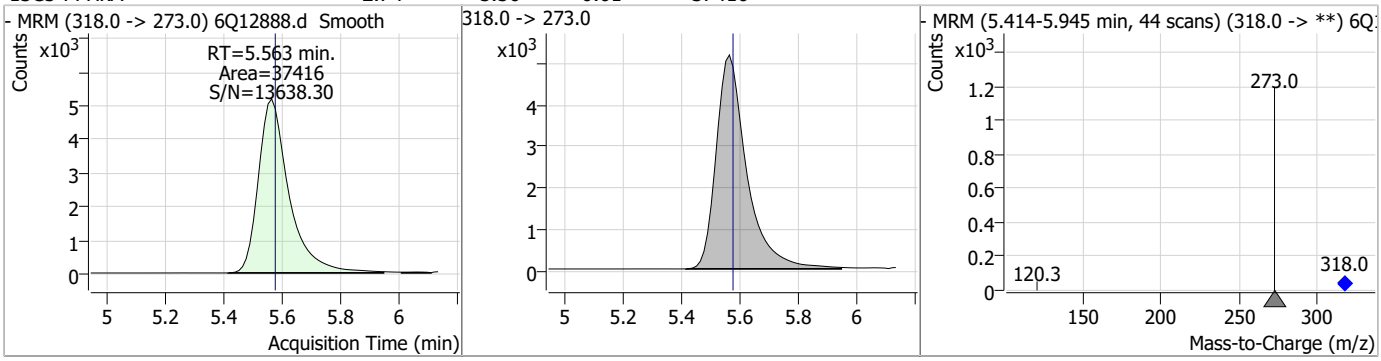
7

Perfluorinated Compounds by LC/MS/MS

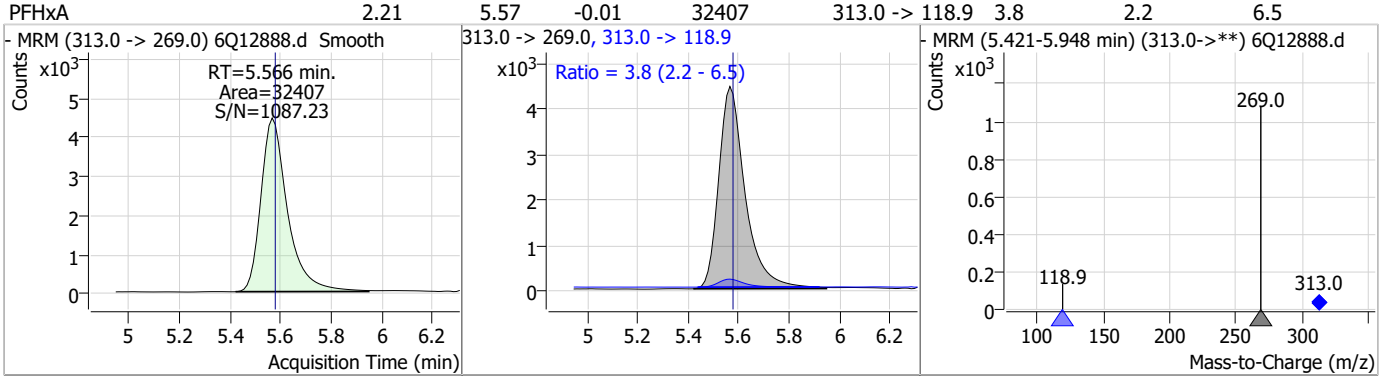
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.52	0.00	11500	298.7 -> 98.8	44.0	21.8	65.5



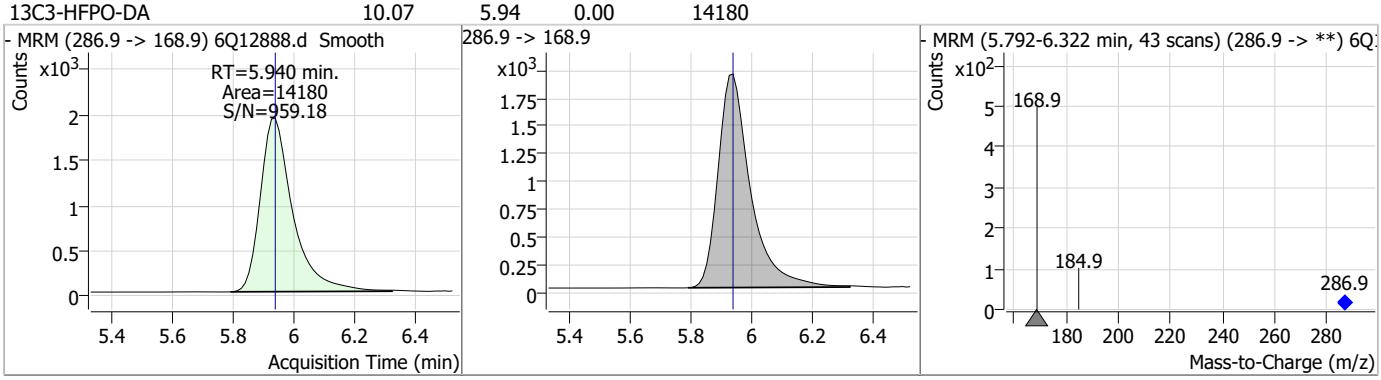
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.74	5.56	-0.01	37416				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.21	5.57	-0.01	32407	313.0 -> 118.9	3.8	2.2	6.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.07	5.94	0.00	14180				

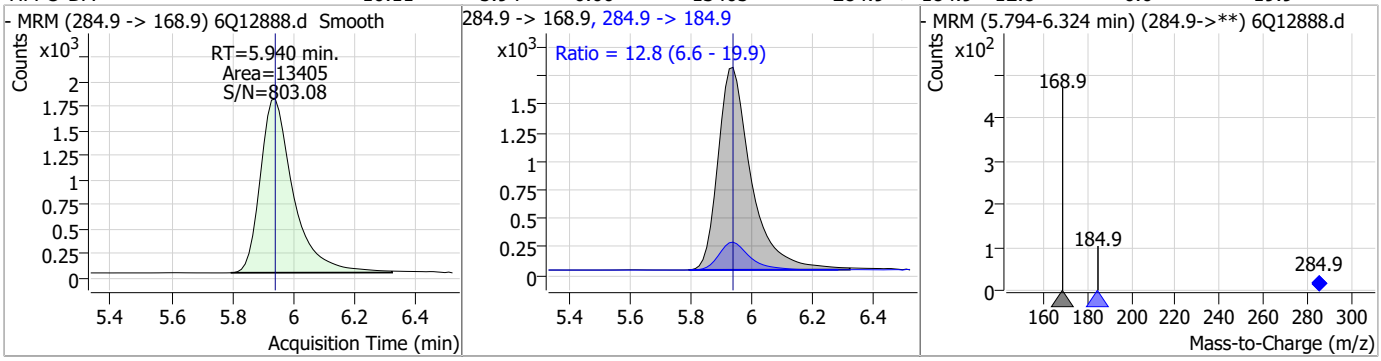


7.7.12

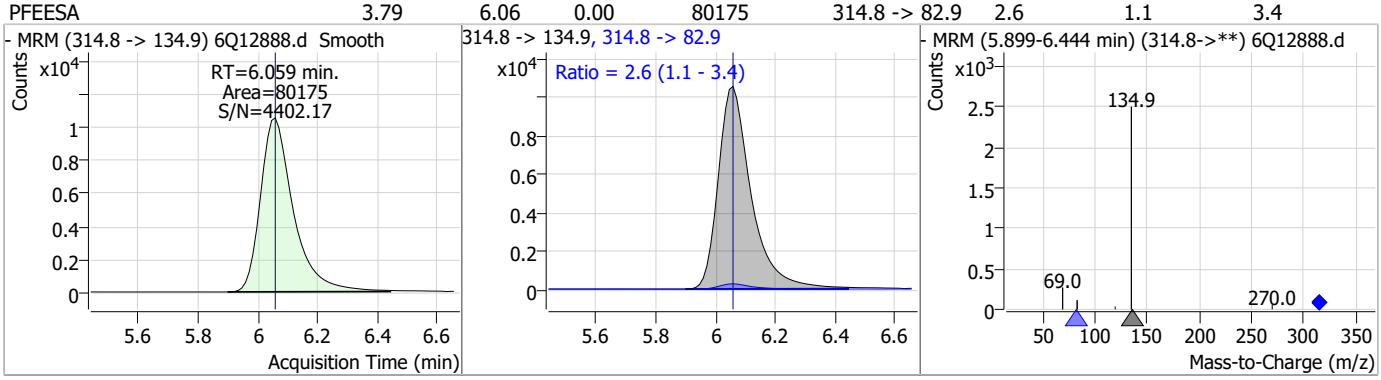
7

Perfluorinated Compounds by LC/MS/MS

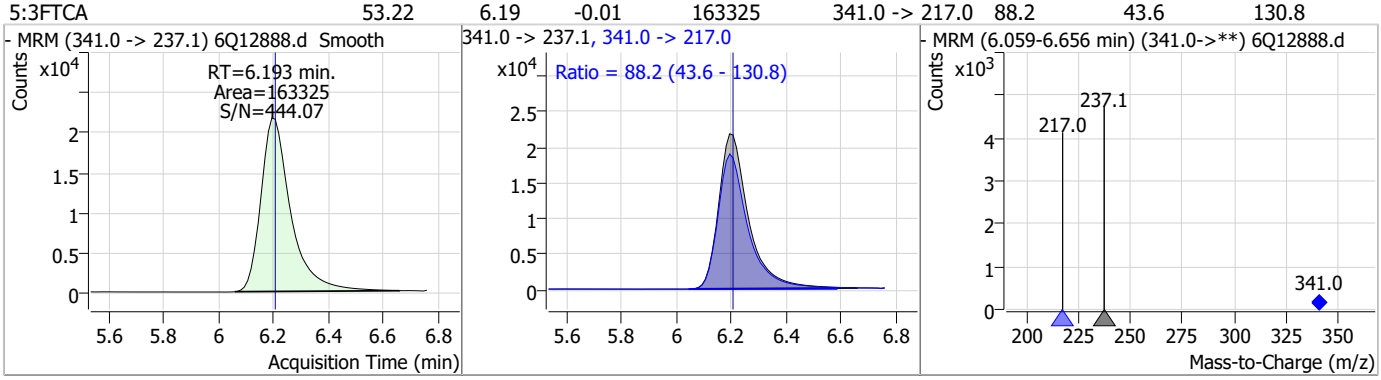
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.11	5.94	0.00	13405	284.9 -> 184.9	12.8	6.6	19.9



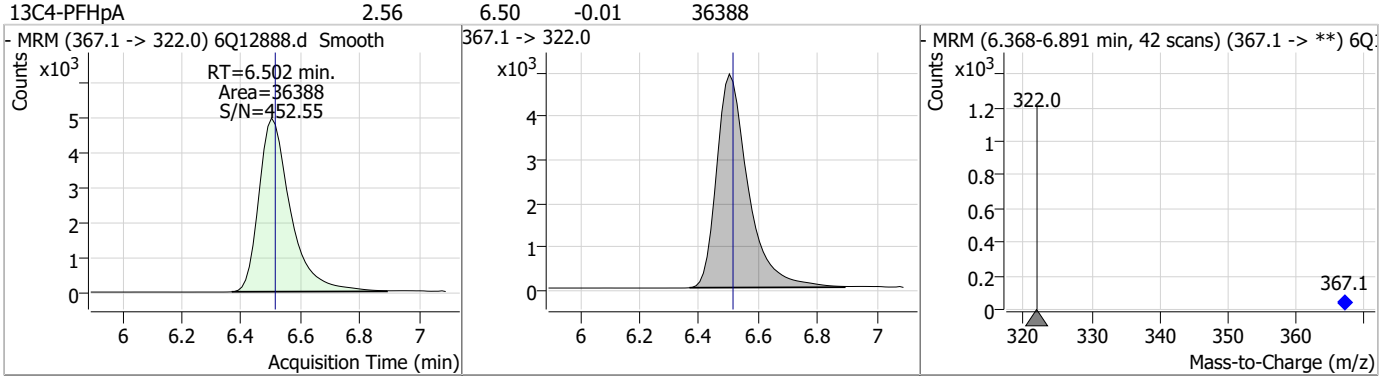
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.79	6.06	0.00	80175	314.8 -> 82.9	2.6	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	53.22	6.19	-0.01	163325	341.0 -> 217.0	88.2	43.6	130.8

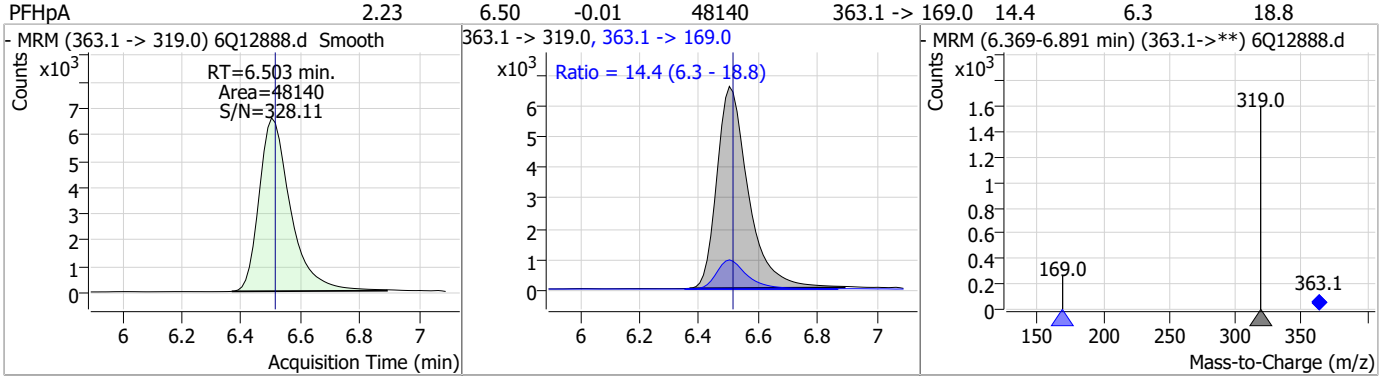


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.50	-0.01	36388				

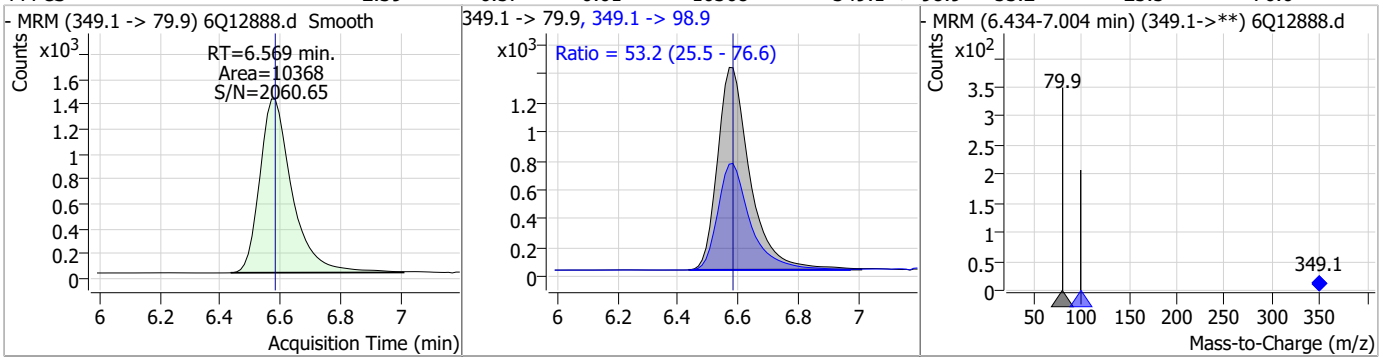


Perfluorinated Compounds by LC/MS/MS

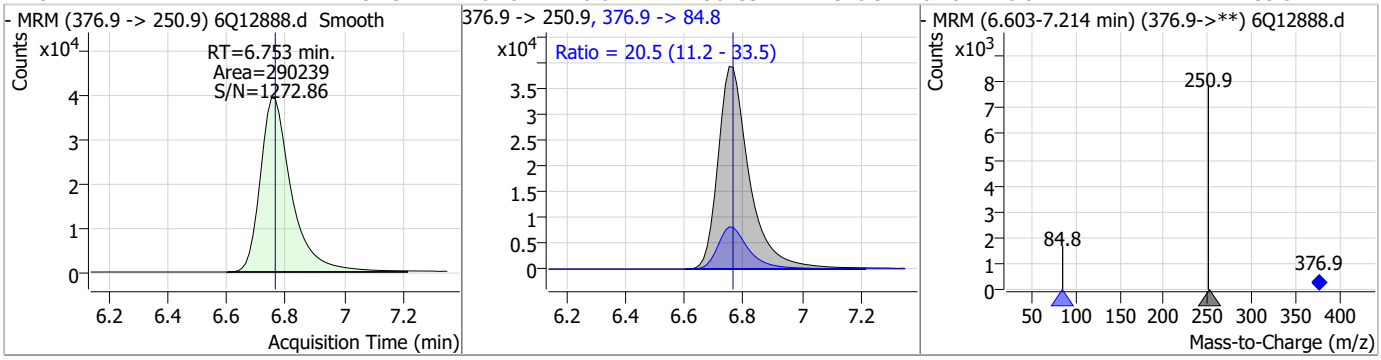
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.23	6.50	-0.01	48140	363.1 -> 169.0	14.4	6.3	18.8



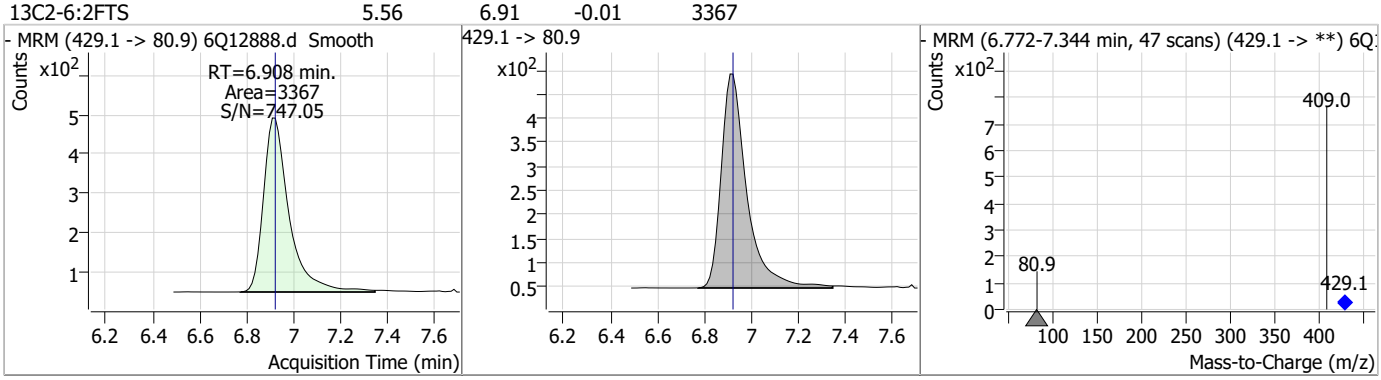
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.39	6.57	-0.01	10368	349.1 -> 98.9	53.2	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.43	6.75	-0.01	290239	376.9 -> 84.8	20.5	11.2	33.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.56	6.91	-0.01	3367				

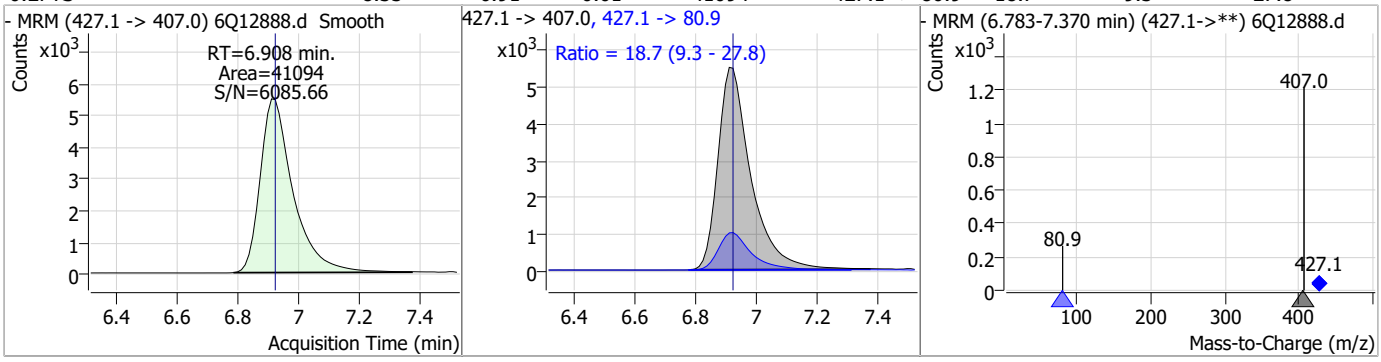


7.7.12

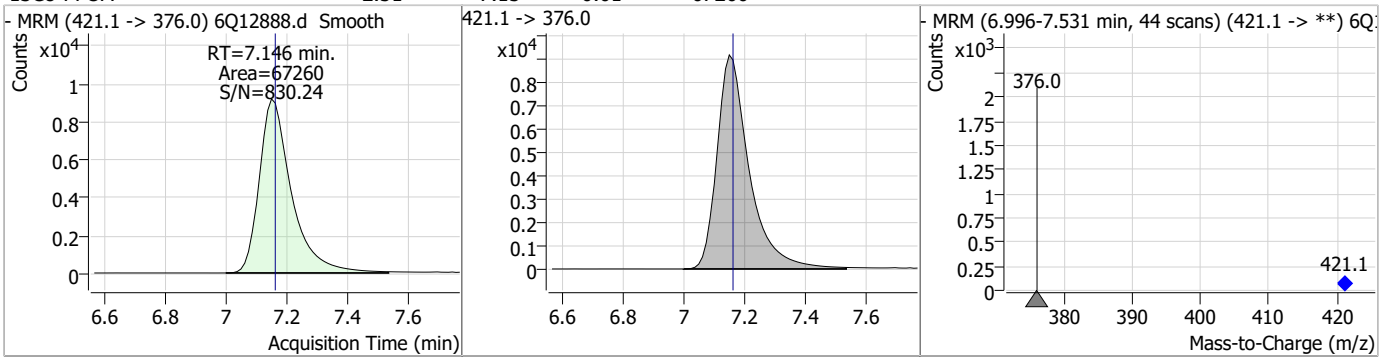
7

Perfluorinated Compounds by LC/MS/MS

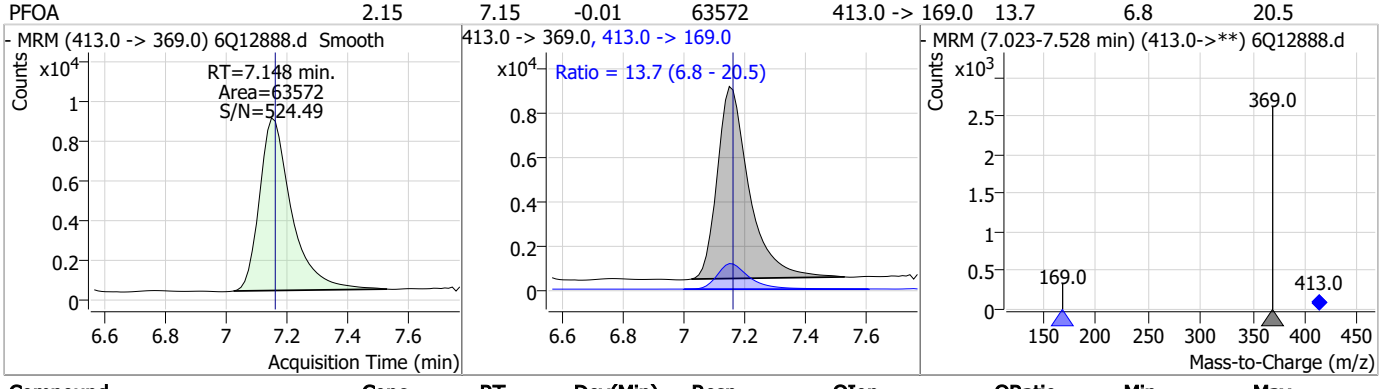
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.33	6.91	-0.01	41094	427.1 -> 80.9	18.7	9.3	27.8



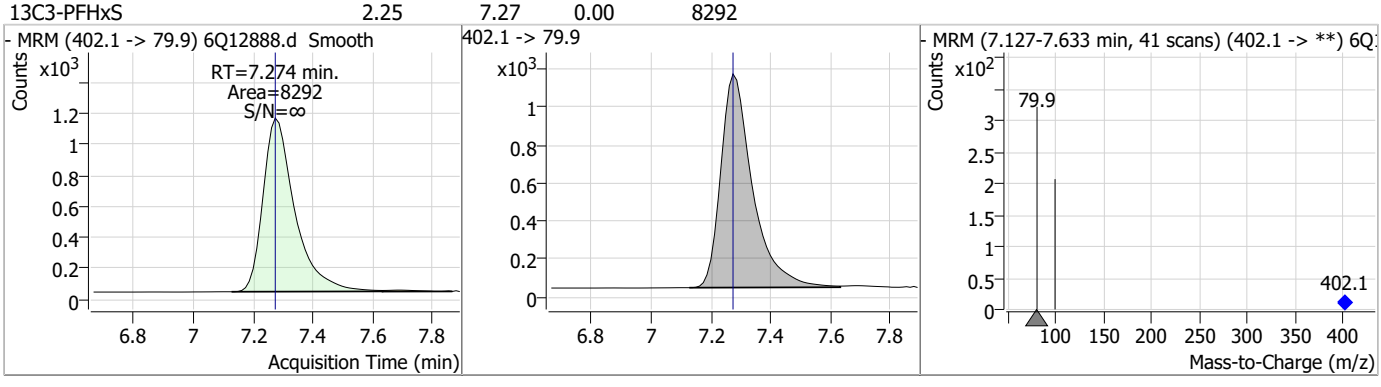
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.51	7.15	-0.01	67260				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.15	7.15	-0.01	63572	413.0 -> 169.0	13.7	6.8	20.5

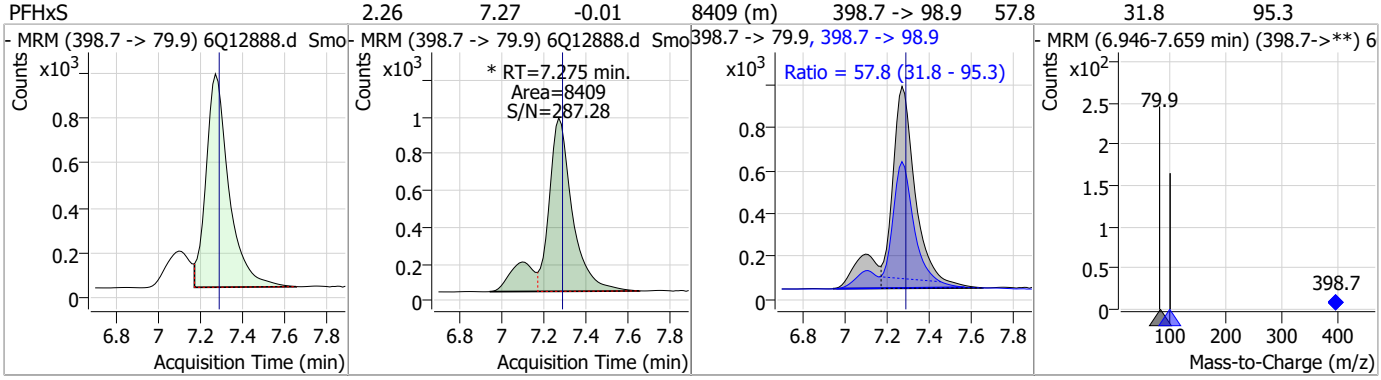


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.25	7.27	0.00	8292				

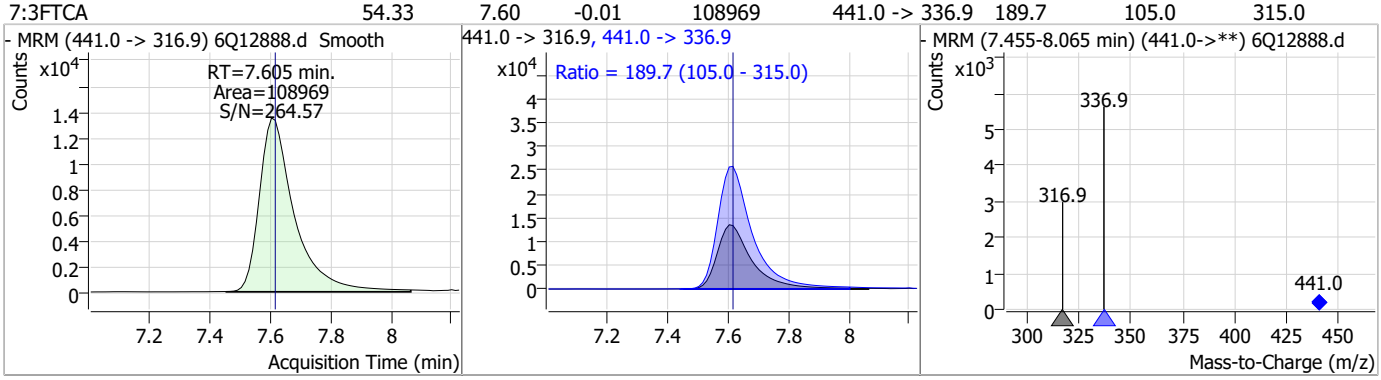


Perfluorinated Compounds by LC/MS/MS

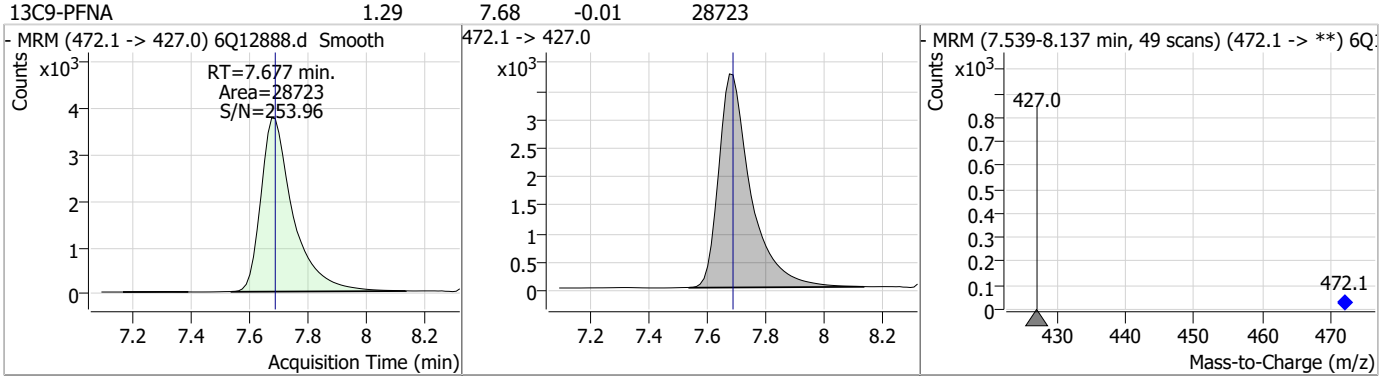
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.26	7.27	-0.01	8409 (m)	398.7 -> 98.9	57.8	31.8	95.3



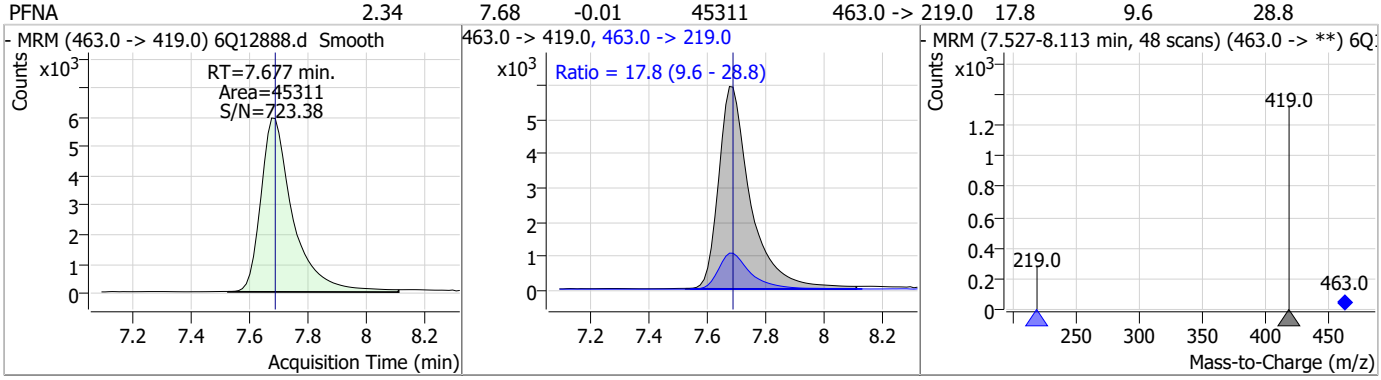
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	54.33	7.60	-0.01	108969	441.0 -> 336.9	189.7	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.29	7.68	-0.01	28723				

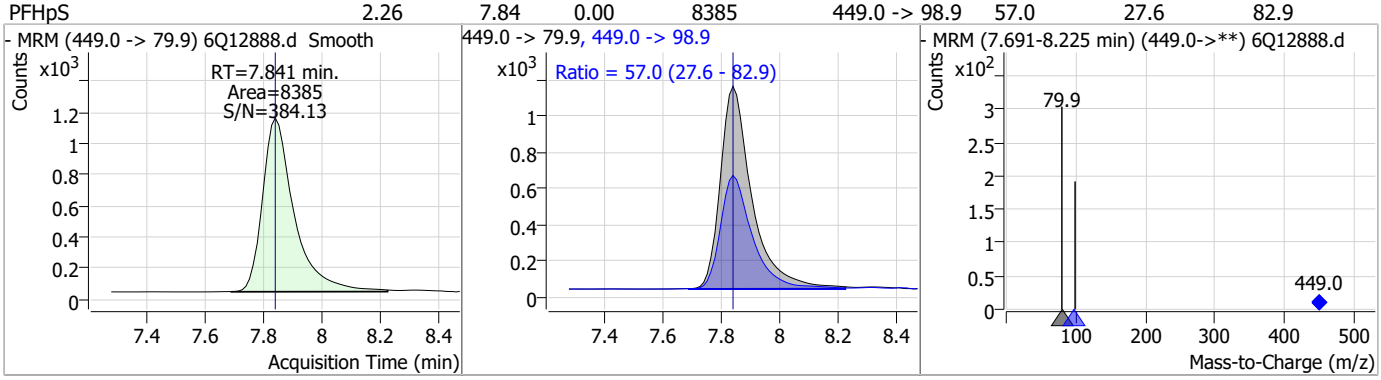


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.34	7.68	-0.01	45311	463.0 -> 219.0	17.8	9.6	28.8

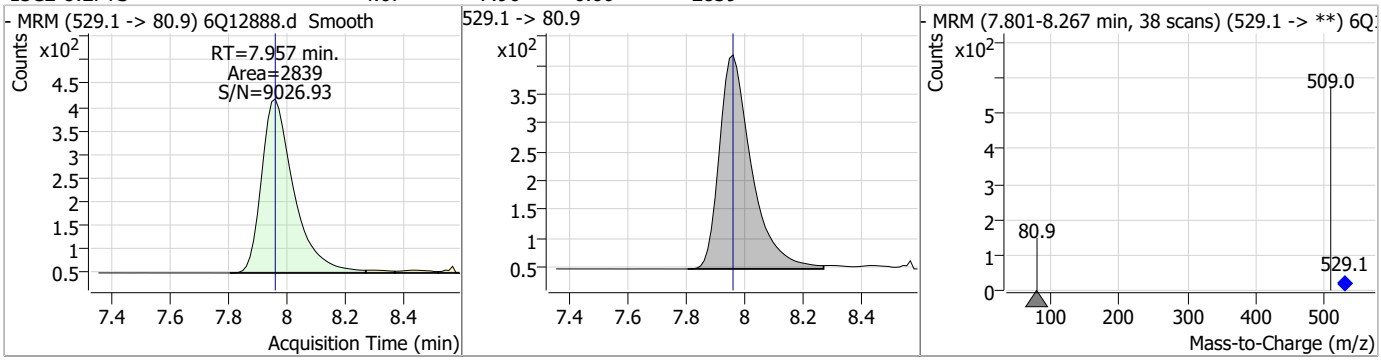


Perfluorinated Compounds by LC/MS/MS

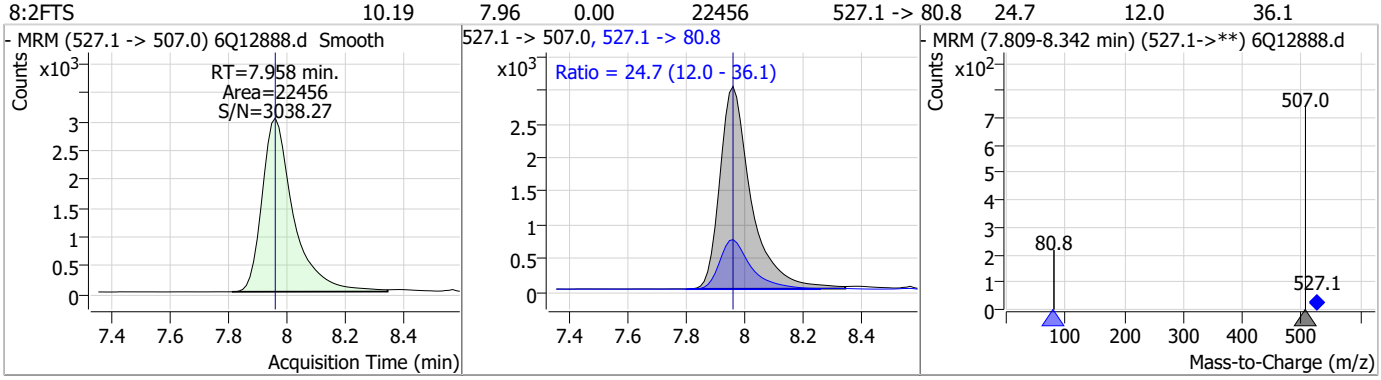
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.26	7.84	0.00	8385	449.0 -> 98.9	57.0	27.6	82.9



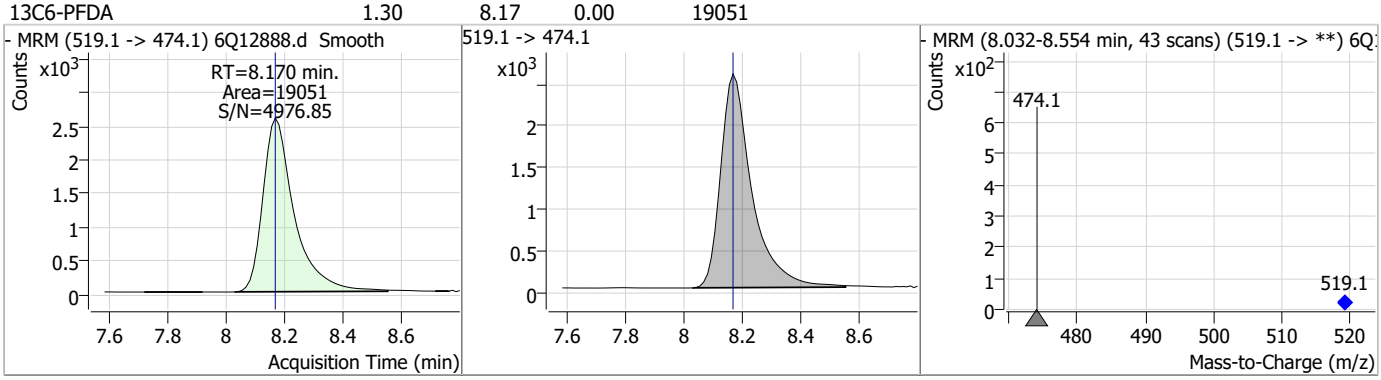
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.67	7.96	0.00	2839				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.19	7.96	0.00	22456	527.1 -> 80.8	24.7	12.0	36.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.30	8.17	0.00	19051				

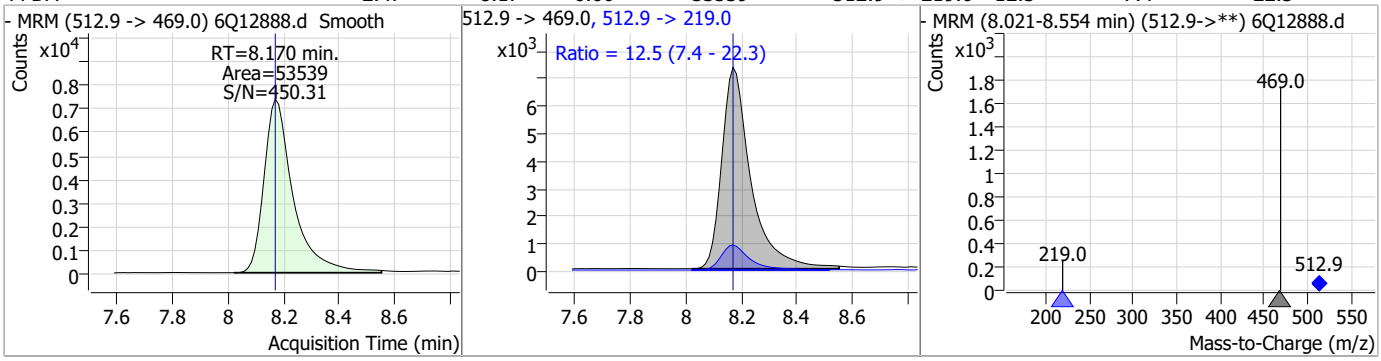


7.7.12

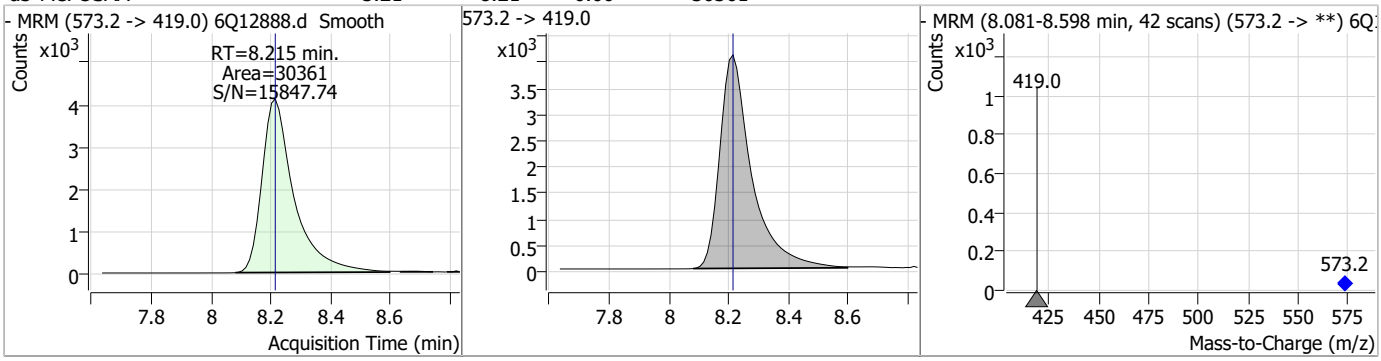
7

Perfluorinated Compounds by LC/MS/MS

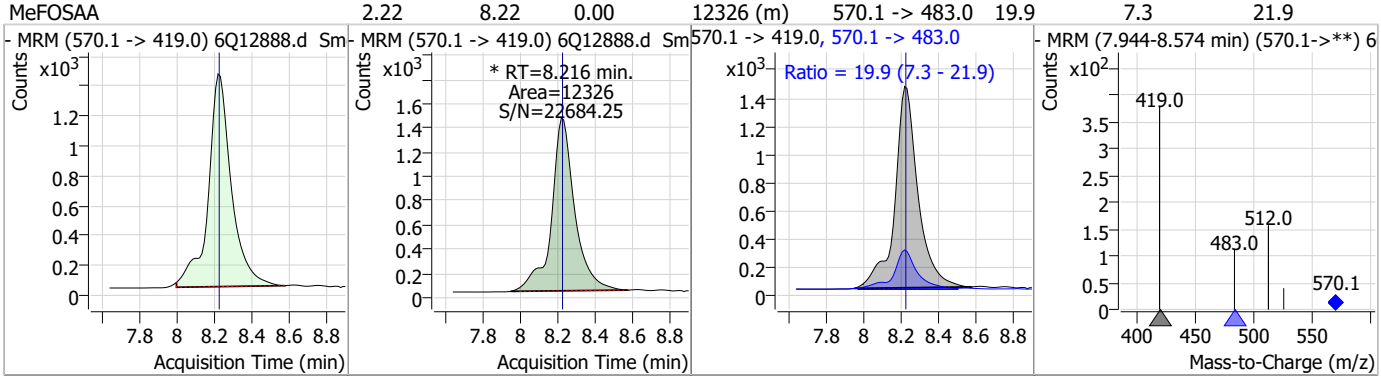
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.47	8.17	0.00	53539	512.9 -> 219.0	12.5	7.4	22.3



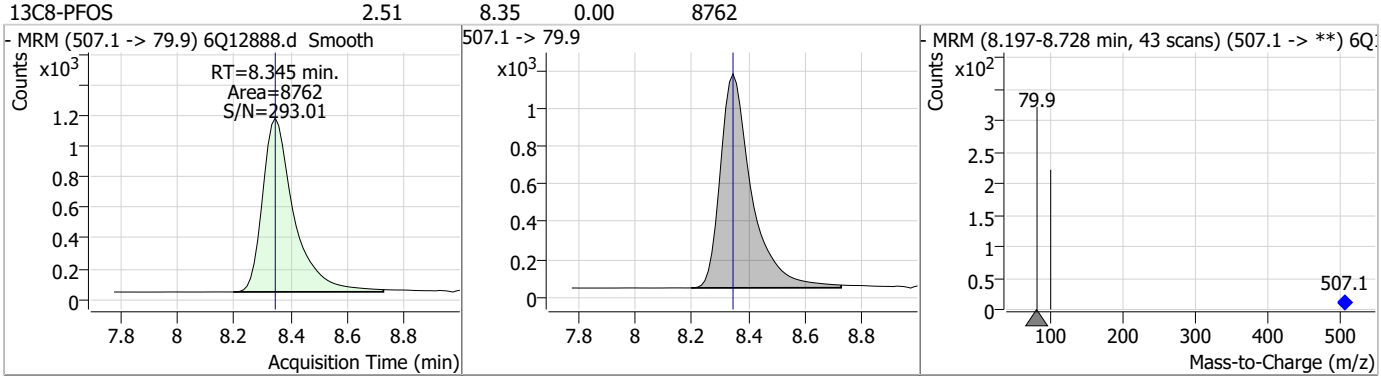
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.21	8.21	0.00	30361				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.22	8.22	0.00	12326 (m)	570.1 -> 483.0	19.9	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.35	0.00	8762				

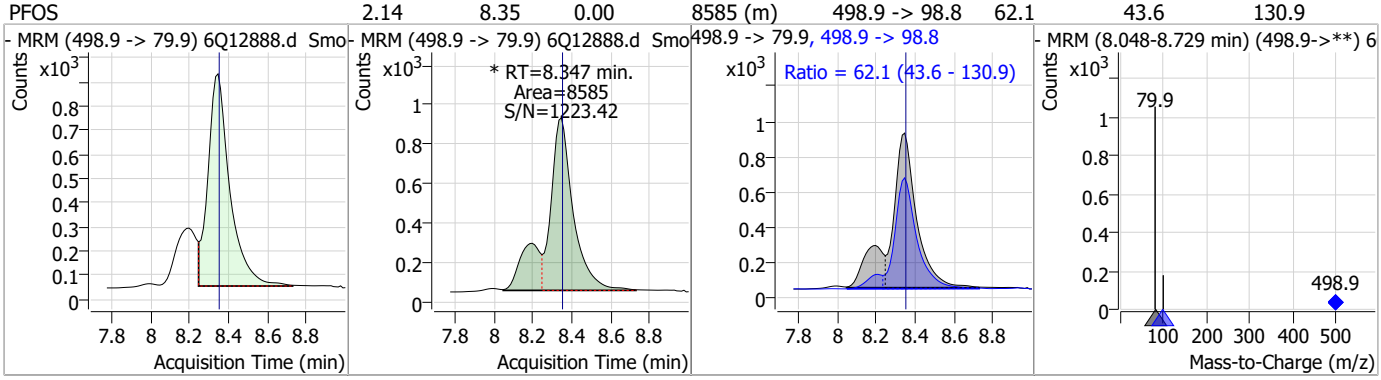


7.7.12

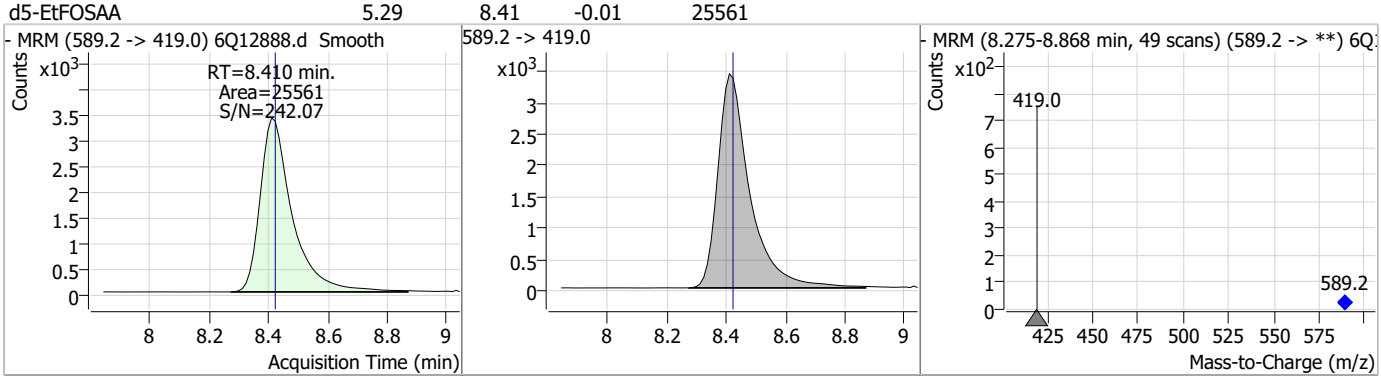
7

Perfluorinated Compounds by LC/MS/MS

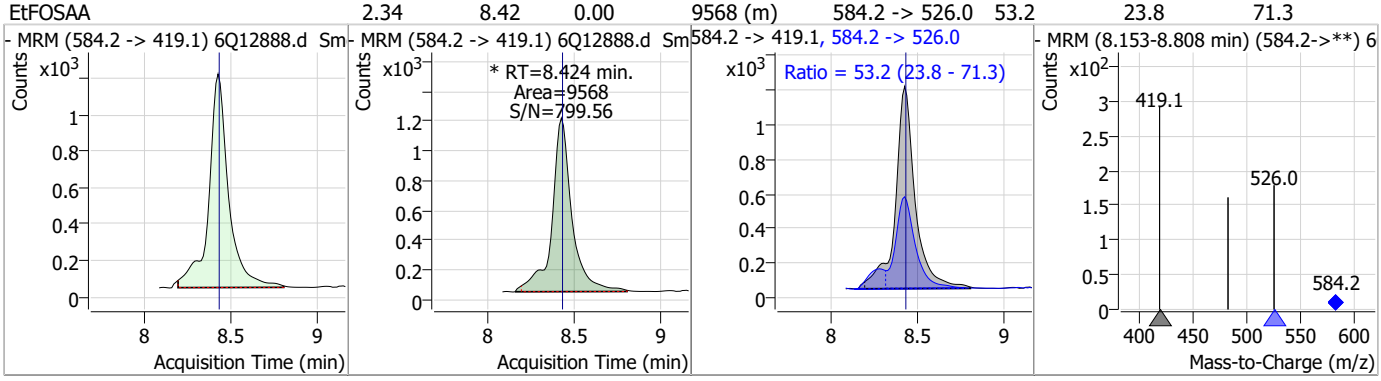
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.35	0.00	8585 (m)	498.9 -> 98.8	62.1	43.6	130.9



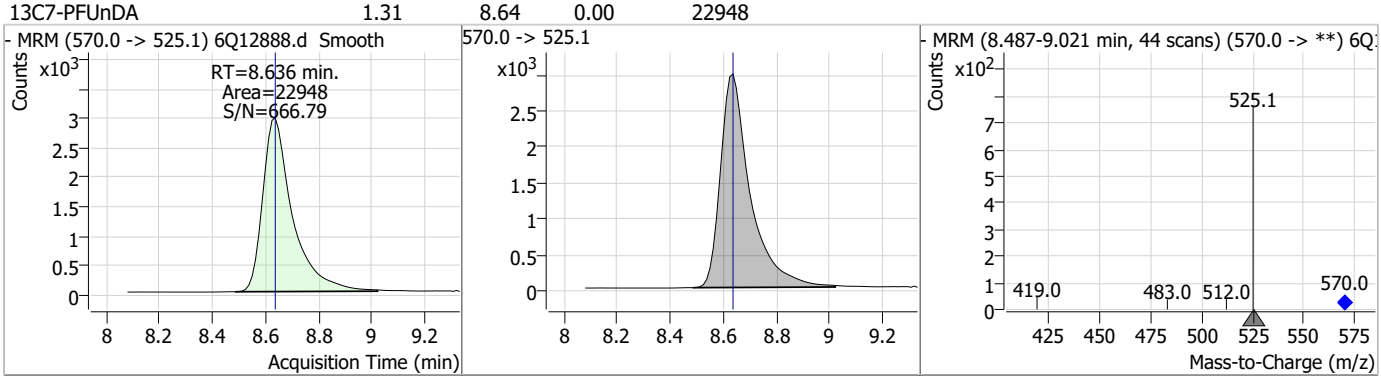
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.29	8.41	-0.01	25561				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.34	8.42	0.00	9568 (m)	584.2 -> 526.0	53.2	23.8	71.3

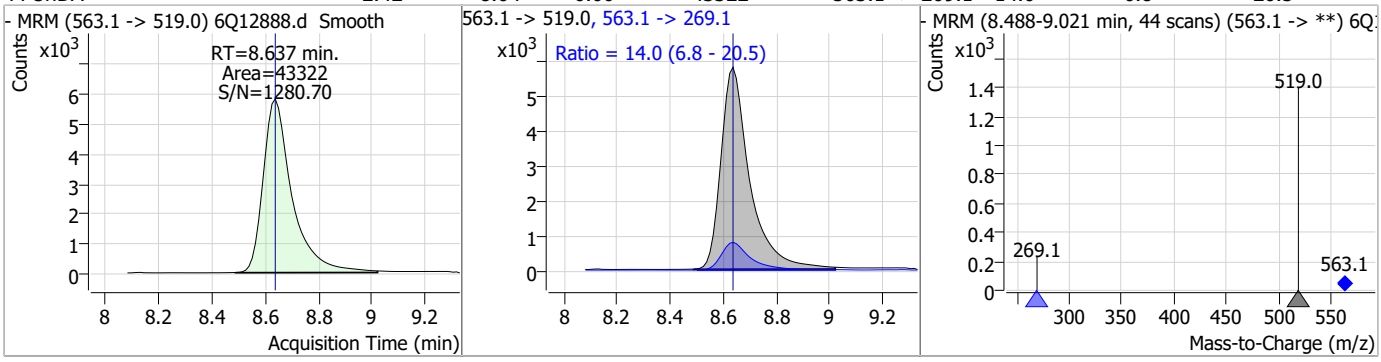


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	22948				

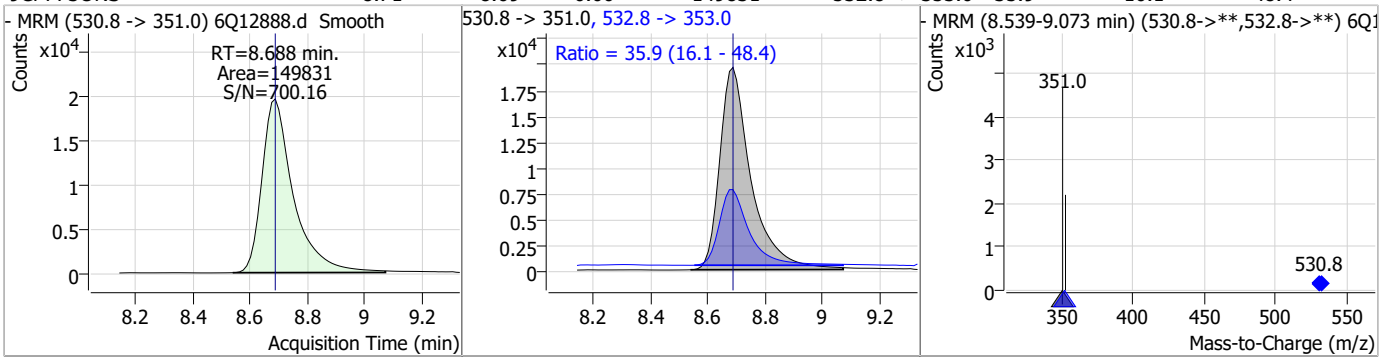


Perfluorinated Compounds by LC/MS/MS

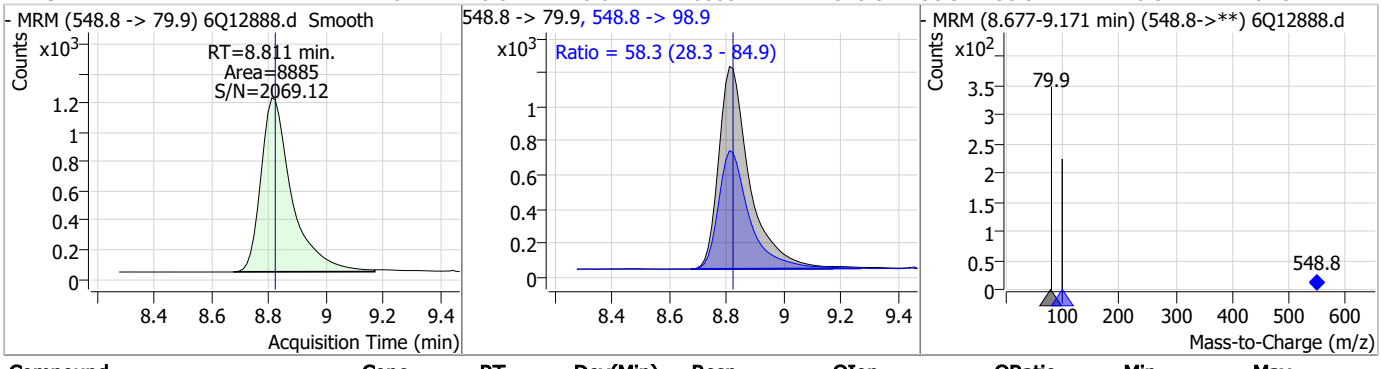
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.42	8.64	0.00	43322	563.1 -> 269.1	14.0	6.8	20.5



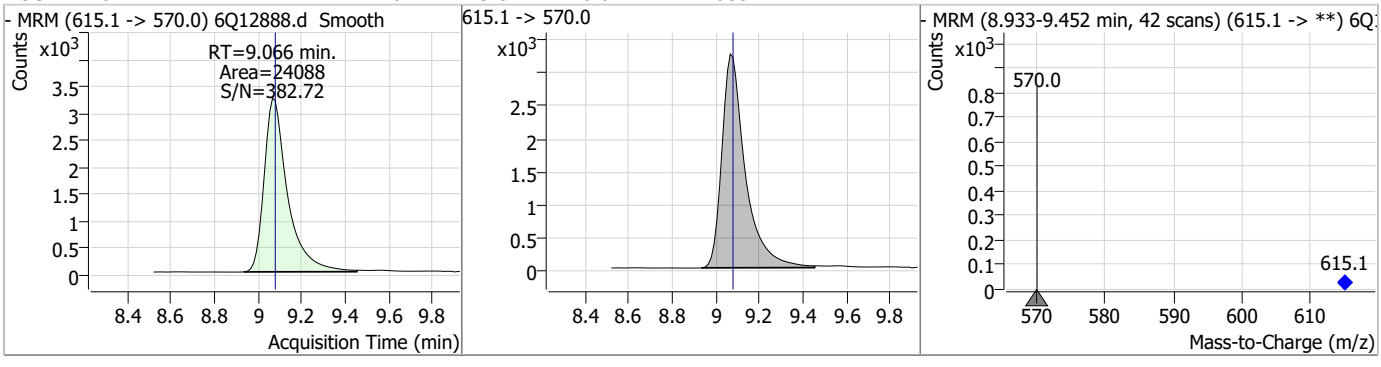
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.71	8.69	0.00	149831	532.8 -> 353.0	35.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.28	8.81	-0.01	8885	548.8 -> 98.9	58.3	28.3	84.9

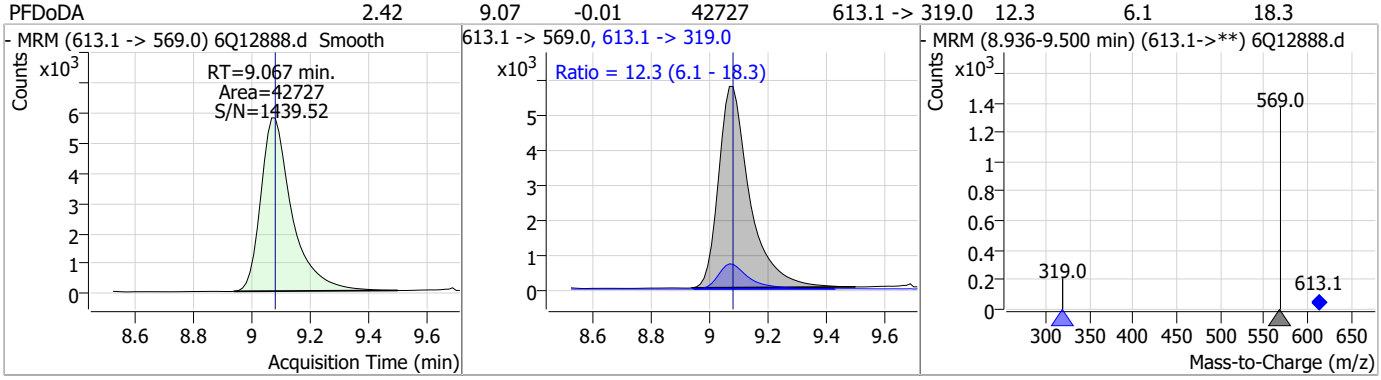


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.20	9.07	-0.01	24088				

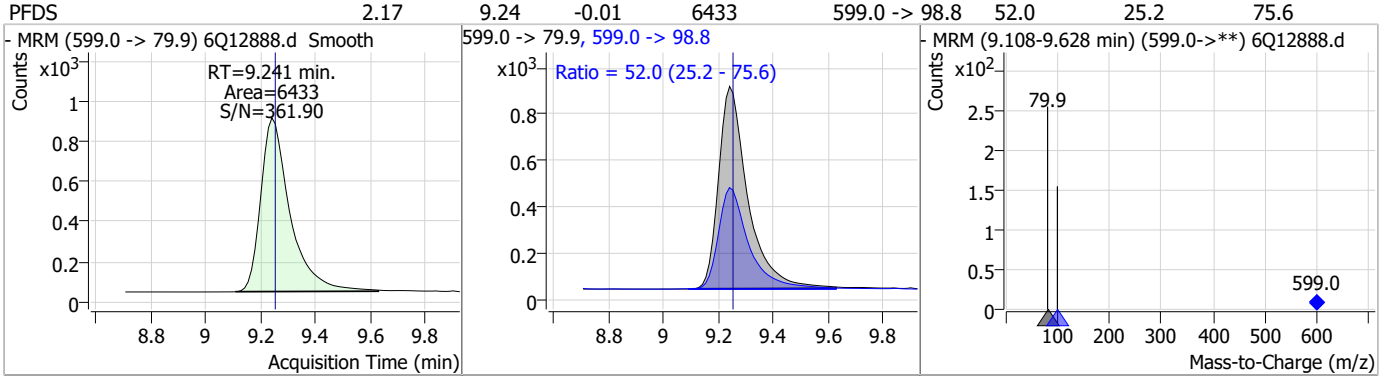


Perfluorinated Compounds by LC/MS/MS

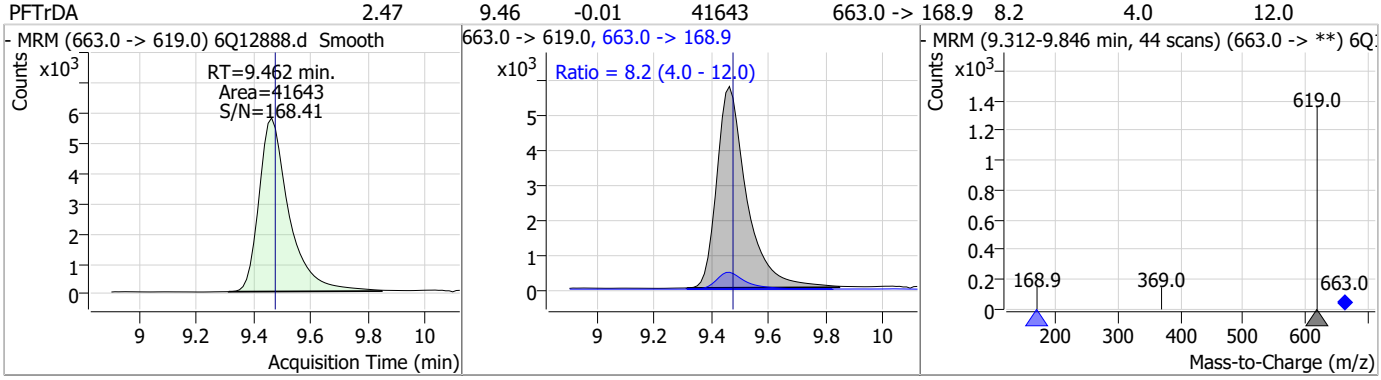
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.42	9.07	-0.01	42727	613.1 -> 319.0	12.3	6.1	18.3



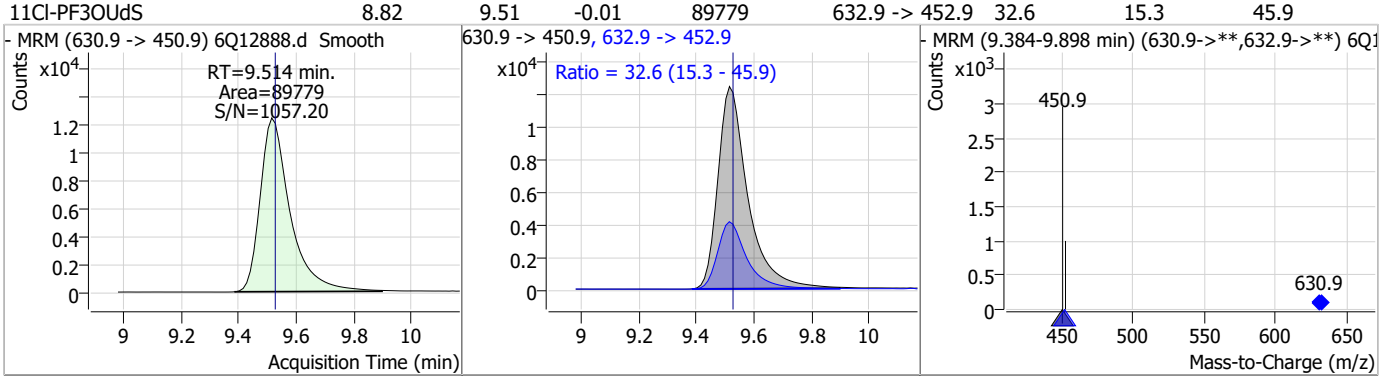
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.17	9.24	-0.01	6433	599.0 -> 98.8	52.0	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.47	9.46	-0.01	41643	663.0 -> 168.9	8.2	4.0	12.0

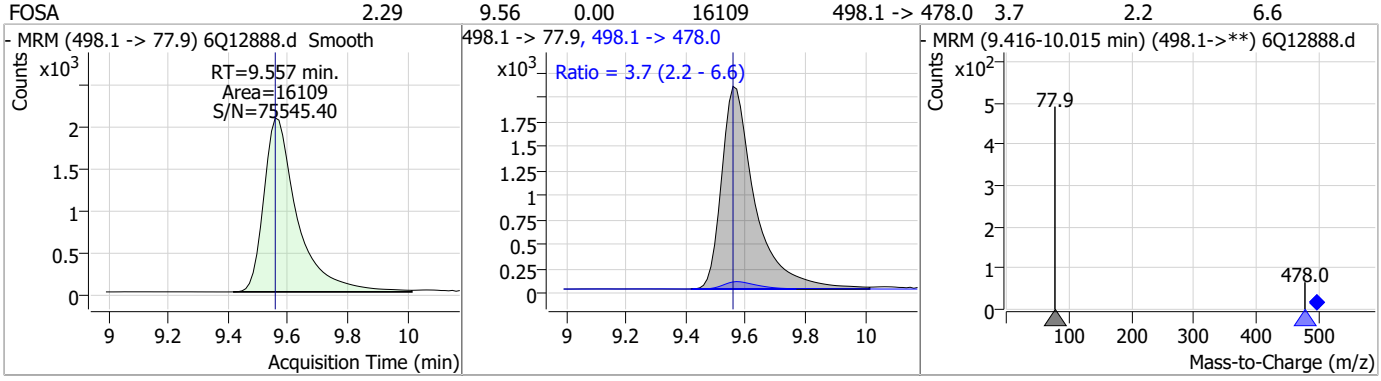


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.82	9.51	-0.01	89779	632.9 -> 452.9	32.6	15.3	45.9

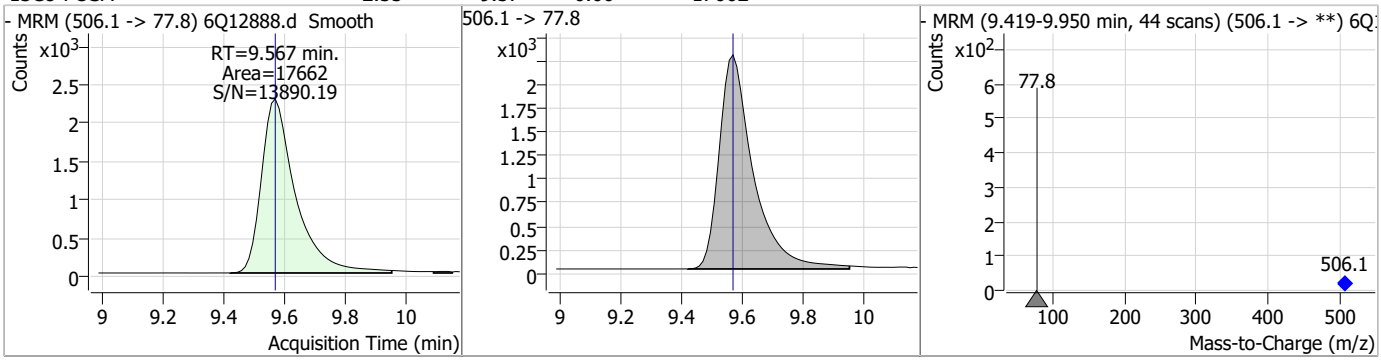


Perfluorinated Compounds by LC/MS/MS

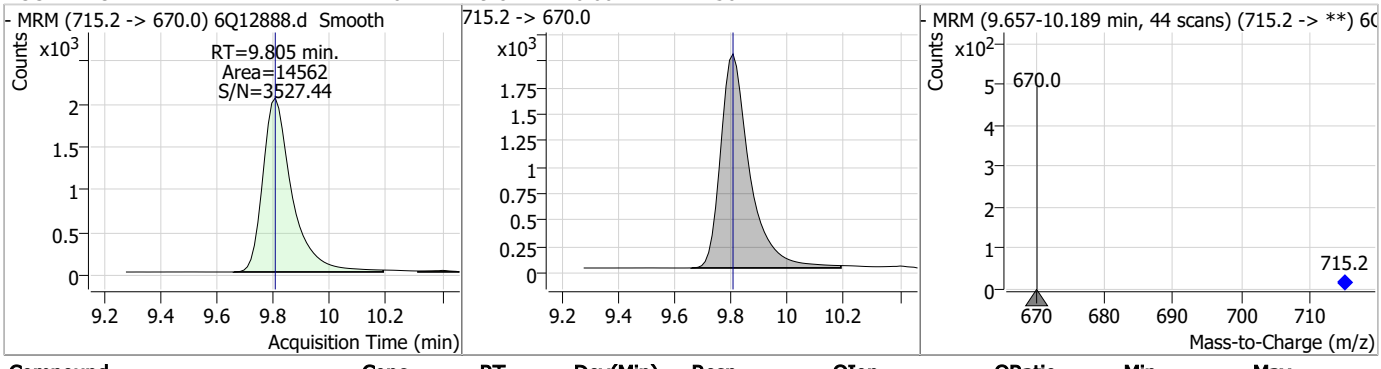
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.29	9.56	0.00	16109	498.1 -> 478.0	3.7	2.2	6.6



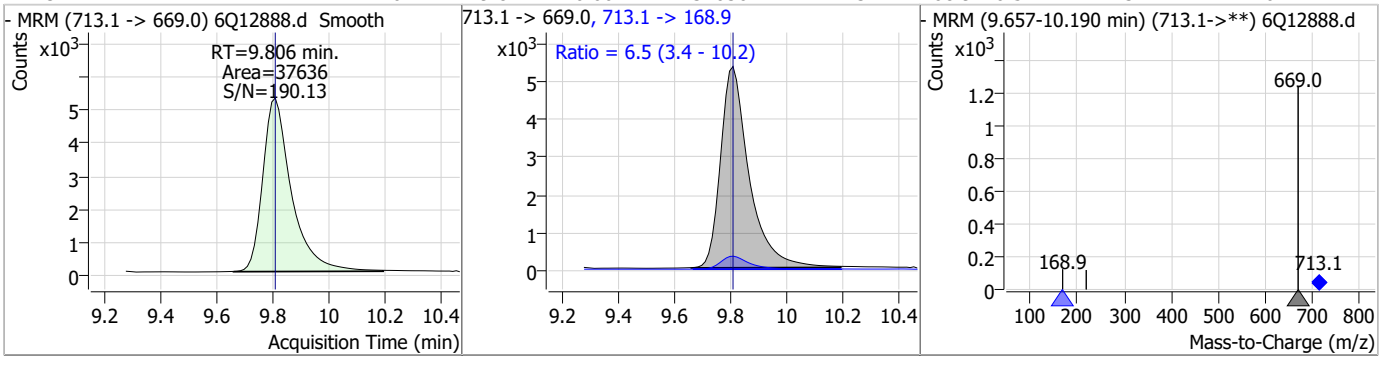
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.57	0.00	17662				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.81	0.00	14562				

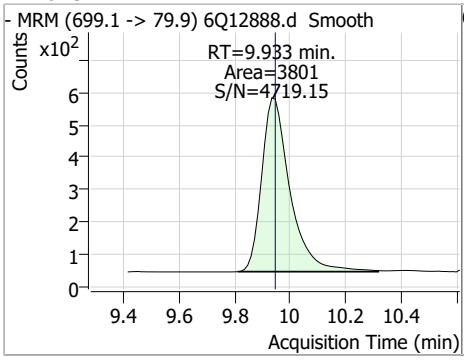


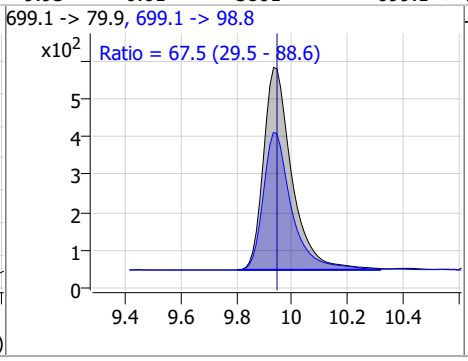
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.40	9.81	0.00	37636	713.1 -> 168.9	6.5	3.4	10.2

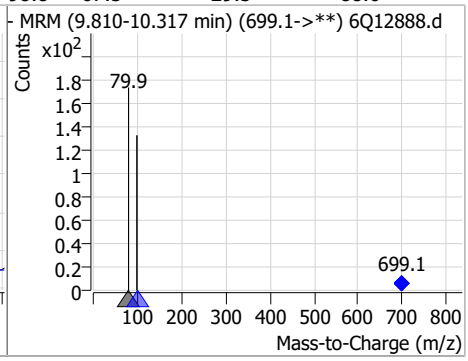


Perfluorinated Compounds by LC/MS/MS

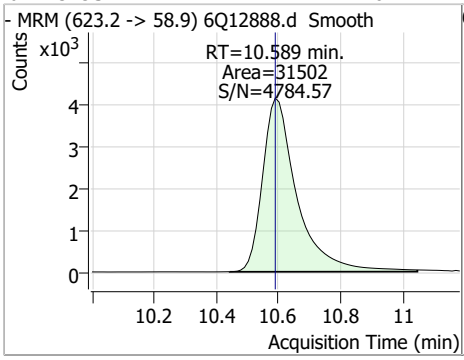
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.14	9.93	-0.01	3801	699.1 -> 98.8	67.5	29.5	88.6

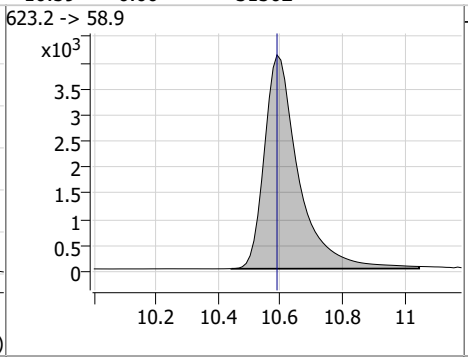


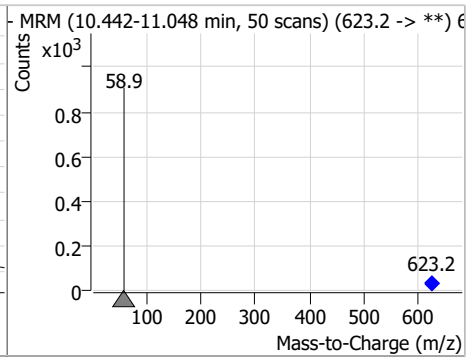




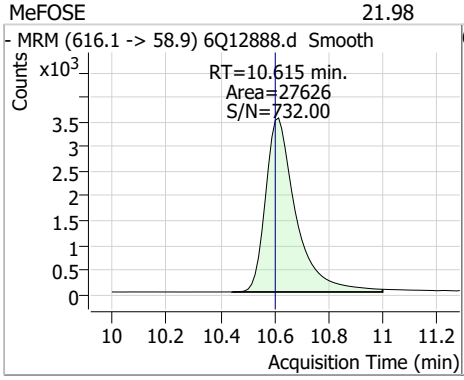
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.11	10.59	0.00	31502				

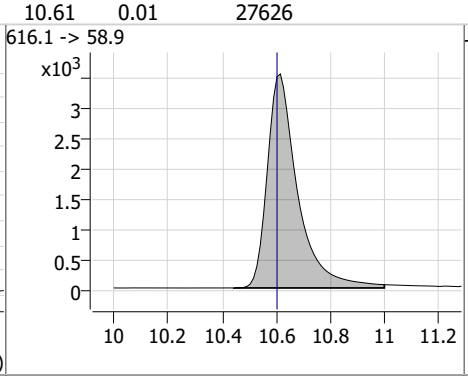


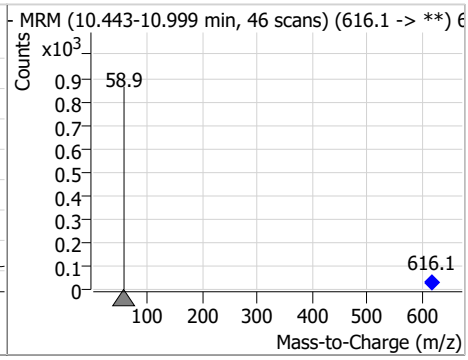




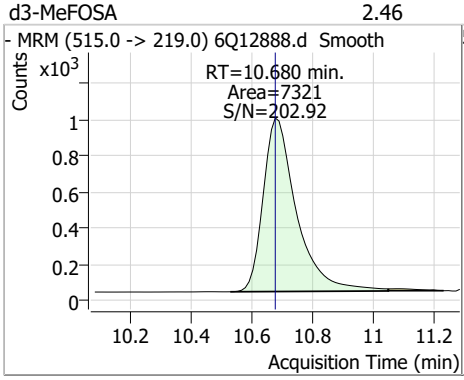
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	21.98	10.61	0.01	27626				

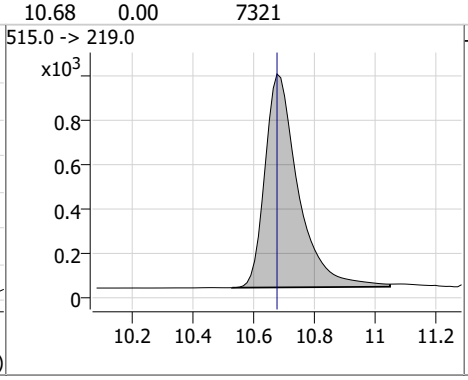


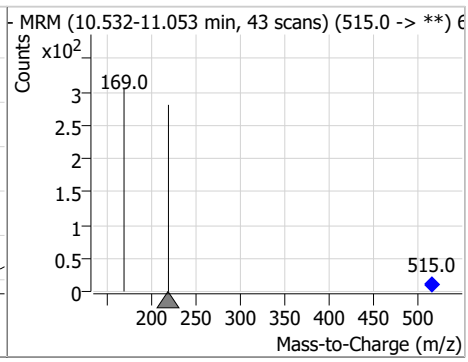




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.68	0.00	7321				

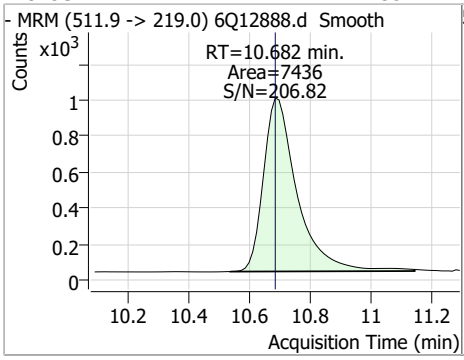


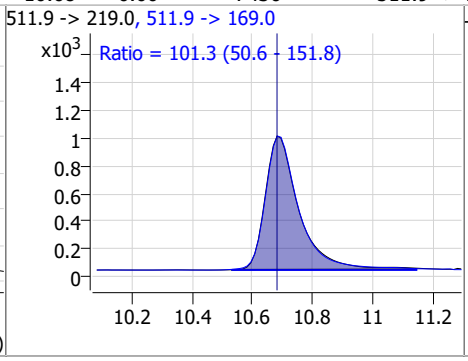


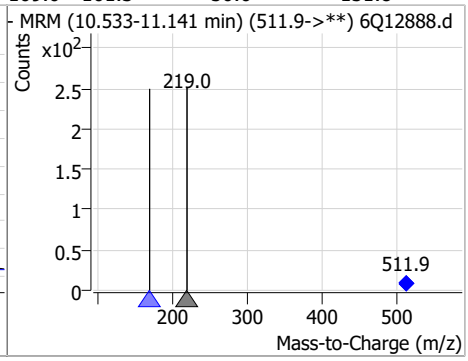


Perfluorinated Compounds by LC/MS/MS

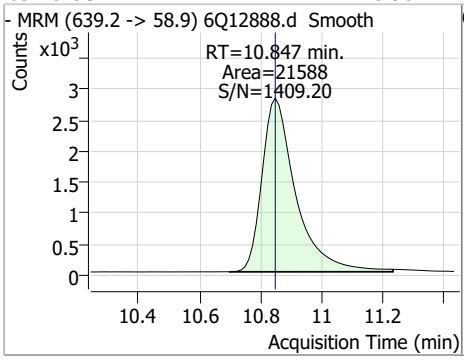
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.35	10.68	0.00	7436	511.9 -> 169.0	101.3	50.6	151.8

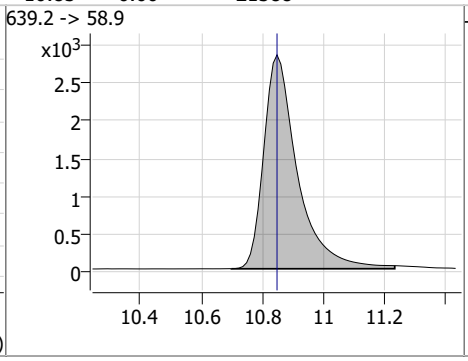


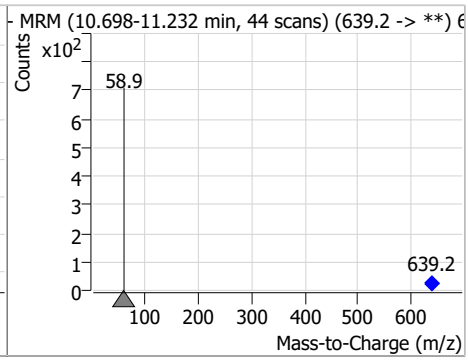




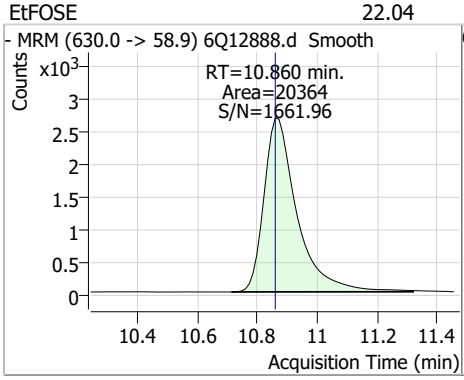
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.96	10.85	0.00	21588				

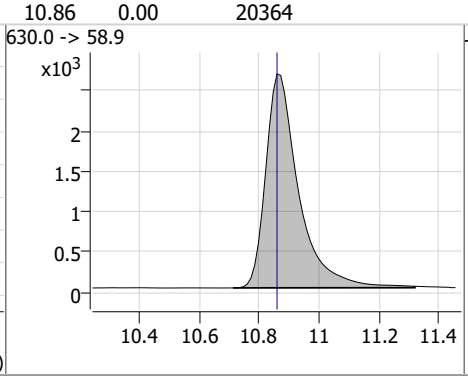


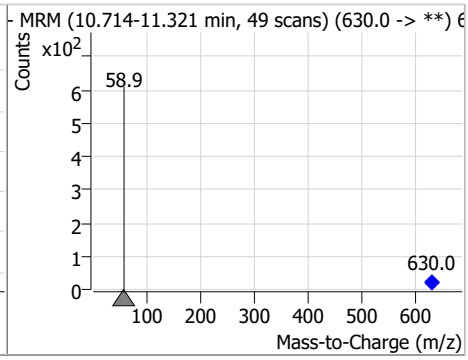




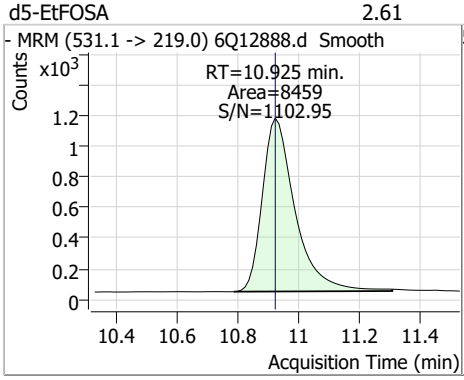
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.04	10.86	0.00	20364				

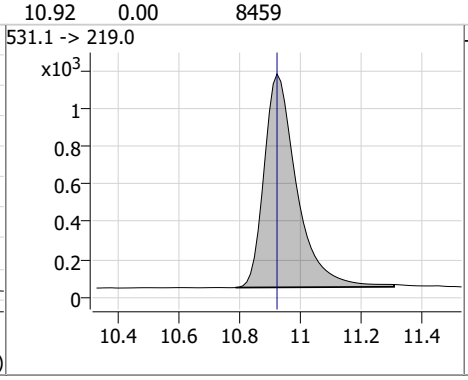


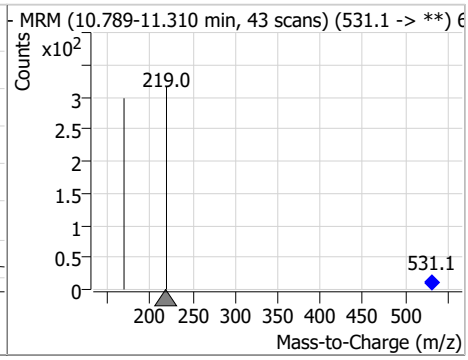




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.61	10.92	0.00	8459				

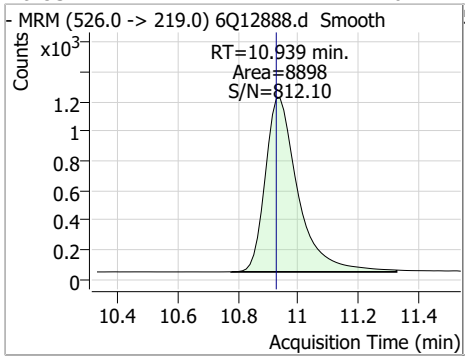


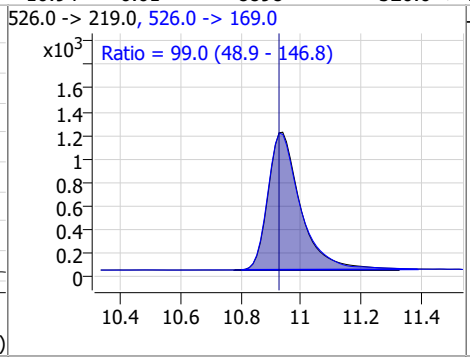


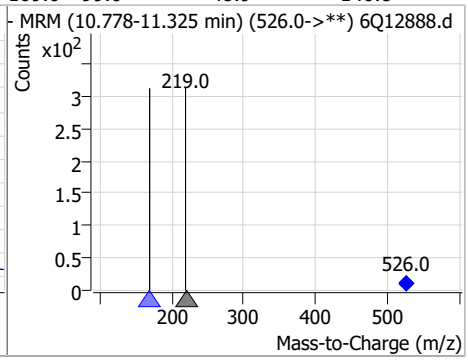


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.20	10.94	0.01	8898	526.0 -> 169.0	99.0	48.9	146.8







7.7.12

7

Manual Integration Approval Summary

Sample Number:	S6Q198-CC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12888.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 10:58	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12889.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 11:12:08 AM
Sample Name	:	cc196-1.0LL
Vial	:	P1-A2
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	73429	10.00	µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	36892	5.00	µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	33196	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	33310	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	63805	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27067	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18034	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21546	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	23796	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	13927	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16958	2.50	µg/L	0.000
M3-PFBS	5.505	302.1 -> 79.9	13228	2.50	µg/L	-0.012
M3-PFHxS	7.274	402.1 -> 79.9	8464	2.50	µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8631	2.50	µg/L	-0.012
M2-4:2FTS	5.227	329.1 -> 80.9	2303	5.00	µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	2994	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2802	5.00	µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	29702	5.00	µg/L	-0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	14133	10.00	µg/L	-0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	23527	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29905	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21154	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7440	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7089	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10022	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32585	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6159	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	75076	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23289	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27739	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	32799	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.227	329.1 -> 80.9	2303	5.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2994	5.64	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2802	5.25	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	23796	1.34	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%		
13C2-PFTeDA	9.805	715.2 -> 670.0	13927	1.36	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%		
13C3-PFBS	5.505	302.1 -> 79.9	13228	2.64	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C3-PFHxS	7.274	402.1 -> 79.9	8464	2.61	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C4-PFBA	2.975	216.8 -> 171.9	73429	10.15 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	33310	2.46 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C5-PFHxA	5.563	318.0 -> 273.0	33196	2.56 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C5-PFPeA	4.374	268.3 -> 223.0	36892	5.05 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C6-PFDA	8.170	519.1 -> 474.1	18034	1.39 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C7-PFUnDA	8.636	570.0 -> 525.1	21546	1.39 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%		
13C8-FOSA	9.567	506.1 -> 77.8	16958	2.60 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C8-PFOA	7.146	421.1 -> 376.0	63805	2.55 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C8-PFOS	8.333	507.1 -> 79.9	8631	2.62 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C9-PFNA	7.677	472.1 -> 427.0	27067	1.39 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.9%		
d3-MeFOSAA	8.202	573.2 -> 419.0	29702	5.41 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	14133	10.54 µg/L		-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
d3-MeFOSA	10.680	515.0 -> 219.0	7089	2.52 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23527	5.16 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
d7-MeFOSE	10.589	623.2 -> 58.9	29905	26.28 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
d9-EtFOSE	10.847	639.2 -> 58.9	21154	26.97 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.9%		
d5-EtFOSA	10.925	531.1 -> 219.0	7440	2.43 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%		
Target Compounds						**QValue**
4:2FTS	5.228	327.1 -> 307.0	3890	0.75 µg/L		96
		327.1 -> 80.9	934			
6:2FTS	6.908	427.1 -> 407.0	3517	0.80 µg/L		99
		427.1 -> 80.9	634			
8:2FTS	7.958	527.1 -> 507.0	2123	0.98 µg/L		96
		527.1 -> 80.8	467			
EtFOSAA	8.424	584.2 -> 419.1	799	0.21 µg/L	m	85
		584.2 -> 526.0	458			
FOSA	9.570	498.1 -> 77.9	1455	0.22 µg/L		100
		498.1 -> 478.0	64			
MeFOSAA	8.216	570.1 -> 419.0	1255	0.23 µg/L	m	99
		570.1 -> 483.0	187			
PFBA	2.982	212.8 -> 168.9	1442	0.88 µg/L		100
PFBS	5.506	298.7 -> 79.9	826	0.16 µg/L		80
		298.7 -> 98.8	470			
PFDA	8.170	512.9 -> 469.0	4589	0.22 µg/L		96
		512.9 -> 219.0	599			
PFDoDA	9.067	613.1 -> 569.0	3764	0.22 µg/L		98
		613.1 -> 319.0	482			
PFDS	9.241	599.0 -> 79.9	571	0.20 µg/L		98

Perfluorinated Compounds by LC/MS/MS

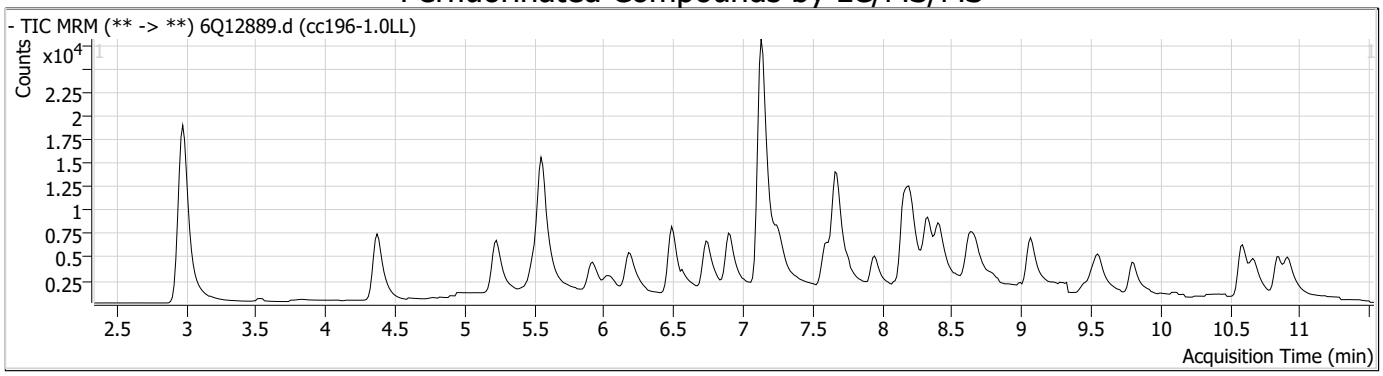
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	294				
PFHpA	6.503	363.1 -> 319.0	4426	0.22	µg/L		96
		363.1 -> 169.0	623				
PFHpS	7.841	449.0 -> 79.9	900	0.25	µg/L		70
		449.0 -> 98.9	305				
PFHxA	5.566	313.0 -> 269.0	2724	0.21	µg/L		97
		313.0 -> 118.9	143				
PFHxS	7.263	398.7 -> 79.9	757	0.20	µg/L	m	72
		398.7 -> 98.9	314				
PFNA	7.677	463.0 -> 419.0	3600	0.20	µg/L		90
		463.0 -> 219.0	849				
PFNS	8.811	548.8 -> 79.9	788	0.21	µg/L		93
		548.8 -> 98.9	486				
PFOA	7.148	413.0 -> 369.0	4769	0.17	µg/L		95
		413.0 -> 169.0	751				
PFOS	8.347	498.9 -> 79.9	838	0.21	µg/L	m	68
		498.9 -> 98.8	480				
PFPeA	4.375	263.0 -> 219.0	3386	0.43	µg/L		100
PFPeS	6.569	349.1 -> 79.9	884	0.20	µg/L		96
		349.1 -> 98.9	475				
PFTeDA	9.806	713.1 -> 669.0	3366	0.22	µg/L		98
		713.1 -> 168.9	211				
PFTrDA	9.462	663.0 -> 619.0	4316	0.26	µg/L		96
		663.0 -> 168.9	280				
PFUnDA	8.637	563.1 -> 519.0	3494	0.21	µg/L		95
		563.1 -> 269.1	555				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	7239	0.71	µg/L		98
		632.9 -> 452.9	2298				
9Cl-PF3ONS	8.676	530.8 -> 351.0	12032	0.70	µg/L		98
		532.8 -> 353.0	3996				
ADONA	6.753	376.9 -> 250.9	22666	0.74	µg/L		98
		376.9 -> 84.8	4848				
HFPO-DA	5.928	284.9 -> 168.9	1094	0.83	µg/L		98
		284.9 -> 184.9	137				
3:3FTCA	3.841	241.0 -> 177.0	373	0.98	µg/L		87
		241.0 -> 117.0	76				
5:3FTCA	6.193	341.0 -> 237.1	13130	4.82	µg/L		98
		341.0 -> 217.0	11645				
7:3FTCA	7.605	441.0 -> 316.9	8673	4.87	µg/L		91
		441.0 -> 336.9	17028				
EtFOSA	10.927	526.0 -> 219.0	732	0.21	µg/L		99
		526.0 -> 169.0	711				
EtFOSE	10.860	630.0 -> 58.9	1865	2.06	µg/L		100
MeFOSA	10.694	511.9 -> 219.0	615	0.20	µg/L		95
		511.9 -> 169.0	590				
MeFOSE	10.615	616.1 -> 58.9	2343	1.96	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	336	0.19	µg/L		79
		699.1 -> 98.8	252				
NFDHA	5.445	295.0 -> 201.0	304	0.39	µg/L		98
		295.0 -> 84.9	159				
PFMBA	4.787	279.0 -> 85.1	923	0.42	µg/L		100
PFMPA	3.541	229.0 -> 84.9	853	0.41	µg/L		100
PFEESA	6.046	314.8 -> 134.9	6778	0.36	µg/L		99
		314.8 -> 82.9	135				

= Qualifier out of range, m = manually integrated, + = Area summed

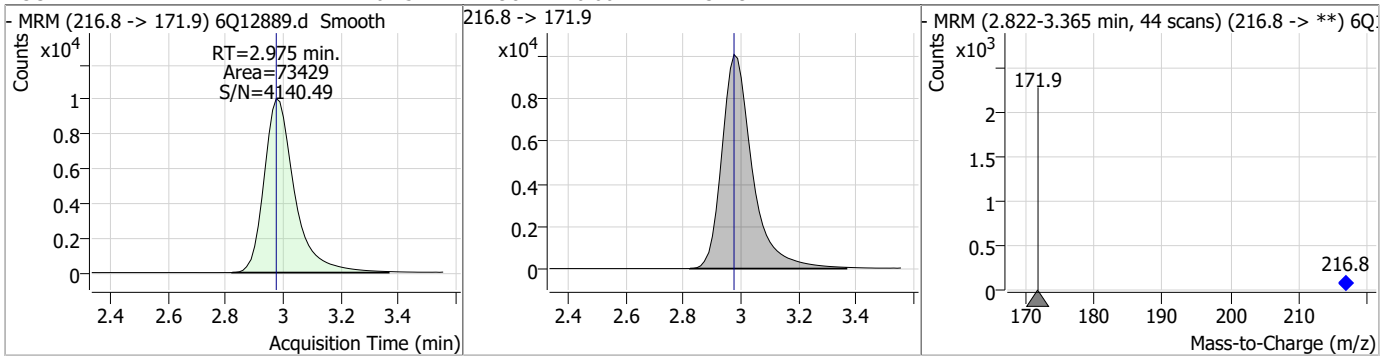
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

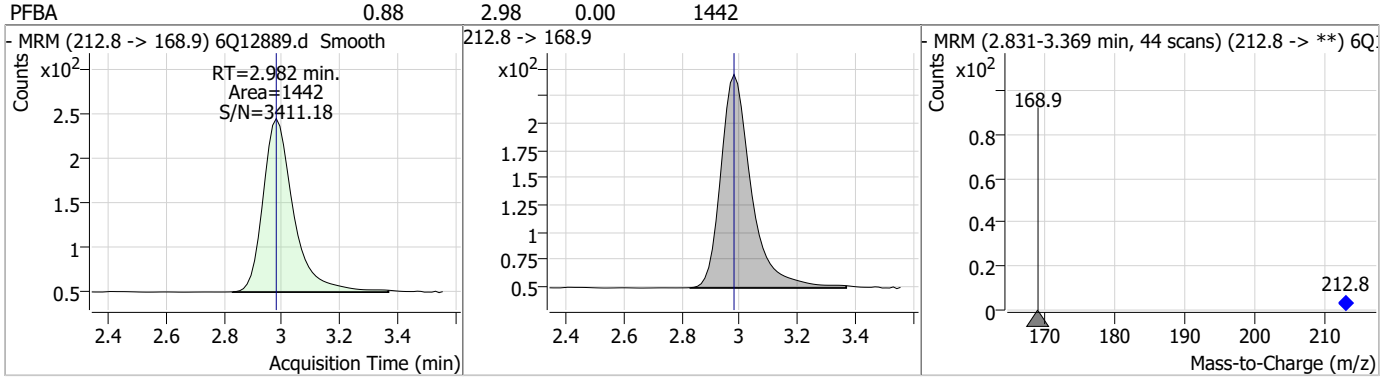
Perfluorinated Compounds by LC/MS/MS



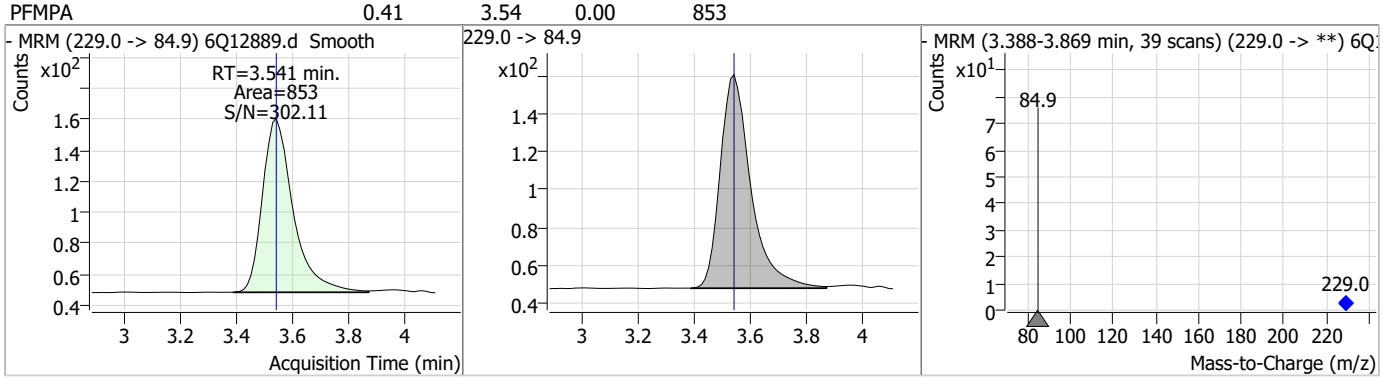
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.15	2.98	0.00	73429				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.88	2.98	0.00	1442				

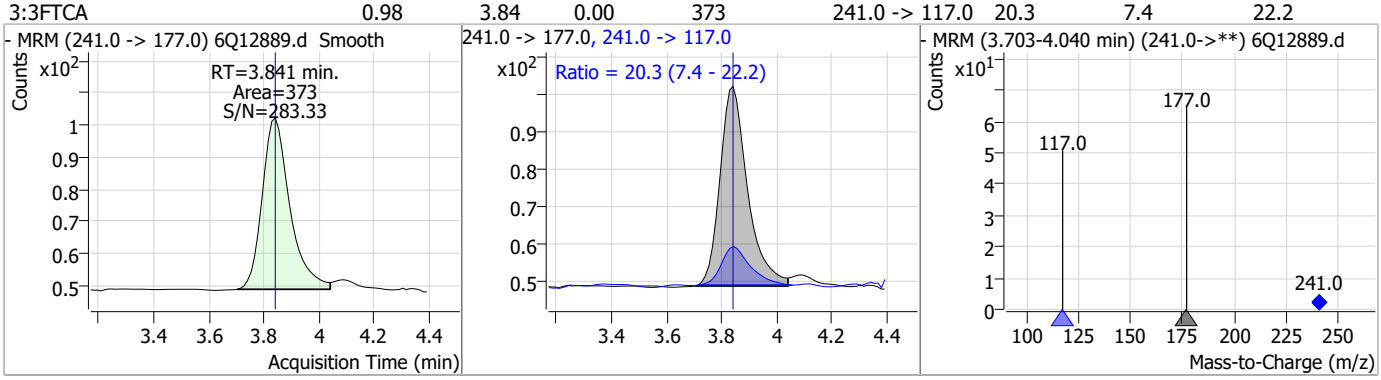


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.41	3.54	0.00	853				

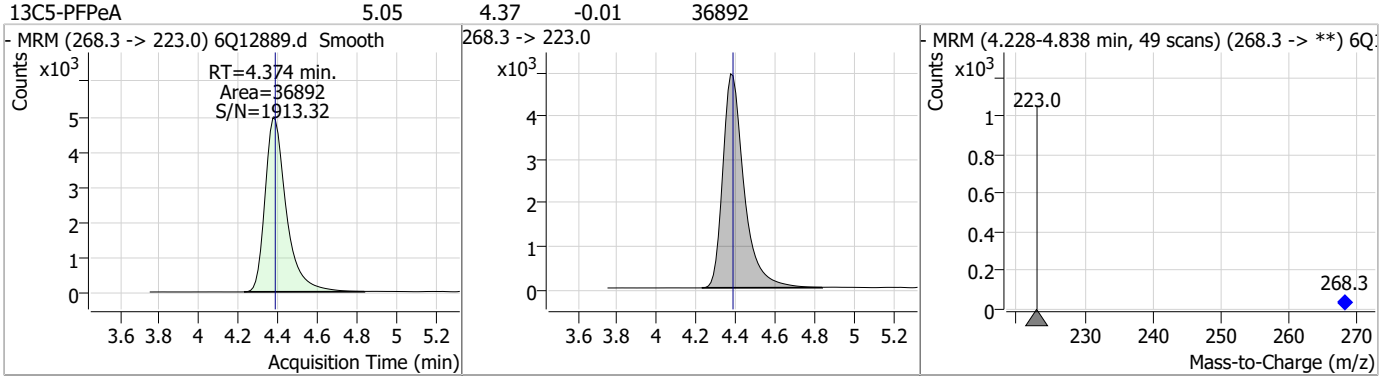


Perfluorinated Compounds by LC/MS/MS

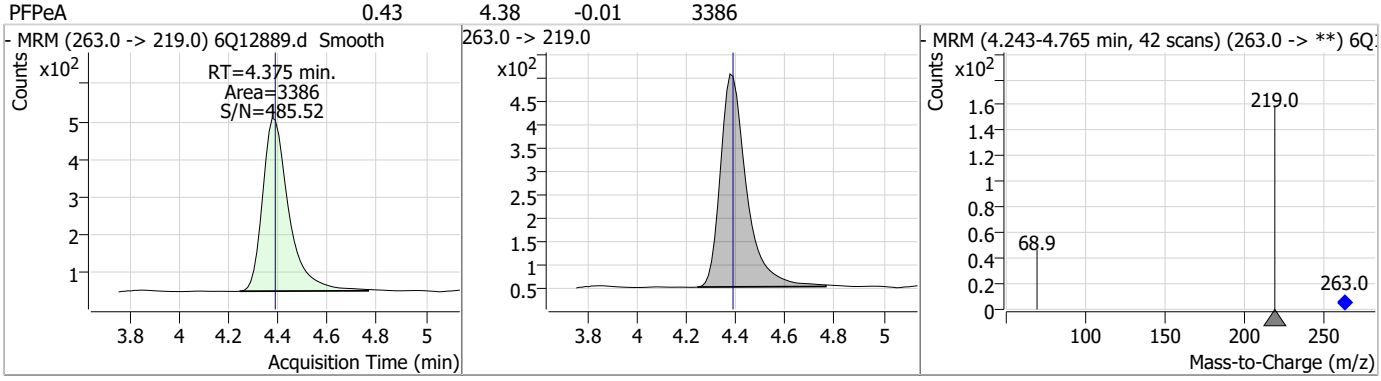
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.98	3.84	0.00	373	241.0 -> 117.0	20.3	7.4	22.2



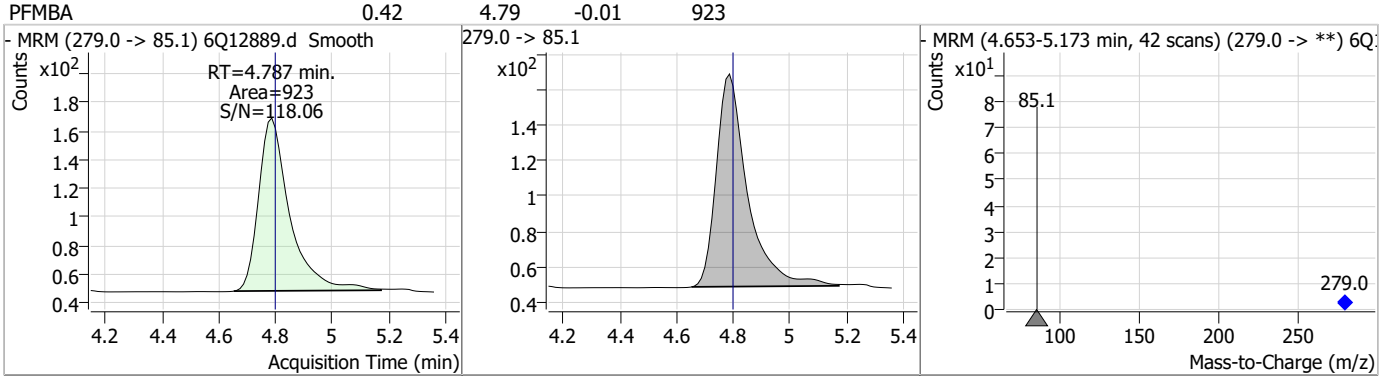
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.05	4.37	-0.01	36892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.43	4.38	-0.01	3386				

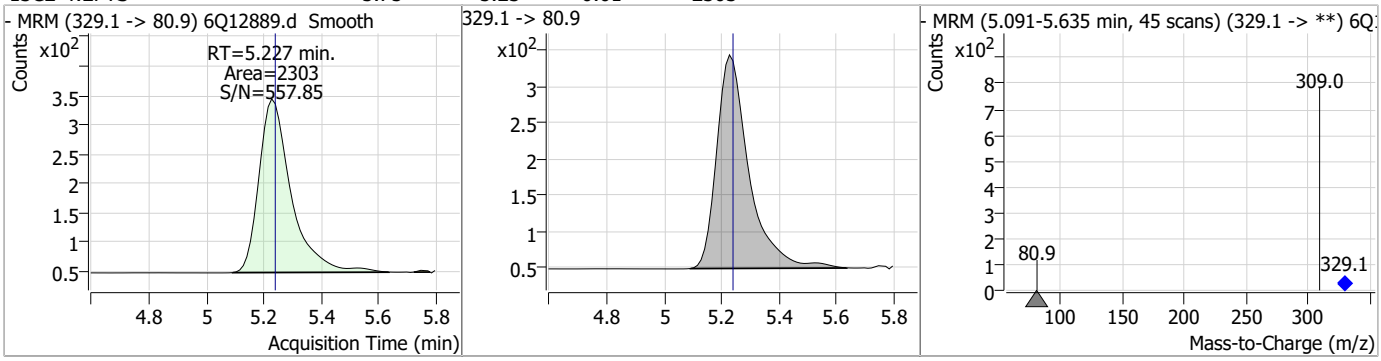


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.42	4.79	-0.01	923				

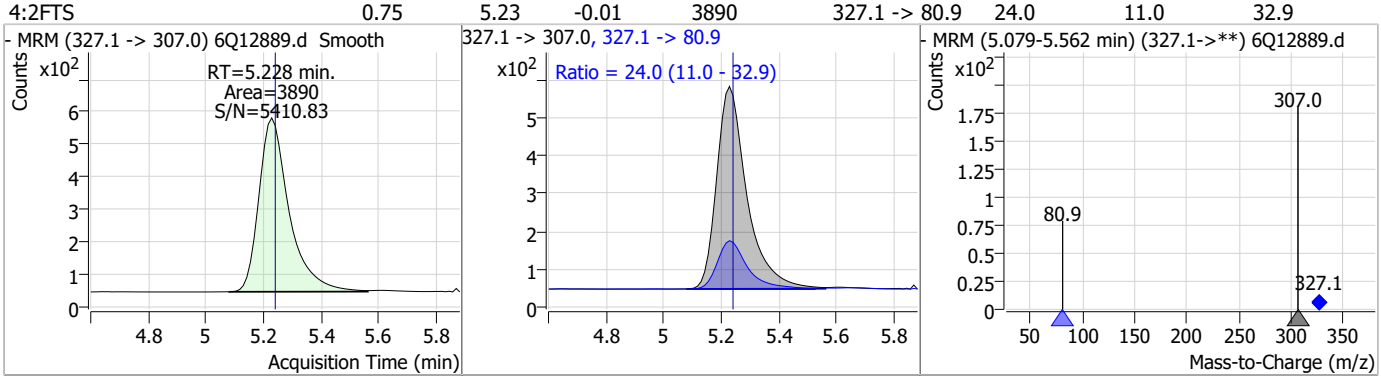


Perfluorinated Compounds by LC/MS/MS

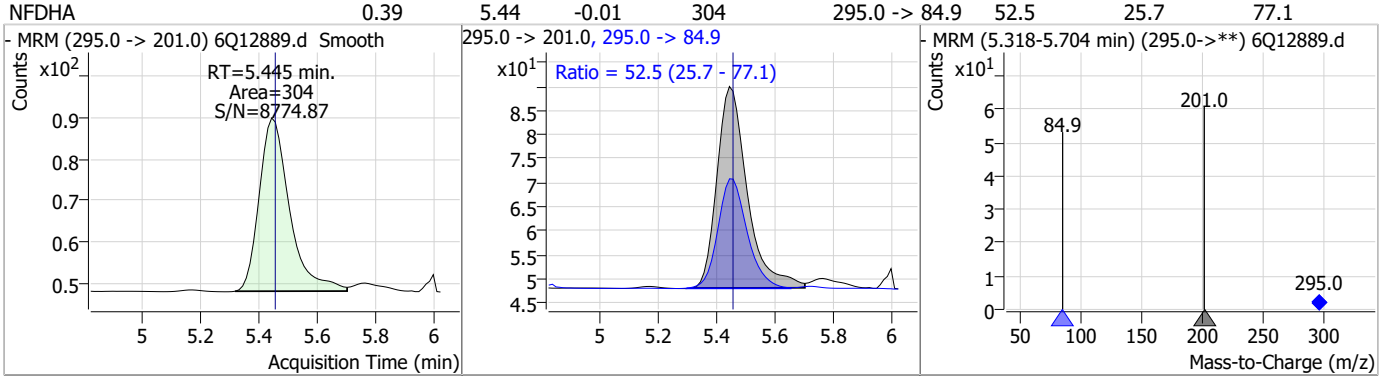
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.75	5.23	-0.01	2303				



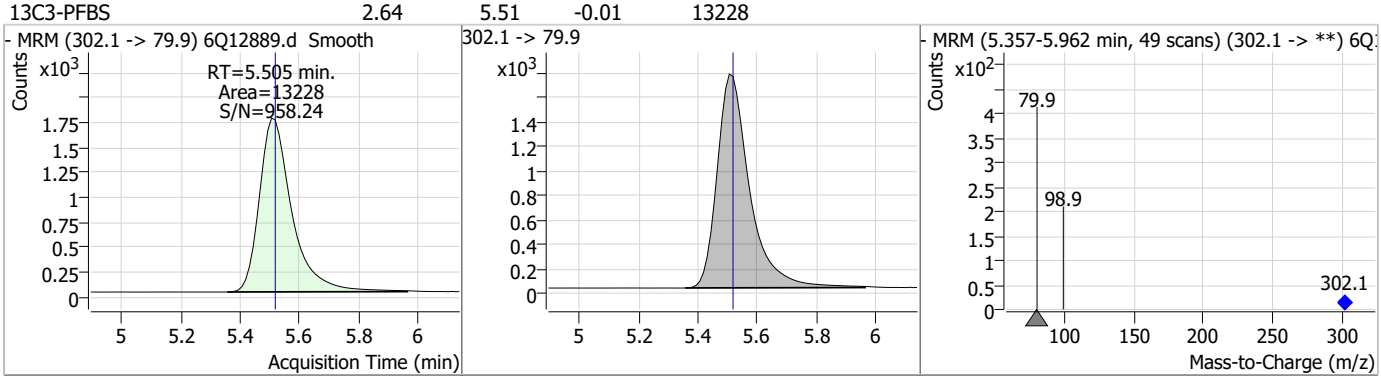
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.75	5.23	-0.01	3890	327.1 -> 80.9	24.0	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.39	5.44	-0.01	304	295.0 -> 84.9	52.5	25.7	77.1

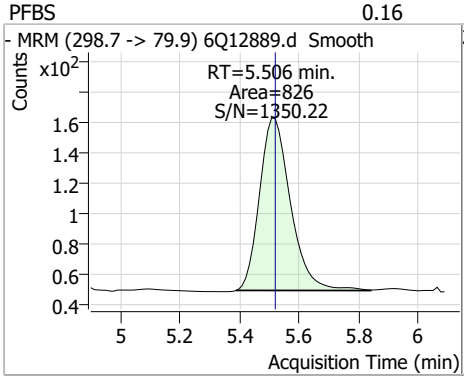


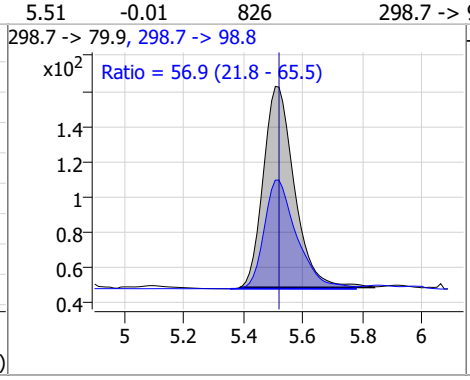
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.64	5.51	-0.01	13228				

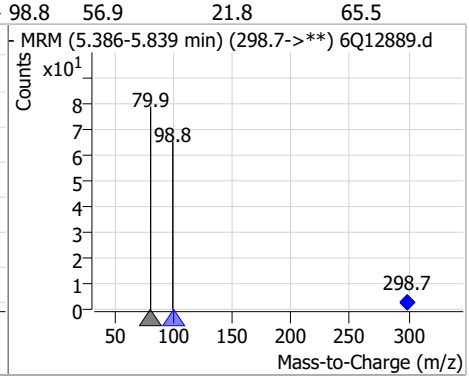


Perfluorinated Compounds by LC/MS/MS

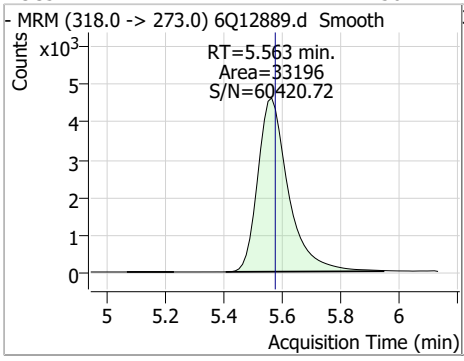
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.51	-0.01	826	298.7 -> 98.8	56.9	21.8	65.5

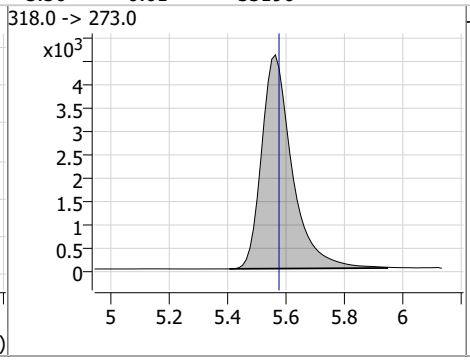


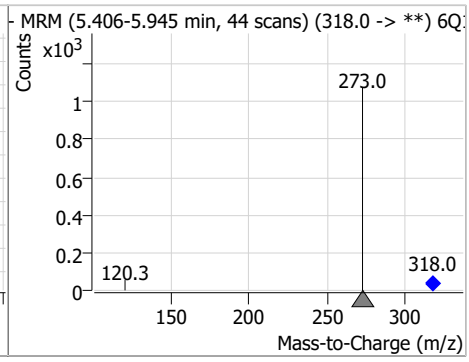




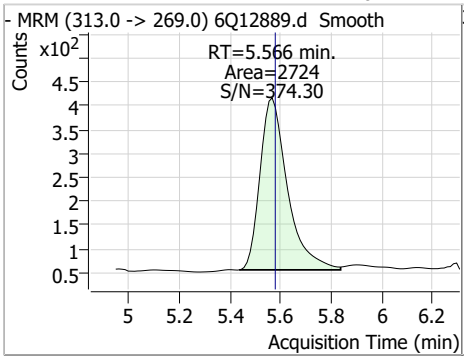
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.56	-0.01	33196				

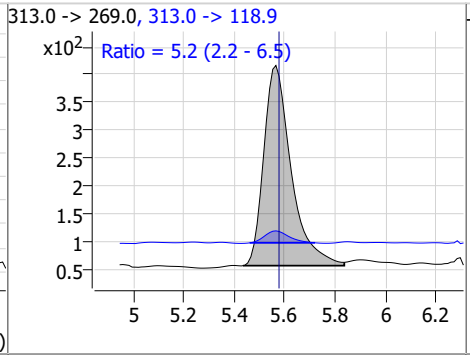


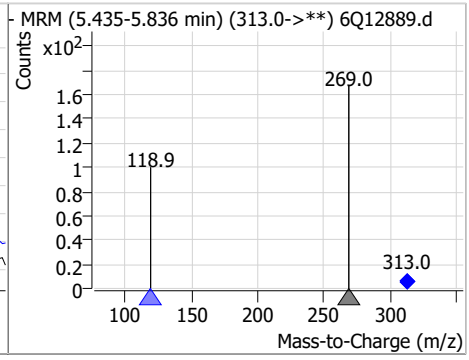




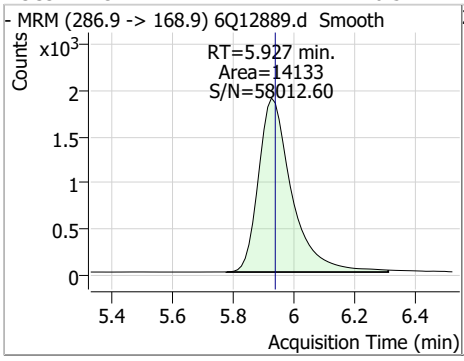
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.57	-0.01	2724	313.0 -> 118.9	5.2	2.2	6.5

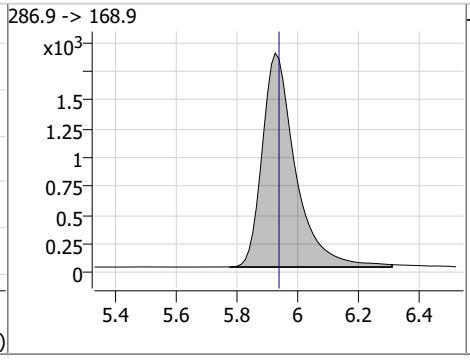


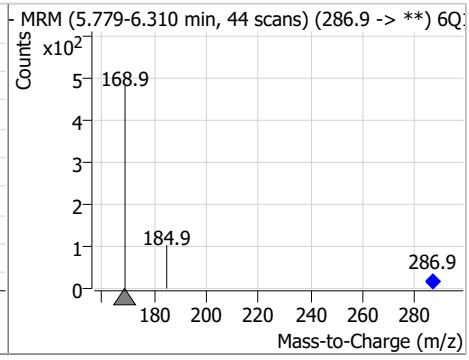




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.54	5.93	-0.01	14133				

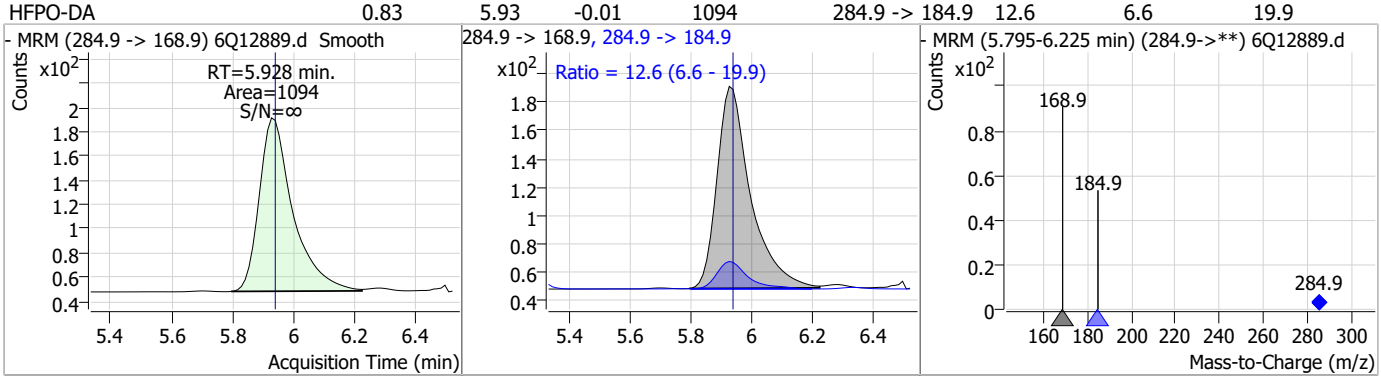




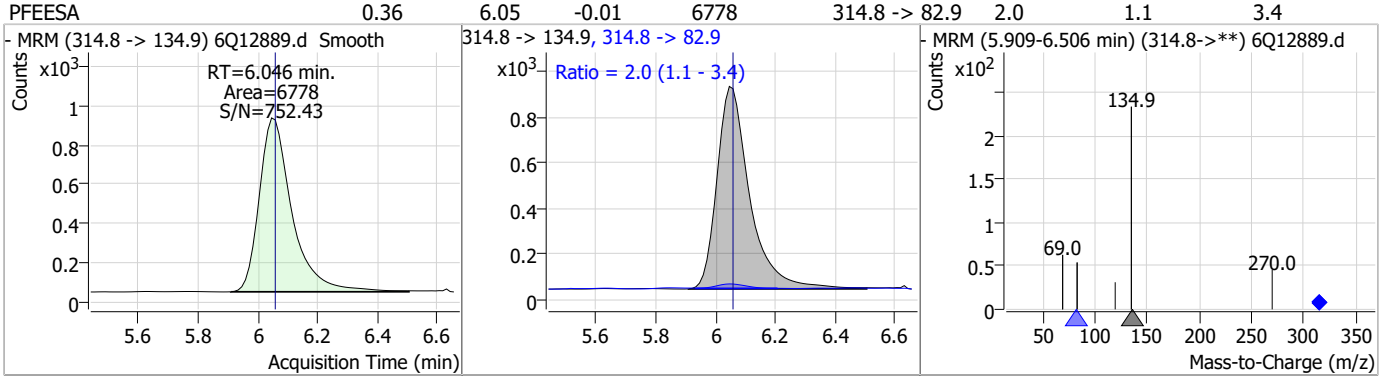


Perfluorinated Compounds by LC/MS/MS

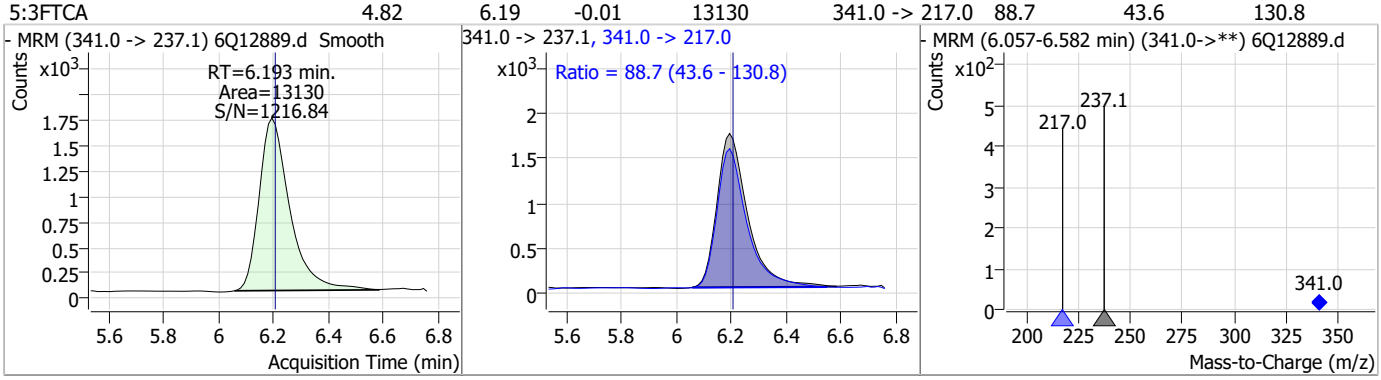
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.83	5.93	-0.01	1094	284.9 -> 184.9	12.6	6.6	19.9



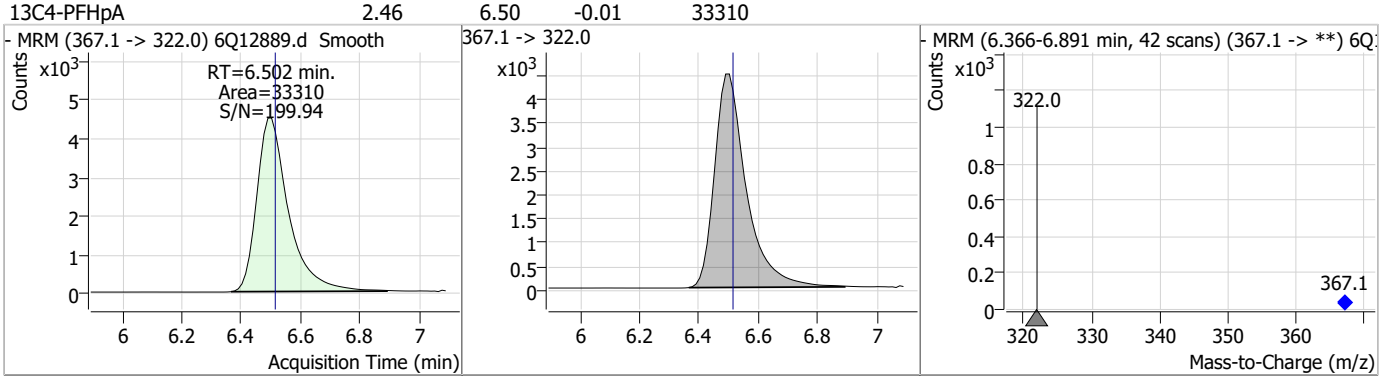
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.05	-0.01	6778	314.8 -> 82.9	2.0	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.82	6.19	-0.01	13130	341.0 -> 217.0	88.7	43.6	130.8

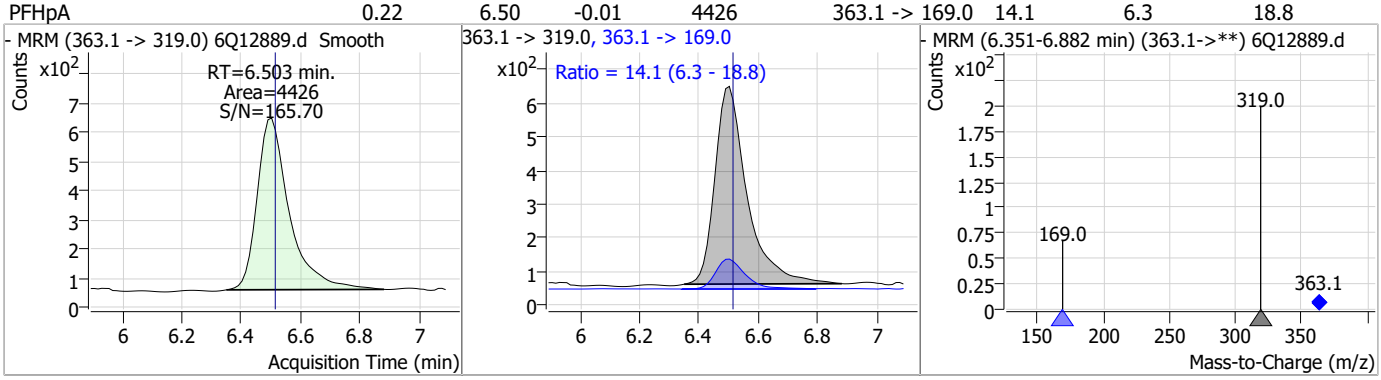


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.50	-0.01	33310				

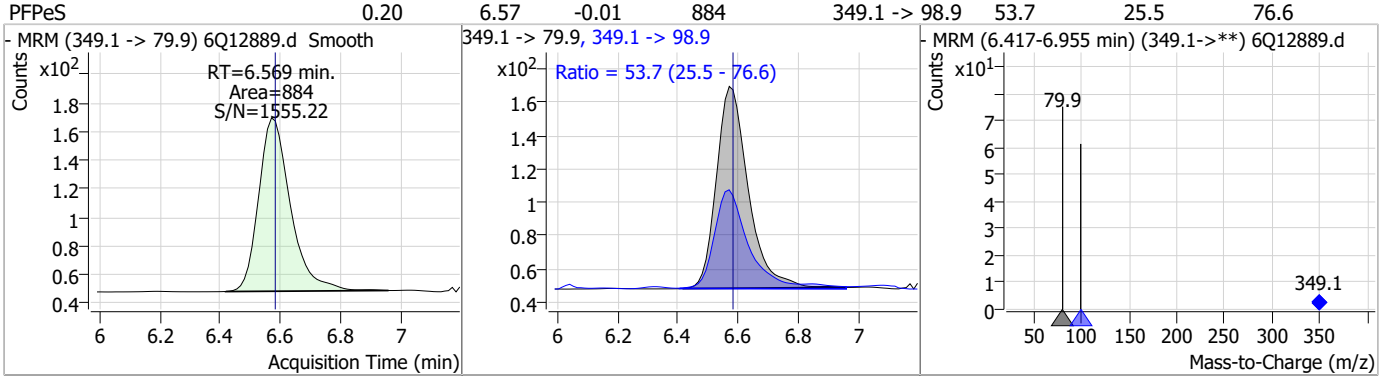


Perfluorinated Compounds by LC/MS/MS

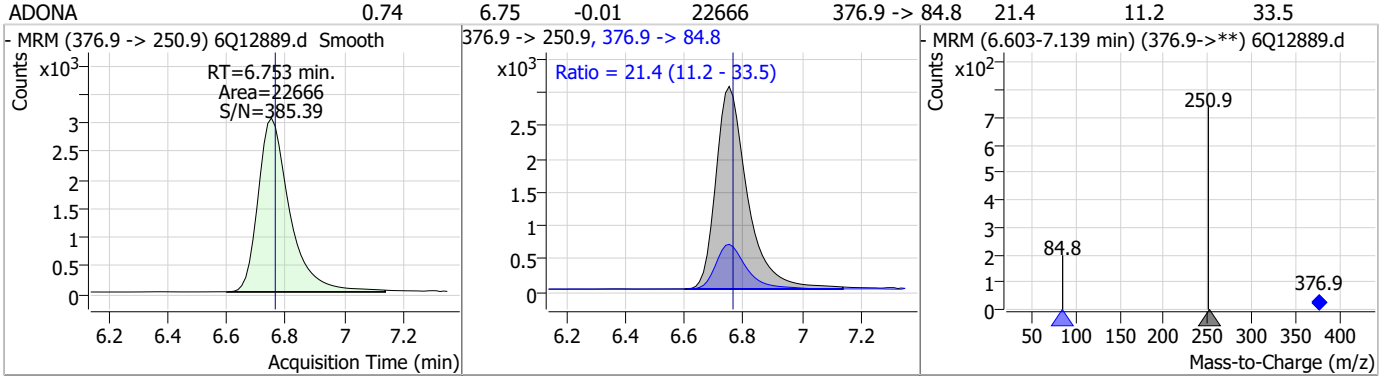
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.22	6.50	-0.01	4426	363.1 -> 169.0	14.1	6.3	18.8



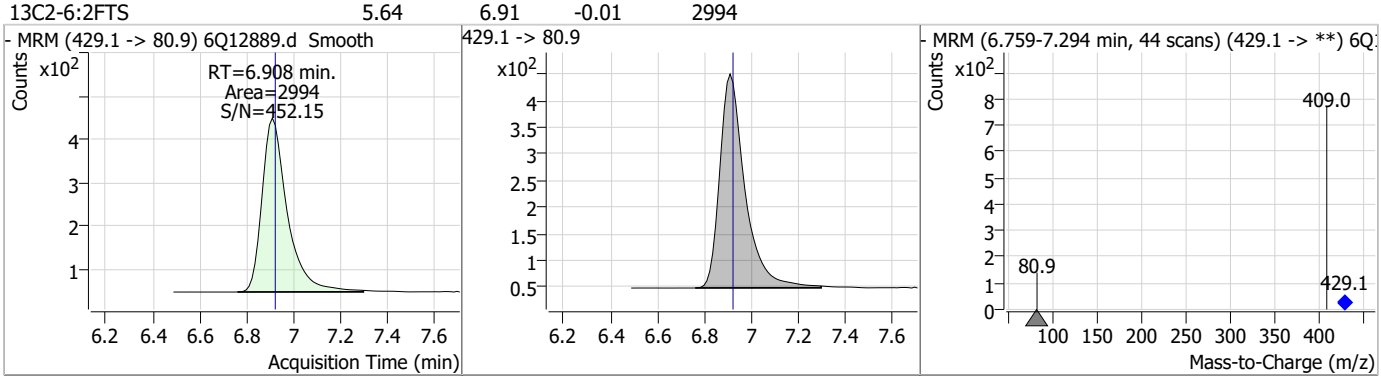
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.20	6.57	-0.01	884	349.1 -> 98.9	53.7	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.74	6.75	-0.01	22666	376.9 -> 84.8	21.4	11.2	33.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.64	6.91	-0.01	2994				

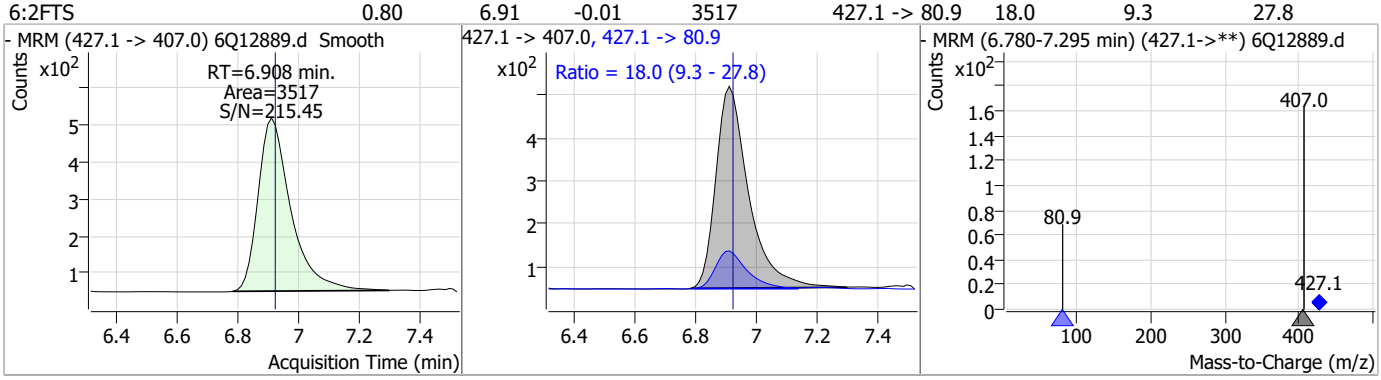


7.7.13

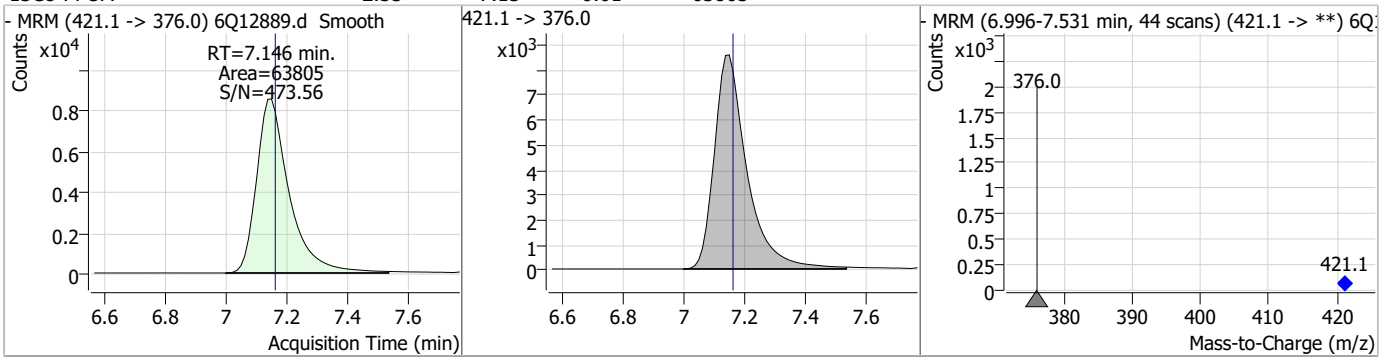
7

Perfluorinated Compounds by LC/MS/MS

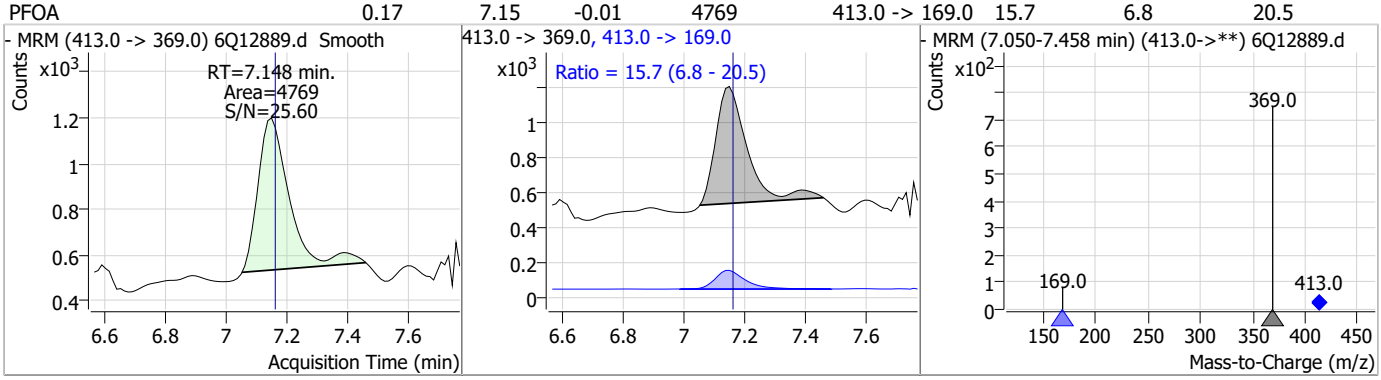
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.80	6.91	-0.01	3517	427.1 -> 80.9	18.0	9.3	27.8



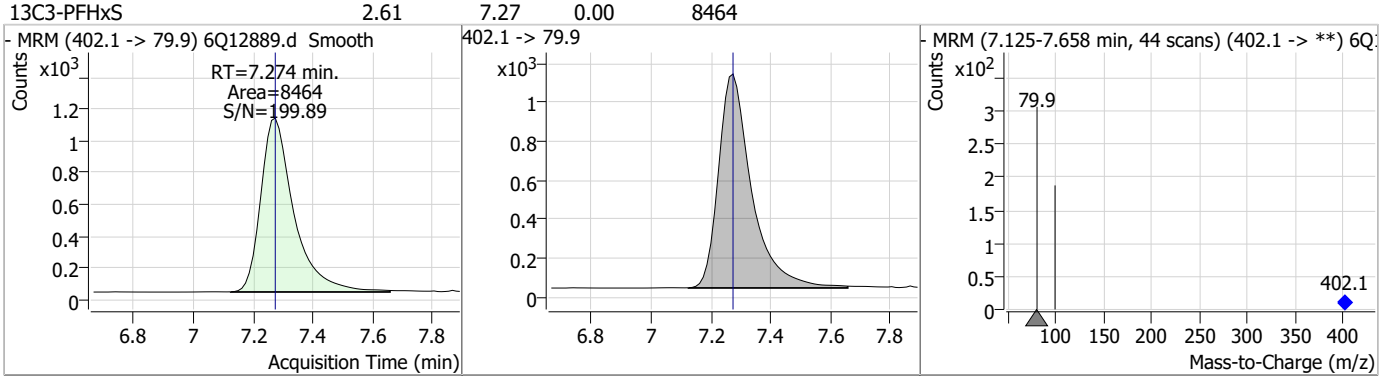
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.55	7.15	-0.01	63805				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.17	7.15	-0.01	4769	413.0 -> 169.0	15.7	6.8	20.5

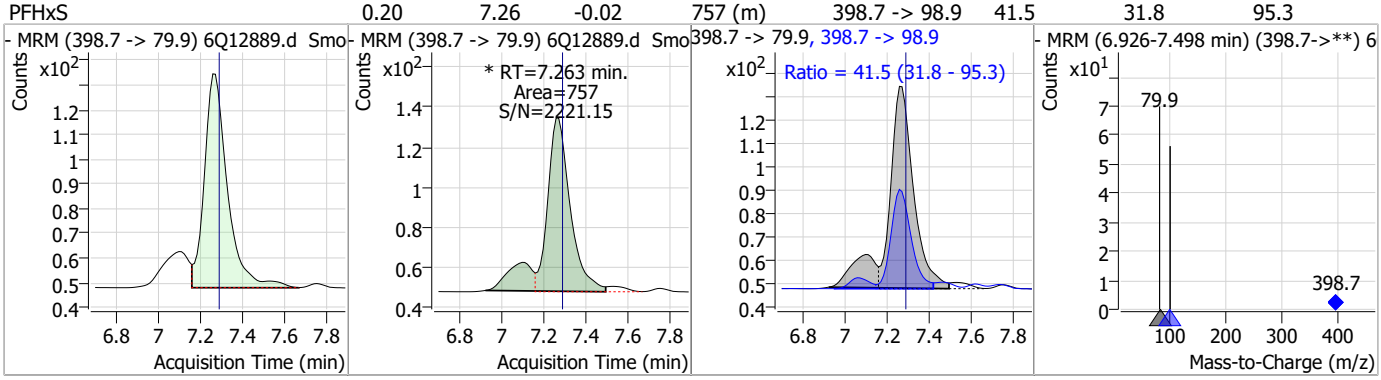


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.61	7.27	0.00	8464				

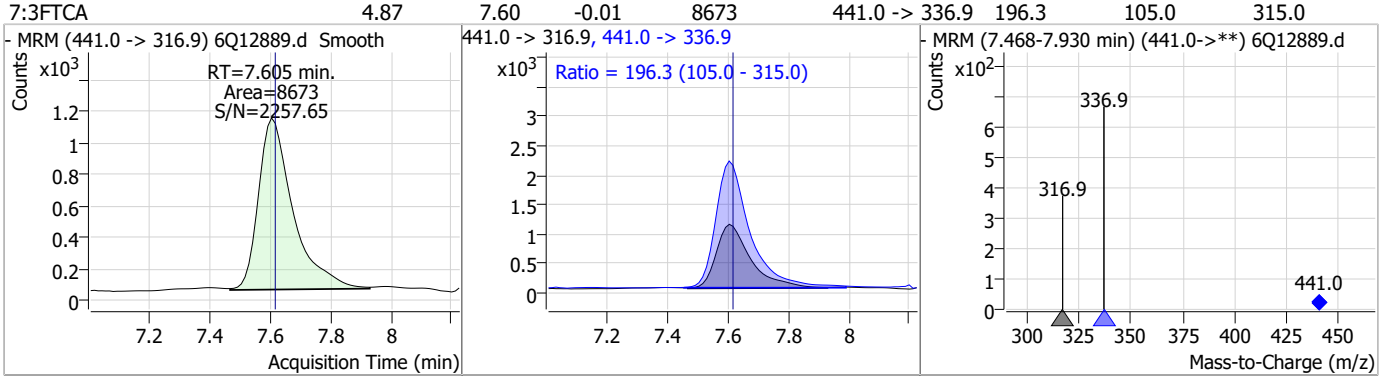


Perfluorinated Compounds by LC/MS/MS

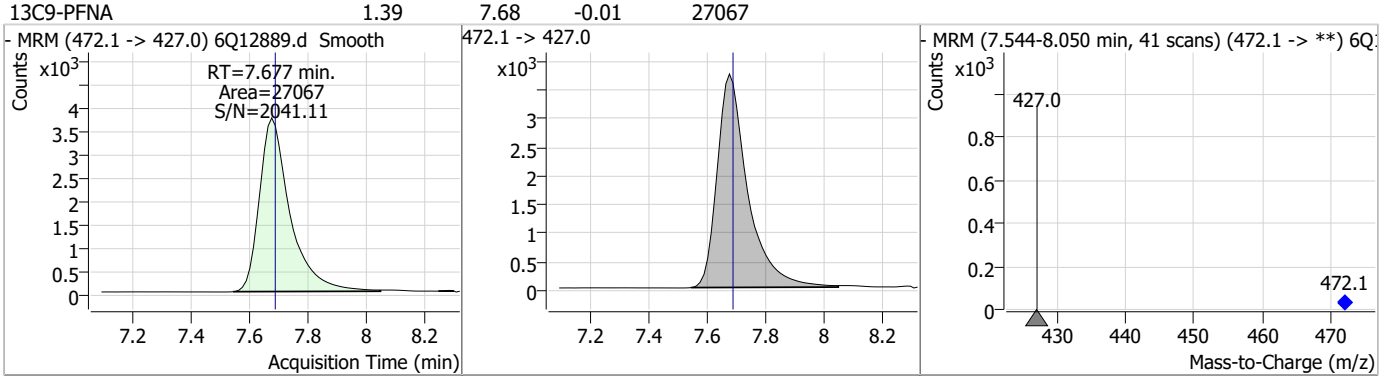
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.20	7.26	-0.02	757 (m)	398.7 -> 98.9	41.5	31.8	95.3



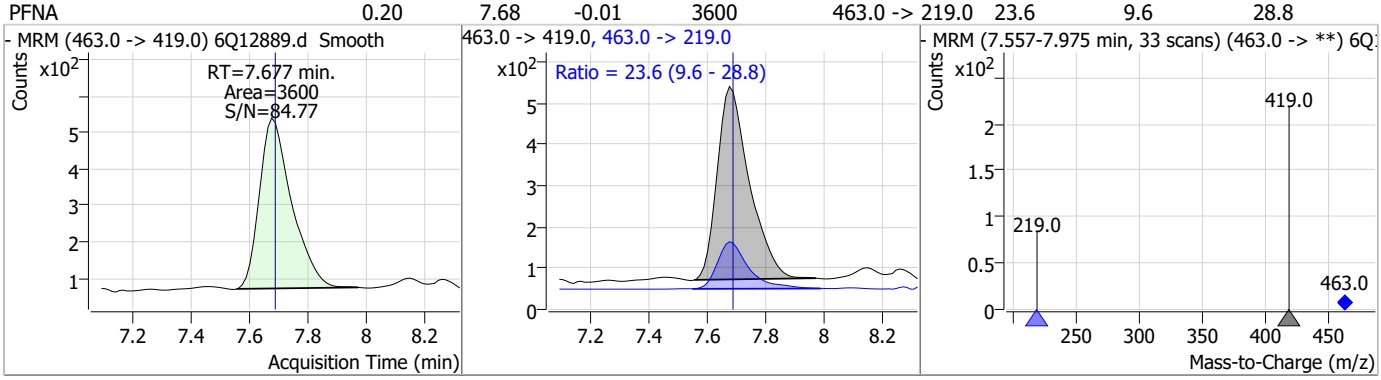
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	4.87	7.60	-0.01	8673	441.0 -> 336.9	196.3	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.39	7.68	-0.01	27067				

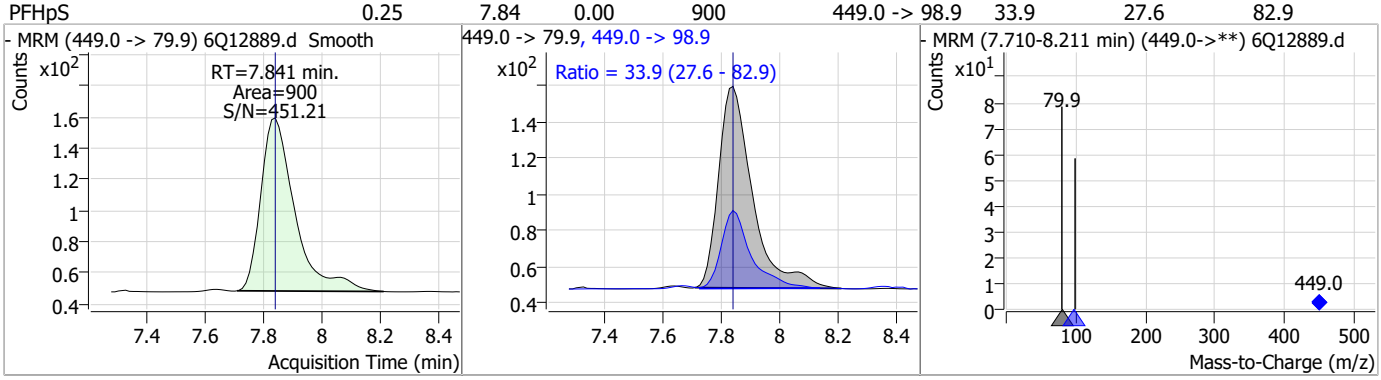


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.20	7.68	-0.01	3600	463.0 -> 219.0	23.6	9.6	28.8

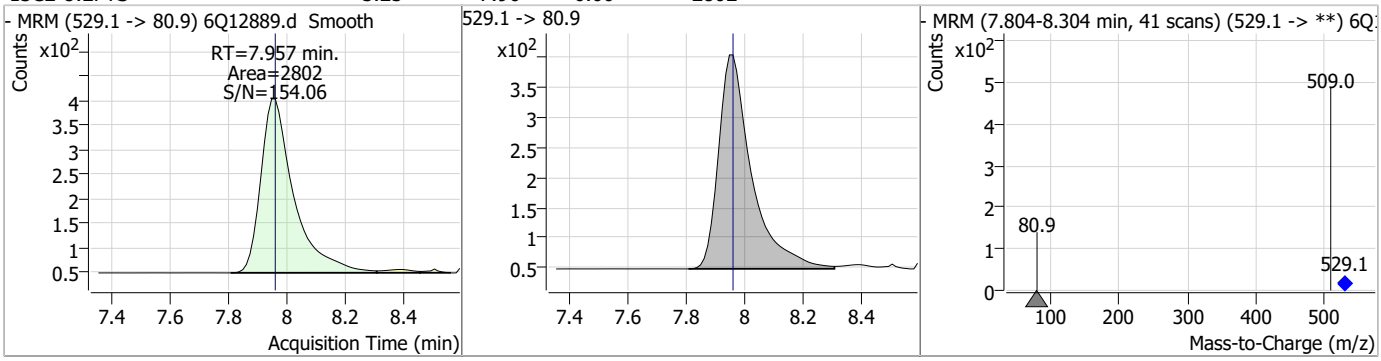


Perfluorinated Compounds by LC/MS/MS

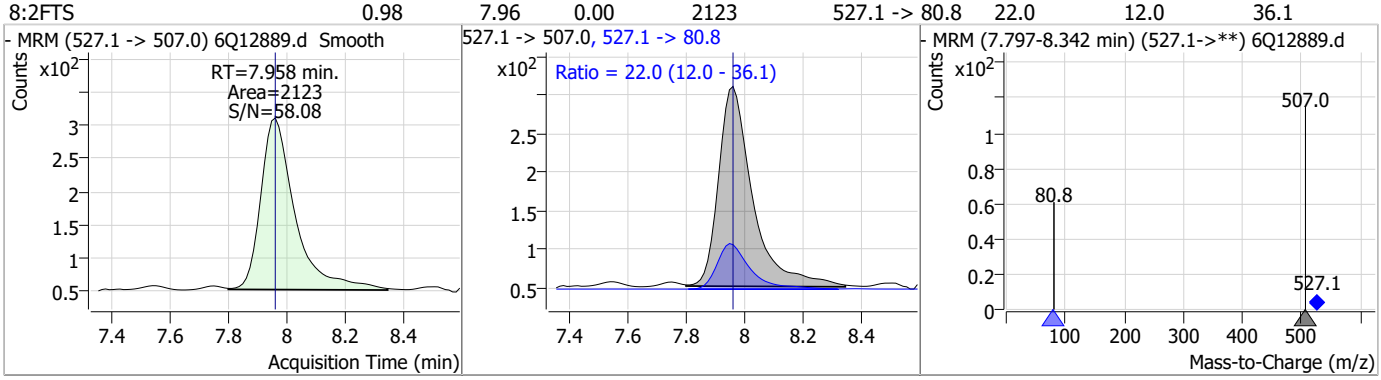
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.25	7.84	0.00	900	449.0 -> 98.9	33.9	27.6	82.9



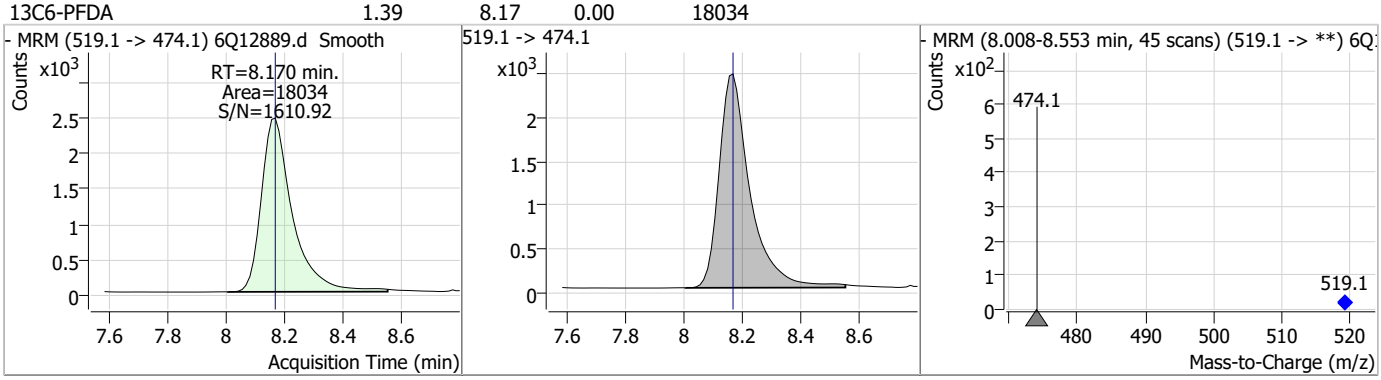
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.25	7.96	0.00	2802				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.98	7.96	0.00	2123	527.1 -> 80.8	22.0	12.0	36.1

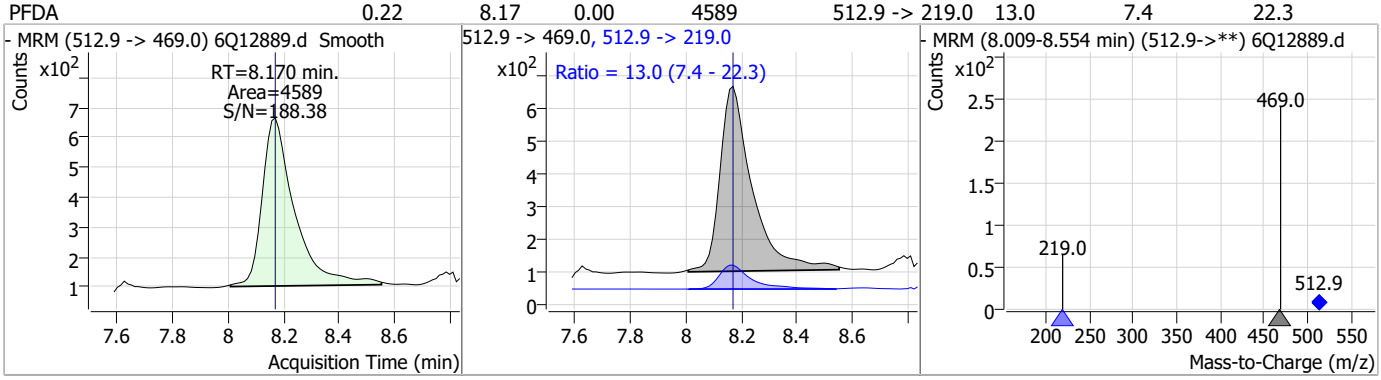


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.39	8.17	0.00	18034				

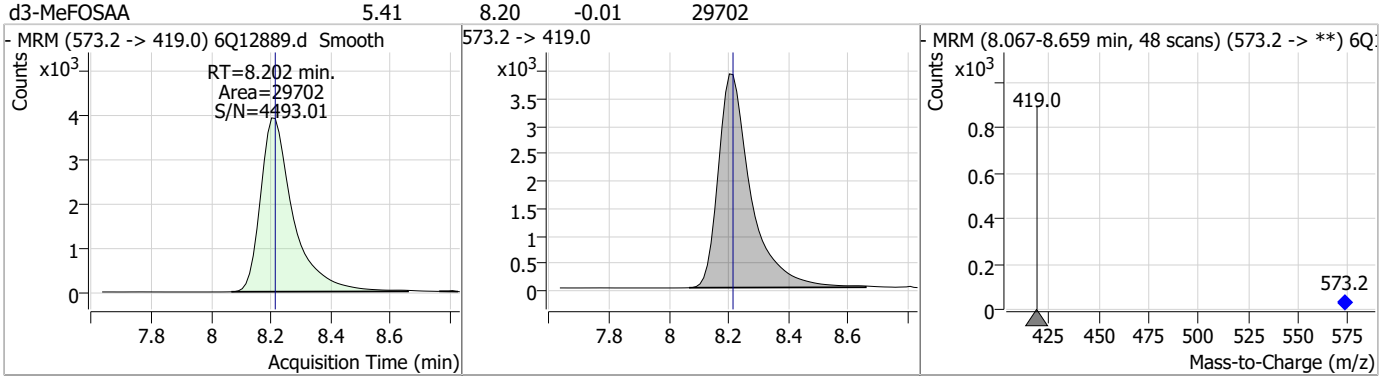


Perfluorinated Compounds by LC/MS/MS

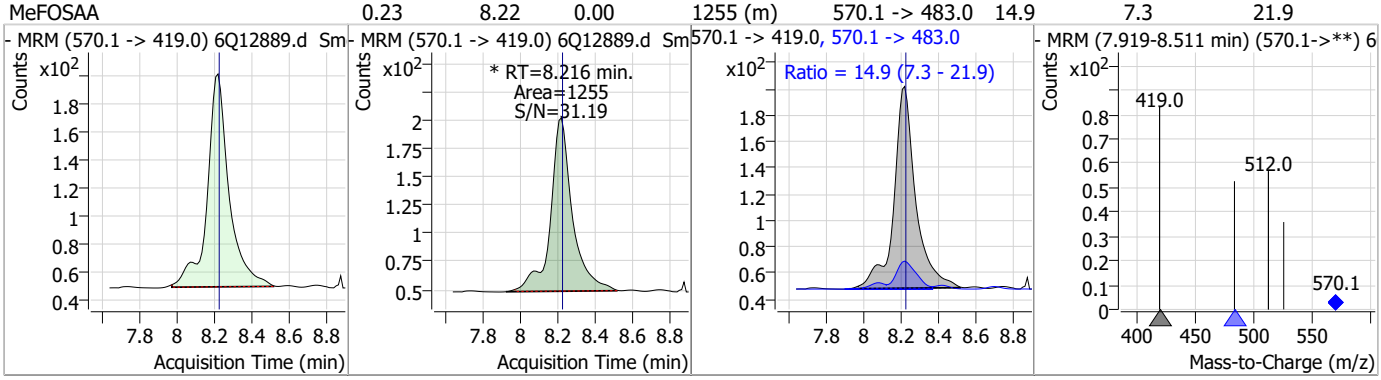
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.22	8.17	0.00	4589	512.9 -> 219.0	13.0	7.4	22.3



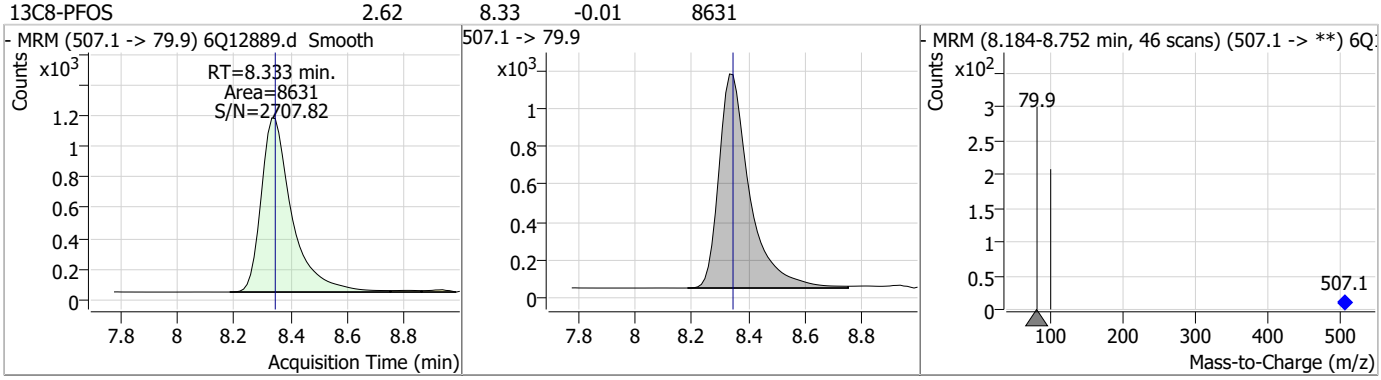
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.41	8.20	-0.01	29702				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.23	8.22	0.00	1255 (m)	570.1 -> 483.0	14.9	7.3	21.9

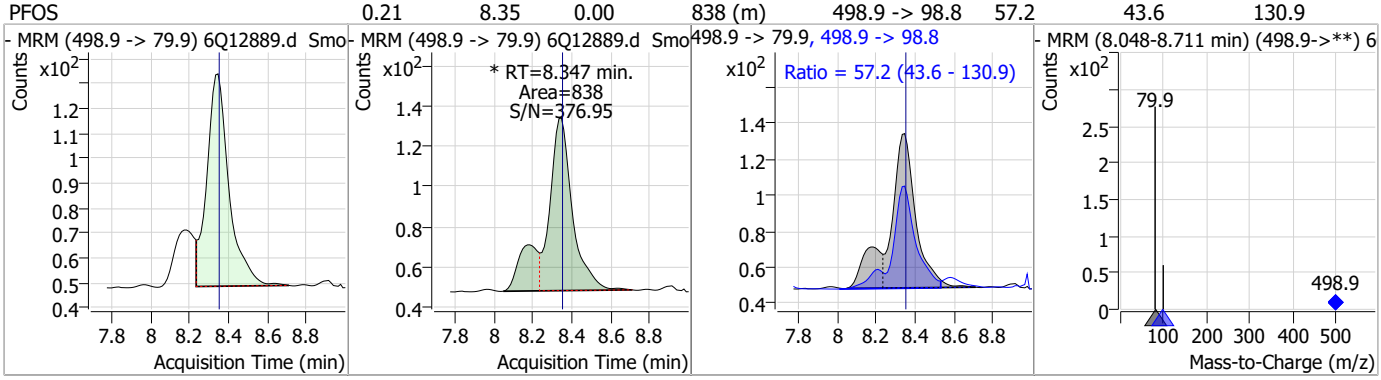


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.62	8.33	-0.01	8631				

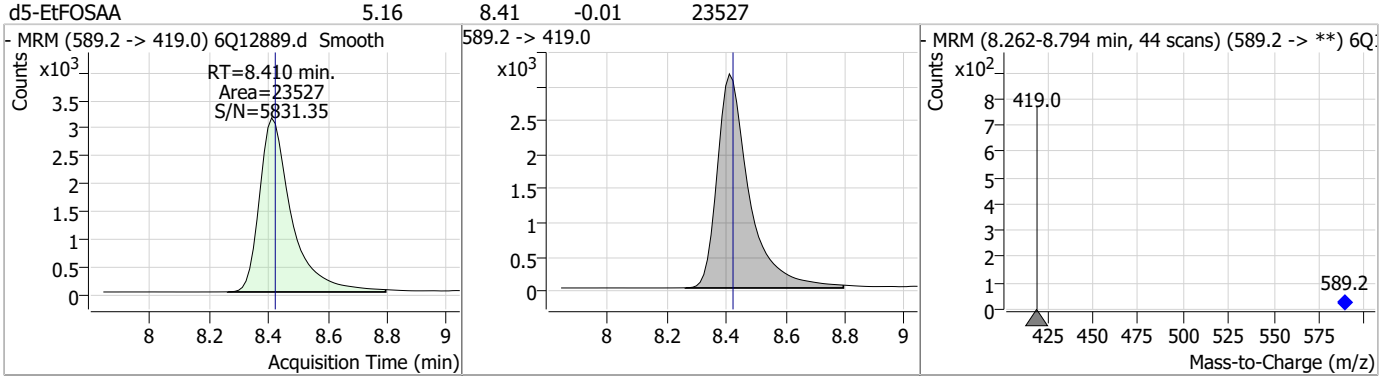


Perfluorinated Compounds by LC/MS/MS

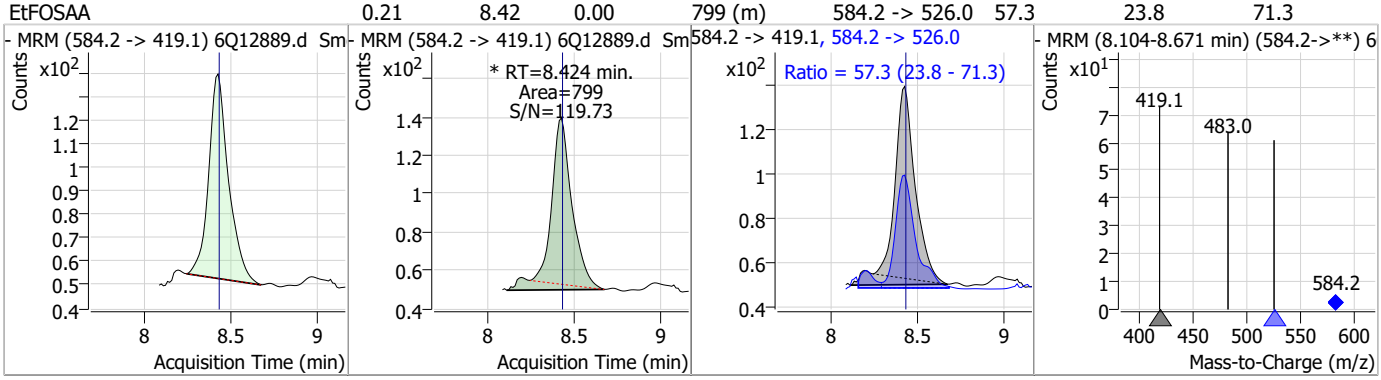
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.21	8.35	0.00	838 (m)	498.9 -> 98.8	57.2	43.6	130.9



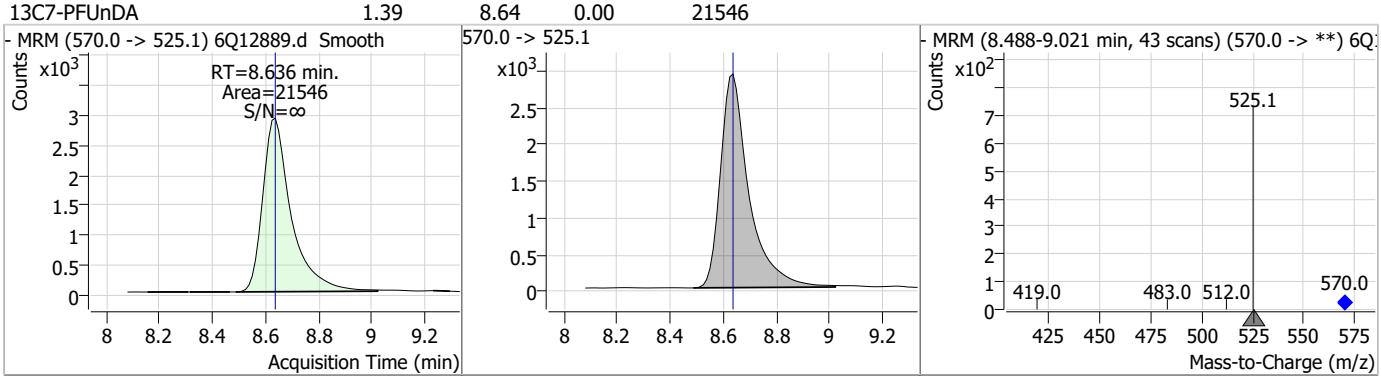
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.16	8.41	-0.01	23527				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.21	8.42	0.00	799 (m)	584.2 -> 526.0	57.3	23.8	71.3

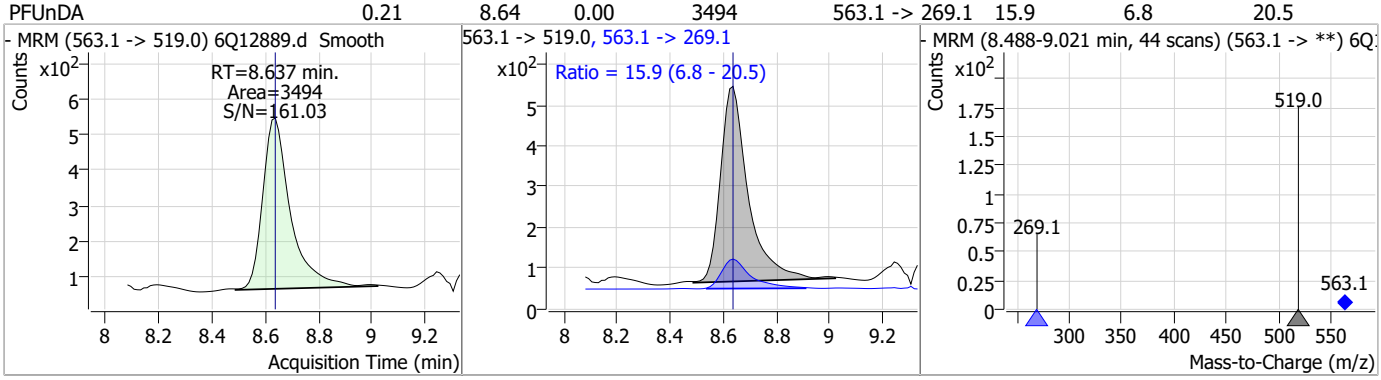


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.39	8.64	0.00	21546				

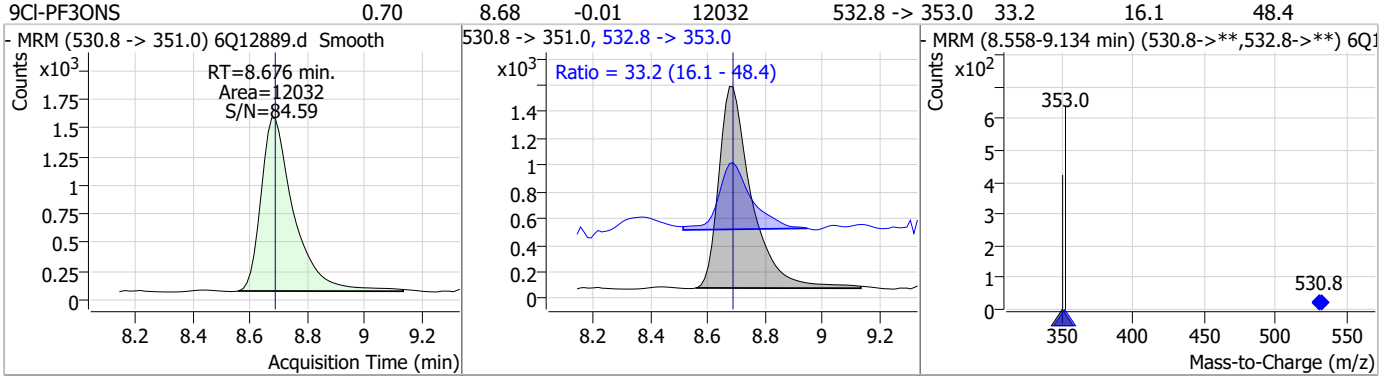


Perfluorinated Compounds by LC/MS/MS

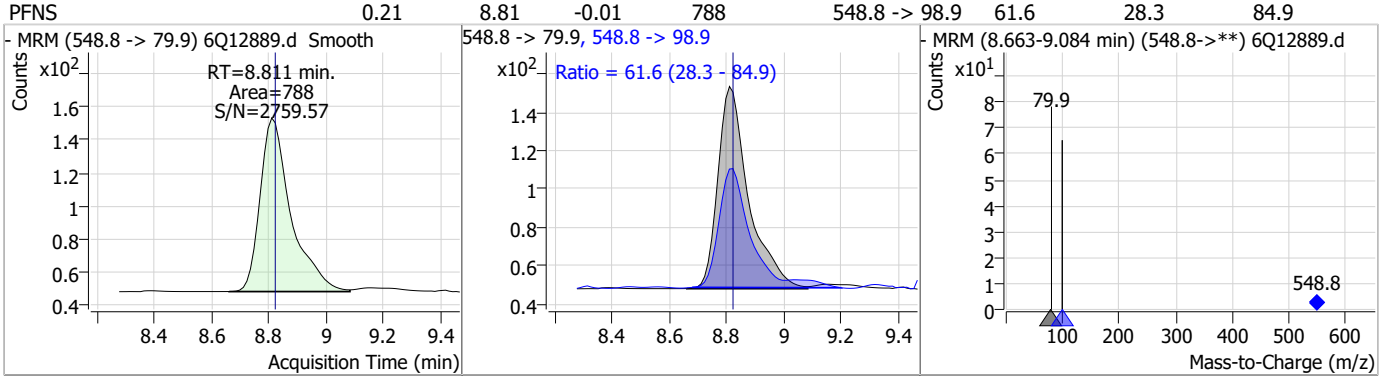
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.21	8.64	0.00	3494	563.1 -> 269.1	15.9	6.8	20.5



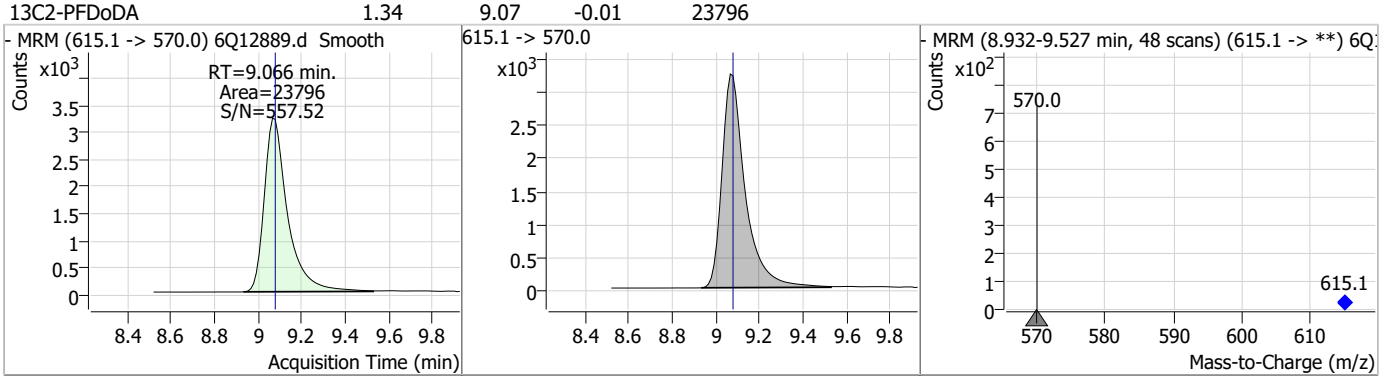
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.70	8.68	-0.01	12032	532.8 -> 353.0	33.2	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.21	8.81	-0.01	788	548.8 -> 98.9	61.6	28.3	84.9

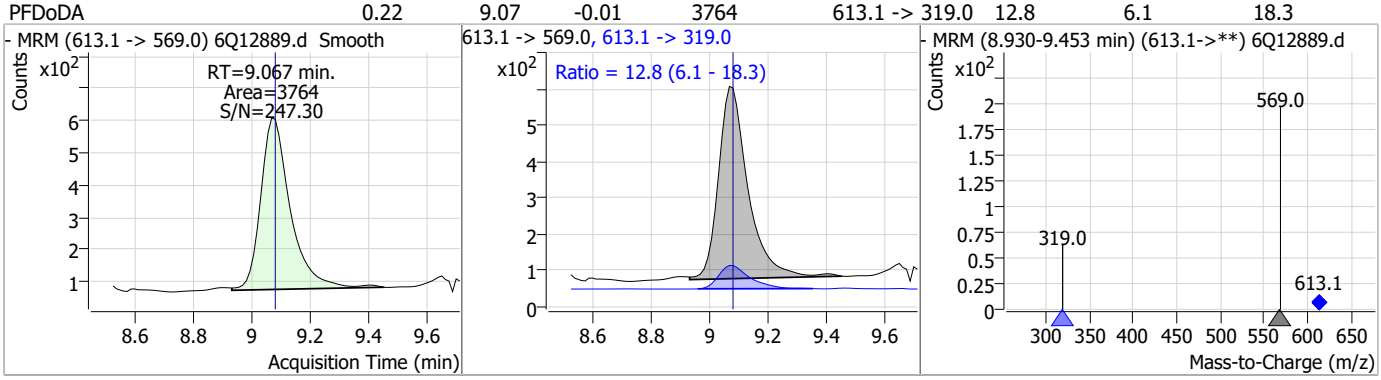


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.34	9.07	-0.01	23796				

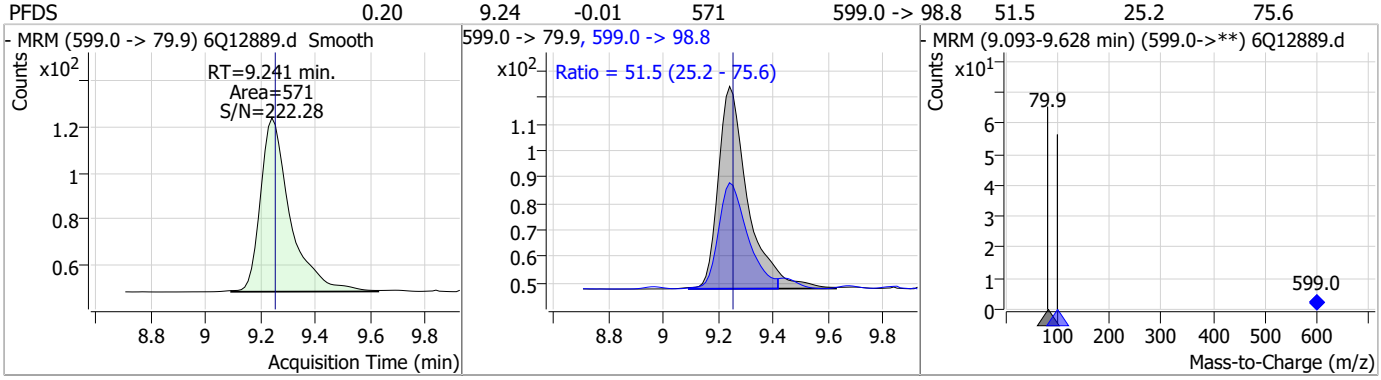


Perfluorinated Compounds by LC/MS/MS

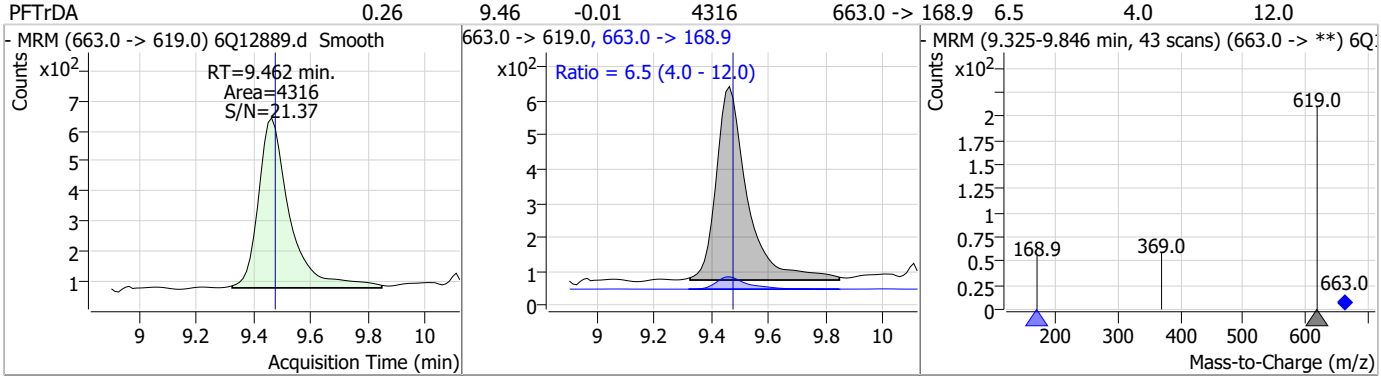
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.22	9.07	-0.01	3764	613.1 -> 319.0	12.8	6.1	18.3



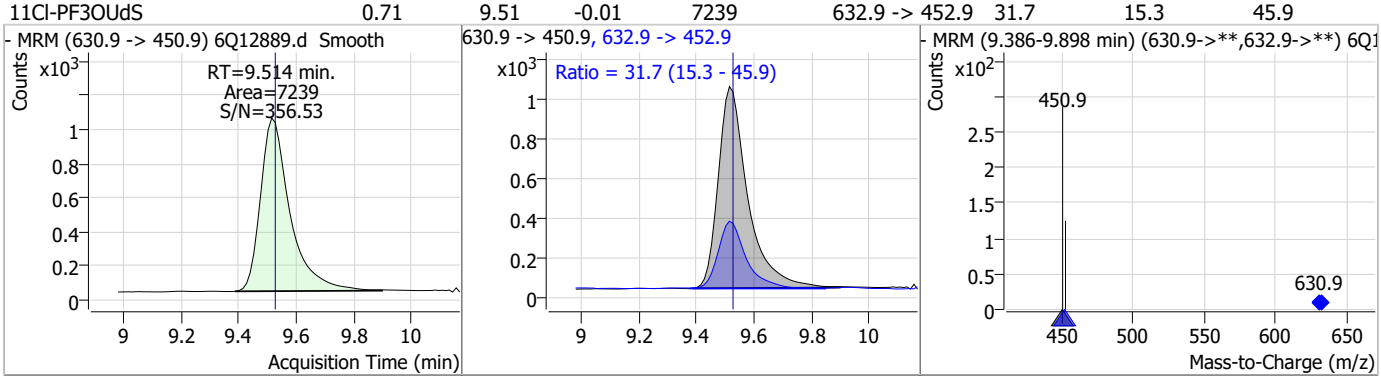
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.20	9.24	-0.01	571	599.0 -> 98.8	51.5	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.26	9.46	-0.01	4316	663.0 -> 168.9	6.5	4.0	12.0

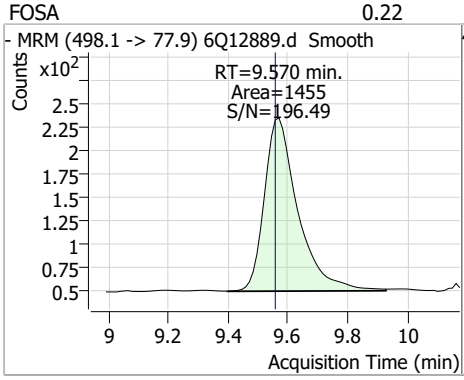


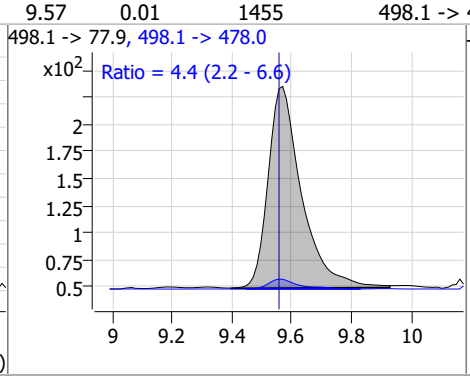
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.71	9.51	-0.01	7239	632.9 -> 452.9	31.7	15.3	45.9

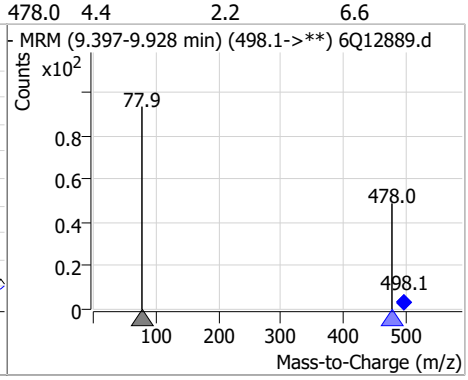


Perfluorinated Compounds by LC/MS/MS

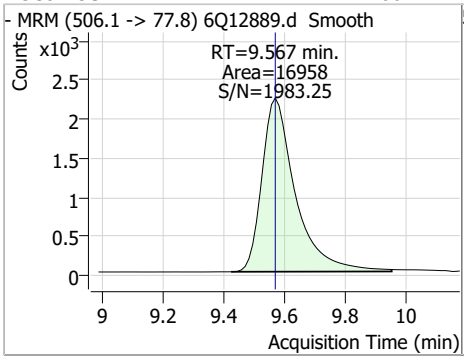
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.22	9.57	0.01	1455	498.1 -> 478.0	4.4	2.2	6.6

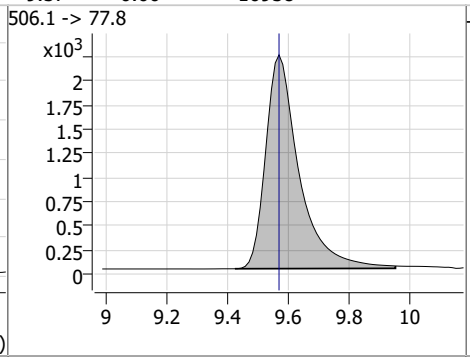


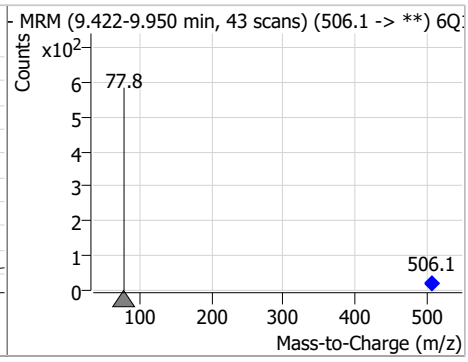




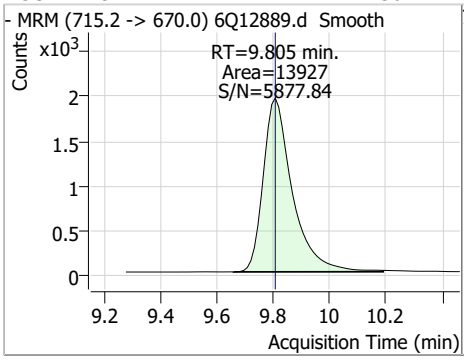
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.60	9.57	0.00	16958				

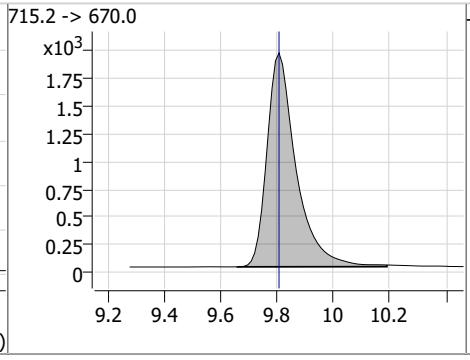


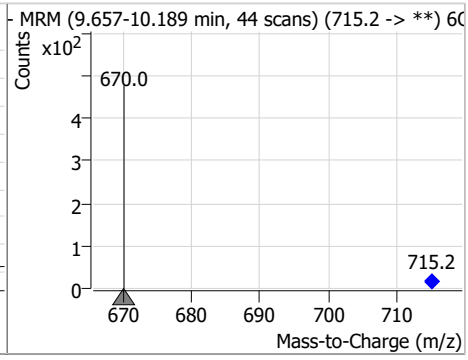




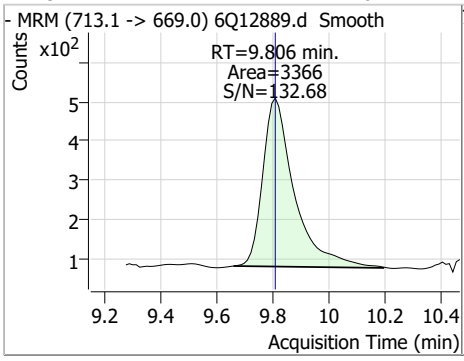
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.36	9.81	0.00	13927				

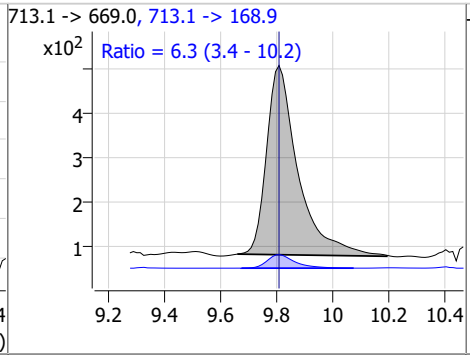


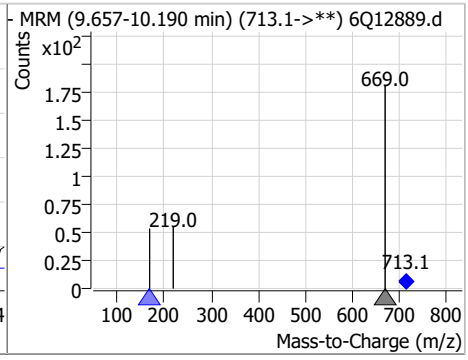




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.22	9.81	0.00	3366	713.1 -> 168.9	6.3	3.4	10.2

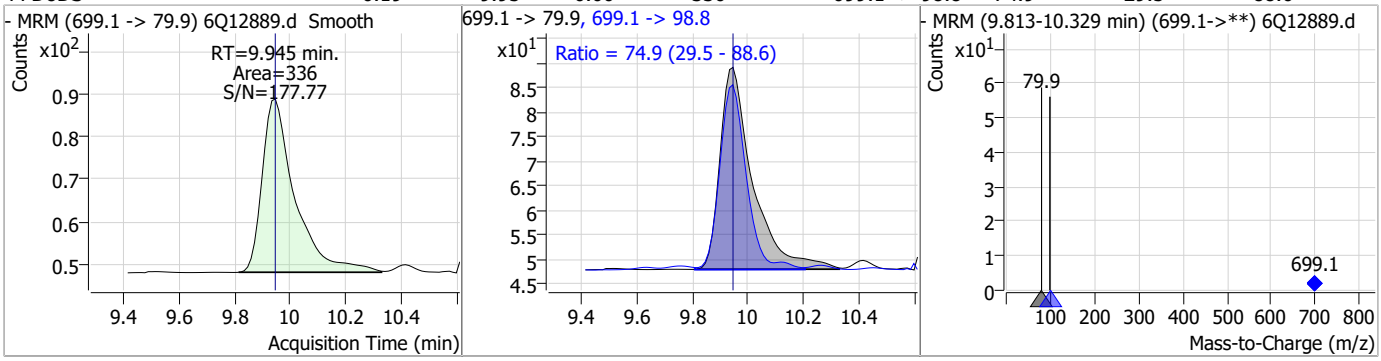




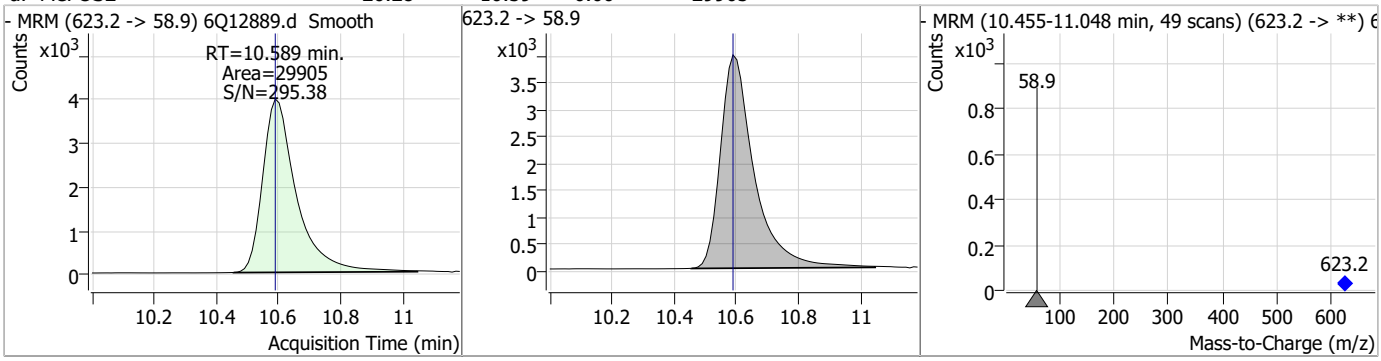


Perfluorinated Compounds by LC/MS/MS

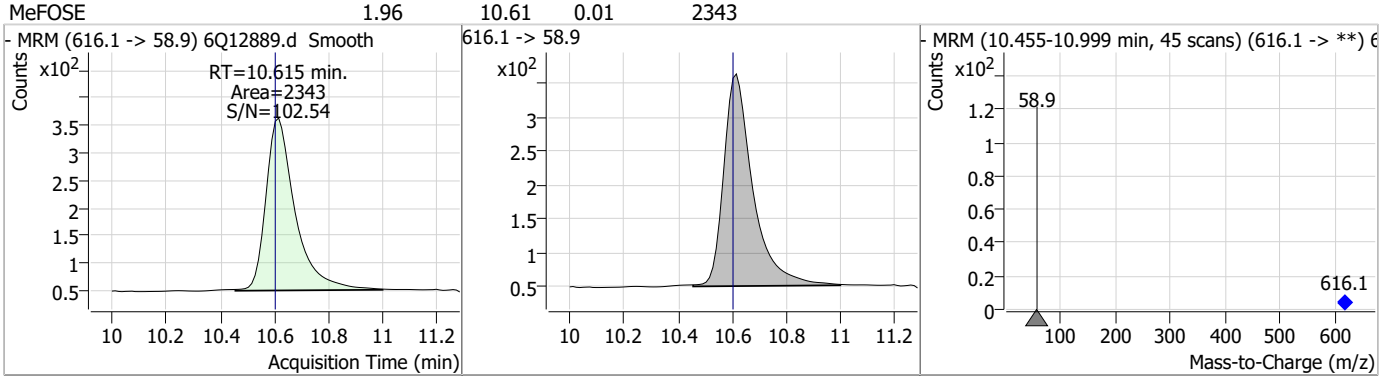
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.19	9.95	0.00	336	699.1 -> 98.8	74.9	29.5	88.6



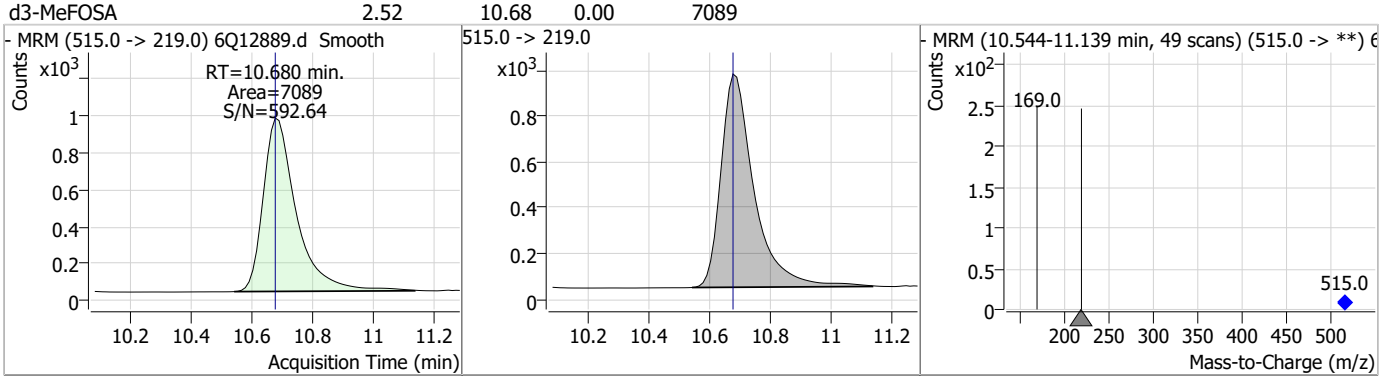
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.28	10.59	0.00	29905				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.96	10.61	0.01	2343				

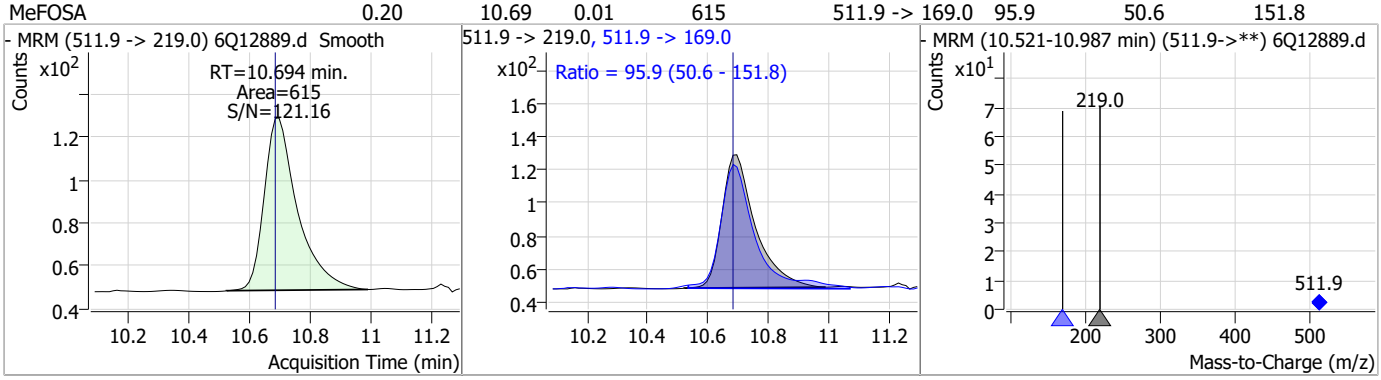


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.68	0.00	7089				

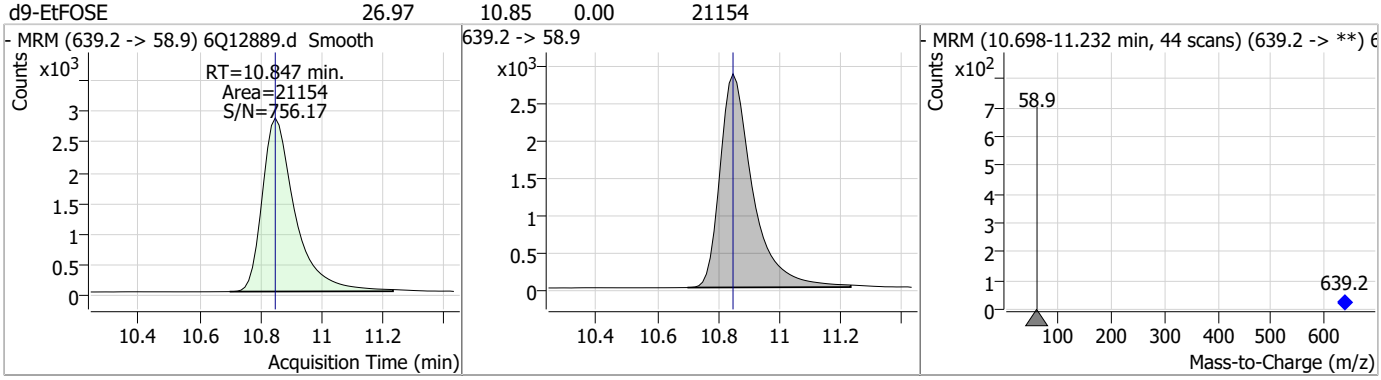


Perfluorinated Compounds by LC/MS/MS

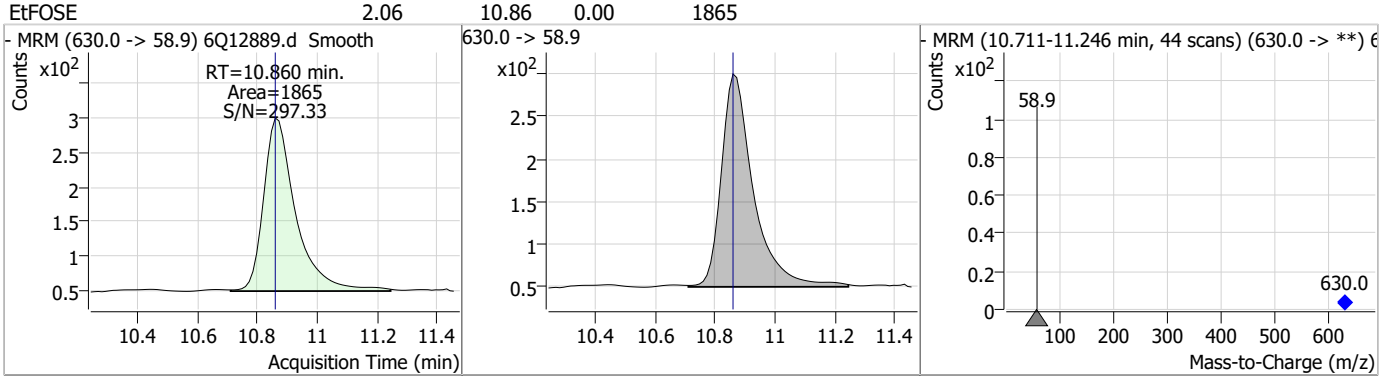
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.20	10.69	0.01	615	511.9 -> 169.0	95.9	50.6	151.8



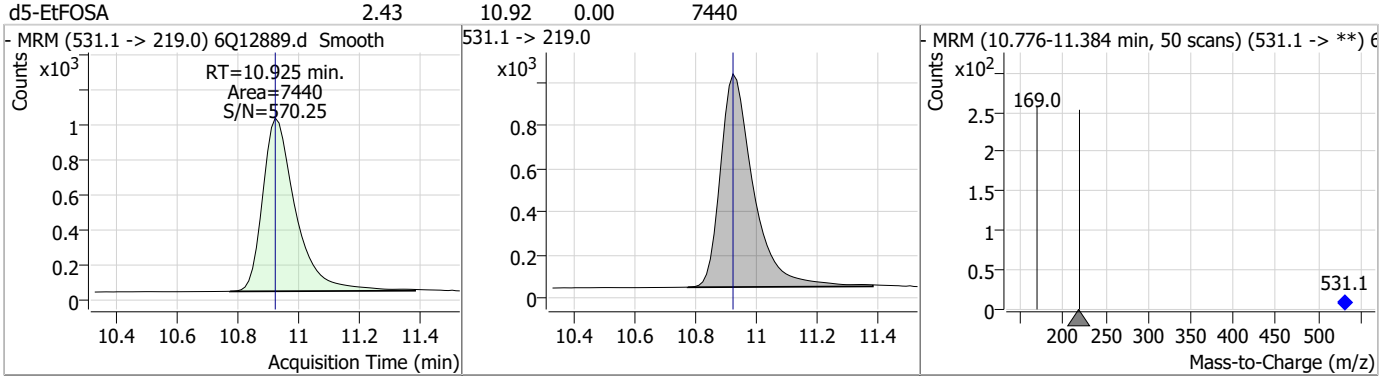
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.97	10.85	0.00	21154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.06	10.86	0.00	1865				

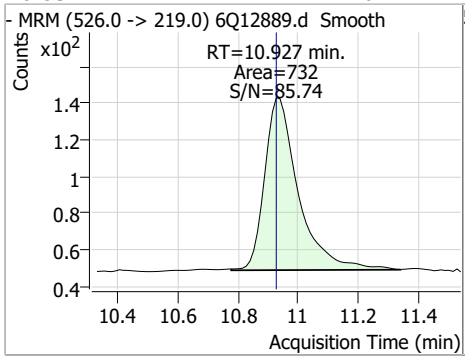


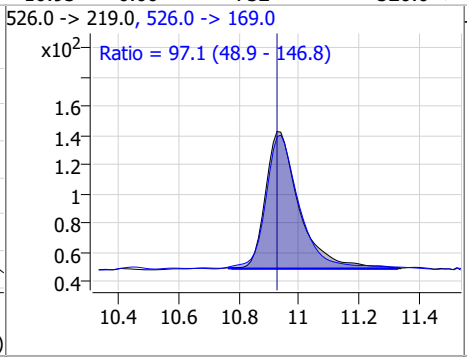
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.43	10.92	0.00	7440				

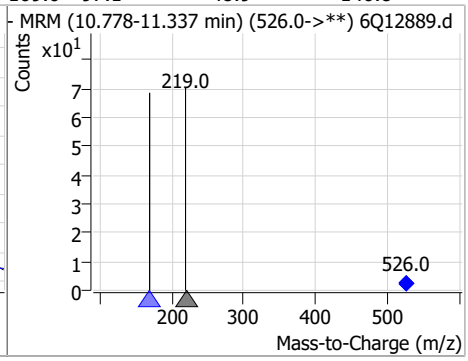


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.21	10.93	0.00	732	526.0 -> 169.0	97.1	48.9	146.8







7.7.13

7

Manual Integration Approval Summary

Sample Number:	S6Q198-CC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12889.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 11:12	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12900.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 1:45:53 PM
Sample Name	:	cc196-4
Vial	:	P1-A5
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	79268	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39569	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	36555	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	37279	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65170	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28860	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19326	1.25	µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	23349	1.25	µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	25968	1.25	µg/L	-0.012
M2-PFTeDA	9.793	715.2 -> 670.0	15084	1.25	µg/L	-0.012
M8-FOSA	9.567	506.1 -> 77.8	18841	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13425	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9651	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8983	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2380	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3039	5.00	µg/L	-0.012
M2-8:2FTS	7.944	529.1 -> 80.9	3247	5.00	µg/L	-0.012
M3-MeFOSAA	8.215	573.2 -> 419.0	30146	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14582	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25901	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31242	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21225	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8317	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7116	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10964	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35888	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6699	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	79067	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26924	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31662	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35238	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2380	5.46	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3039	5.26	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3247	5.59	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25968	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C2-PFTeDA	9.793	715.2 -> 670.0	15084	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13425	2.46	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C3-PFHxS	7.274	402.1 -> 79.9	9651	2.74	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%		
13C4-PFBA	2.975	216.8 -> 171.9	79268	9.95 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	37279	2.56 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C5-PFHxA	5.563	318.0 -> 273.0	36555	2.62 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	39569	5.04 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C6-PFDA	8.170	519.1 -> 474.1	19326	1.29 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C7-PFUnDA	8.624	570.0 -> 525.1	23349	1.30 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C8-FOSA	9.567	506.1 -> 77.8	18841	2.64 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C8-PFOA	7.146	421.1 -> 376.0	65170	2.47 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8983	2.49 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C9-PFNA	7.677	472.1 -> 427.0	28860	1.30 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30146	5.02 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14582	10.13 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
d3-MeFOSA	10.680	515.0 -> 219.0	7116	2.31 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%		
d5-EtFOSAA	8.410	589.2 -> 419.0	25901	5.19 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
d7-MeFOSE	10.589	623.2 -> 58.9	31242	25.10 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
d9-EtFOSE	10.847	639.2 -> 58.9	21225	24.74 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
d5-EtFOSA	10.925	531.1 -> 219.0	8317	2.48 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	48971	9.18 µg/L		99
		327.1 -> 80.9	10492			
6:2FTS	6.908	427.1 -> 407.0	42395	9.53 µg/L		100
		427.1 -> 80.9	7922			
8:2FTS	7.945	527.1 -> 507.0	22822	9.05 µg/L		100
		527.1 -> 80.8	5475			
EtFOSAA	8.424	584.2 -> 419.1	9243	2.23 µg/L	m	91
		584.2 -> 526.0	4973			
FOSA	9.557	498.1 -> 77.9	17389	2.31 µg/L		98
		498.1 -> 478.0	666			
MeFOSAA	8.216	570.1 -> 419.0	13539	2.45 µg/L	m	95
		570.1 -> 483.0	2263			
PFBA	2.982	212.8 -> 168.9	16343	9.23 µg/L		100
PFBS	5.518	298.7 -> 79.9	11074	2.15 µg/L		93
		298.7 -> 98.8	5347			
PFDA	8.170	512.9 -> 469.0	53099	2.41 µg/L		97
		512.9 -> 219.0	7324			
PFDoDA	9.067	613.1 -> 569.0	46380	2.44 µg/L		98
		613.1 -> 319.0	5381			
PFDS	9.241	599.0 -> 79.9	6322	2.08 µg/L		93

Perfluorinated Compounds by LC/MS/MS

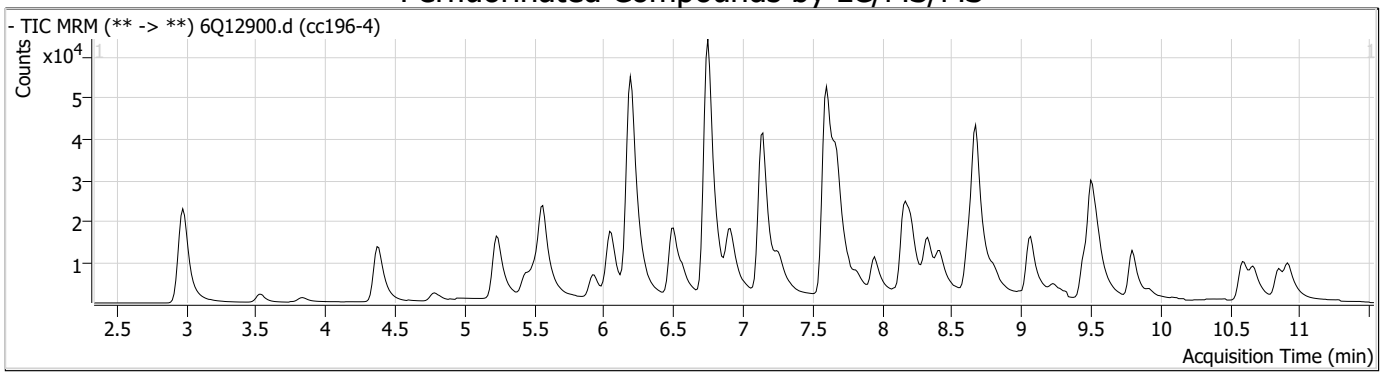
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3509				
PFHpA	6.503	363.1 -> 319.0	48125	2.18	µg/L		95
		363.1 -> 169.0	7041				
PFHpS	7.841	449.0 -> 79.9	8078	2.12	µg/L		88
		449.0 -> 98.9	5169				
PFHxA	5.566	313.0 -> 269.0	33225	2.32	µg/L		98
		313.0 -> 118.9	1168				
PFHxS	7.275	398.7 -> 79.9	8366	1.93	µg/L	m	93
		398.7 -> 98.9	4864				
PFNA	7.677	463.0 -> 419.0	44259	2.27	µg/L		97
		463.0 -> 219.0	7886				
PFNS	8.811	548.8 -> 79.9	8943	2.24	µg/L		97
		548.8 -> 98.9	5235				
PFOA	7.148	413.0 -> 369.0	66440	2.31	µg/L		99
		413.0 -> 169.0	8669				
PFOS	8.334	498.9 -> 79.9	8753	2.12	µg/L	m	71
		498.9 -> 98.8	5267				
PFPeA	4.388	263.0 -> 219.0	39115	4.68	µg/L		100
PFPeS	6.569	349.1 -> 79.9	10294	2.04	µg/L		93
		349.1 -> 98.9	5778				
PFTeDA	9.806	713.1 -> 669.0	38018	2.34	µg/L		98
		713.1 -> 168.9	2367				
PFTrDA	9.450	663.0 -> 619.0	45344	2.49	µg/L		98
		663.0 -> 168.9	3265				
PFUnDA	8.637	563.1 -> 519.0	42694	2.35	µg/L		98
		563.1 -> 269.1	5586				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	95498	9.13	µg/L		98
		632.9 -> 452.9	30097				
9Cl-PF3ONS	8.676	530.8 -> 351.0	153318	8.67	µg/L		99
		532.8 -> 353.0	48456				
ADONA	6.753	376.9 -> 250.9	280193	8.86	µg/L		99
		376.9 -> 84.8	61602				
HFPO-DA	5.940	284.9 -> 168.9	13443	9.86	µg/L		97
		284.9 -> 184.9	1638				
3:3FTCA	3.841	241.0 -> 177.0	4863	11.85	µg/L		96
		241.0 -> 117.0	638				
5:3FTCA	6.193	341.0 -> 237.1	167862	55.99	µg/L		99
		341.0 -> 217.0	145561				
7:3FTCA	7.605	441.0 -> 316.9	110052	56.16	µg/L		84
		441.0 -> 336.9	203864				
EtFOSA	10.927	526.0 -> 219.0	9621	2.42	µg/L		94
		526.0 -> 169.0	8838				
EtFOSE	10.860	630.0 -> 58.9	21385	23.54	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	7314	2.38	µg/L		96
		511.9 -> 169.0	7706				
MeFOSE	10.602	616.1 -> 58.9	28047	22.50	µg/L		100
PFDoDS	9.933	699.1 -> 79.9	4078	2.24	µg/L		99
		699.1 -> 98.8	2456				
NFDHA	5.445	295.0 -> 201.0	3760	4.44	µg/L		98
		295.0 -> 84.9	1985				
PFMBA	4.787	279.0 -> 85.1	11591	4.93	µg/L		100
PFMPA	3.541	229.0 -> 84.9	10469	4.70	µg/L		100
PFEESA	6.059	314.8 -> 134.9	80971	3.92	µg/L		100
		314.8 -> 82.9	1956				

= Qualifier out of range, m = manually integrated, + = Area summed

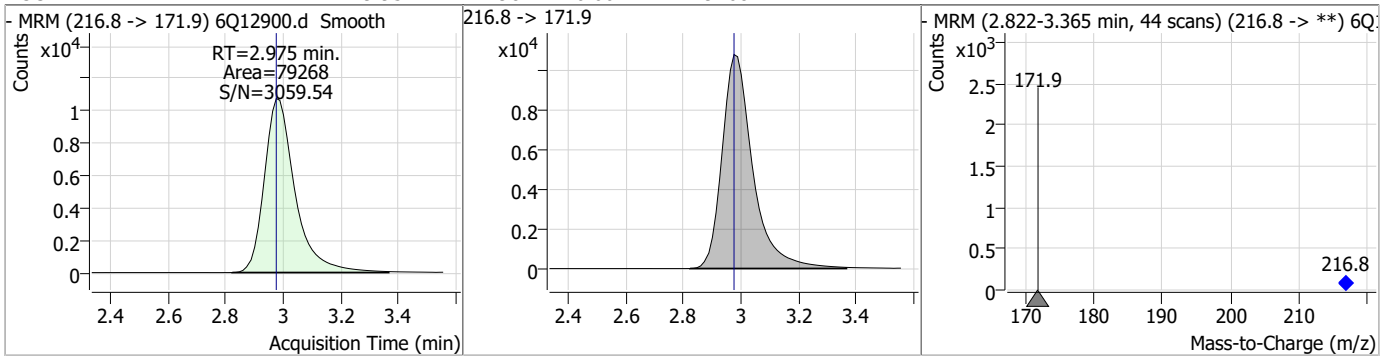
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

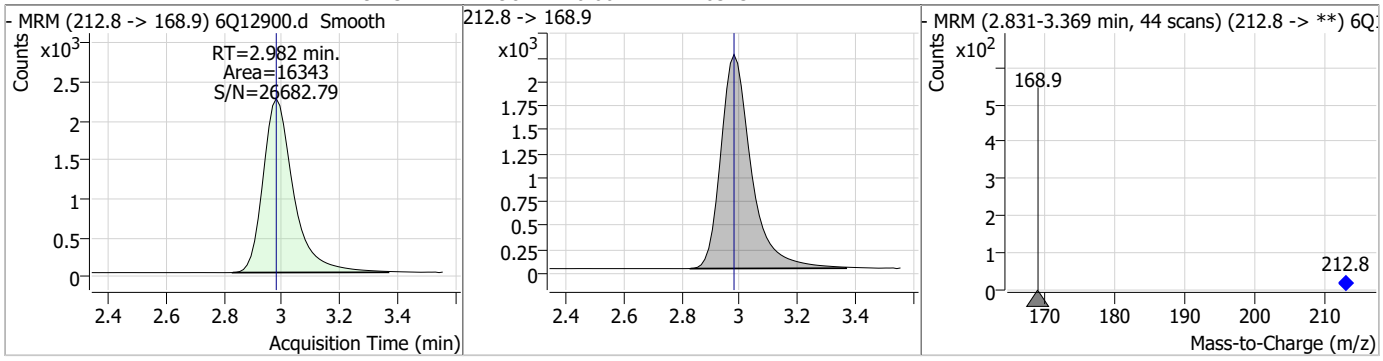
Perfluorinated Compounds by LC/MS/MS



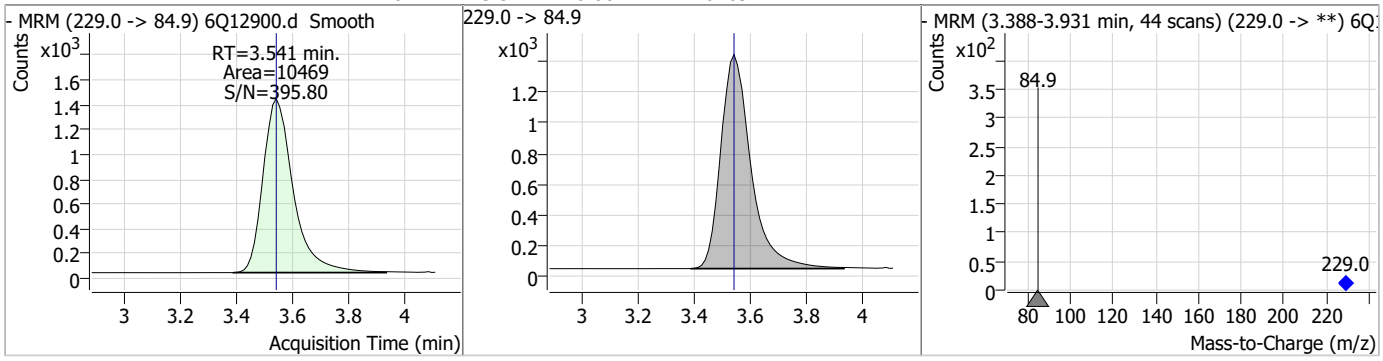
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.95	2.98	0.00	79268				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.23	2.98	0.00	16343				

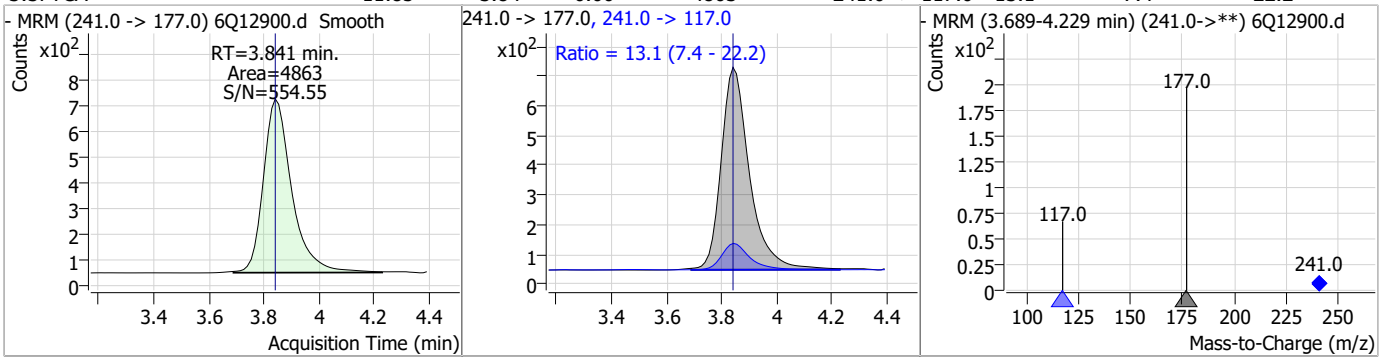


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	4.70	3.54	0.00	10469				

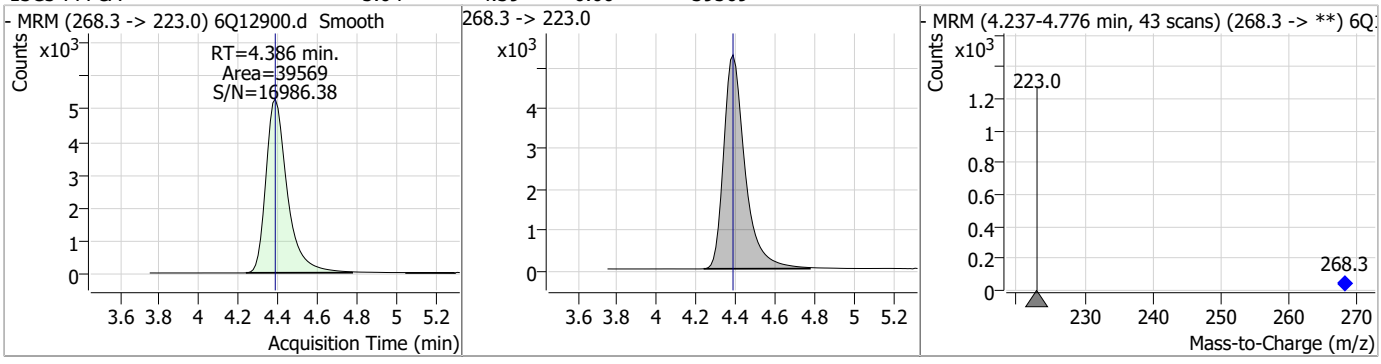


Perfluorinated Compounds by LC/MS/MS

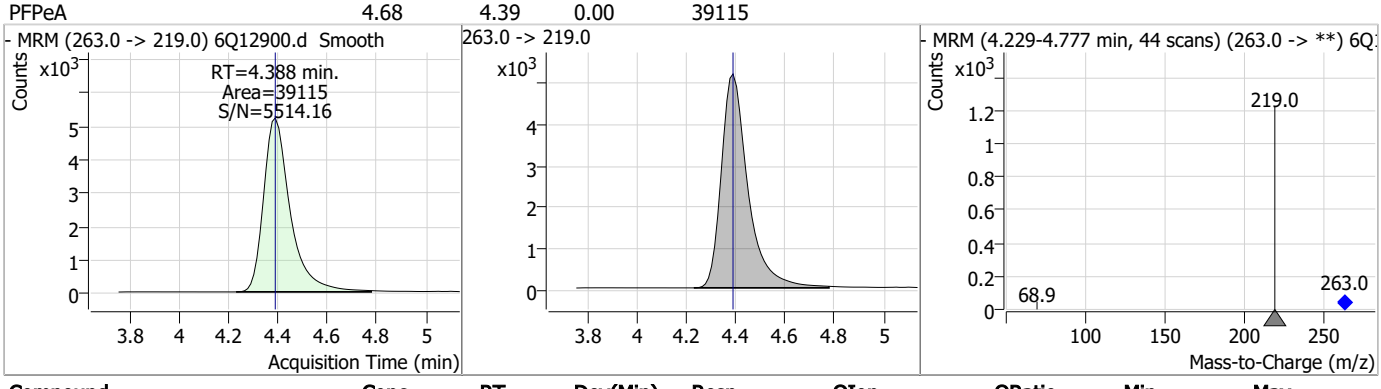
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.85	3.84	0.00	4863	241.0 -> 117.0	13.1	7.4	22.2



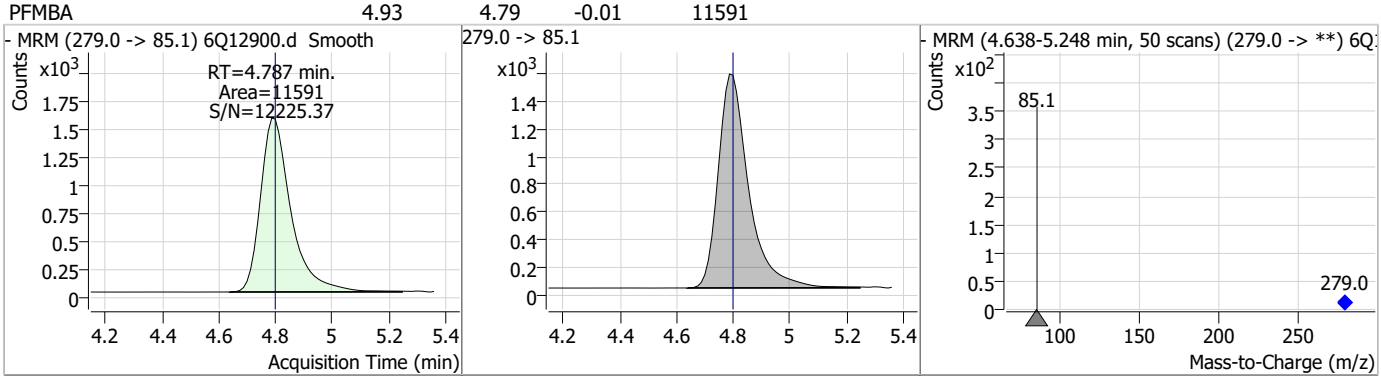
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.39	0.00	39569				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.68	4.39	0.00	39115				

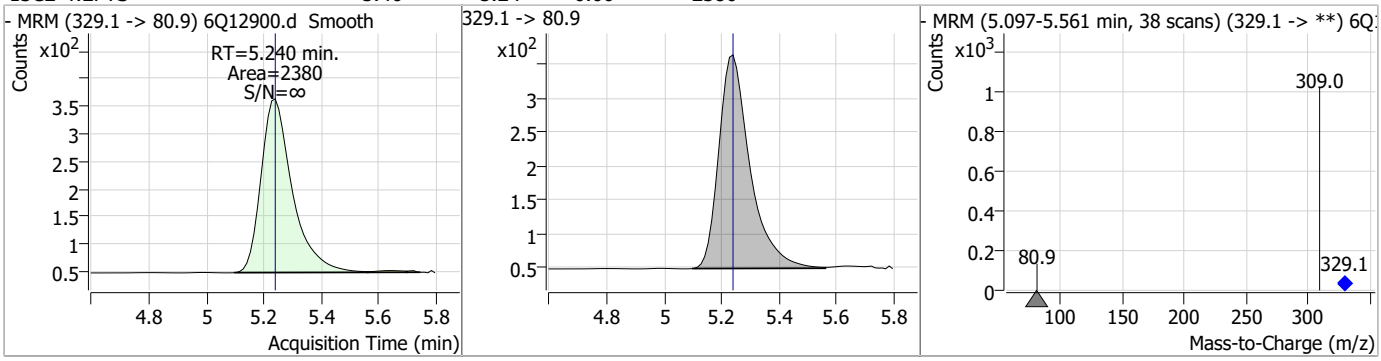


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.93	4.79	-0.01	11591				

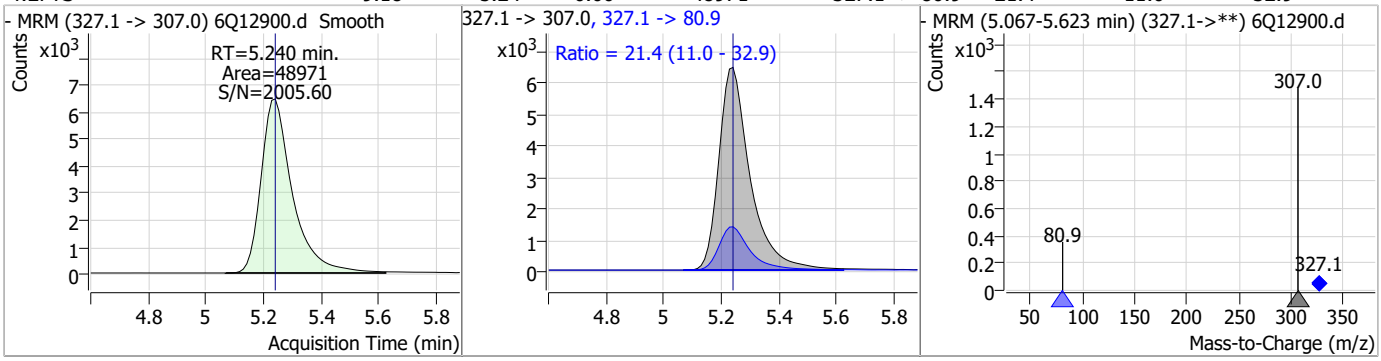


Perfluorinated Compounds by LC/MS/MS

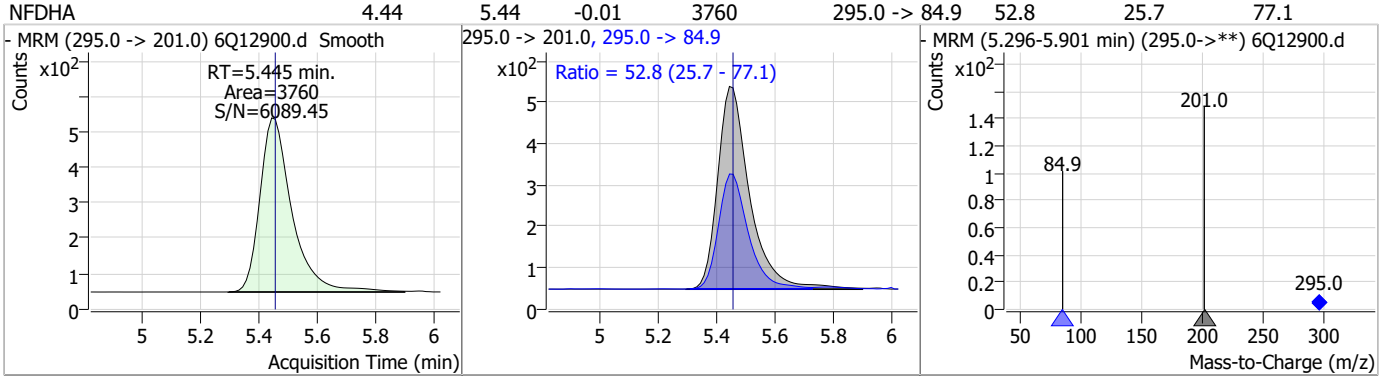
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.46	5.24	0.00	2380				



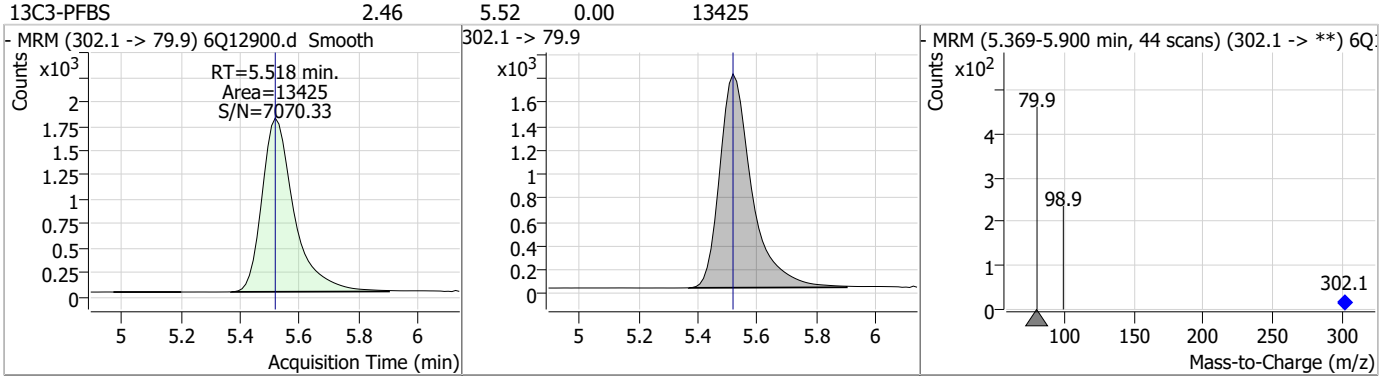
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.18	5.24	0.00	48971	327.1 -> 80.9	21.4	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.44	5.44	-0.01	3760	295.0 -> 84.9	52.8	25.7	77.1

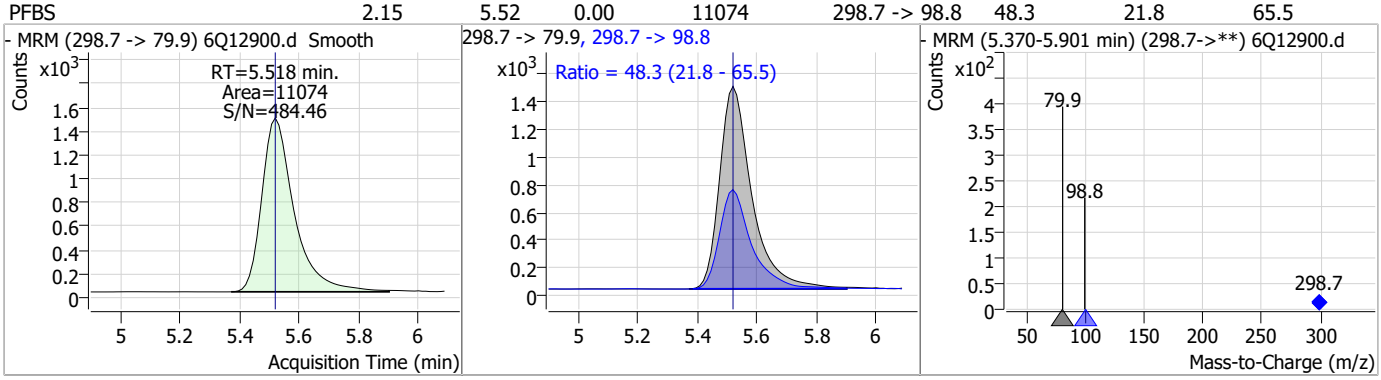


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.46	5.52	0.00	13425				

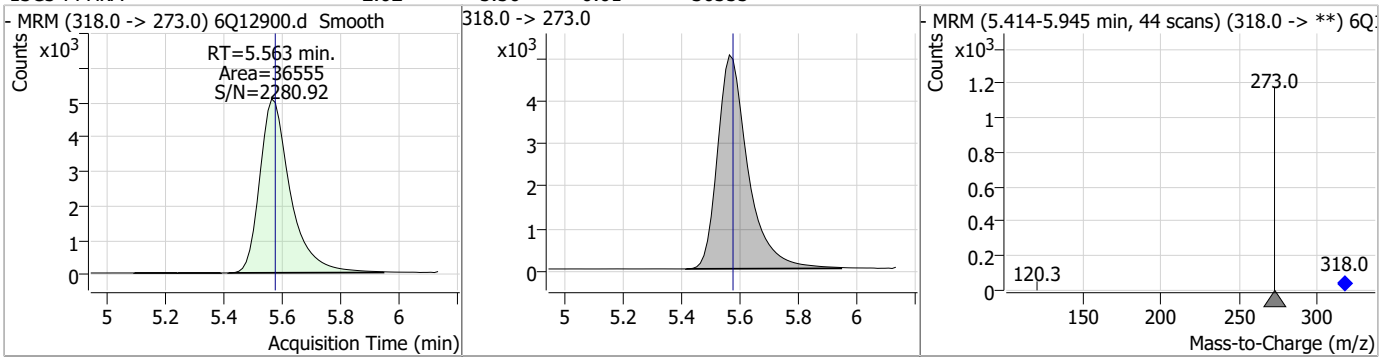


Perfluorinated Compounds by LC/MS/MS

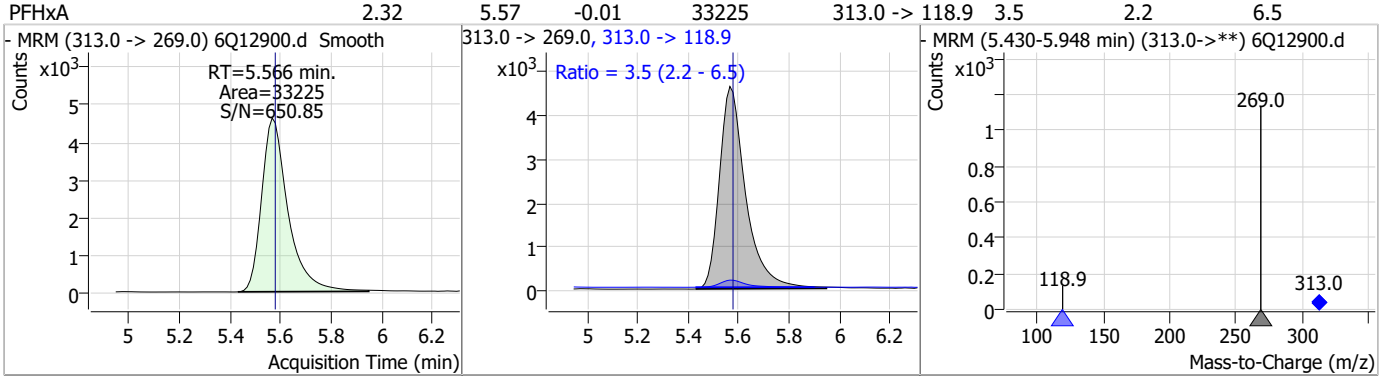
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.15	5.52	0.00	11074	298.7 -> 98.8	48.3	21.8	65.5



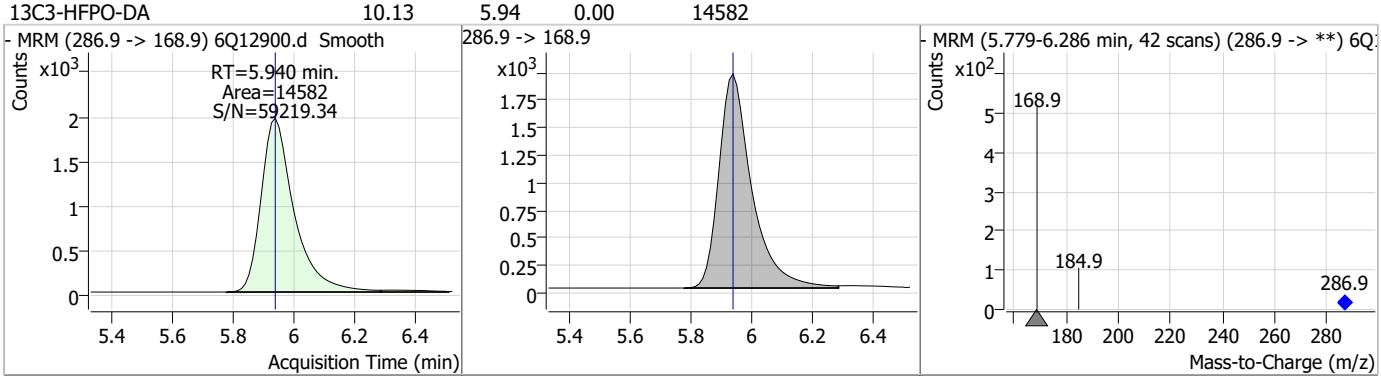
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.62	5.56	-0.01	36555				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.32	5.57	-0.01	33225	313.0 -> 118.9	3.5	2.2	6.5

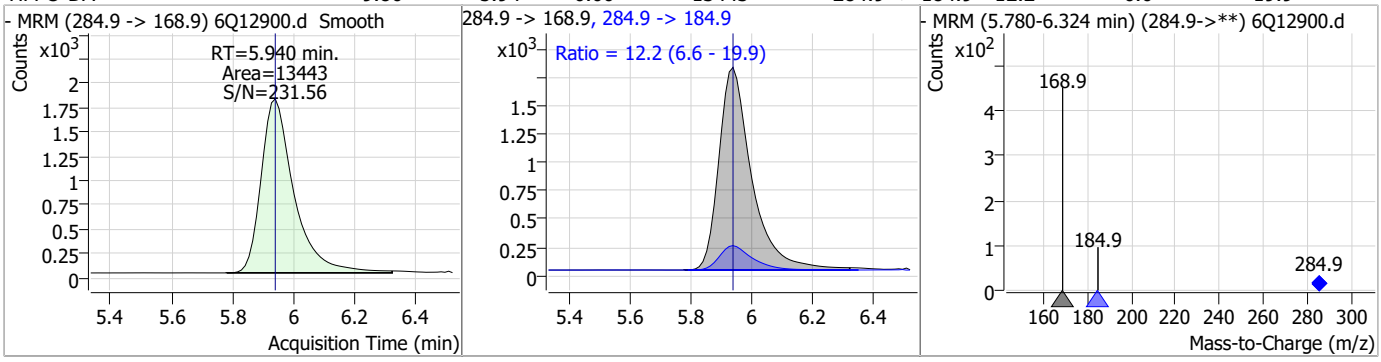


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.13	5.94	0.00	14582				

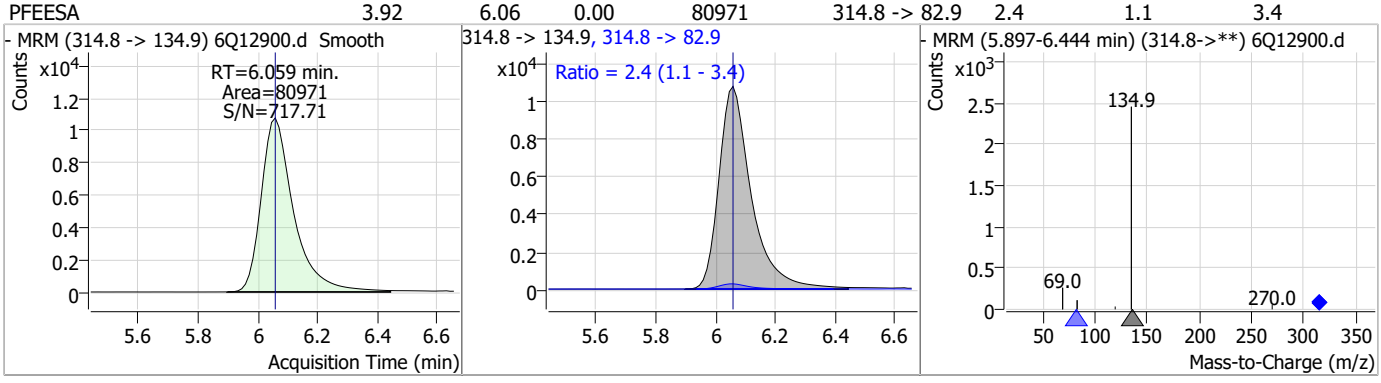


Perfluorinated Compounds by LC/MS/MS

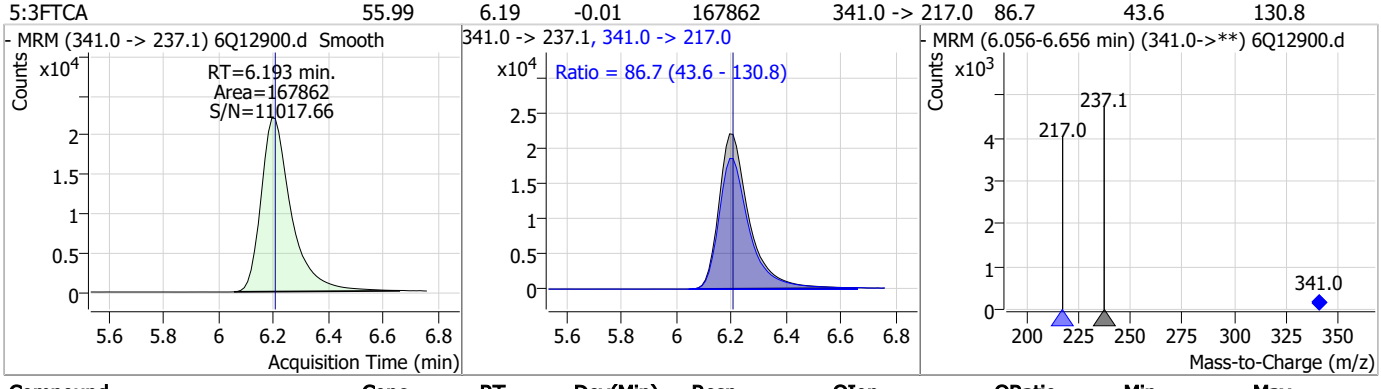
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.86	5.94	0.00	13443	284.9 -> 184.9	12.2	6.6	19.9



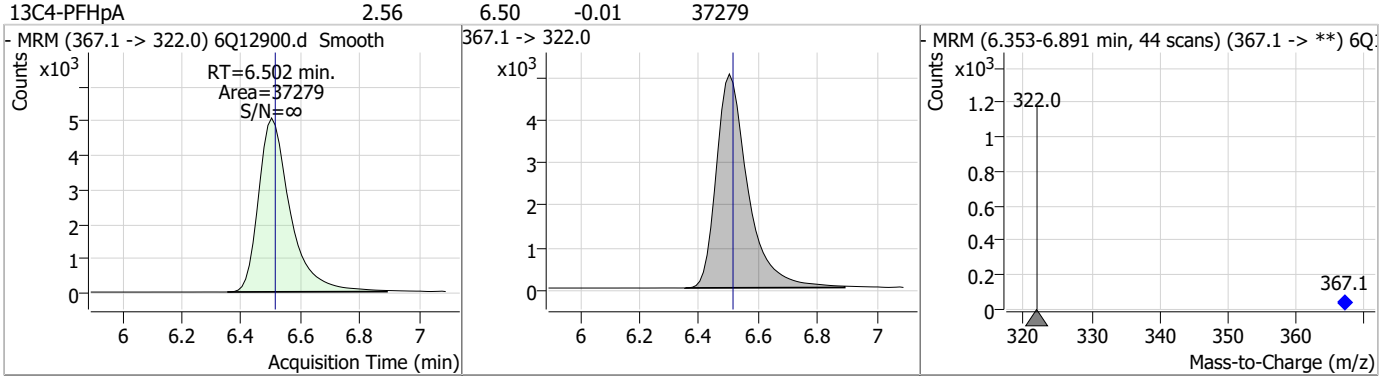
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.92	6.06	0.00	80971	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.99	6.19	-0.01	167862	341.0 -> 217.0	86.7	43.6	130.8

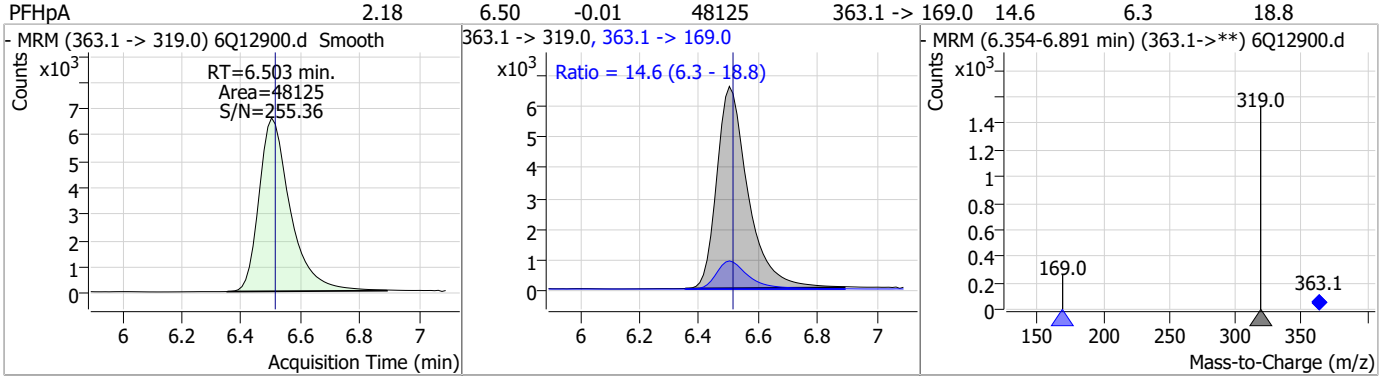


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.50	-0.01	37279				

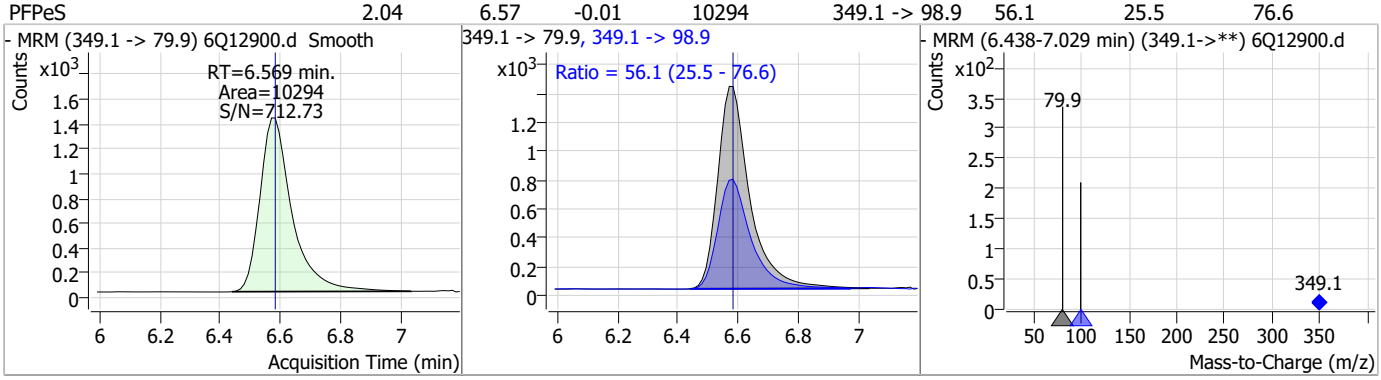


Perfluorinated Compounds by LC/MS/MS

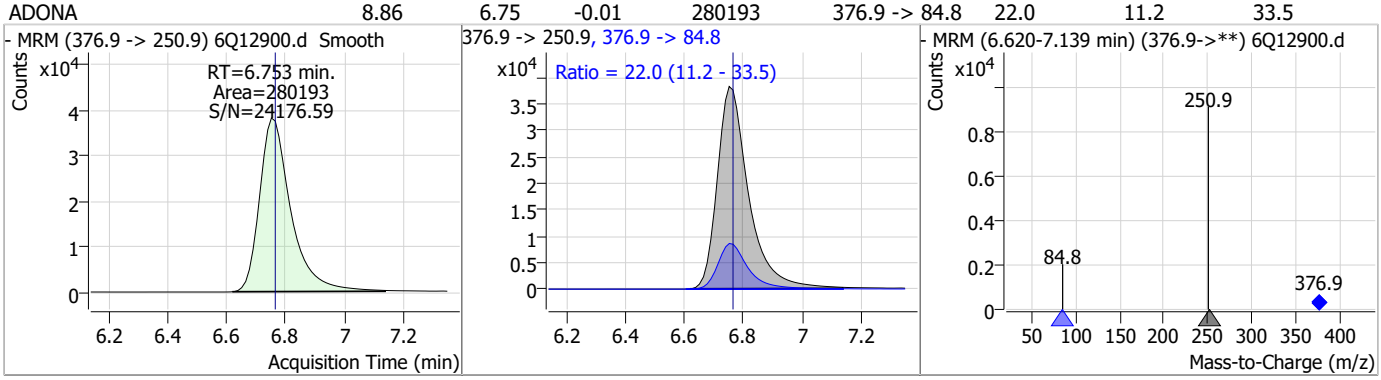
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.18	6.50	-0.01	48125	363.1 -> 169.0	14.6	6.3	18.8



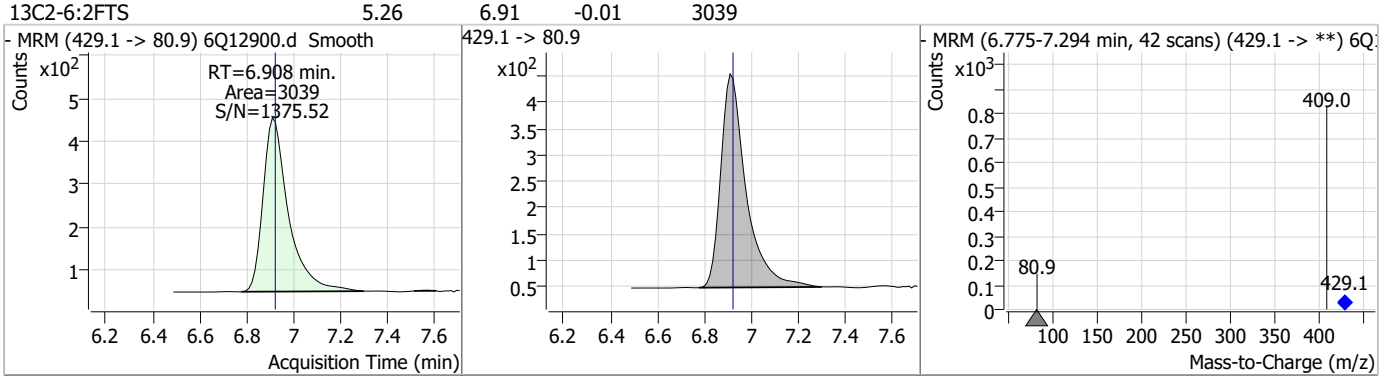
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.04	6.57	-0.01	10294	349.1 -> 98.9	56.1	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.86	6.75	-0.01	280193	376.9 -> 84.8	22.0	11.2	33.5

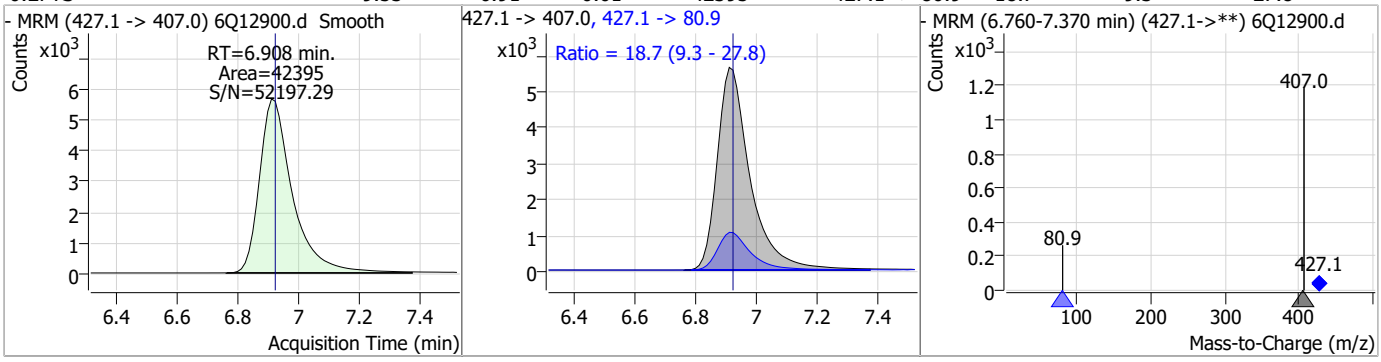


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.26	6.91	-0.01	3039				

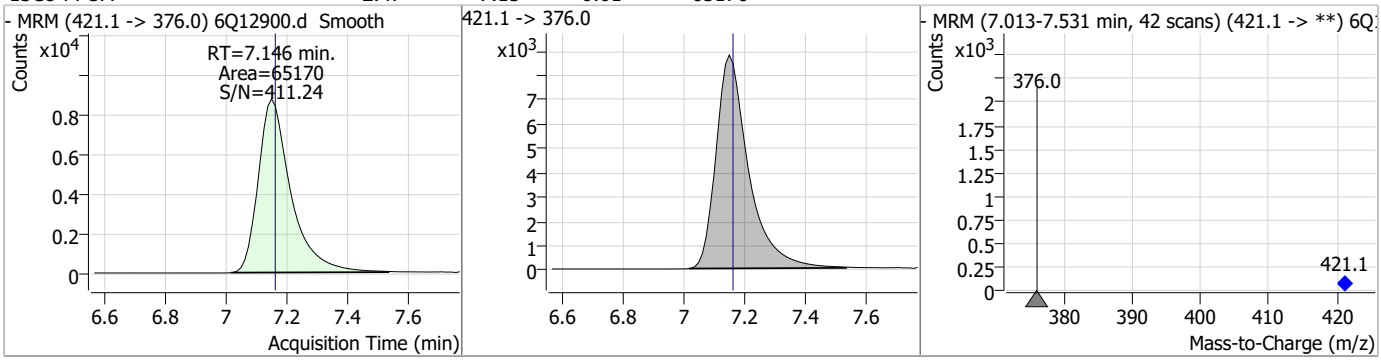


Perfluorinated Compounds by LC/MS/MS

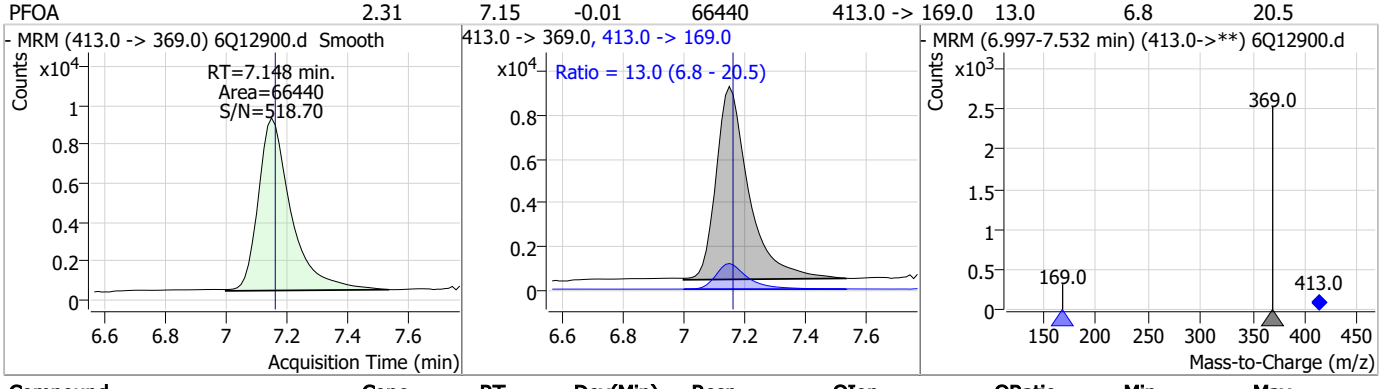
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.53	6.91	-0.01	42395	427.1 -> 80.9	18.7	9.3	27.8



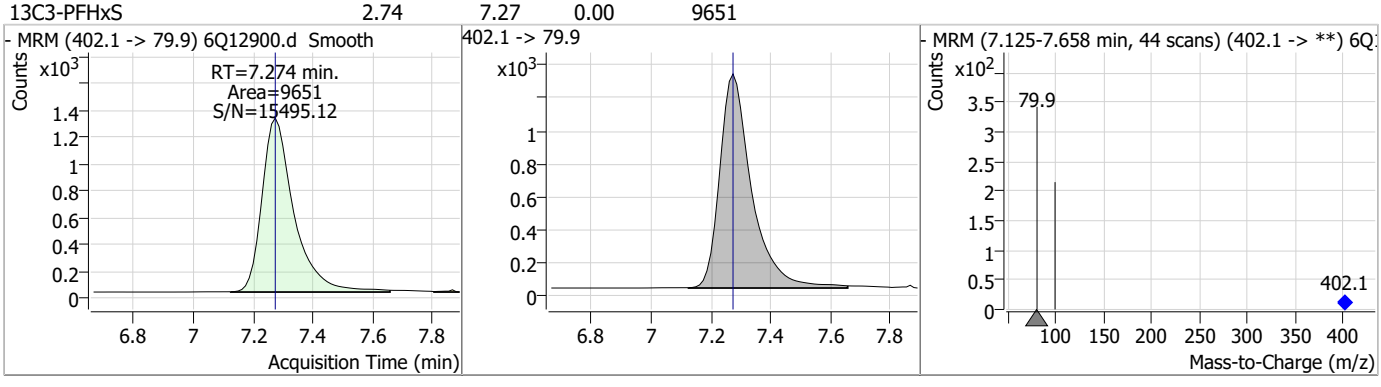
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.47	7.15	-0.01	65170				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.31	7.15	-0.01	66440	413.0 -> 169.0	13.0	6.8	20.5

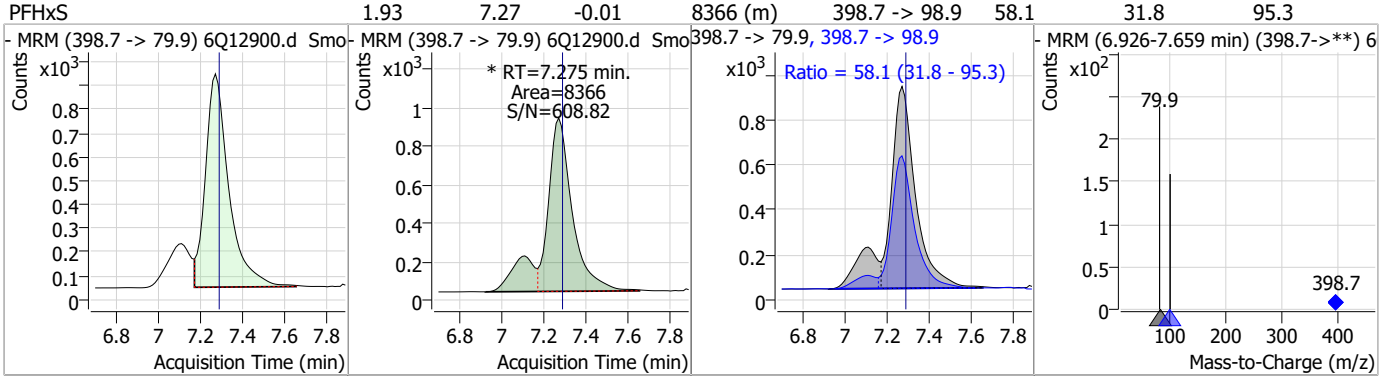


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.74	7.27	0.00	9651				

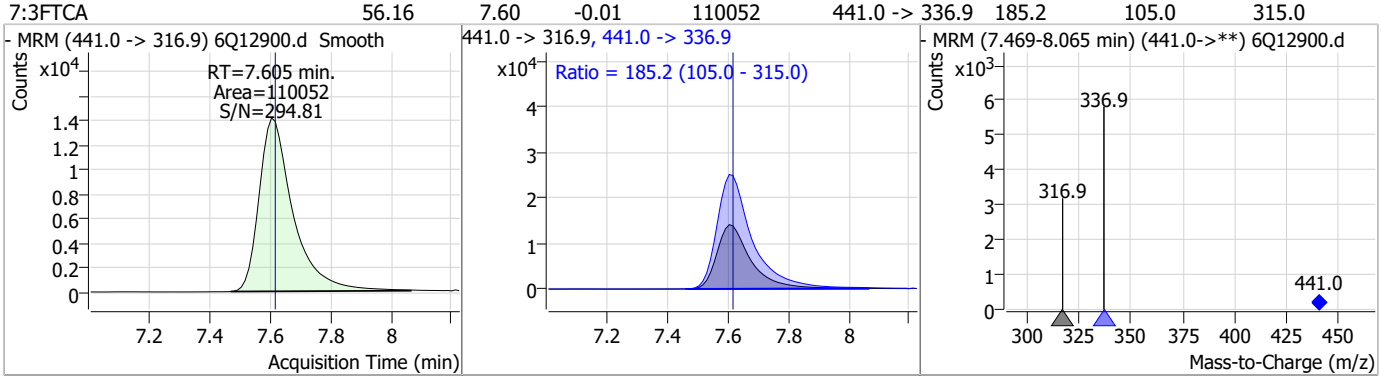


Perfluorinated Compounds by LC/MS/MS

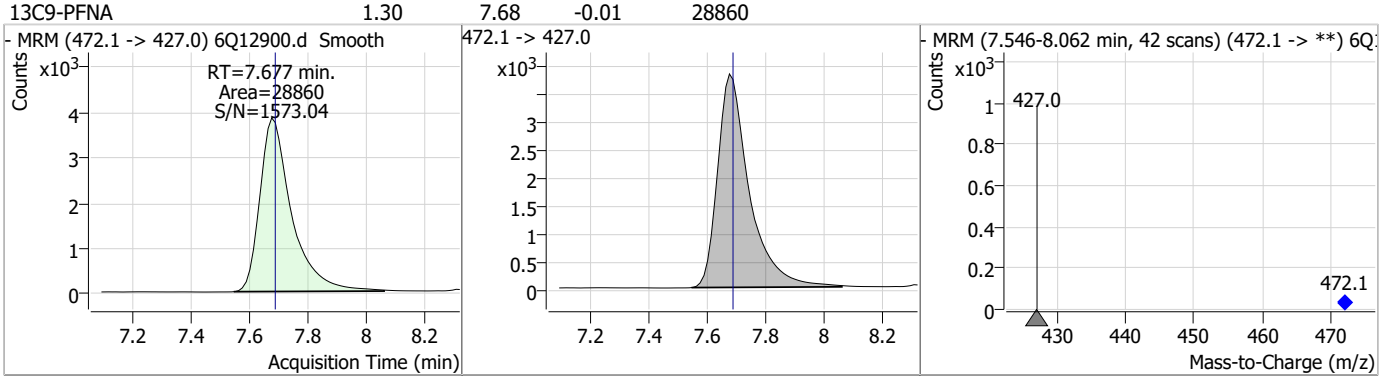
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.93	7.27	-0.01	8366 (m)	398.7 -> 98.9	58.1	31.8	95.3



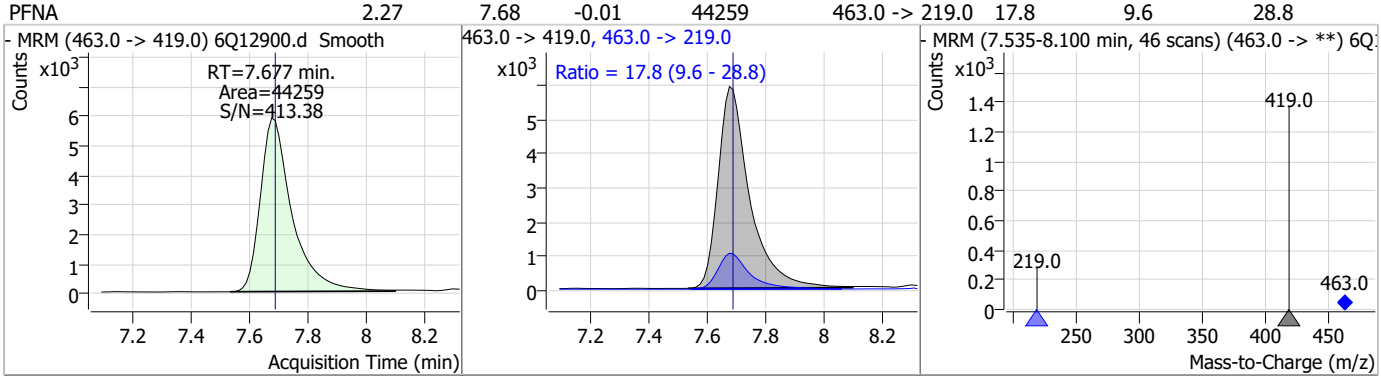
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	56.16	7.60	-0.01	110052	441.0 -> 336.9	185.2	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.68	-0.01	28860				

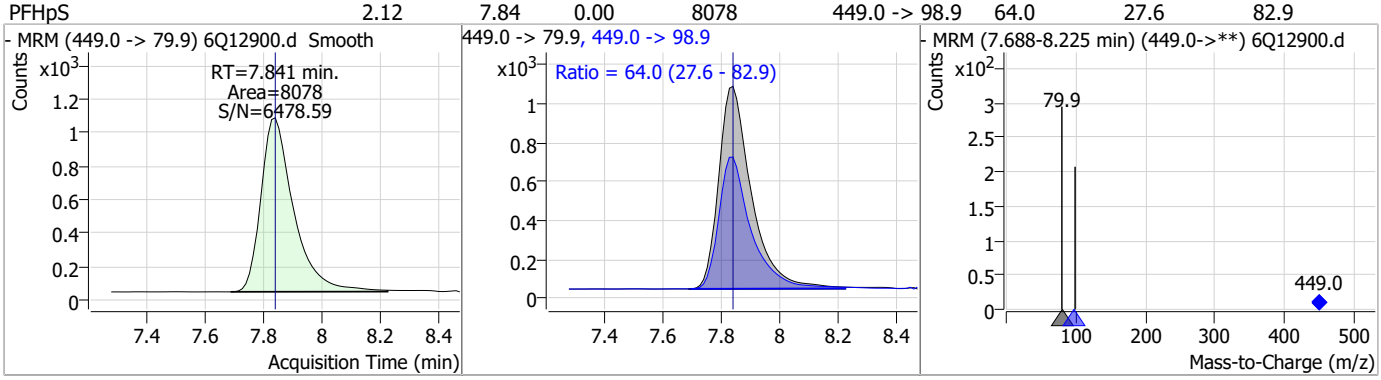


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.27	7.68	-0.01	44259	463.0 -> 219.0	17.8	9.6	28.8

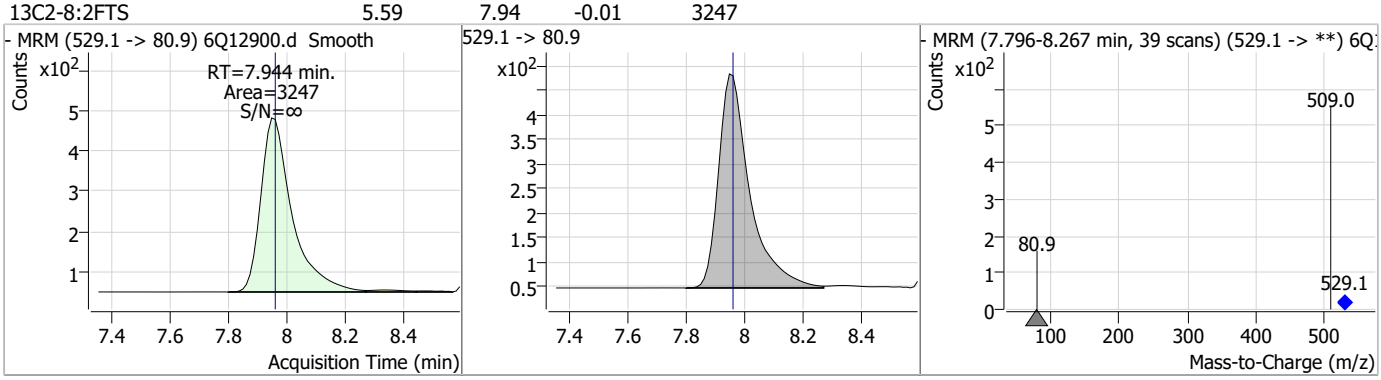


Perfluorinated Compounds by LC/MS/MS

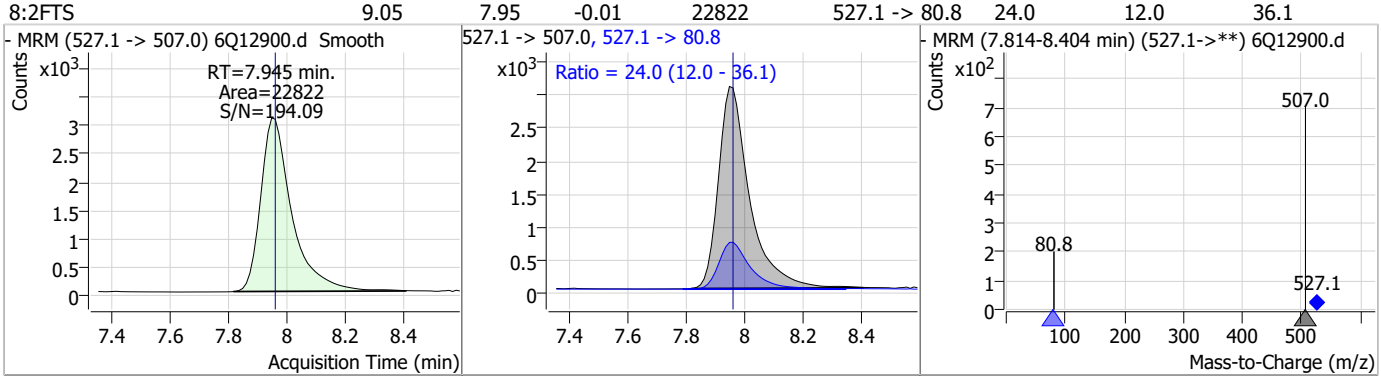
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.12	7.84	0.00	8078	449.0 -> 98.9	64.0	27.6	82.9



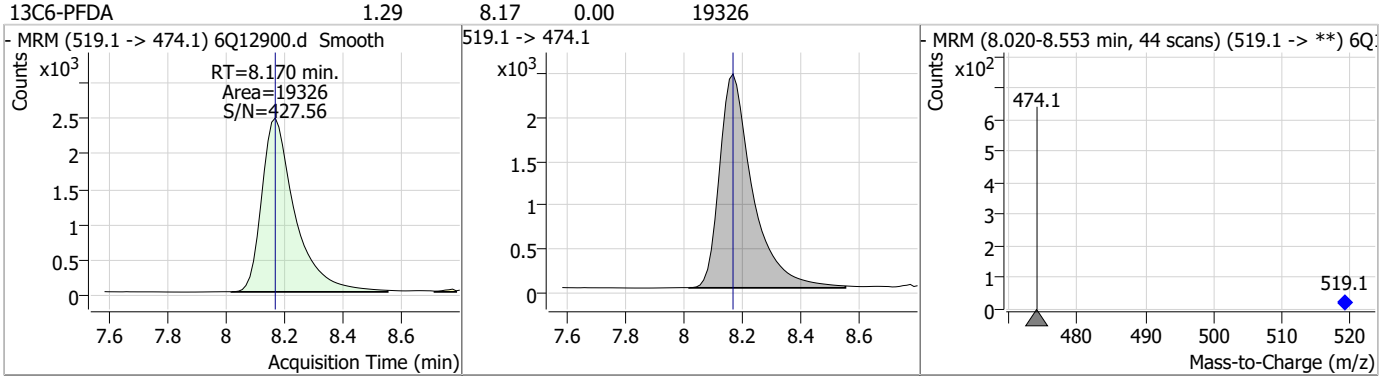
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.59	7.94	-0.01	3247				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.05	7.95	-0.01	22822	527.1 -> 80.8	24.0	12.0	36.1

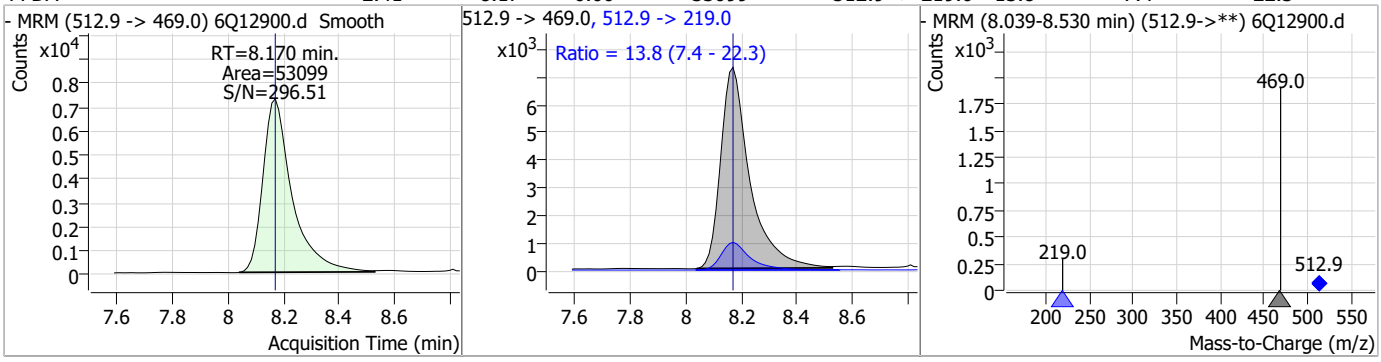


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.29	8.17	0.00	19326				

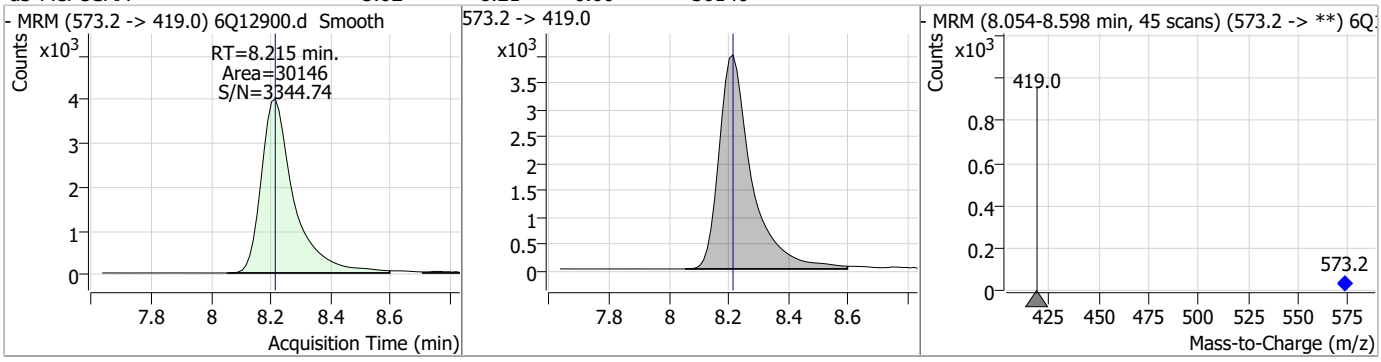


Perfluorinated Compounds by LC/MS/MS

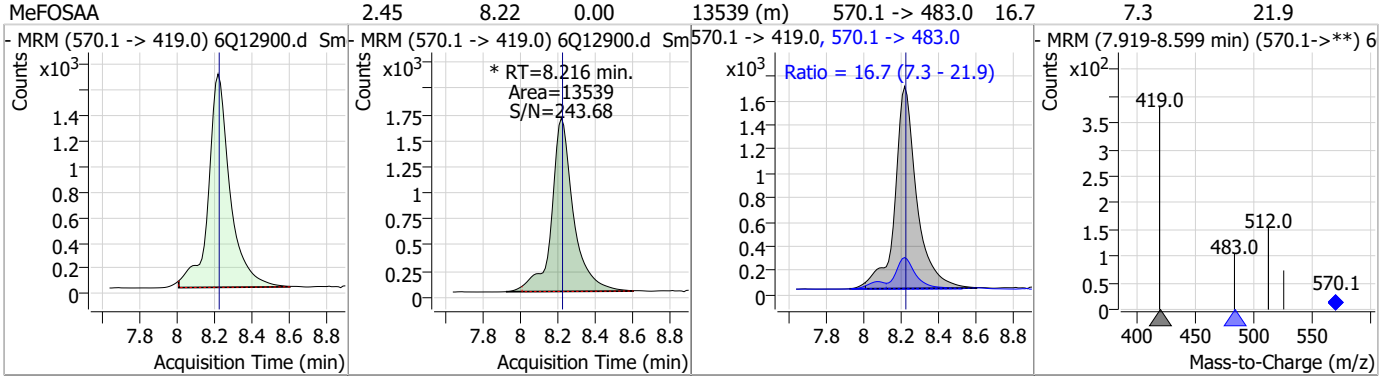
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.41	8.17	0.00	53099	512.9 -> 219.0	13.8	7.4	22.3



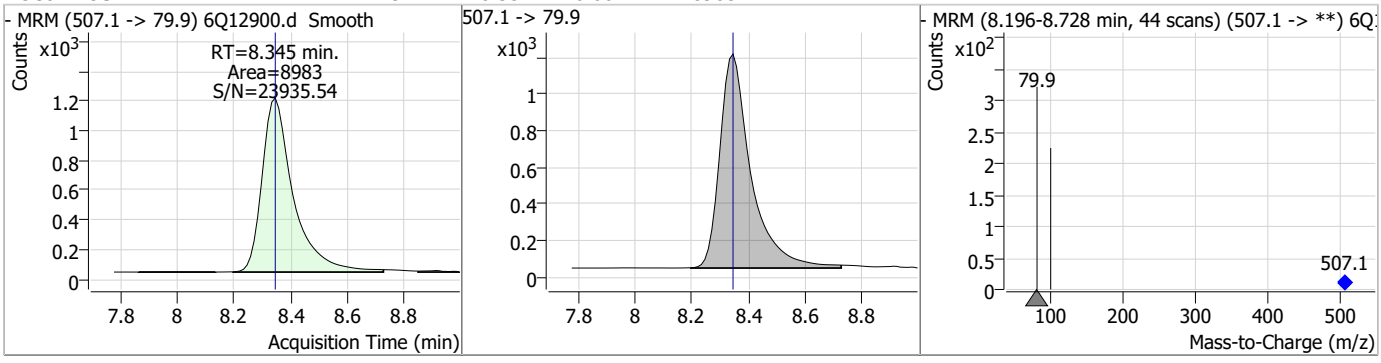
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.02	8.21	0.00	30146				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.45	8.22	0.00	13539 (m)	570.1 -> 483.0	16.7	7.3	21.9

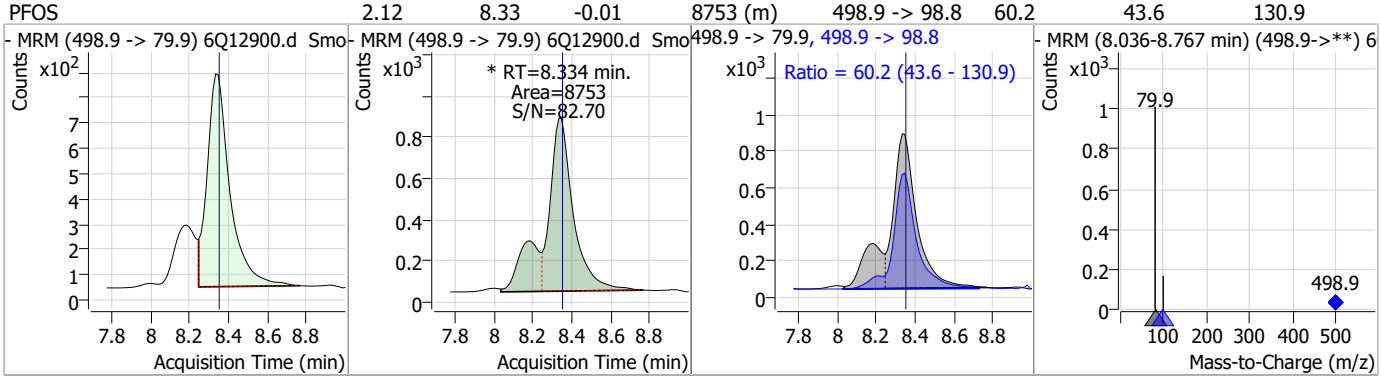


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.35	0.00	8983				

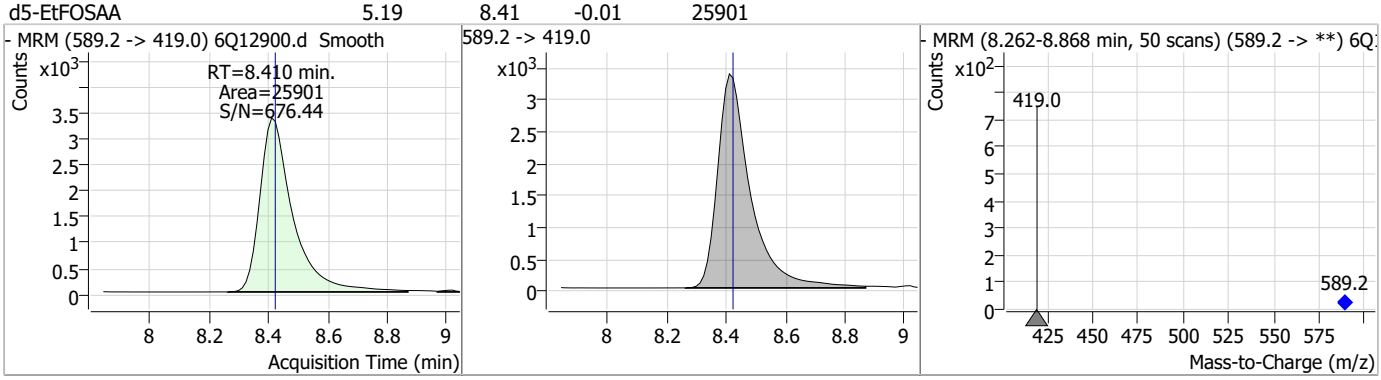


Perfluorinated Compounds by LC/MS/MS

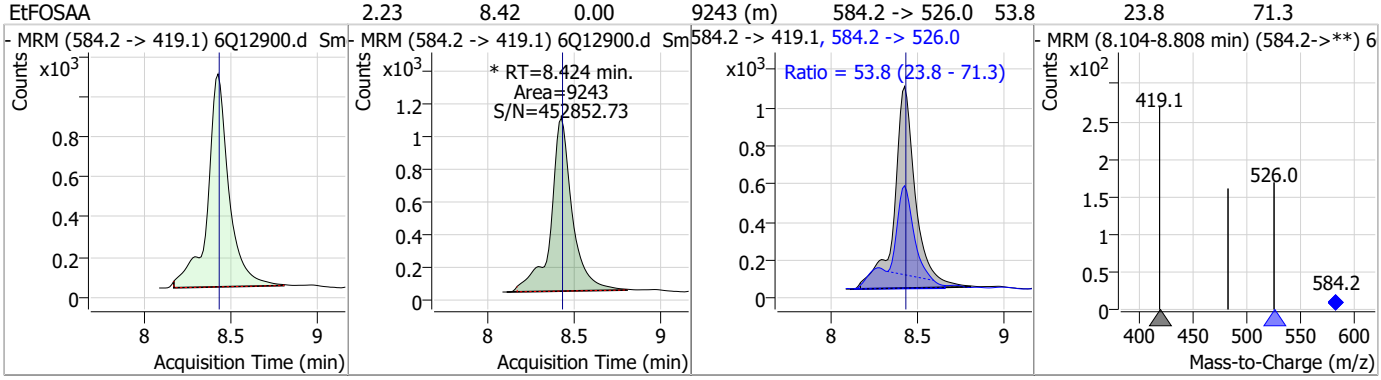
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.12	8.33	-0.01	8753 (m)	498.9 -> 98.8	60.2	43.6	130.9



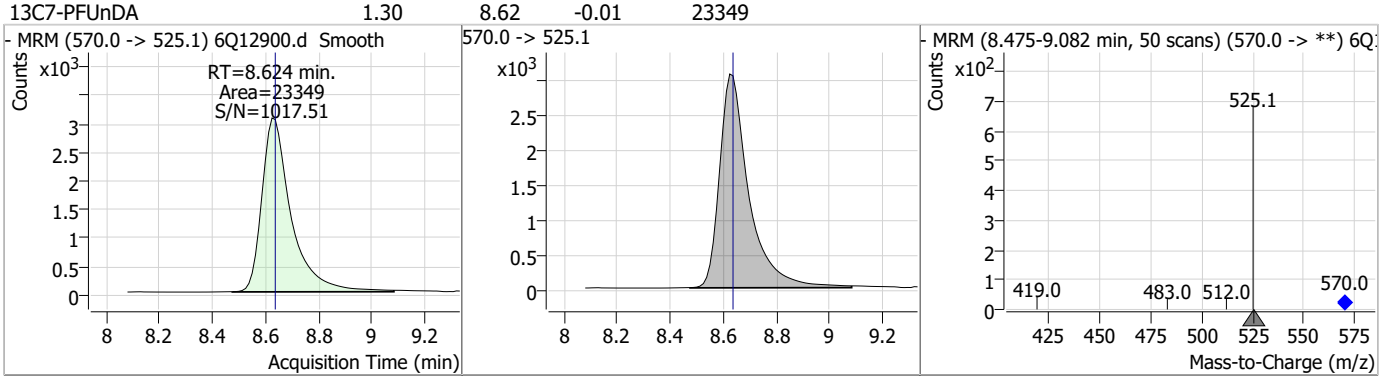
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.41	-0.01	25901				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.42	0.00	9243 (m)	584.2 -> 526.0	53.8	23.8	71.3

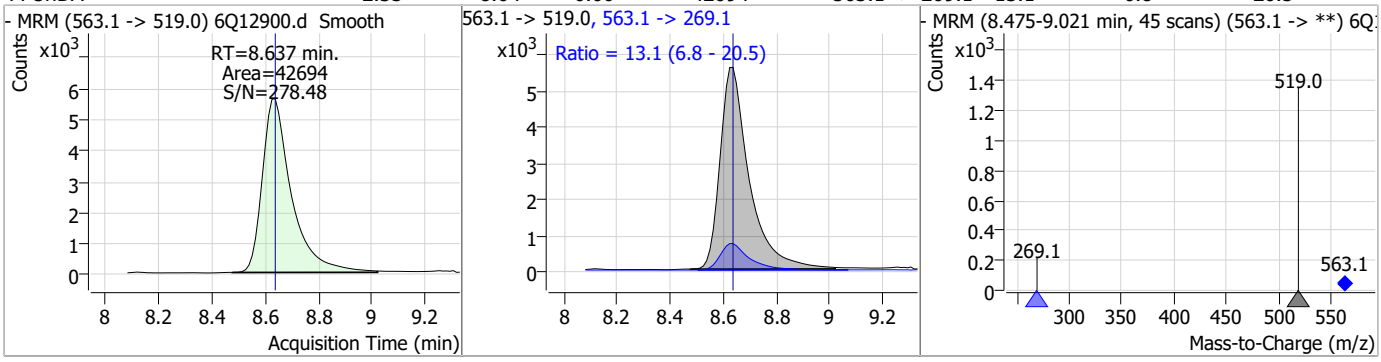


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.62	-0.01	23349				

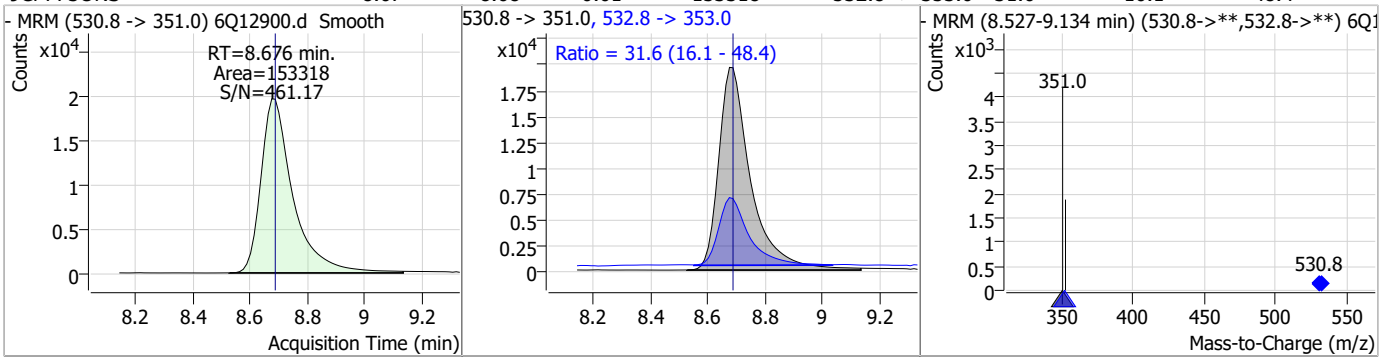


Perfluorinated Compounds by LC/MS/MS

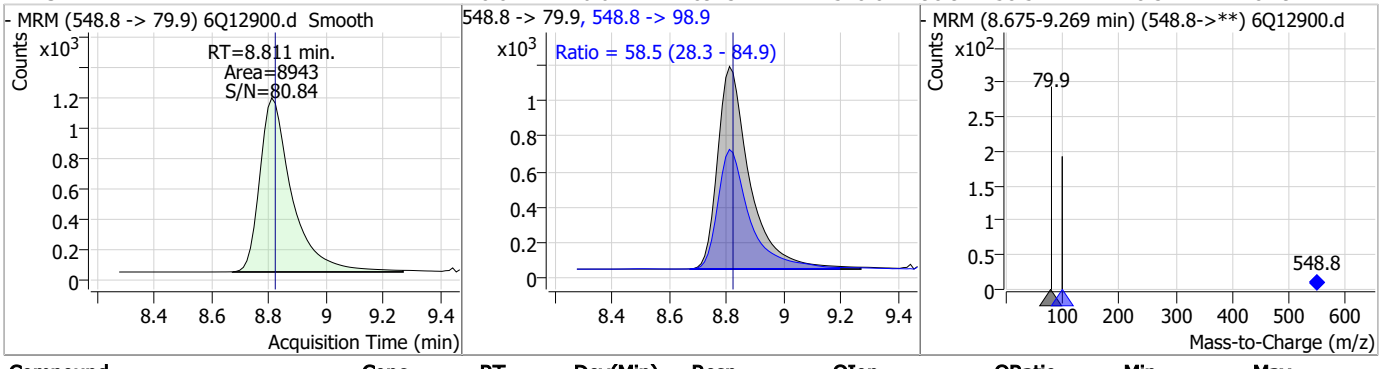
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.35	8.64	0.00	42694	563.1 -> 269.1	13.1	6.8	20.5



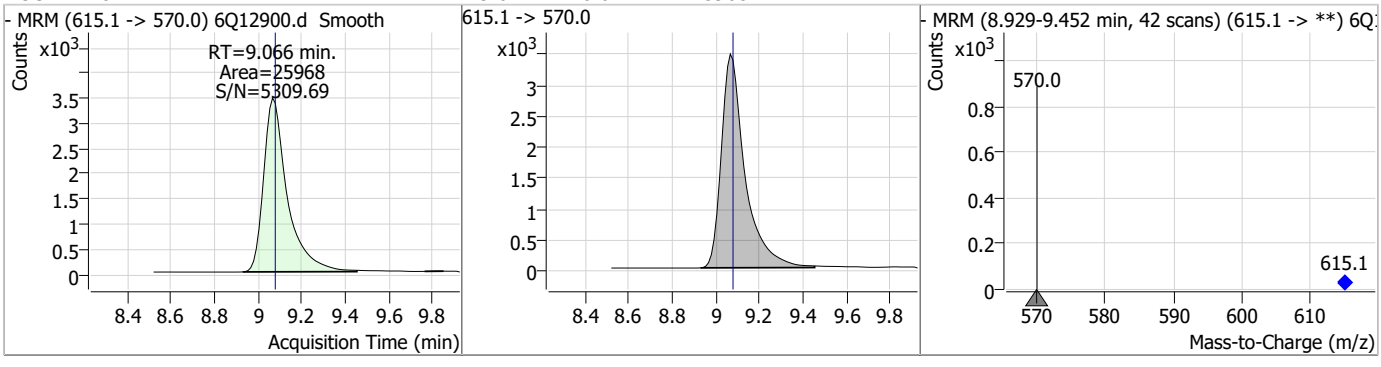
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.67	8.68	-0.01	153318	532.8 -> 353.0	31.6	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.24	8.81	-0.01	8943	548.8 -> 98.9	58.5	28.3	84.9

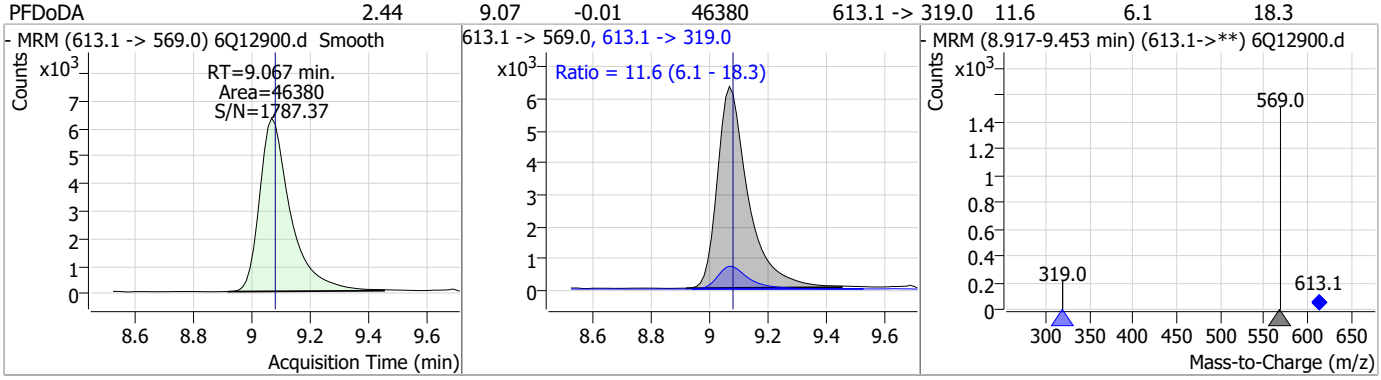


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	9.07	-0.01	25968				

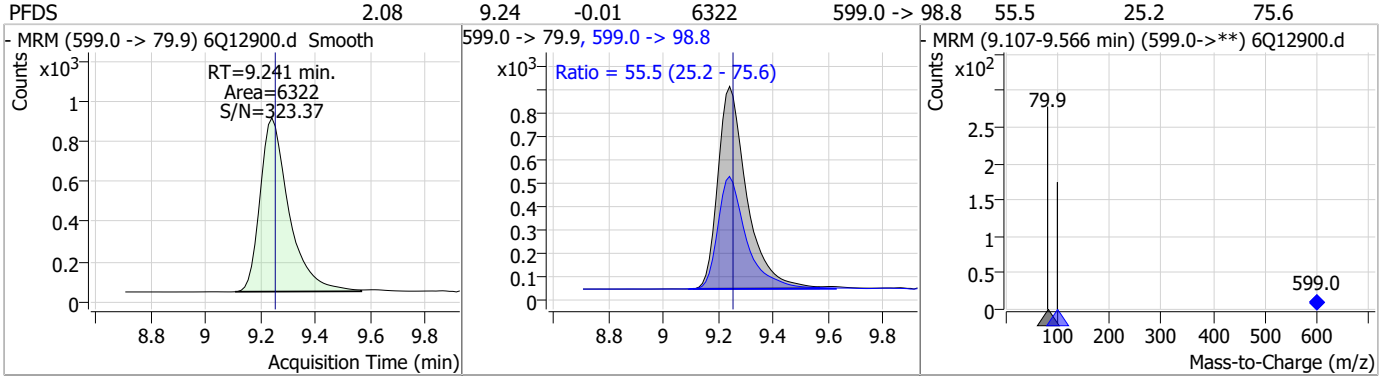


Perfluorinated Compounds by LC/MS/MS

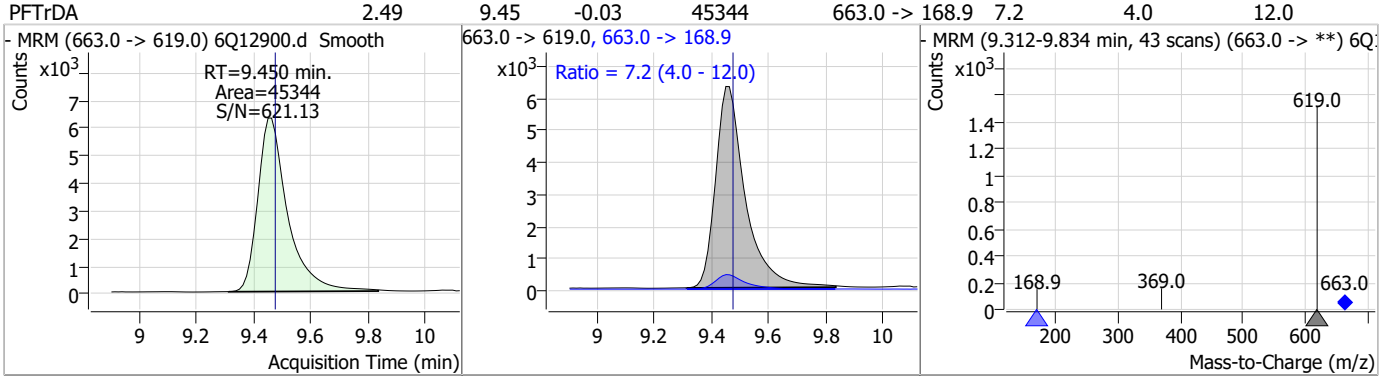
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.44	9.07	-0.01	46380	613.1 -> 319.0	11.6	6.1	18.3



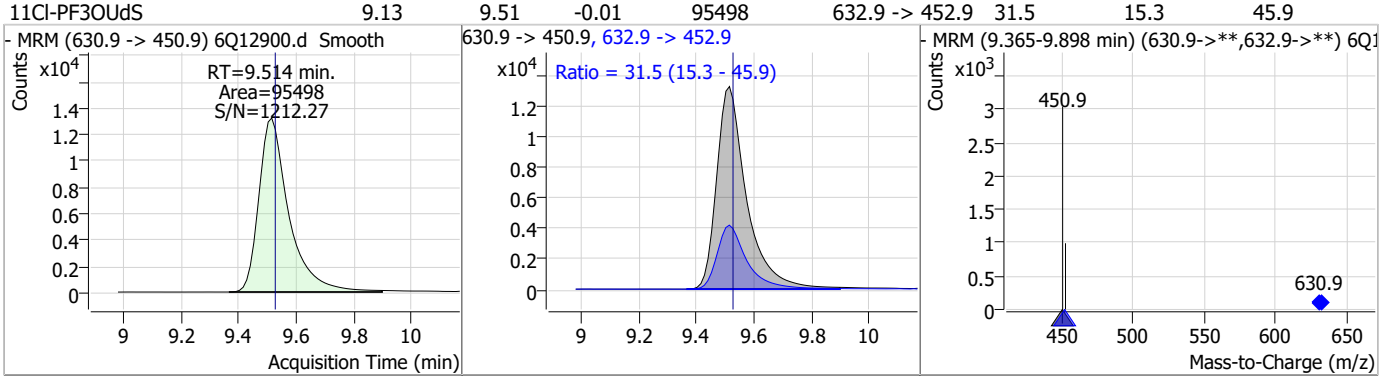
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.08	9.24	-0.01	6322	599.0 -> 98.8	55.5	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.49	9.45	-0.03	45344	663.0 -> 168.9	7.2	4.0	12.0

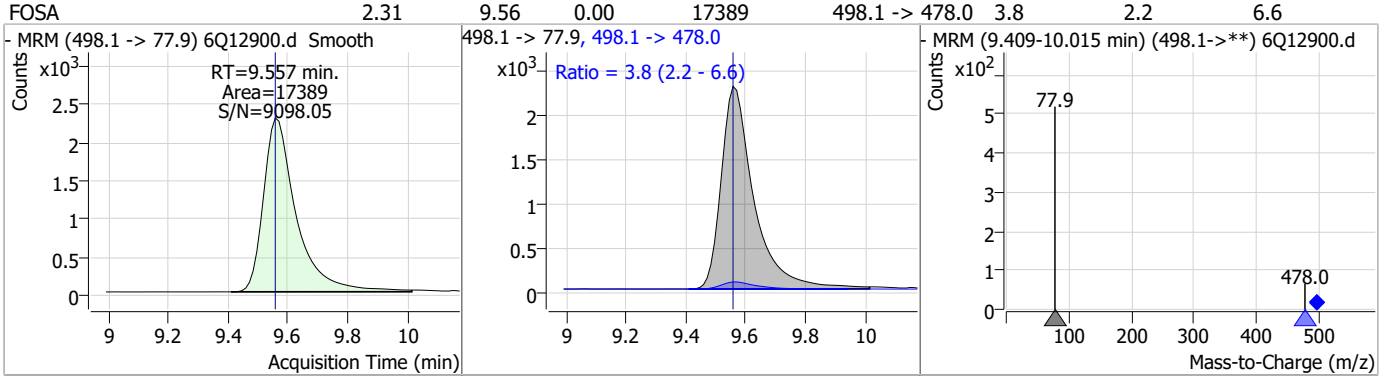


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.13	9.51	-0.01	95498	632.9 -> 452.9	31.5	15.3	45.9

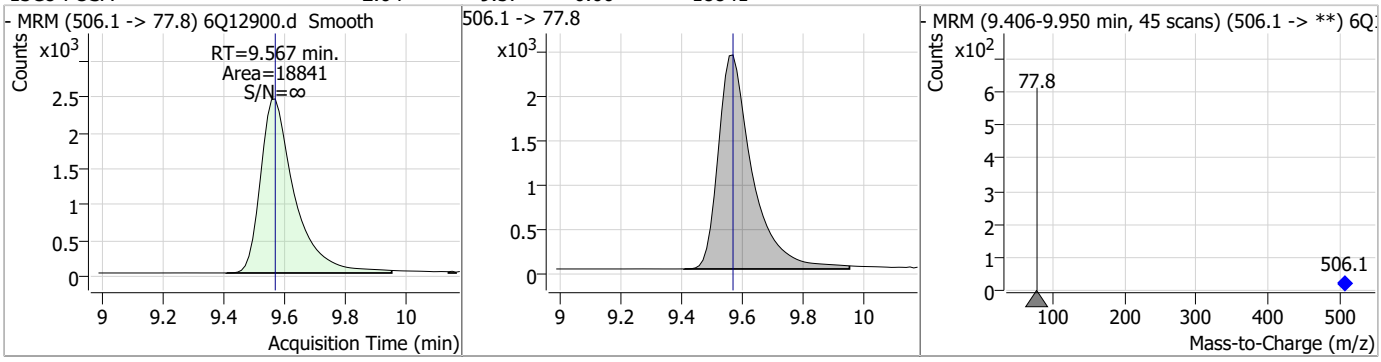


Perfluorinated Compounds by LC/MS/MS

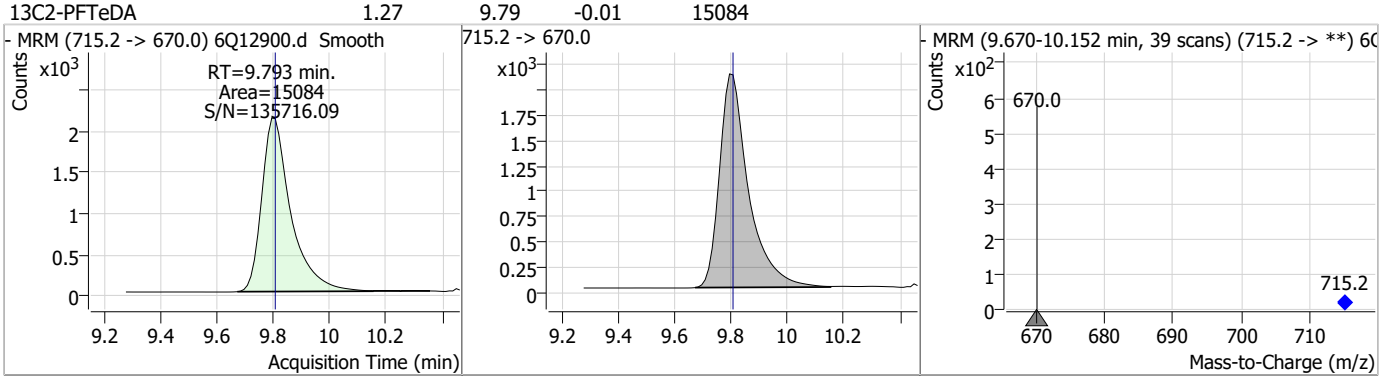
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.31	9.56	0.00	17389	498.1 -> 478.0	3.8	2.2	6.6



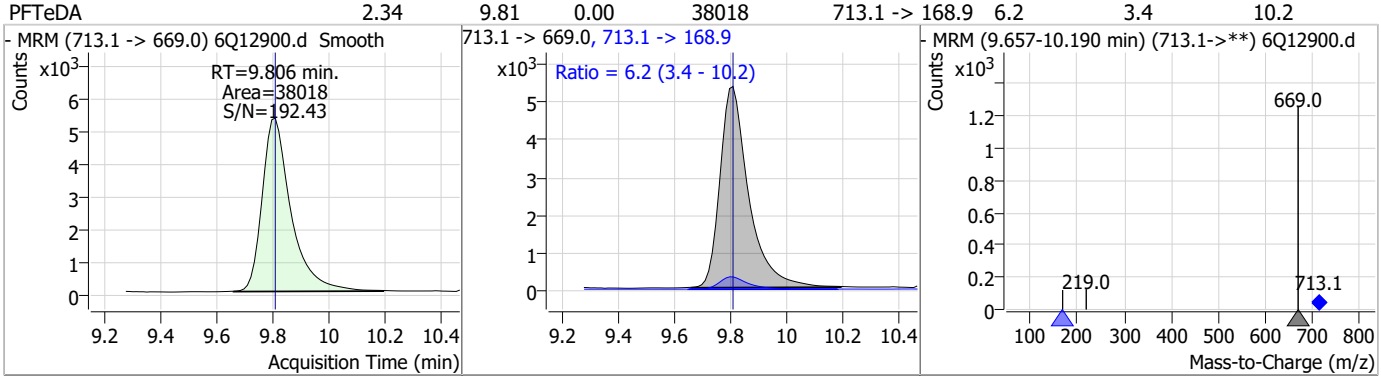
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.64	9.57	0.00	18841				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.27	9.79	-0.01	15084				

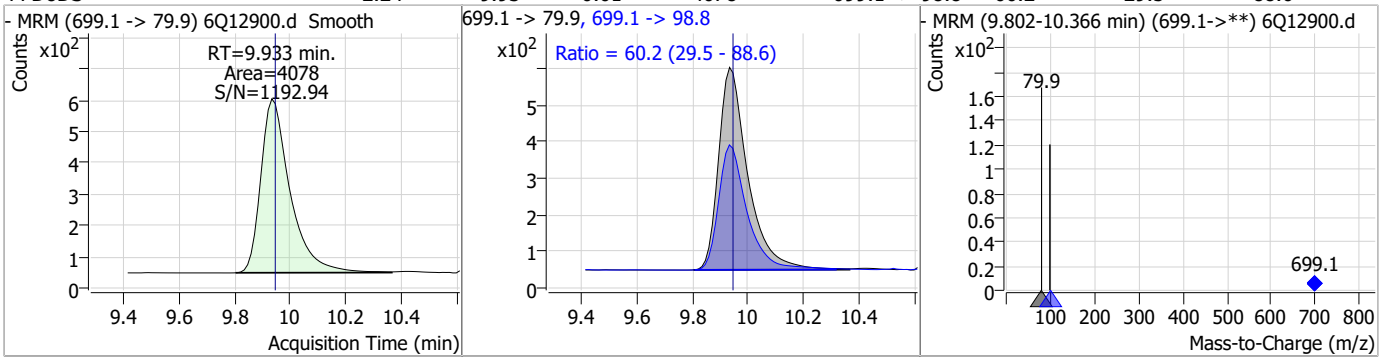


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.34	9.81	0.00	38018	713.1 -> 168.9	6.2	3.4	10.2

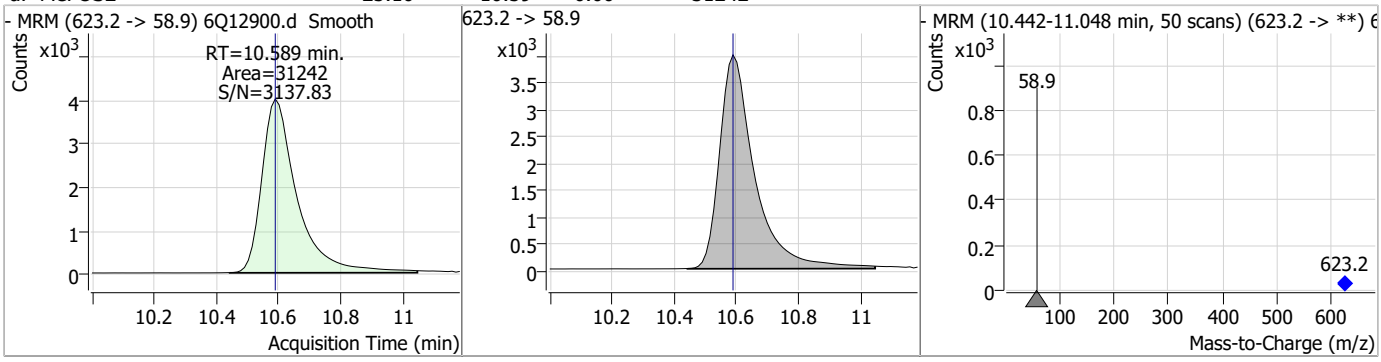


Perfluorinated Compounds by LC/MS/MS

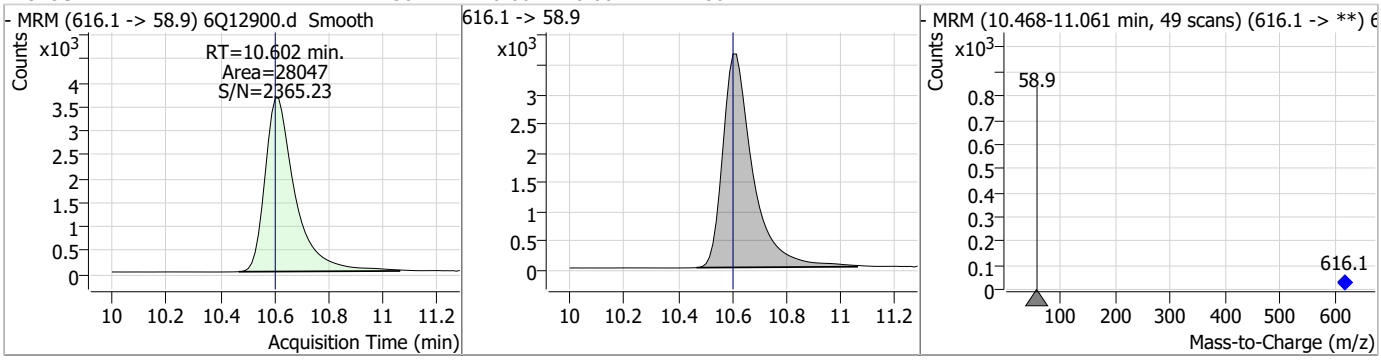
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.24	9.93	-0.01	4078	699.1 -> 98.8	60.2	29.5	88.6



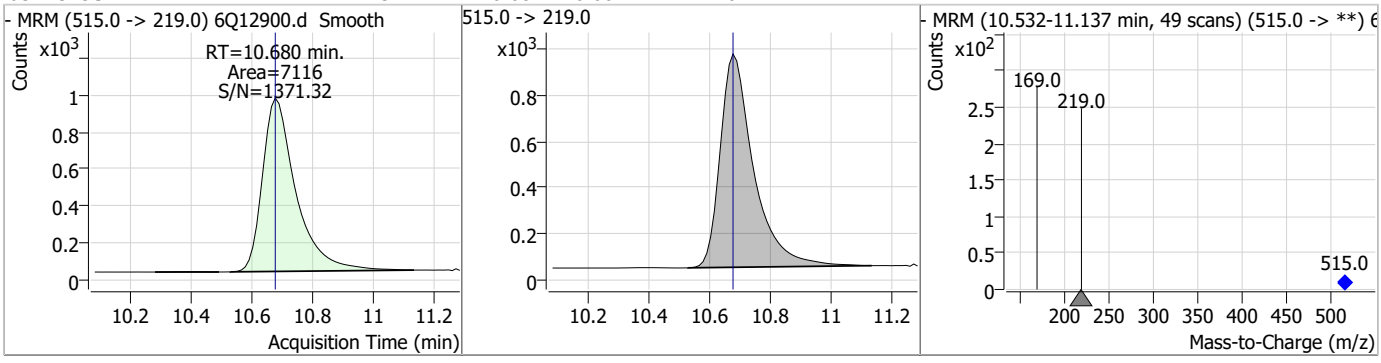
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.10	10.59	0.00	31242				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.50	10.60	0.00	28047				

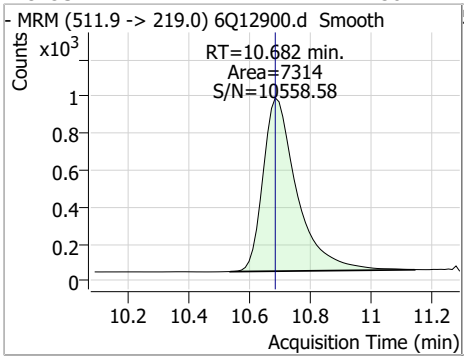


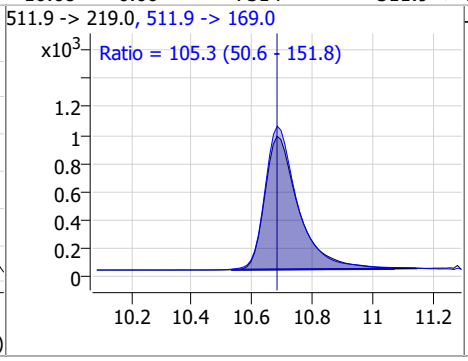
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.68	0.00	7116				

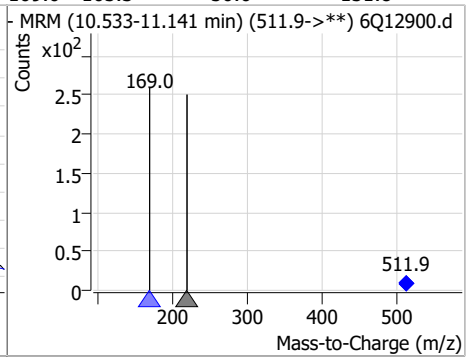


Perfluorinated Compounds by LC/MS/MS

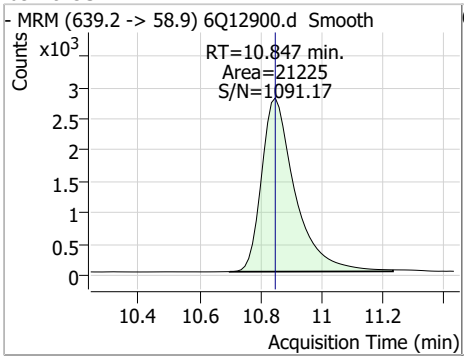
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.38	10.68	0.00	7314	511.9 -> 169.0	105.3	50.6	151.8

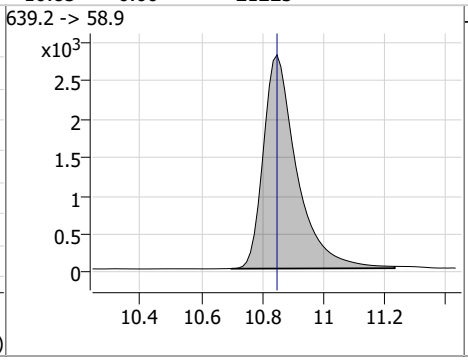


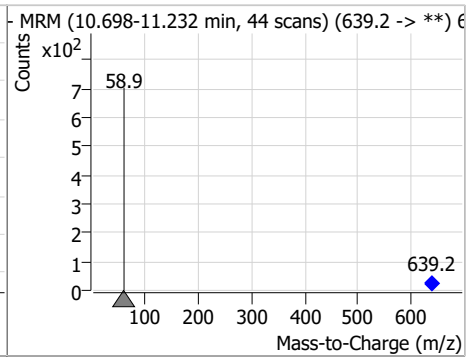




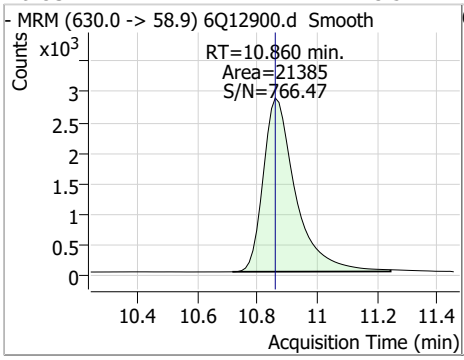
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.74	10.85	0.00	21225				

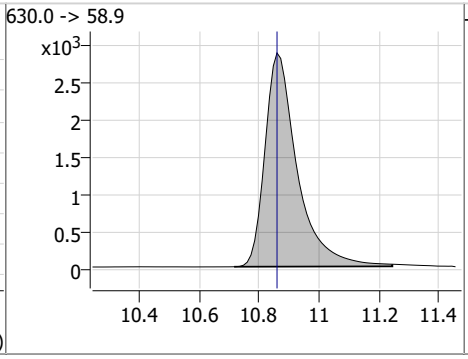


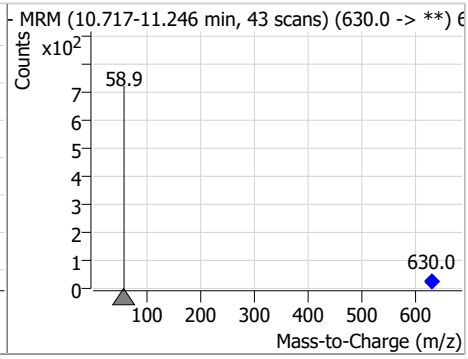




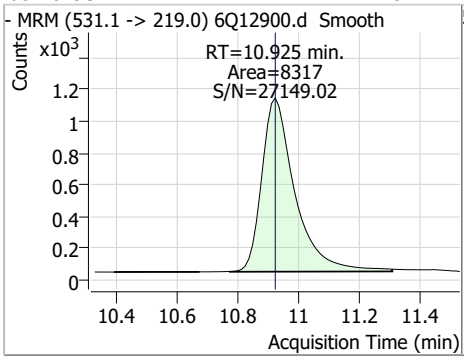
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	23.54	10.86	0.00	21385				

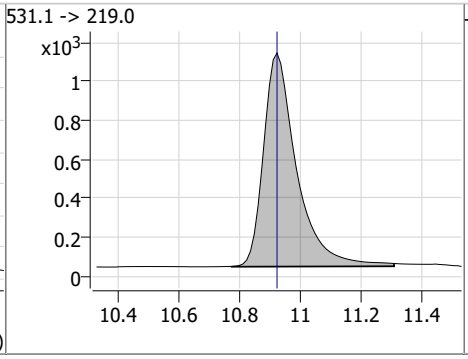


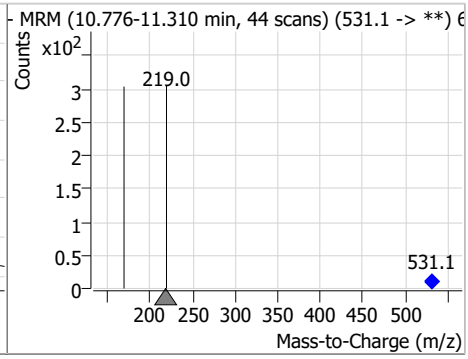




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.48	10.92	0.00	8317				

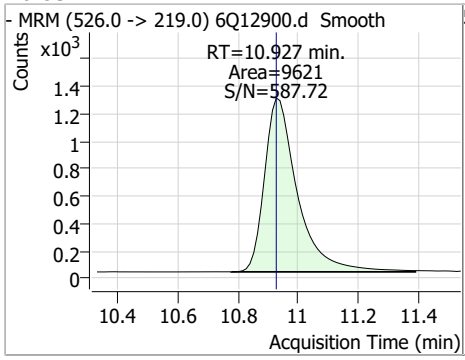


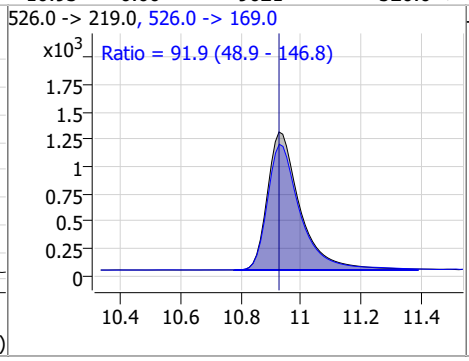


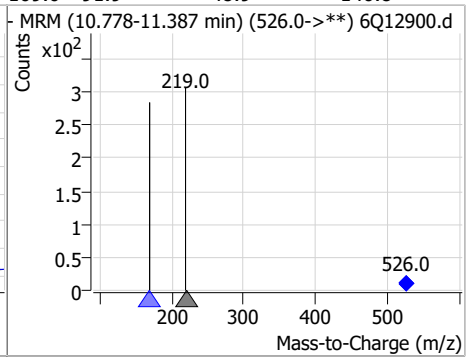


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.42	10.93	0.00	9621	526.0 -> 169.0	91.9	48.9	146.8







7.7.14

7

Manual Integration Approval Summary

Sample Number:	S6Q198-CC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12900.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 13:45	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12911.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 4:19:41 PM
Sample Name	:	cc196-4
Vial	:	P1-A5
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.975	216.8 -> 171.9	81073	10.00	µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	40863	5.00	µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	36389	2.50	µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	37007	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65821	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	29550	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19814	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23818	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26297	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	15566	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18531	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14728	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9166	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8740	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2433	5.00	µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3119	5.00	µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3211	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30905	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14975	10.00	µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	25667	5.00	µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	31723	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22567	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8628	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7494	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11059	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36086	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7631	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	81454	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27174	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32187	1.25	µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35326	2.50	µg/L	-0.012
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2433	4.90	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3119	4.74	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3211	4.86	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26297	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15566	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C3-PFBS	5.518	302.1 -> 79.9	14728	2.37	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%		
13C3-PFHxS	7.274	402.1 -> 79.9	9166	2.28	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%		
13C4-PFBA	2.975	216.8 -> 171.9	81073	10.12 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C4-PFHpA	6.502	367.1 -> 322.0	37007	2.54 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C5-PFHxA	5.563	318.0 -> 273.0	36389	2.60 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C5-PFPeA	4.386	268.3 -> 223.0	40863	5.19 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C6-PFDA	8.170	519.1 -> 474.1	19814	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C7-PFUnDA	8.636	570.0 -> 525.1	23818	1.32 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C8-FOSA	9.567	506.1 -> 77.8	18531	2.57 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C8-PFOA	7.146	421.1 -> 376.0	65821	2.42 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C8-PFOS	8.345	507.1 -> 79.9	8740	2.40 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C9-PFNA	7.677	472.1 -> 427.0	29550	1.30 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30905	5.10 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14975	10.37 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
d3-MeFOSA	10.680	515.0 -> 219.0	7494	2.42 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%		
d5-EtFOSAA	8.422	589.2 -> 419.0	25667	5.10 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	31723	25.26 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
d9-EtFOSE	10.847	639.2 -> 58.9	22567	26.08 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
d5-EtFOSA	10.925	531.1 -> 219.0	8628	2.56 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	47665	8.74 µg/L		99
		327.1 -> 80.9	10222			
6:2FTS	6.921	427.1 -> 407.0	40473	8.86 µg/L		95
		427.1 -> 80.9	8433			
8:2FTS	7.945	527.1 -> 507.0	23158	9.29 µg/L		98
		527.1 -> 80.8	5406			
EtFOSAA	8.424	584.2 -> 419.1	8903	2.17 µg/L		84
		584.2 -> 526.0	5177			
FOSA	9.570	498.1 -> 77.9	16680	2.26 µg/L		99
		498.1 -> 478.0	660			
MeFOSAA	8.216	570.1 -> 419.0	13165	2.32 µg/L	m	93
		570.1 -> 483.0	2321			
PFBA	2.982	212.8 -> 168.9	16596	9.17 µg/L		100
PFBS	5.518	298.7 -> 79.9	11008	1.95 µg/L		94
		298.7 -> 98.8	5241			
PFDA	8.170	512.9 -> 469.0	54316	2.41 µg/L		96
		512.9 -> 219.0	7128			
PFDoDA	9.067	613.1 -> 569.0	46865	2.43 µg/L		97
		613.1 -> 319.0	6238			
PFDS	9.241	599.0 -> 79.9	6898	2.33 µg/L		98

Perfluorinated Compounds by LC/MS/MS

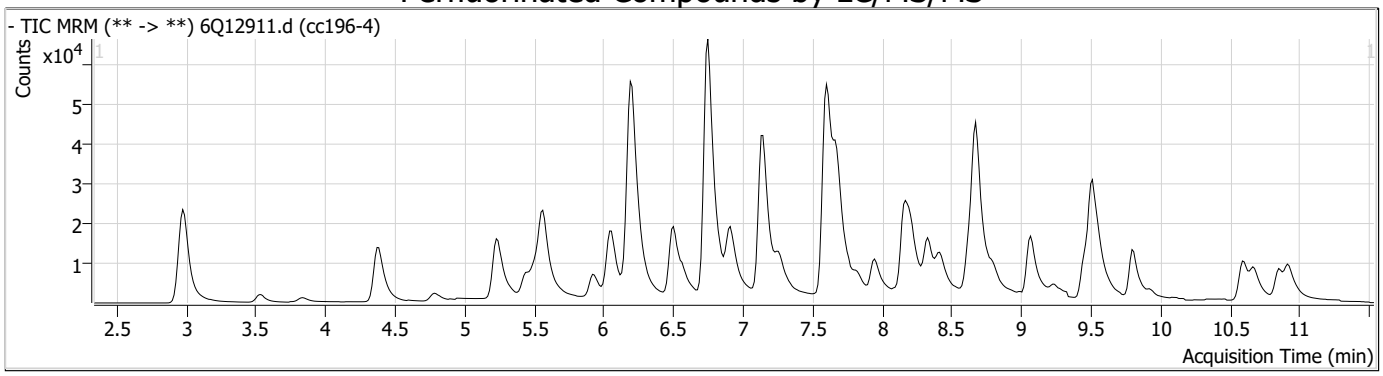
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	3383				
PFHpA	6.503	363.1 -> 319.0	51133	2.33	µg/L		97
		363.1 -> 169.0	7085				
PFHpS	7.841	449.0 -> 79.9	9189	2.48	µg/L		97
		449.0 -> 98.9	4898				
PFHxA	5.566	313.0 -> 269.0	32612	2.28	µg/L		100
		313.0 -> 118.9	1371				
PFHxS	7.275	398.7 -> 79.9	9263	2.25	µg/L	m	87
		398.7 -> 98.9	4941				
PFNA	7.677	463.0 -> 419.0	45148	2.26	µg/L		98
		463.0 -> 219.0	8214				
PFNS	8.811	548.8 -> 79.9	8969	2.31	µg/L		95
		548.8 -> 98.9	5423				
PFOA	7.148	413.0 -> 369.0	65107	2.25	µg/L		100
		413.0 -> 169.0	8876				
PFOS	8.347	498.9 -> 79.9	8695	2.17	µg/L	m	78
		498.9 -> 98.8	5792				
PFPeA	4.388	263.0 -> 219.0	39554	4.58	µg/L		100
PFPeS	6.581	349.1 -> 79.9	10503	2.19	µg/L		97
		349.1 -> 98.9	5564				
PFTeDA	9.806	713.1 -> 669.0	39747	2.37	µg/L		99
		713.1 -> 168.9	2501				
PFTrDA	9.462	663.0 -> 619.0	47734	2.59	µg/L		98
		663.0 -> 168.9	3446				
PFUnDA	8.637	563.1 -> 519.0	42023	2.27	µg/L		97
		563.1 -> 269.1	6253				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	99567	9.27	µg/L		97
		632.9 -> 452.9	28616				
9Cl-PF3ONS	8.688	530.8 -> 351.0	156331	8.61	µg/L		96
		532.8 -> 353.0	47291				
ADONA	6.753	376.9 -> 250.9	297936	9.17	µg/L		96
		376.9 -> 84.8	60056				
HFPO-DA	5.940	284.9 -> 168.9	13915	9.93	µg/L		99
		284.9 -> 184.9	1914				
3:3FTCA	3.841	241.0 -> 177.0	4961	11.71	µg/L		95
		241.0 -> 117.0	632				
5:3FTCA	6.206	341.0 -> 237.1	169802	56.90	µg/L		98
		341.0 -> 217.0	150797				
7:3FTCA	7.605	441.0 -> 316.9	114386	58.64	µg/L		85
		441.0 -> 336.9	213569				
EtFOSA	10.927	526.0 -> 219.0	9140	2.22	µg/L		97
		526.0 -> 169.0	9220				
EtFOSE	10.860	630.0 -> 58.9	21576	22.34	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	7911	2.44	µg/L		97
		511.9 -> 169.0	7760				
MeFOSE	10.615	616.1 -> 58.9	28557	22.57	µg/L		100
PFDoDS	9.945	699.1 -> 79.9	3962	2.24	µg/L		94
		699.1 -> 98.8	2512				
NFDHA	5.457	295.0 -> 201.0	4339	5.14	µg/L		95
		295.0 -> 84.9	2093				
PFMBA	4.800	279.0 -> 85.1	11516	4.75	µg/L		100
PFMPA	3.541	229.0 -> 84.9	10480	4.55	µg/L		100
PFEESA	6.059	314.8 -> 134.9	84586	4.12	µg/L		100
		314.8 -> 82.9	2063				

= Qualifier out of range, m = manually integrated, + = Area summed

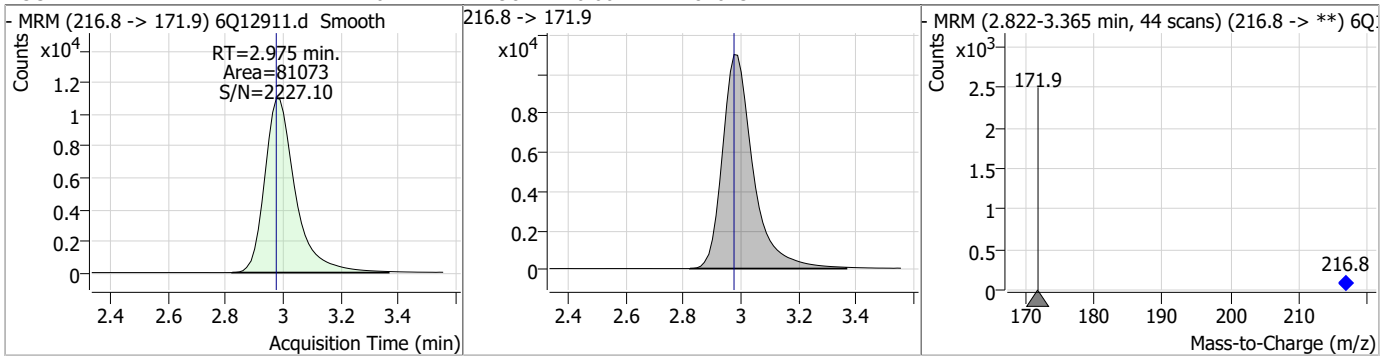
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

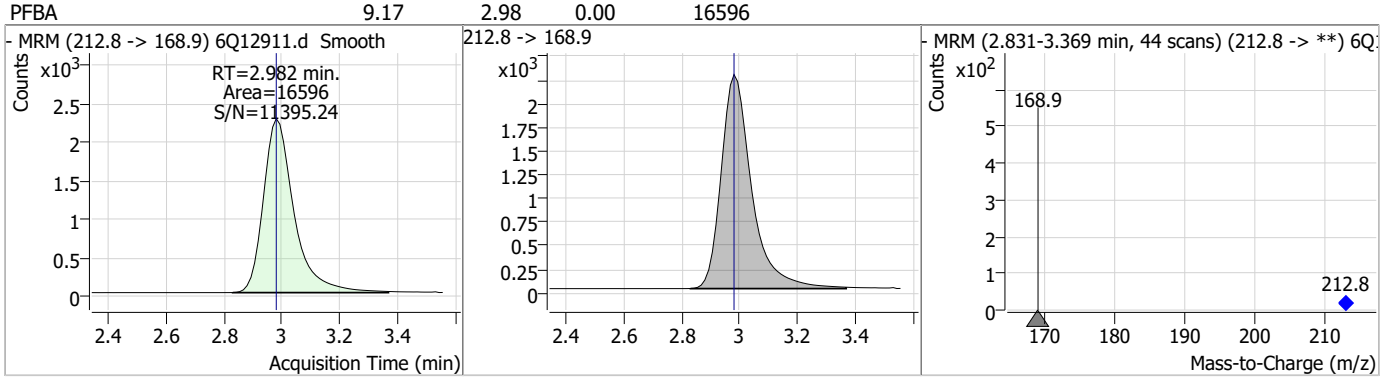
Perfluorinated Compounds by LC/MS/MS



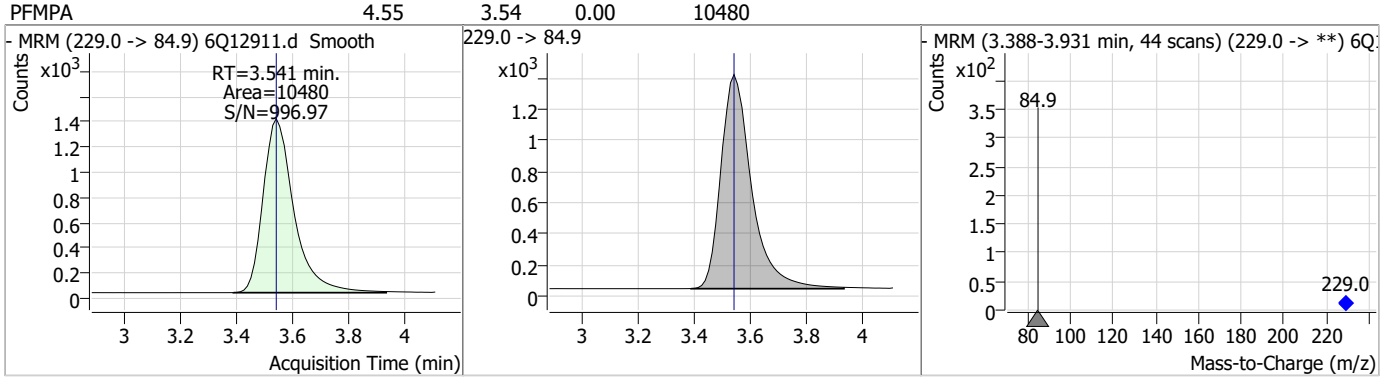
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.12	2.98	0.00	81073				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.17	2.98	0.00	16596				

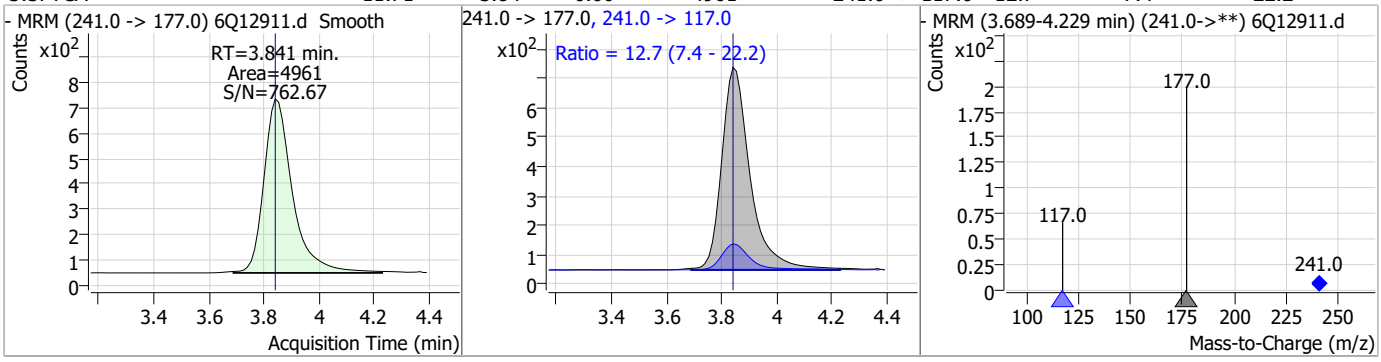


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	4.55	3.54	0.00	10480				

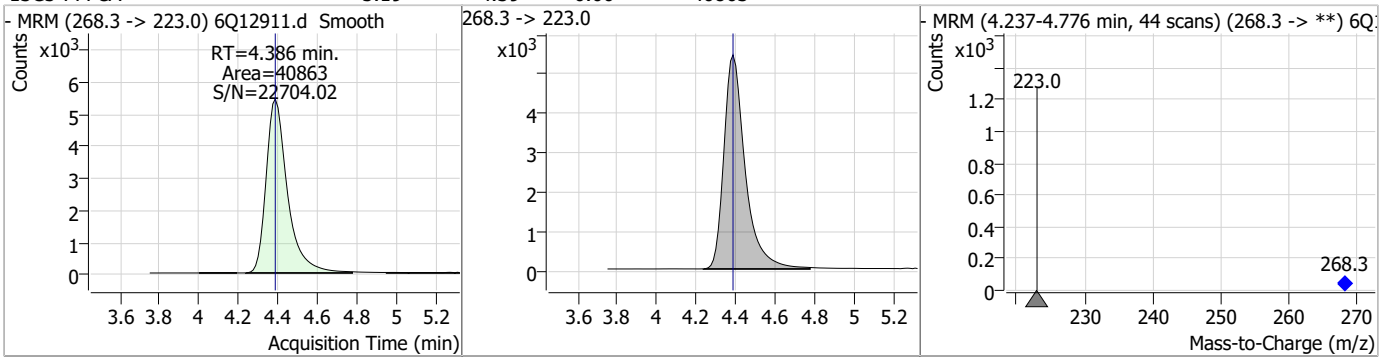


Perfluorinated Compounds by LC/MS/MS

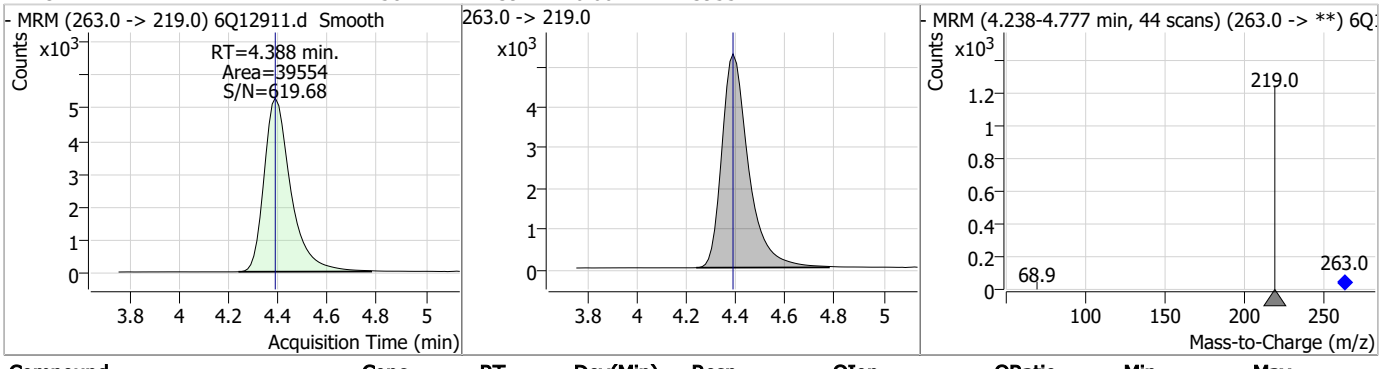
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.71	3.84	0.00	4961	241.0 -> 117.0	12.7	7.4	22.2



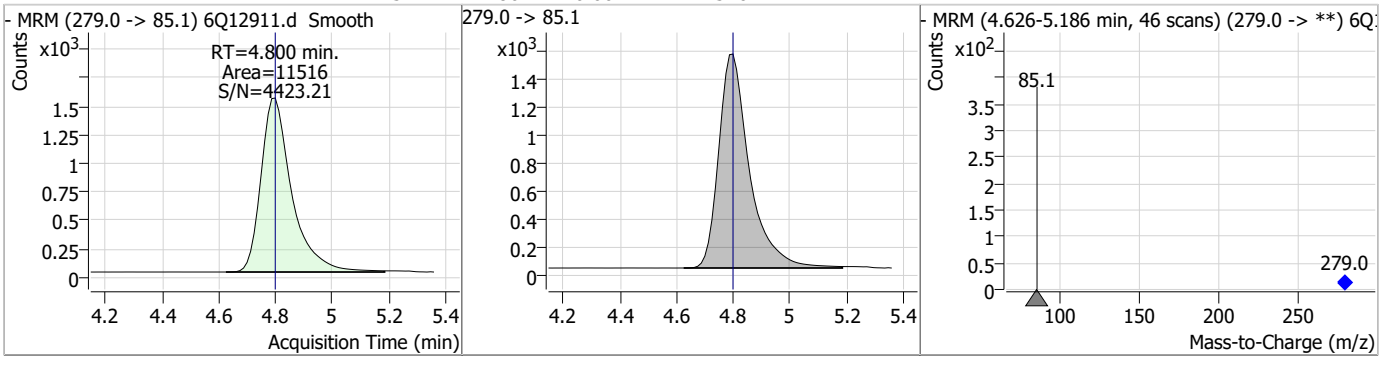
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.19	4.39	0.00	40863				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.58	4.39	0.00	39554				

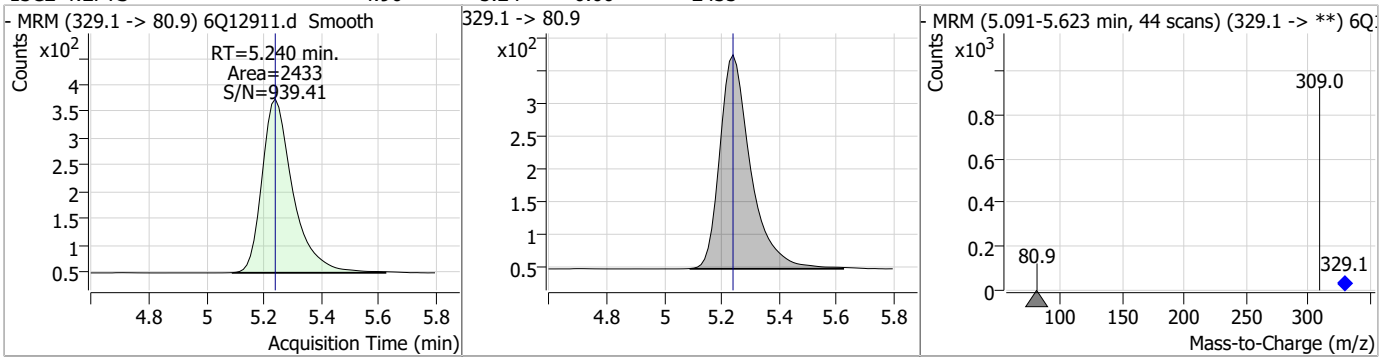


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.75	4.80	0.00	11516				

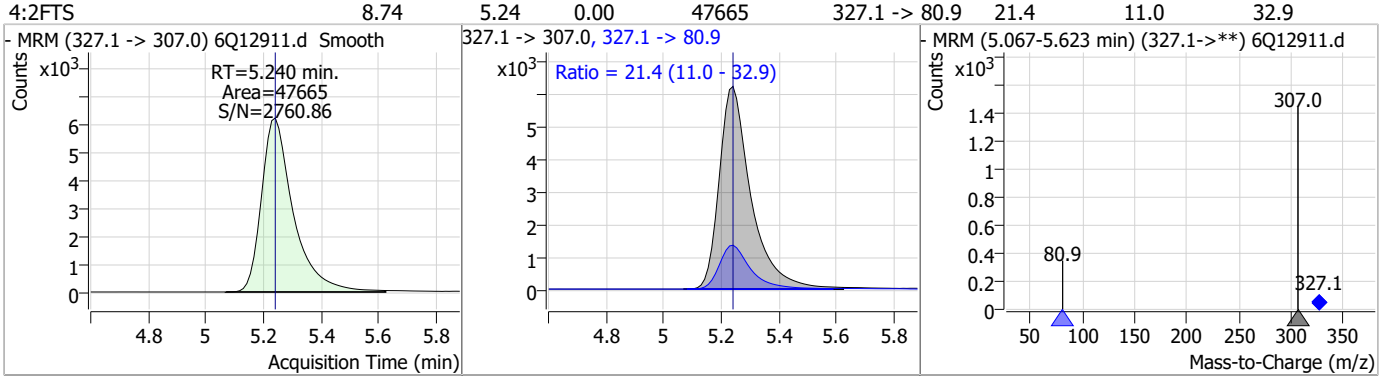


Perfluorinated Compounds by LC/MS/MS

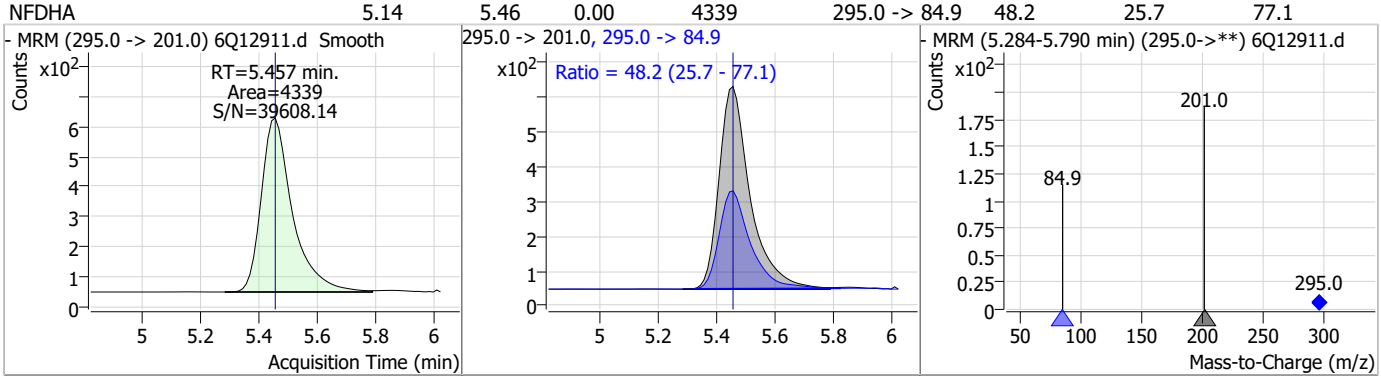
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.90	5.24	0.00	2433				



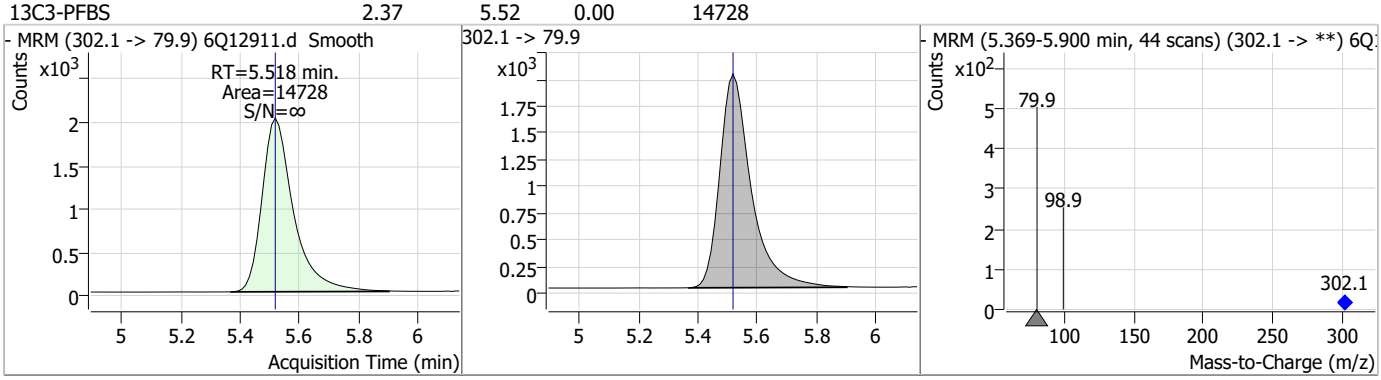
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	8.74	5.24	0.00	47665	327.1 -> 80.9	21.4	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.14	5.46	0.00	4339	295.0 -> 84.9	48.2	25.7	77.1

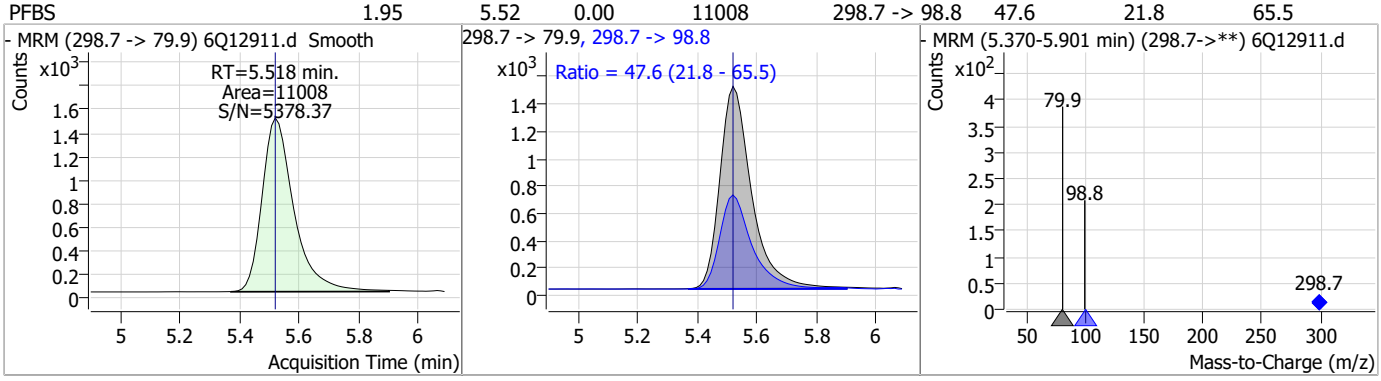


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.37	5.52	0.00	14728				

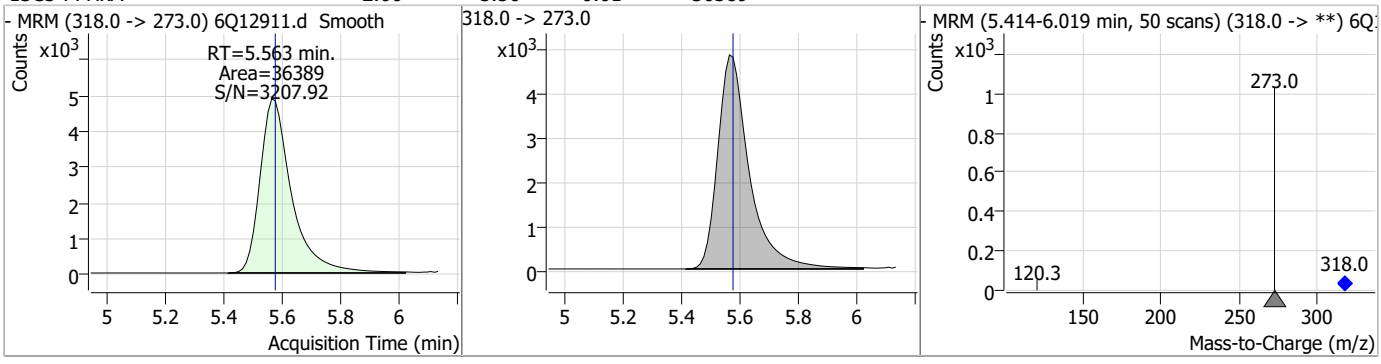


Perfluorinated Compounds by LC/MS/MS

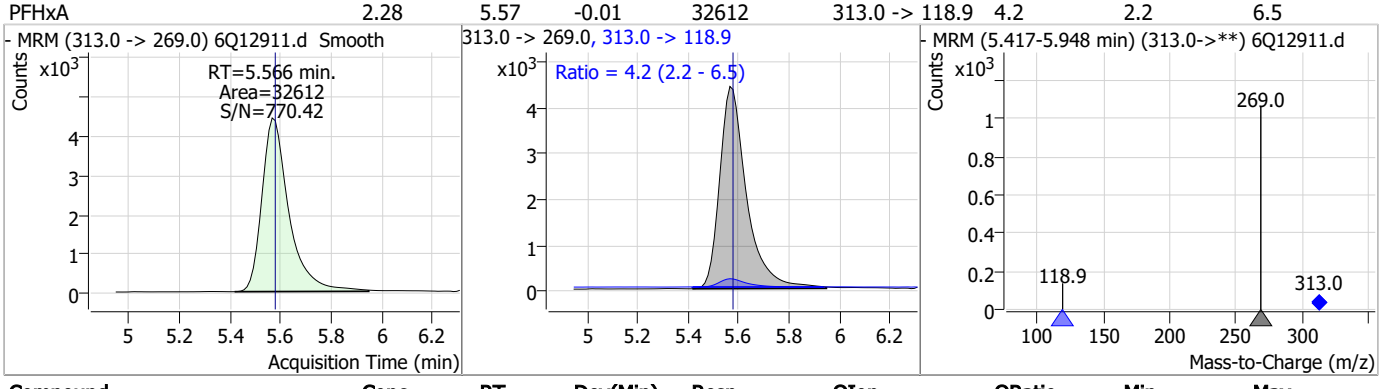
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.95	5.52	0.00	11008	298.7 -> 98.8	47.6	21.8	65.5



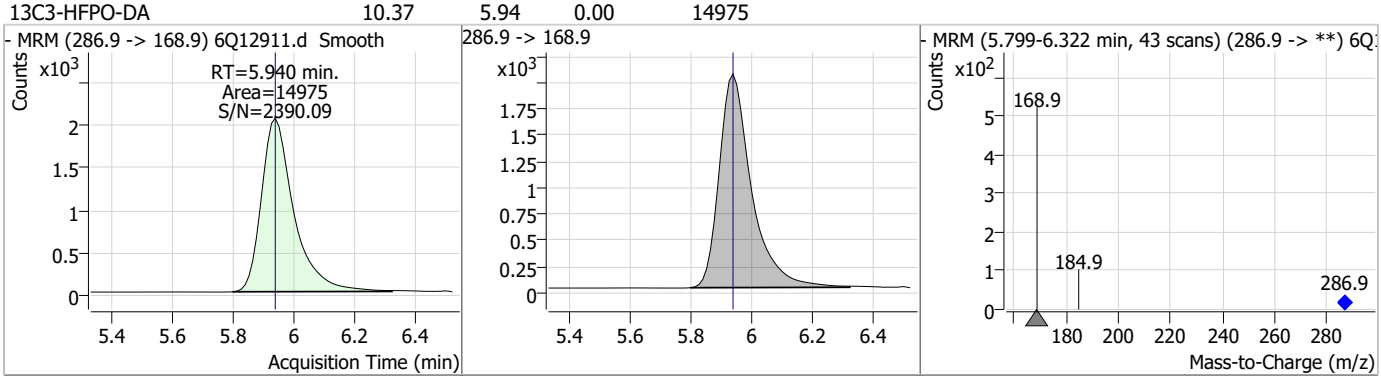
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.60	5.56	-0.01	36389				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.28	5.57	-0.01	32612	313.0 -> 118.9	4.2	2.2	6.5

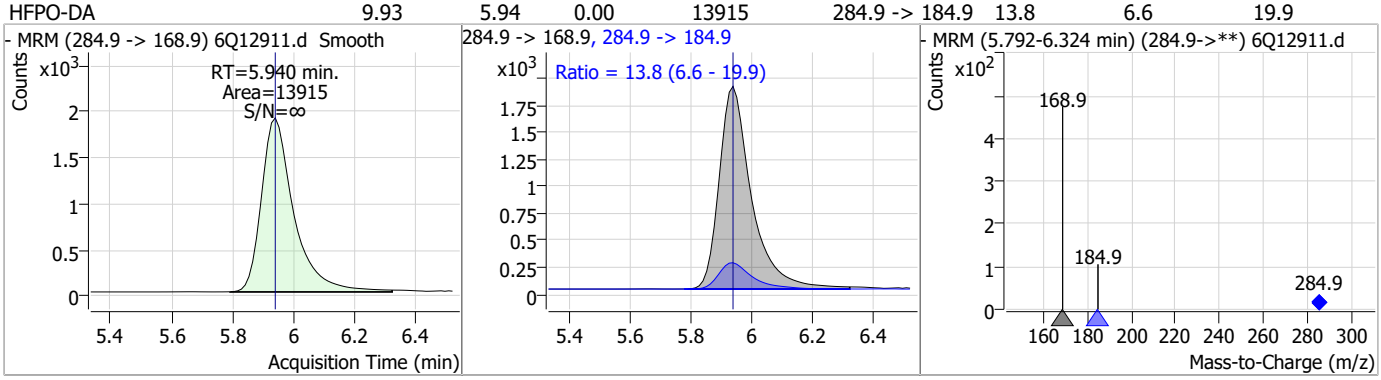


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.37	5.94	0.00	14975				

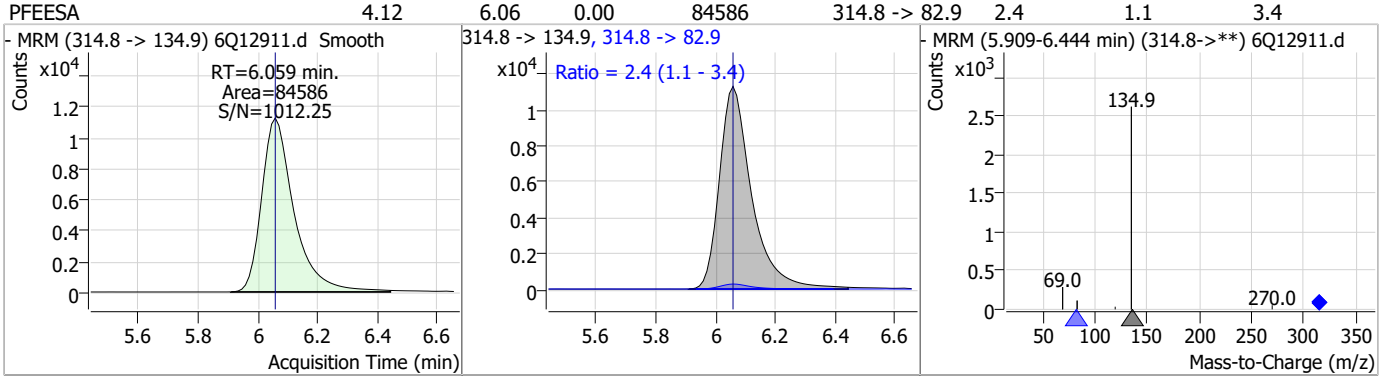


Perfluorinated Compounds by LC/MS/MS

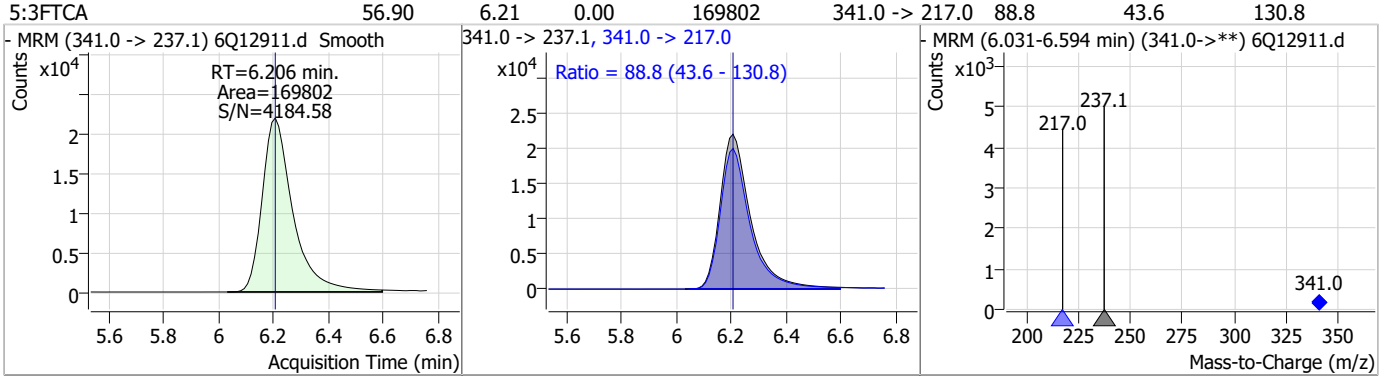
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.93	5.94	0.00	13915	284.9 -> 184.9	13.8	6.6	19.9



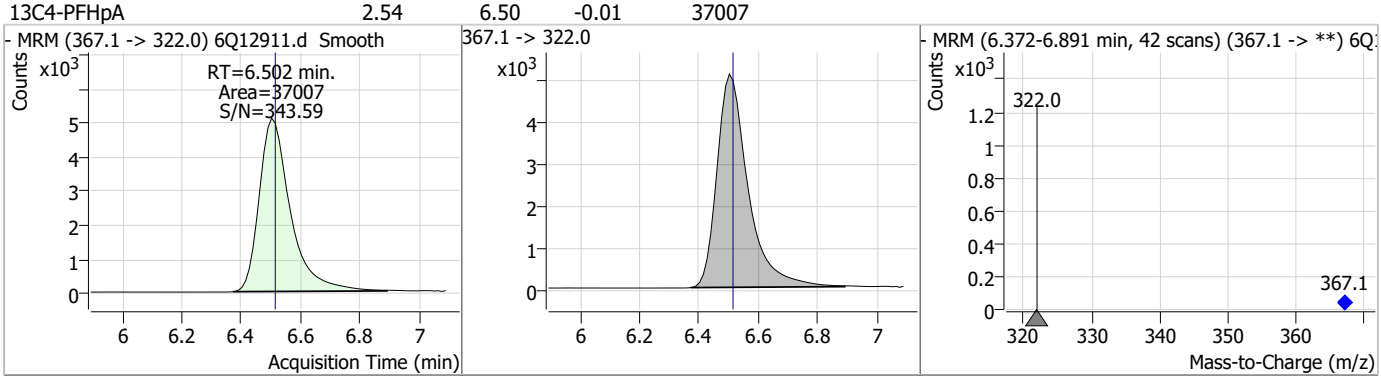
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.12	6.06	0.00	84586	314.8 -> 82.9	2.4	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.90	6.21	0.00	169802	341.0 -> 217.0	88.8	43.6	130.8

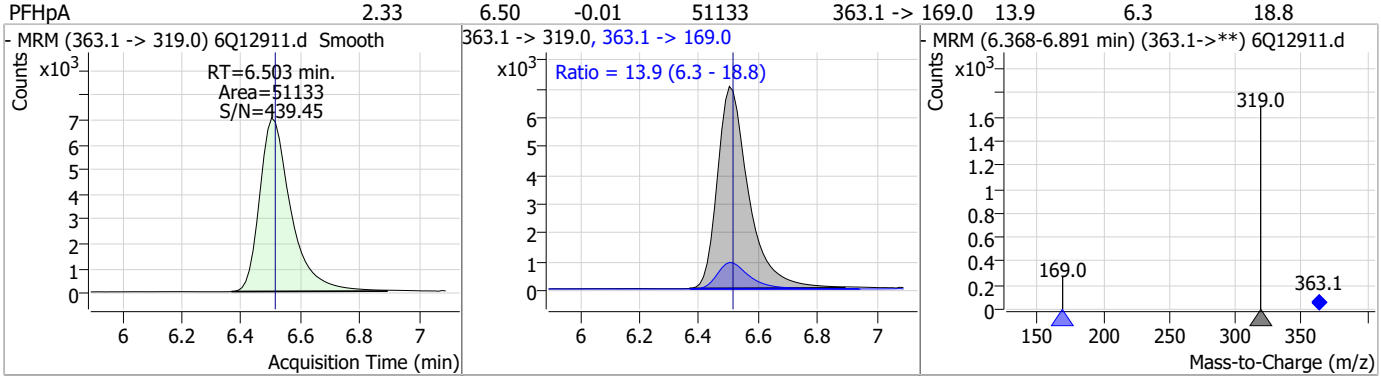


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.54	6.50	-0.01	37007				

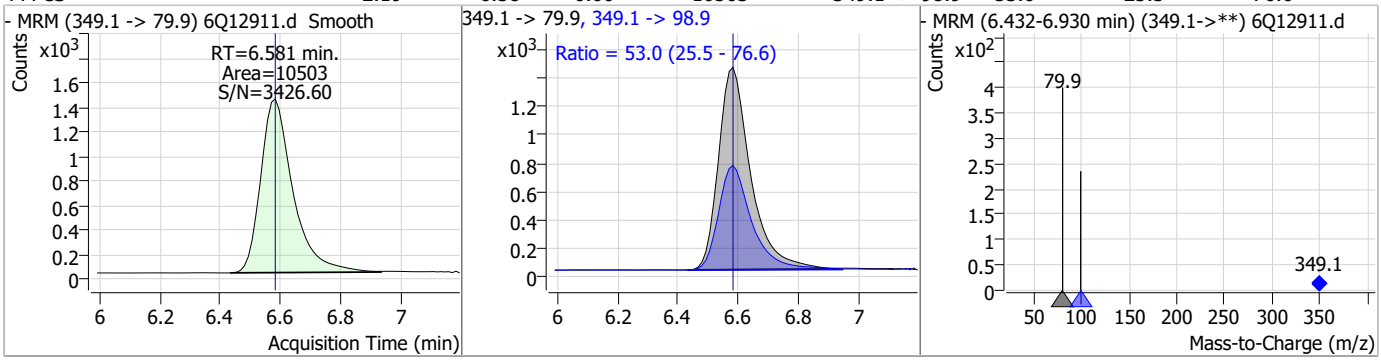


Perfluorinated Compounds by LC/MS/MS

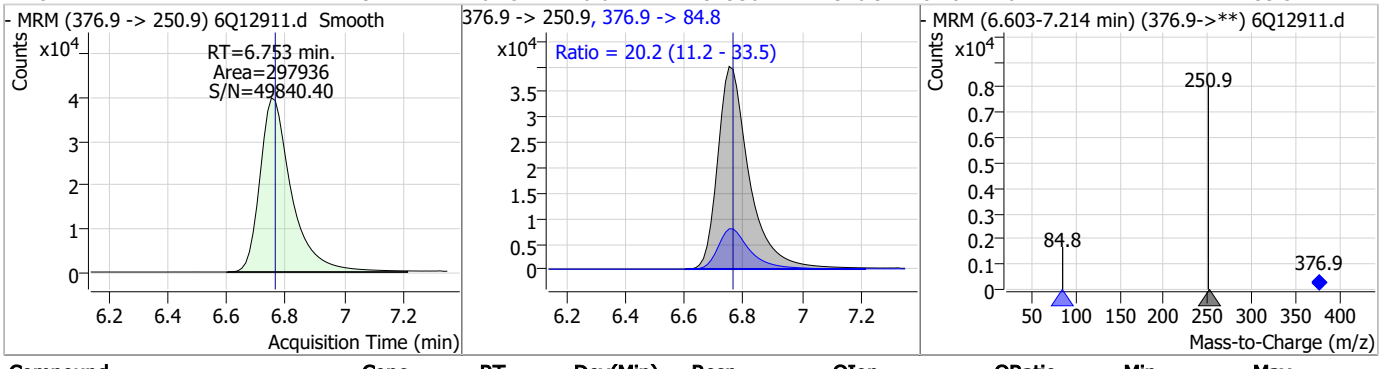
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.33	6.50	-0.01	51133	363.1 -> 169.0	13.9	6.3	18.8



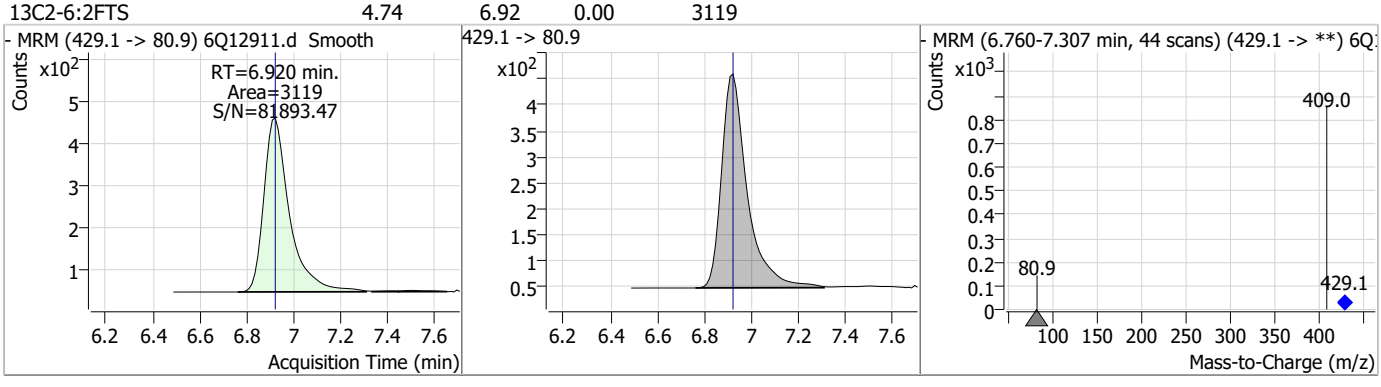
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.19	6.58	0.00	10503	349.1 -> 98.9	53.0	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.17	6.75	-0.01	297936	376.9 -> 84.8	20.2	11.2	33.5

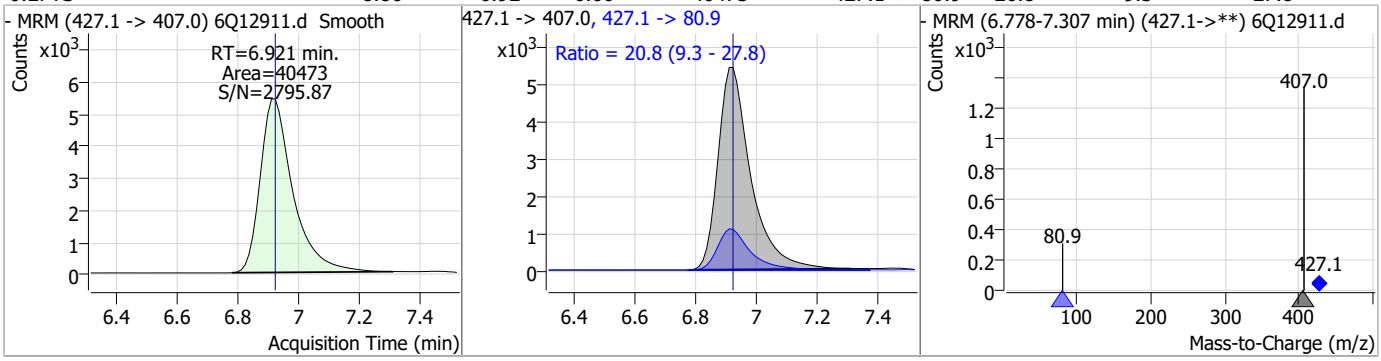


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.74	6.92	0.00	3119				

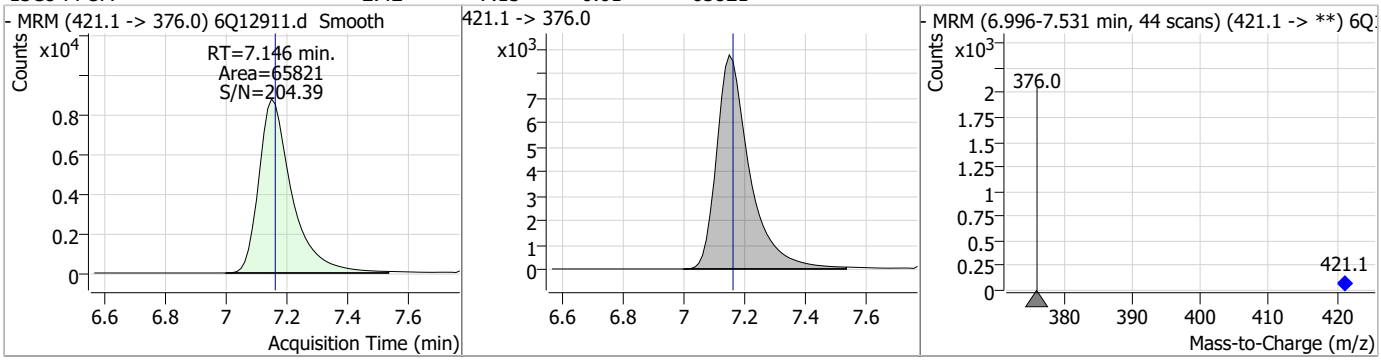


Perfluorinated Compounds by LC/MS/MS

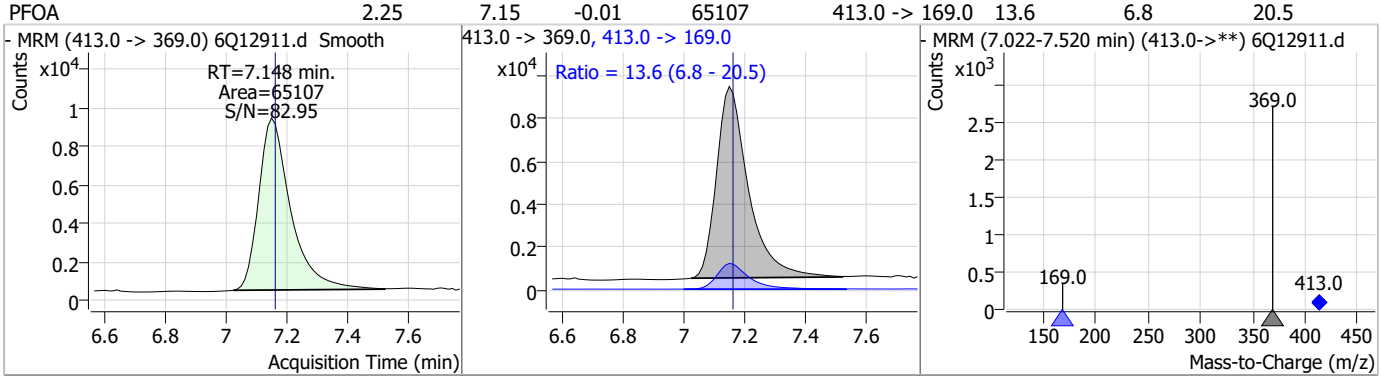
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.86	6.92	0.00	40473	427.1 -> 80.9	20.8	9.3	27.8



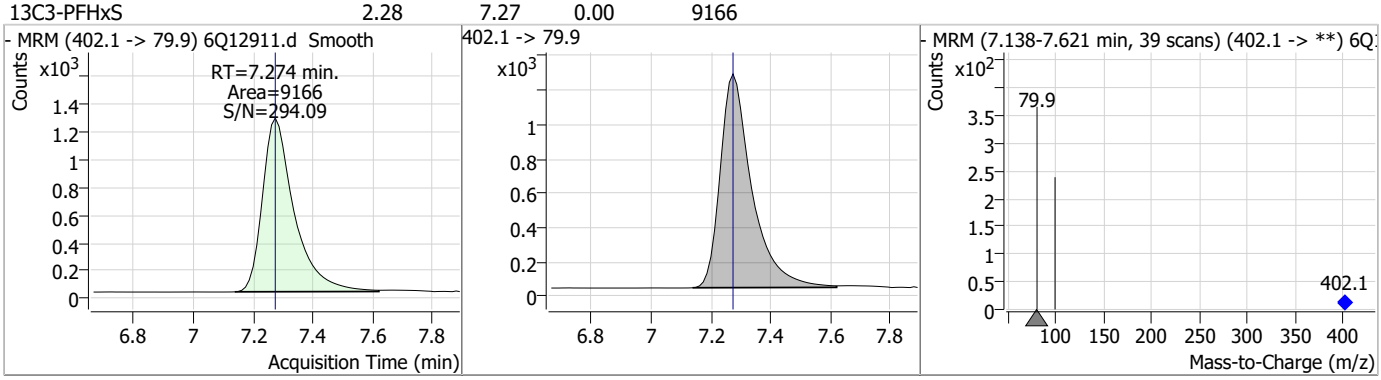
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.42	7.15	-0.01	65821				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.25	7.15	-0.01	65107	413.0 -> 169.0	13.6	6.8	20.5

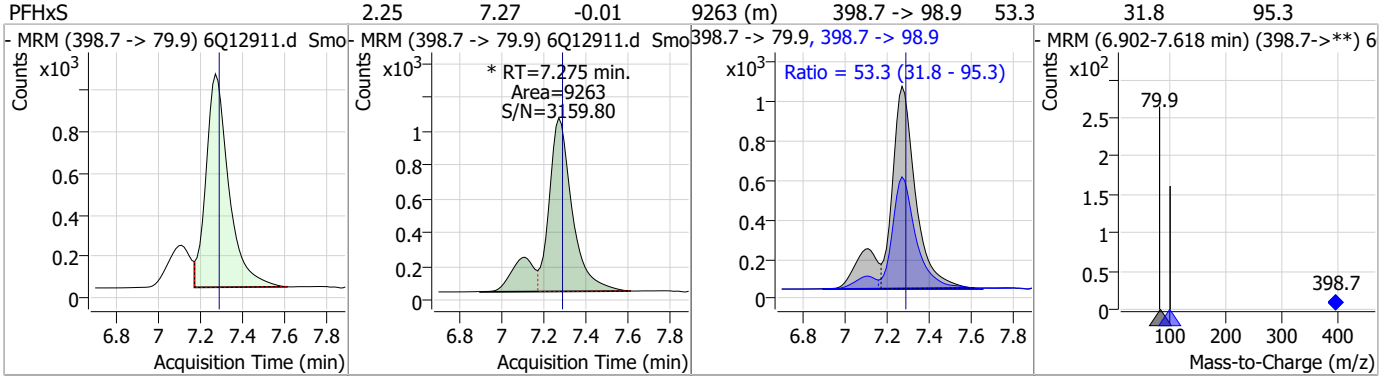


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.28	7.27	0.00	9166				

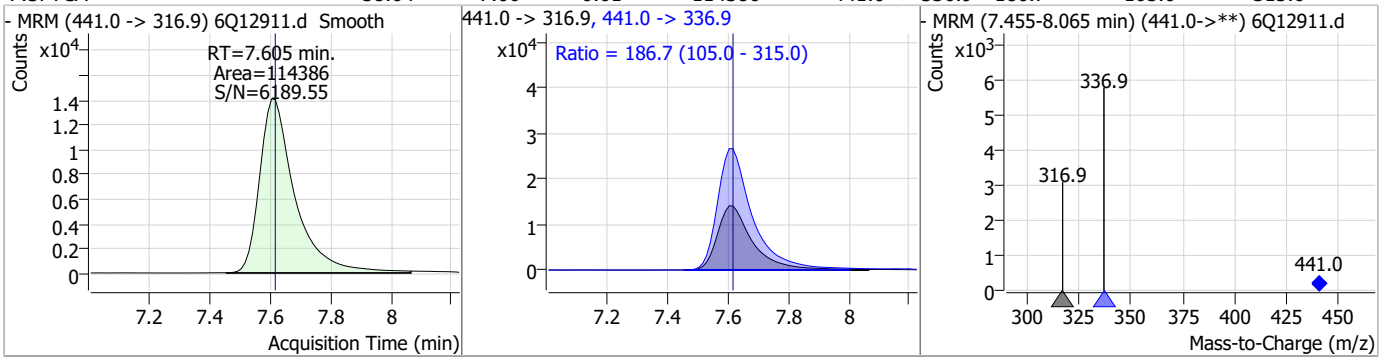


Perfluorinated Compounds by LC/MS/MS

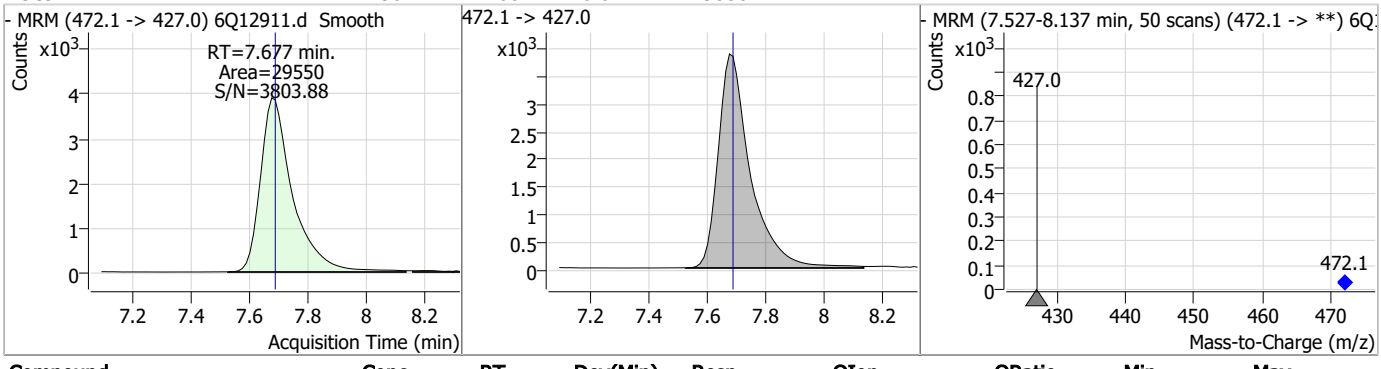
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.25	7.27	-0.01	9263 (m)	398.7 -> 98.9	53.3	31.8	95.3



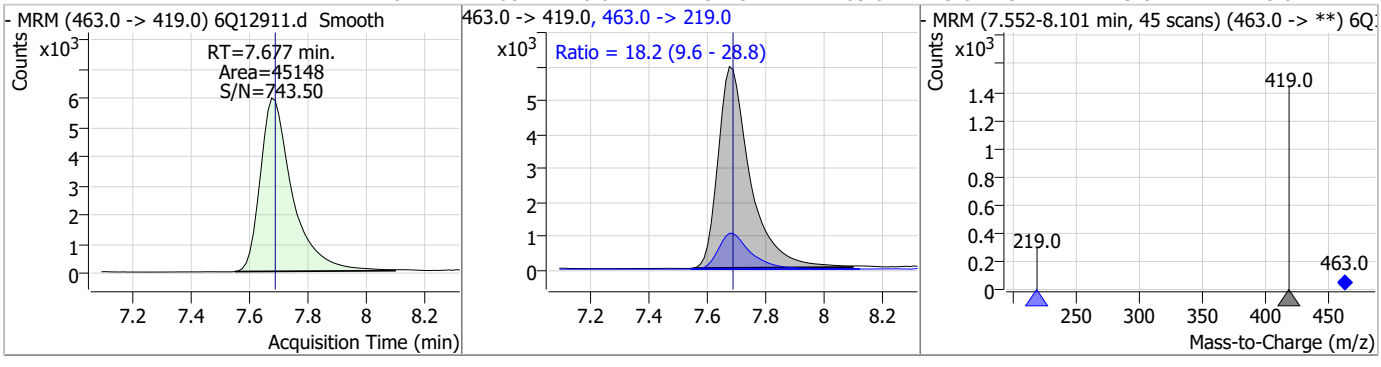
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	58.64	7.60	-0.01	114386	441.0 -> 336.9	186.7	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.68	-0.01	29550				

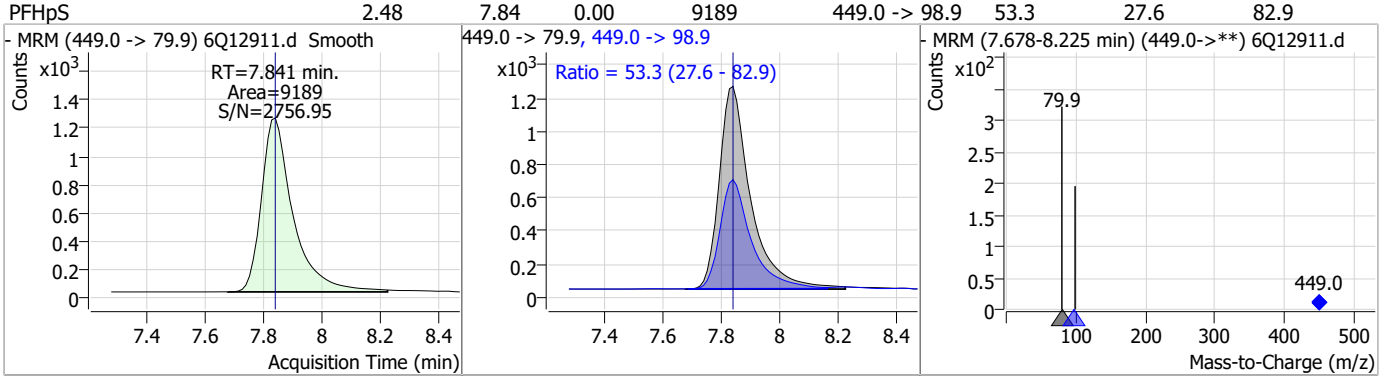


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.26	7.68	-0.01	45148	463.0 -> 219.0	18.2	9.6	28.8

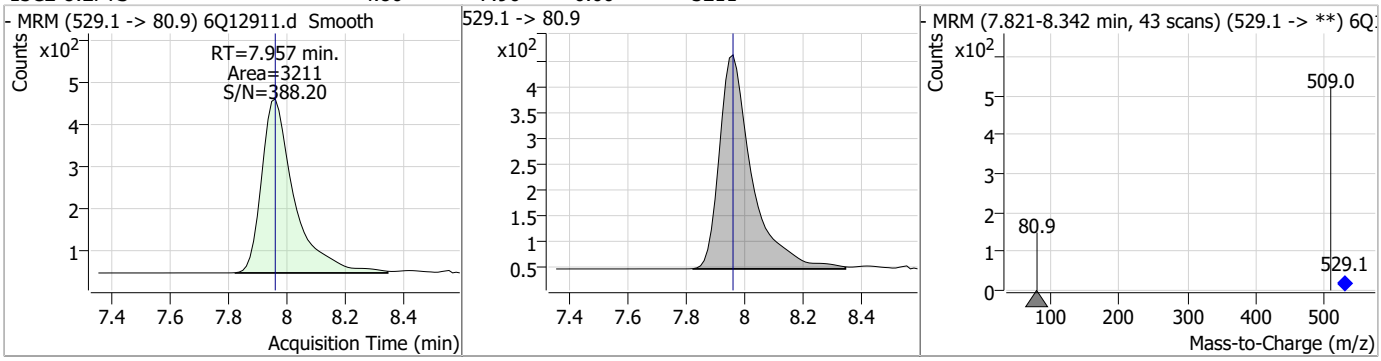


Perfluorinated Compounds by LC/MS/MS

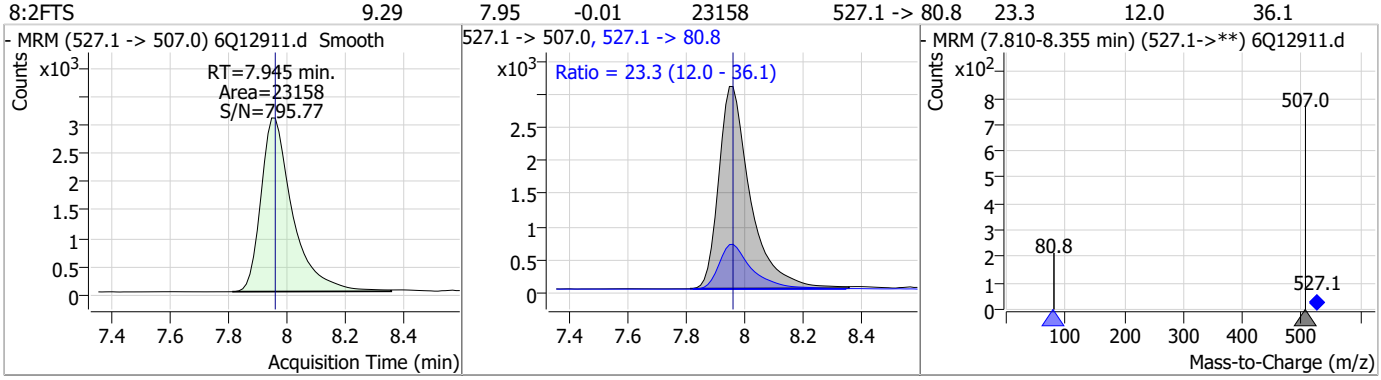
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.48	7.84	0.00	9189	449.0 -> 98.9	53.3	27.6	82.9



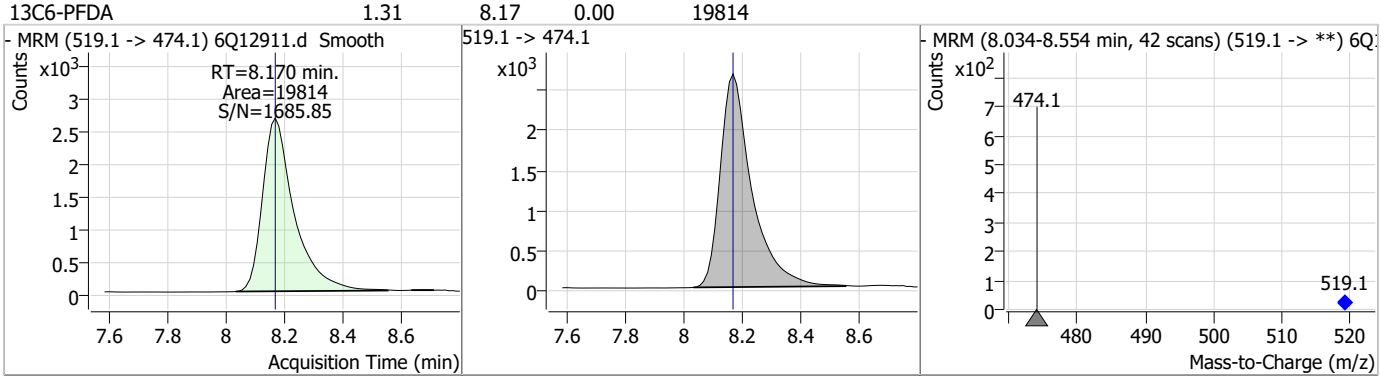
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.86	7.96	0.00	3211				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.29	7.95	-0.01	23158	527.1 -> 80.8	23.3	12.0	36.1

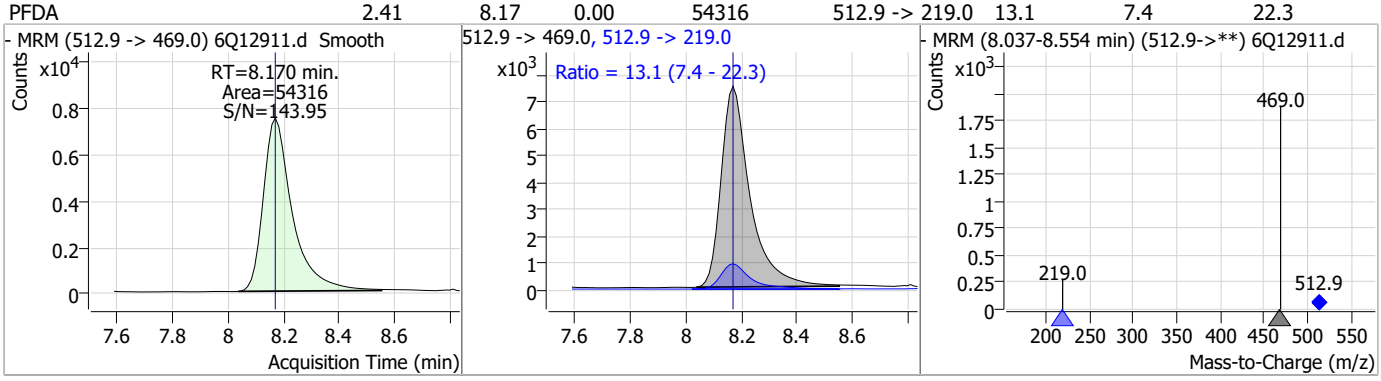


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.31	8.17	0.00	19814				

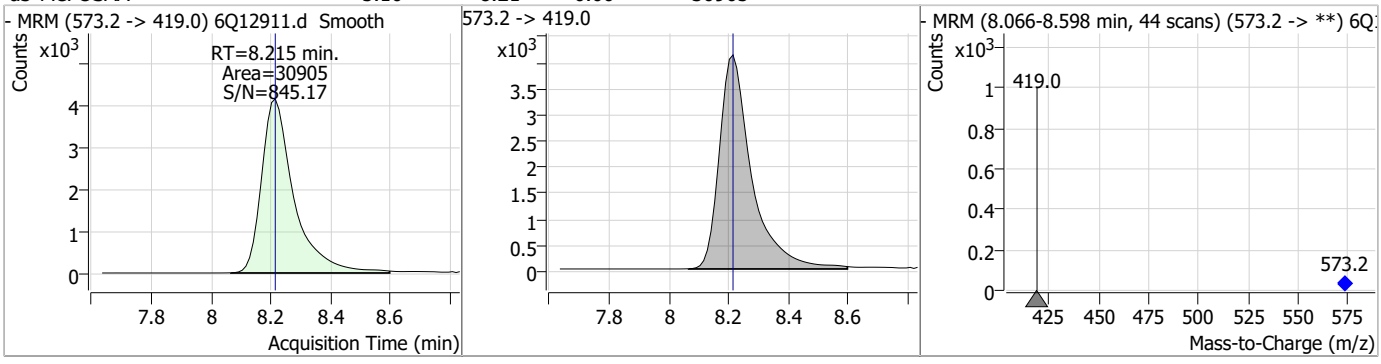


Perfluorinated Compounds by LC/MS/MS

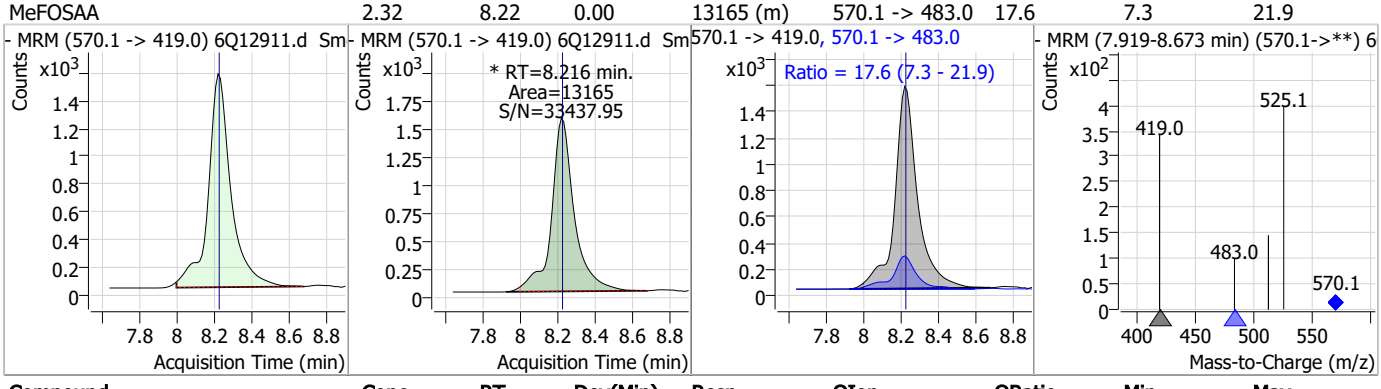
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.41	8.17	0.00	54316	512.9 -> 219.0	13.1	7.4	22.3



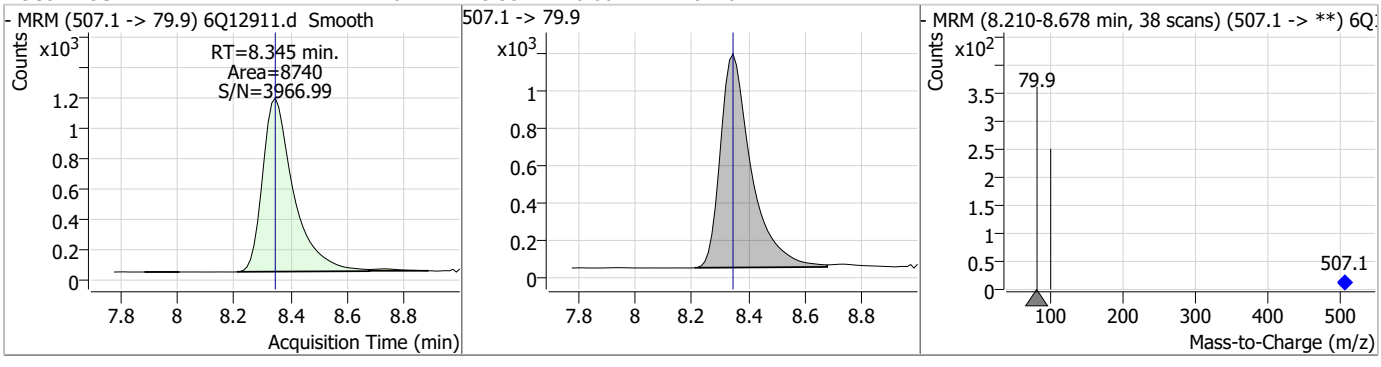
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.10	8.21	0.00	30905				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.32	8.22	0.00	13165 (m)	570.1 -> 483.0	17.6	7.3	21.9

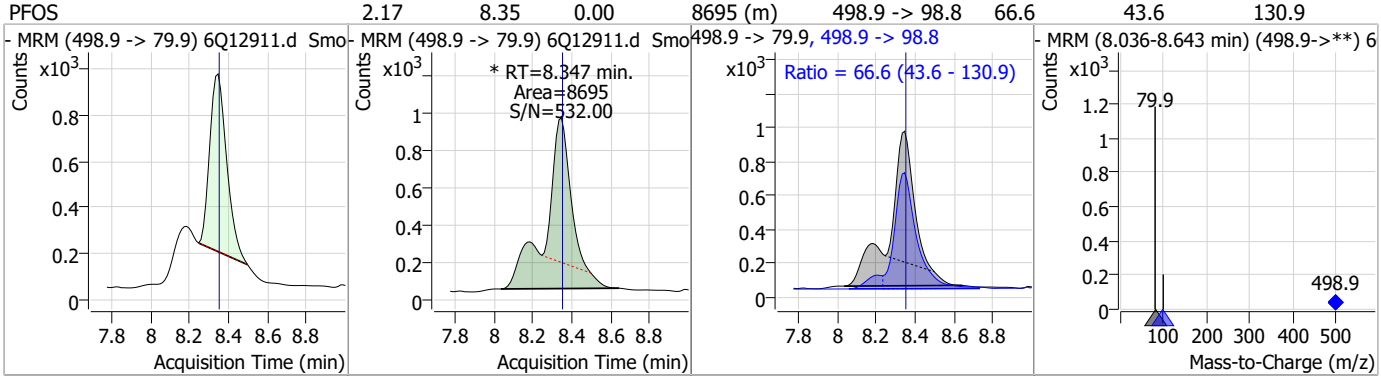


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.40	8.35	0.00	8740				

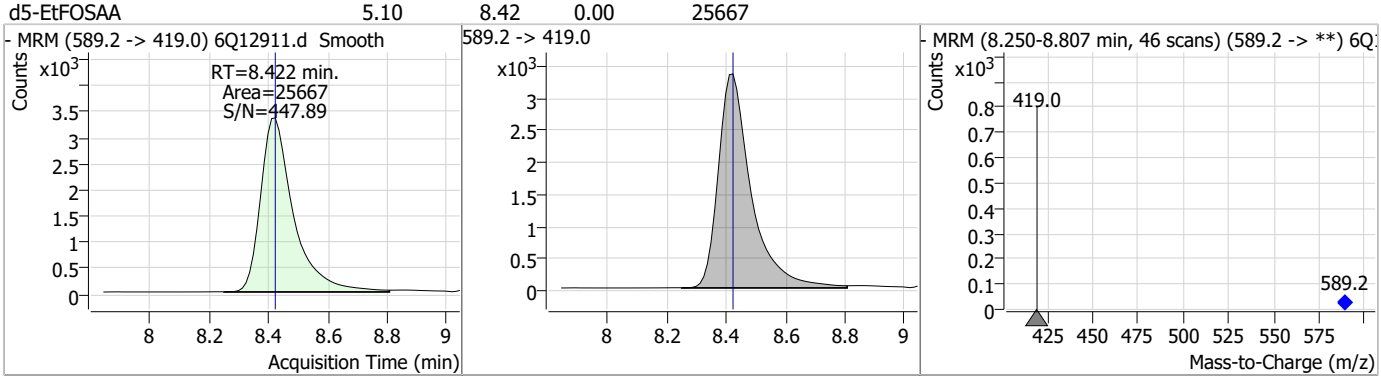


Perfluorinated Compounds by LC/MS/SMS

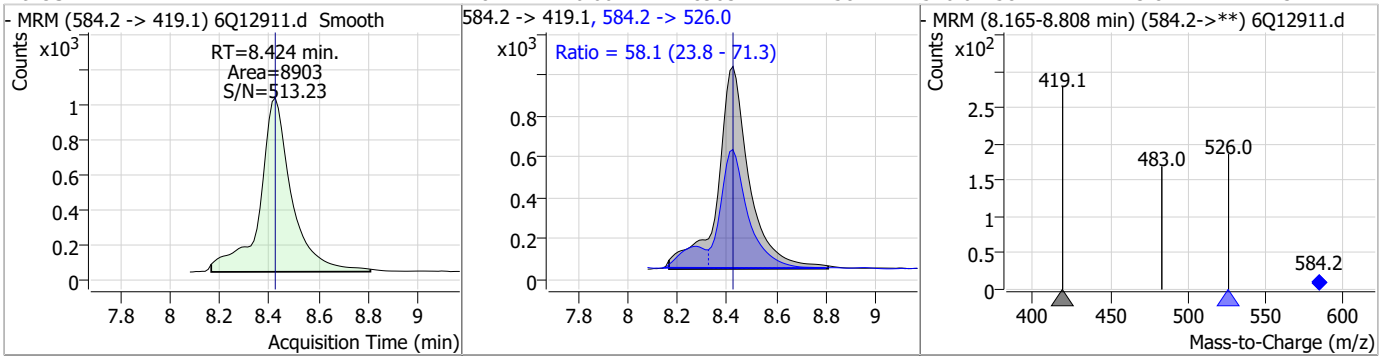
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.17	8.35	0.00	8695 (m)	498.9 -> 98.8	66.6	43.6	130.9



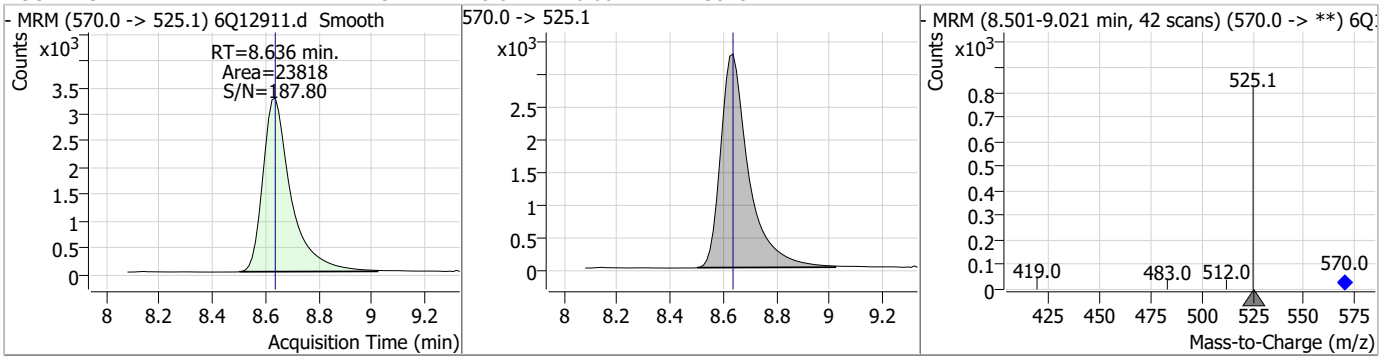
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.10	8.42	0.00	25667				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.17	8.42	0.00	8903	584.2 -> 526.0	58.1	23.8	71.3

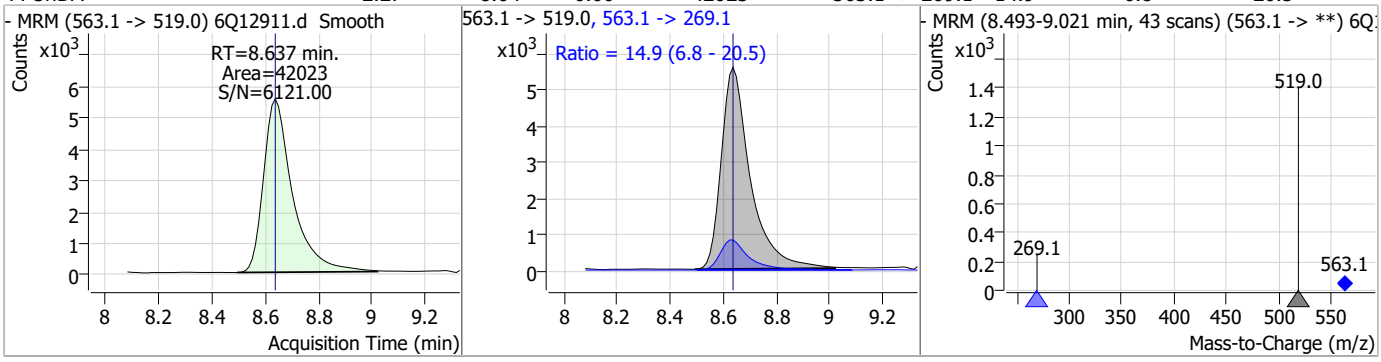


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.64	0.00	23818				

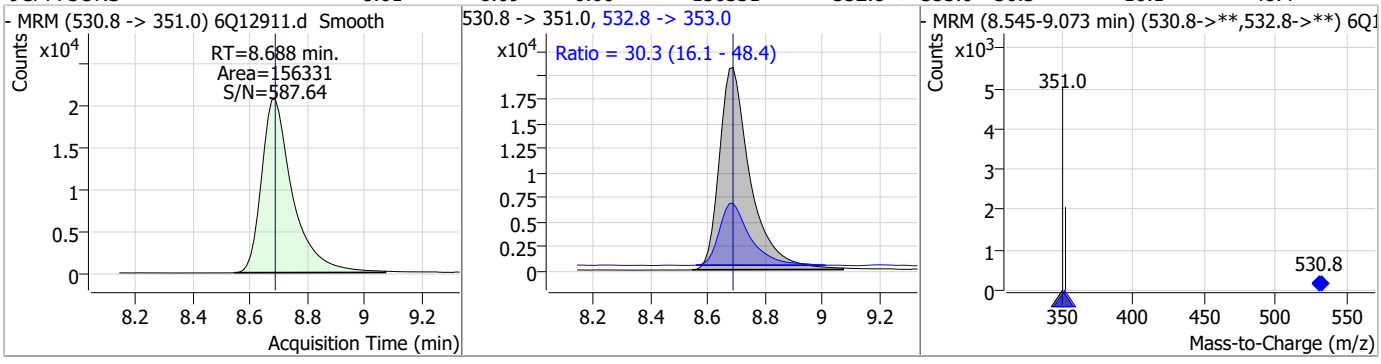


Perfluorinated Compounds by LC/MS/MS

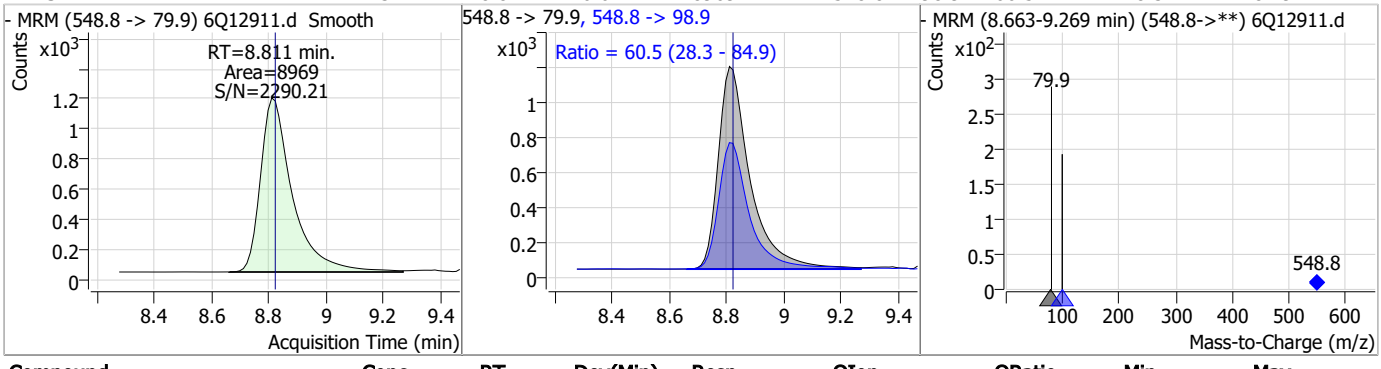
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.27	8.64	0.00	42023	563.1 -> 269.1	14.9	6.8	20.5



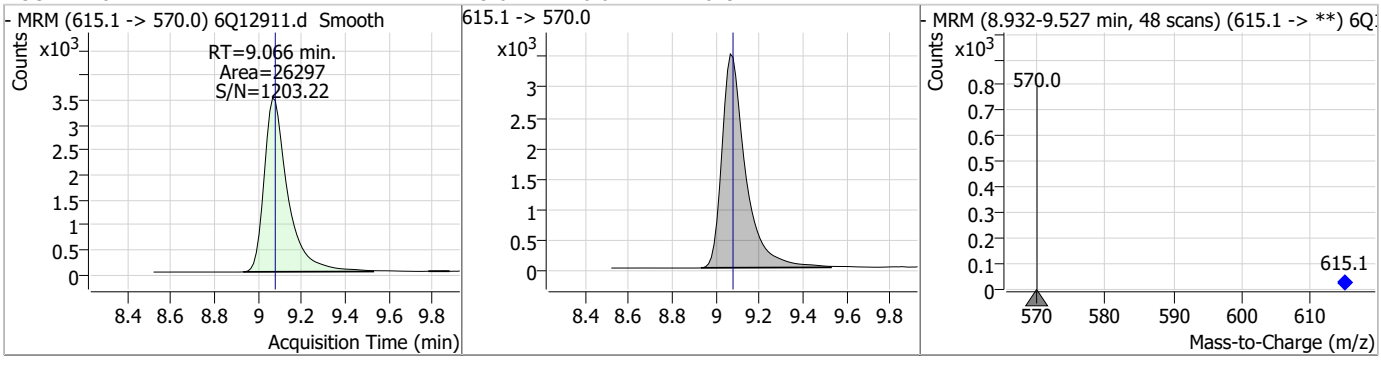
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.61	8.69	0.00	156331	532.8 -> 353.0	30.3	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.31	8.81	-0.01	8969	548.8 -> 98.9	60.5	28.3	84.9

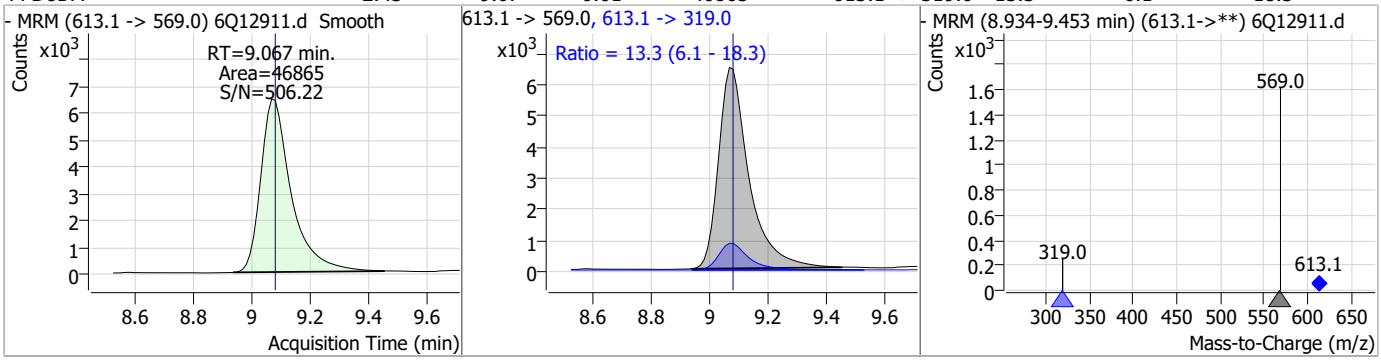


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	9.07	-0.01	26297				

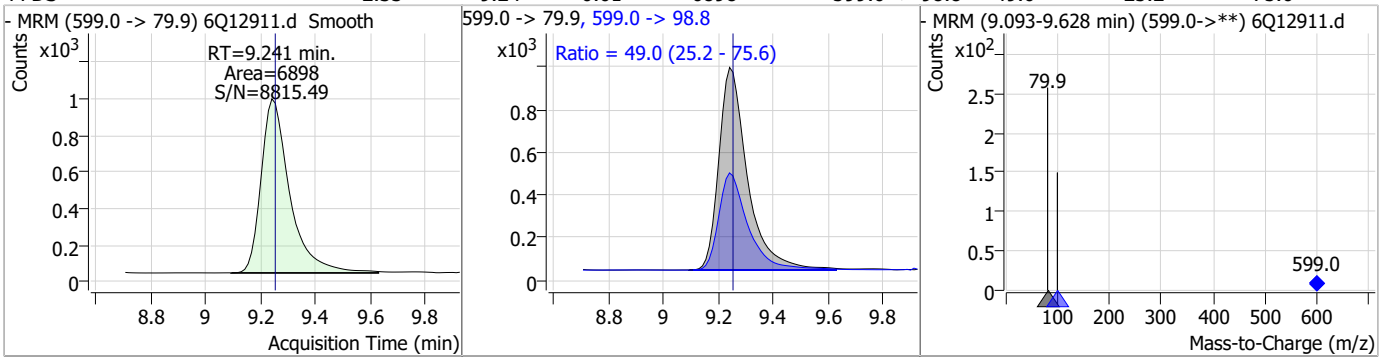


Perfluorinated Compounds by LC/MS/MS

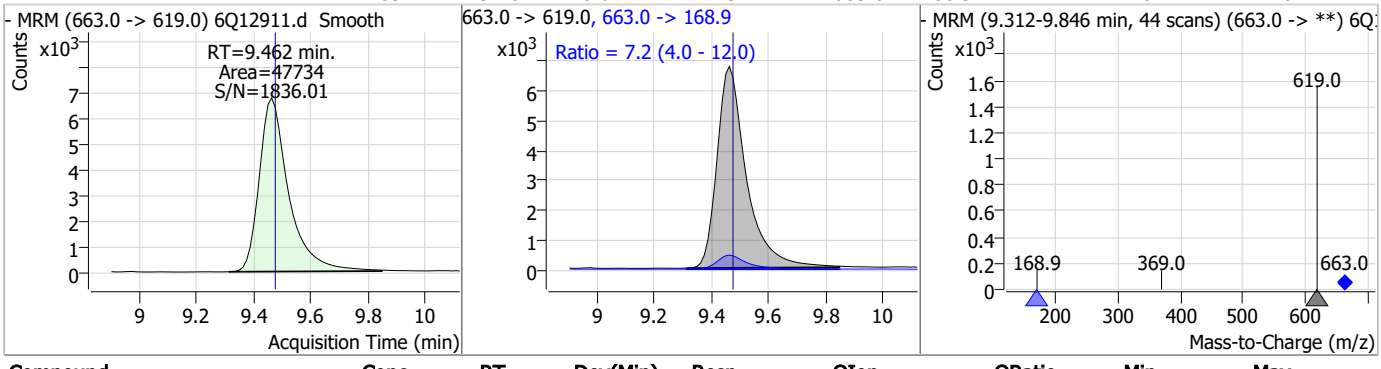
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.43	9.07	-0.01	46865	613.1 -> 319.0	13.3	6.1	18.3



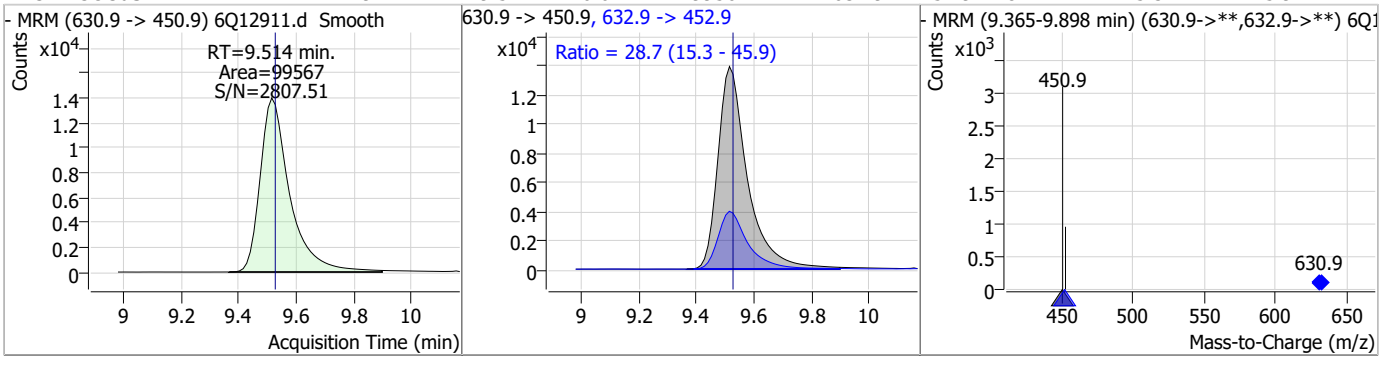
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.33	9.24	-0.01	6898	599.0 -> 98.8	49.0	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.59	9.46	-0.01	47734	663.0 -> 168.9	7.2	4.0	12.0

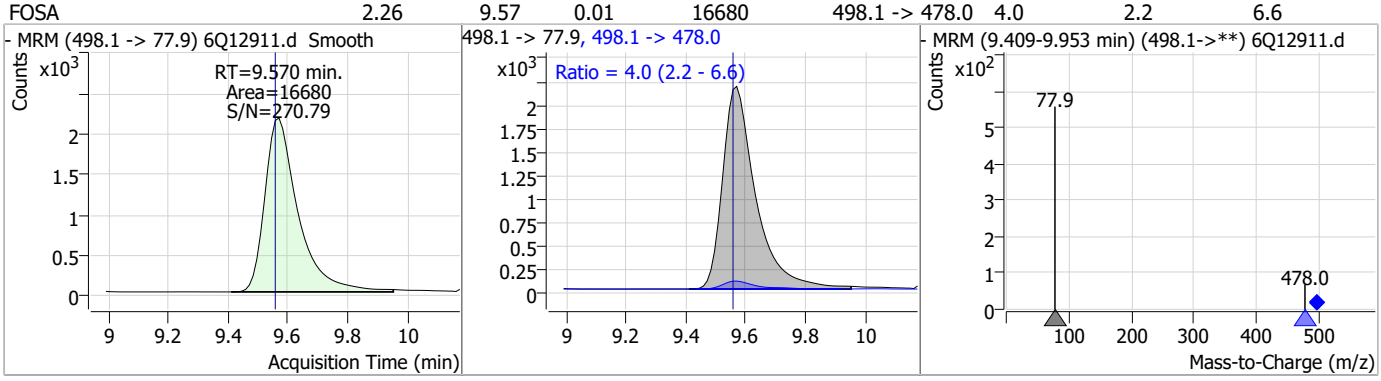


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.27	9.51	-0.01	99567	632.9 -> 452.9	28.7	15.3	45.9

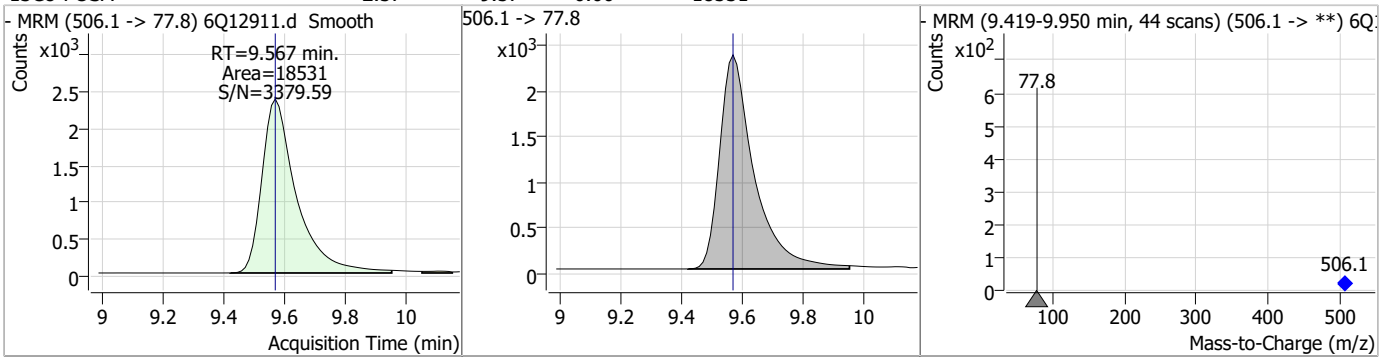


Perfluorinated Compounds by LC/MS/MS

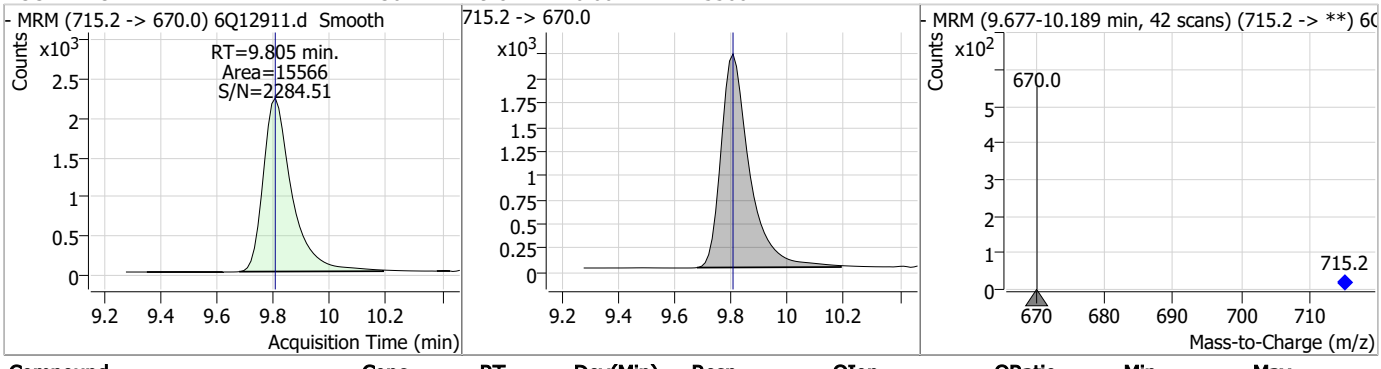
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.26	9.57	0.01	16680	498.1 -> 478.0	4.0	2.2	6.6



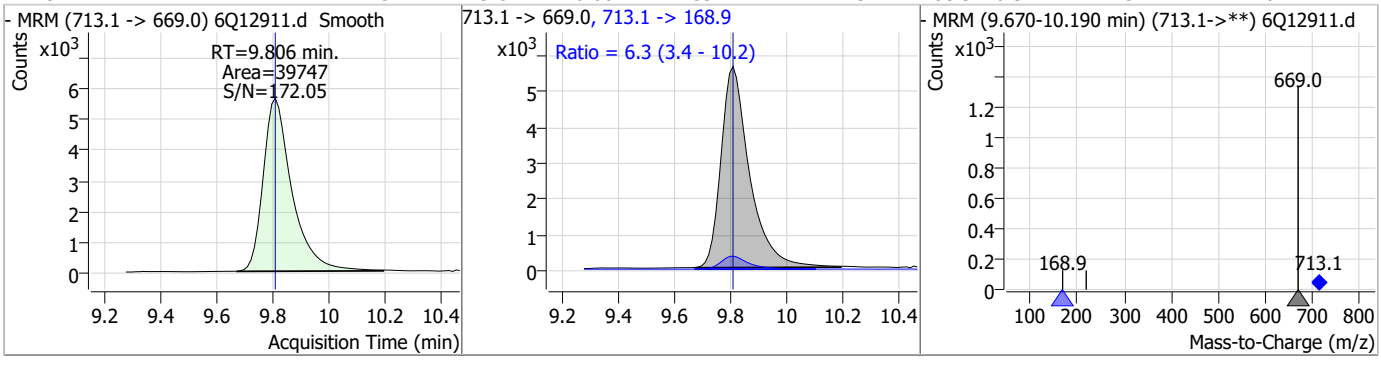
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.57	9.57	0.00	18531				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.81	0.00	15566				

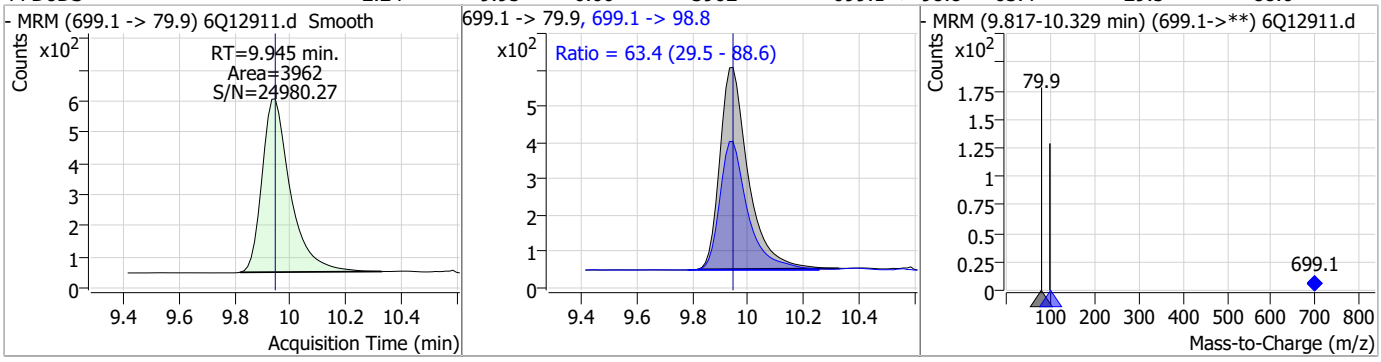


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.37	9.81	0.00	39747	713.1 -> 168.9	6.3	3.4	10.2

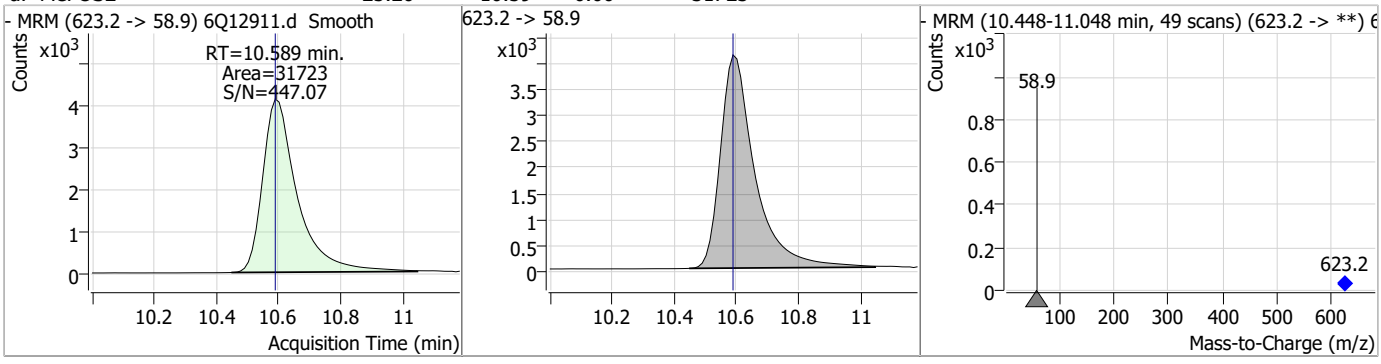


Perfluorinated Compounds by LC/MS/MS

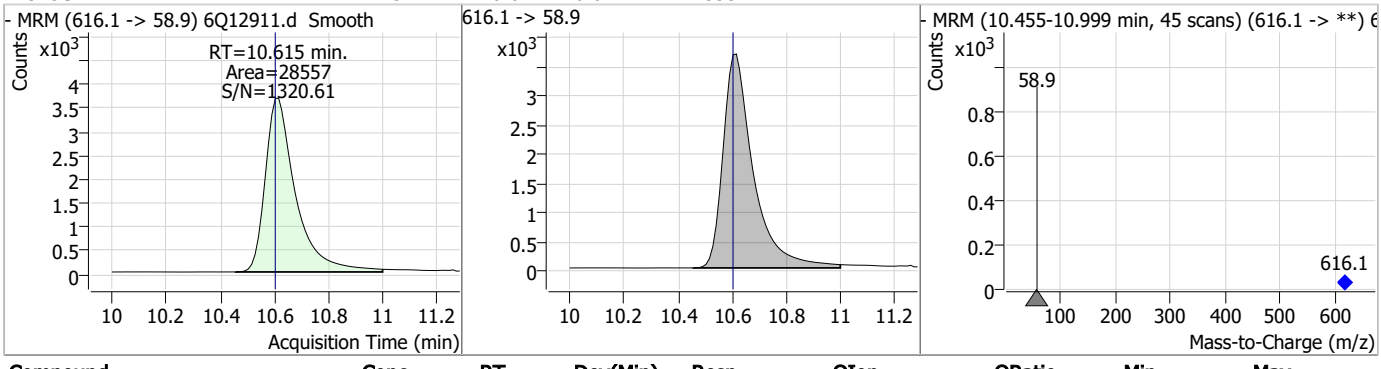
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.24	9.95	0.00	3962	699.1 -> 98.8	63.4	29.5	88.6



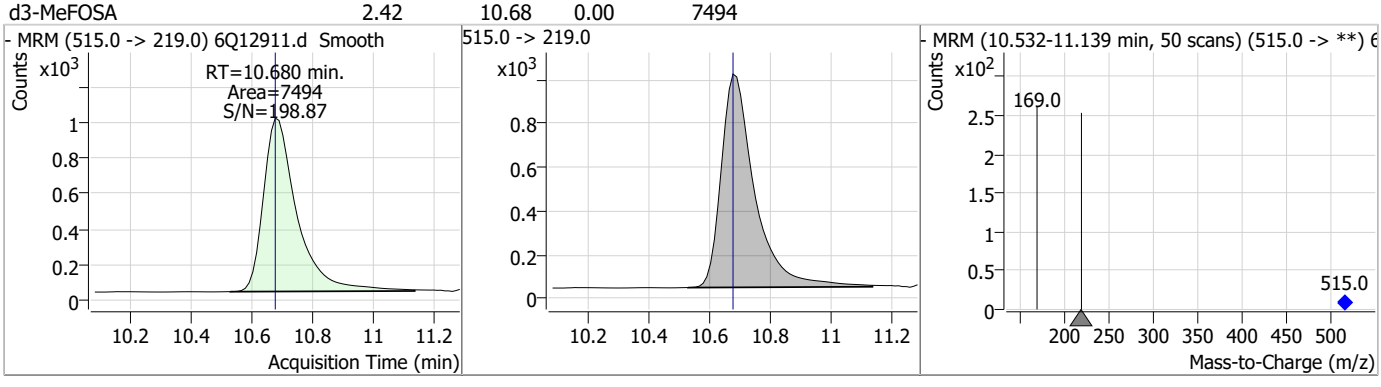
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.26	10.59	0.00	31723				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.57	10.61	0.01	28557				

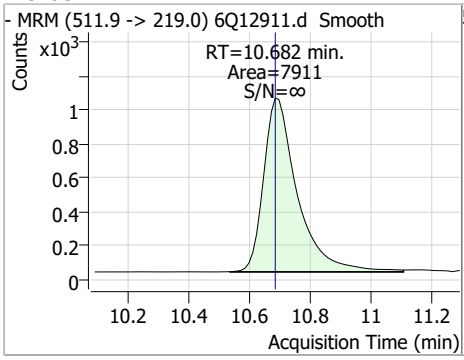


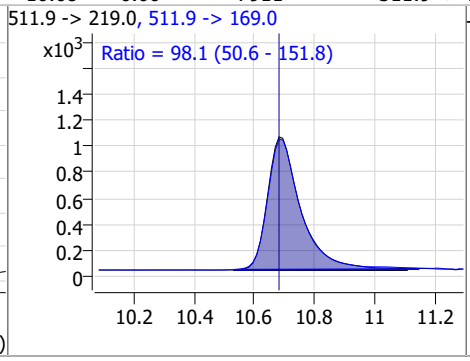
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	10.68	0.00	7494				

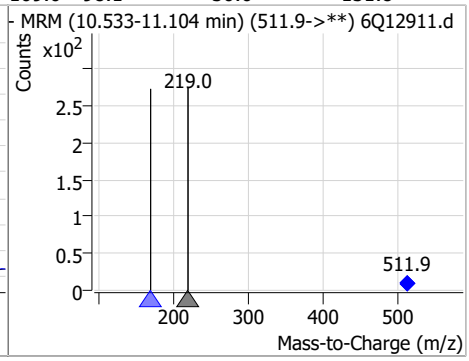


Perfluorinated Compounds by LC/MS/MS

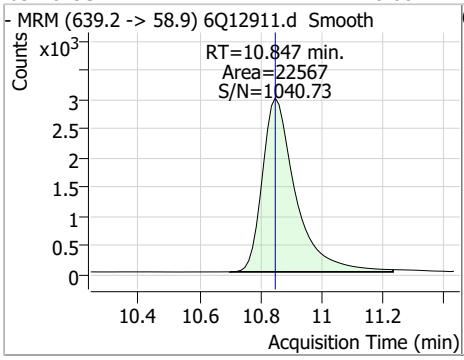
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.44	10.68	0.00	7911	511.9 -> 169.0	98.1	50.6	151.8

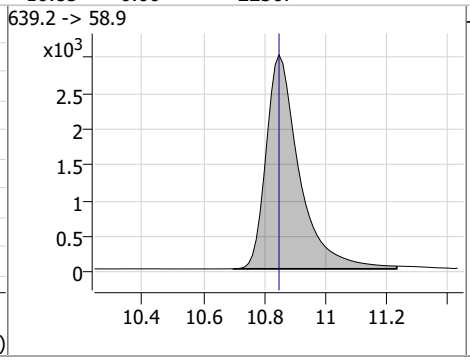


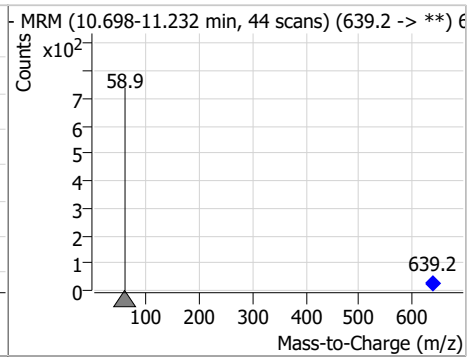




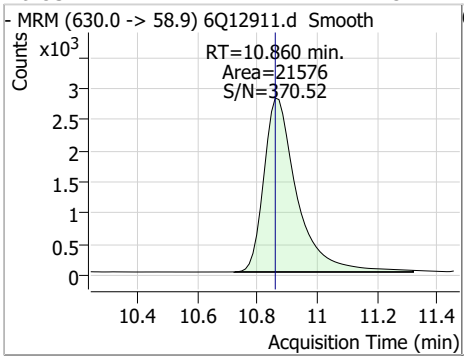
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.08	10.85	0.00	22567				

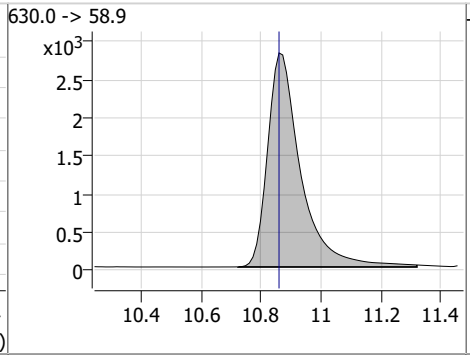


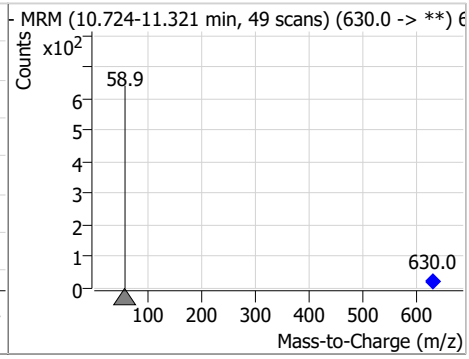




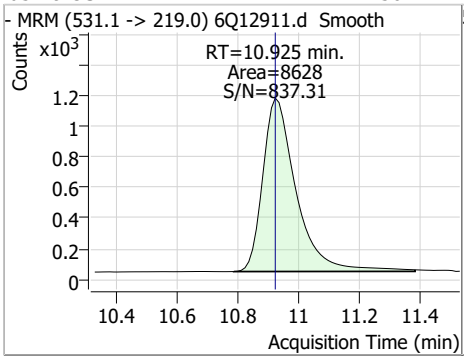
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.34	10.86	0.00	21576				

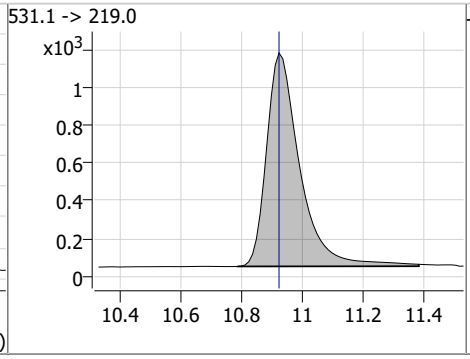


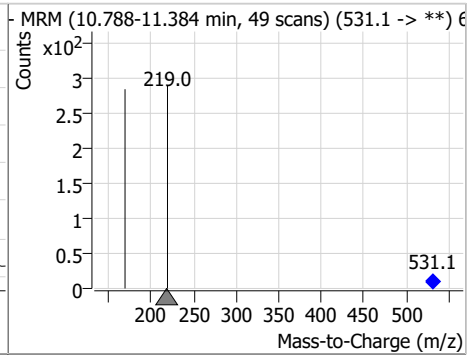




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.92	0.00	8628				

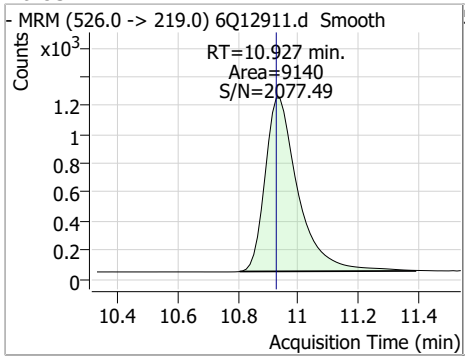


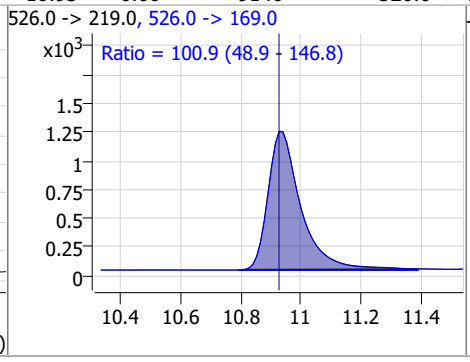


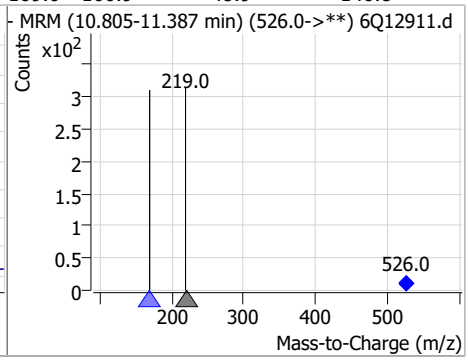


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.22	10.93	0.00	9140	526.0 -> 169.0	100.9	48.9	146.8







Manual Integration Approval Summary

Sample Number:	S6Q198-CC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12911.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 16:19	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
02/06/23 14:16

Perfluorinated Compounds by LC/MS/MS

Data File	:	6Q12912.d
Operator	:	marthav
Acq. Method	:	1633full.m
Acq. Date-Time	:	2/3/2023 4:33:41 PM
Sample Name	:	cc196-1.0LL
Vial	:	P1-A2
DA Method File	:	1633_020223_S6Q196.quantmethod.xml
Batch Name	:	s6q198.batch.bin
Sample Information	:	OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M4-PFBA	2.988	216.8 -> 171.9	76038	10.00	µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	37900	5.00	µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32695	2.50	µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	35624	2.50	µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	61910	2.50	µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28419	1.25	µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18938	1.25	µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22586	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	25651	1.25	µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14302	1.25	µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17003	2.50	µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13787	2.50	µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9236	2.50	µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8340	2.50	µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2391	5.00	µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3270	5.00	µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3004	5.00	µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27508	5.00	µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13959	10.00	µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24047	5.00	µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29896	25.00	µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22056	25.00	µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8039	2.50	µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7147	2.50	µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10358	2.50	µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	33970	5.00	µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6490	2.50	µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	76621	2.50	µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	25968	1.25	µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	30646	1.25	µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	35203	2.50	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.240	329.1 -> 80.9	2391	5.66	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.3%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3270	5.84	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3004	5.34	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25651	1.30	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14302	1.25	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13787	2.61	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9236	2.71	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C4-PFBA	2.988	216.8 -> 171.9	76038	10.09 µg/L		0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C4-PFHpA	6.502	367.1 -> 322.0	35624	2.45 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C5-PFHxA	5.575	318.0 -> 273.0	32695	2.35 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	37900	4.83 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C6-PFDA	8.170	519.1 -> 474.1	18938	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22586	1.31 µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C8-FOSA	9.567	506.1 -> 77.8	17003	2.52 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C8-PFOA	7.146	421.1 -> 376.0	61910	2.42 µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C8-PFOS	8.345	507.1 -> 79.9	8340	2.45 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C9-PFNA	7.677	472.1 -> 427.0	28419	1.32 µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27508	4.84 µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13959	9.70 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
d3-MeFOSA	10.680	515.0 -> 219.0	7147	2.46 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24047	5.10 µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	29896	25.42 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	22056	27.21 µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	8039	2.54 µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%		
Target Compounds						**QValue**
4:2FTS	5.240	327.1 -> 307.0	4339	0.81 µg/L		100
		327.1 -> 80.9	942			
6:2FTS	6.921	427.1 -> 407.0	3467	0.72 µg/L		96
		427.1 -> 80.9	713			
8:2FTS	7.958	527.1 -> 507.0	1842	0.79 µg/L		94
		527.1 -> 80.8	501			
EtFOSAA	8.424	584.2 -> 419.1	817	0.21 µg/L	m	83
		584.2 -> 526.0	479			
FOSA	9.557	498.1 -> 77.9	1525	0.22 µg/L		98
		498.1 -> 478.0	78			
MeFOSAA	8.216	570.1 -> 419.0	1040	0.21 µg/L		99
		570.1 -> 483.0	148			
PFBA	2.982	212.8 -> 168.9	1380	0.81 µg/L		100
PFBS	5.518	298.7 -> 79.9	983	0.19 µg/L		93
		298.7 -> 98.8	477			
PFDA	8.170	512.9 -> 469.0	4239	0.20 µg/L		97
		512.9 -> 219.0	578			
PFDoDA	9.067	613.1 -> 569.0	4224	0.22 µg/L		93
		613.1 -> 319.0	398			
PFDS	9.241	599.0 -> 79.9	562	0.20 µg/L		87

Perfluorinated Compounds by LC/MS/MS

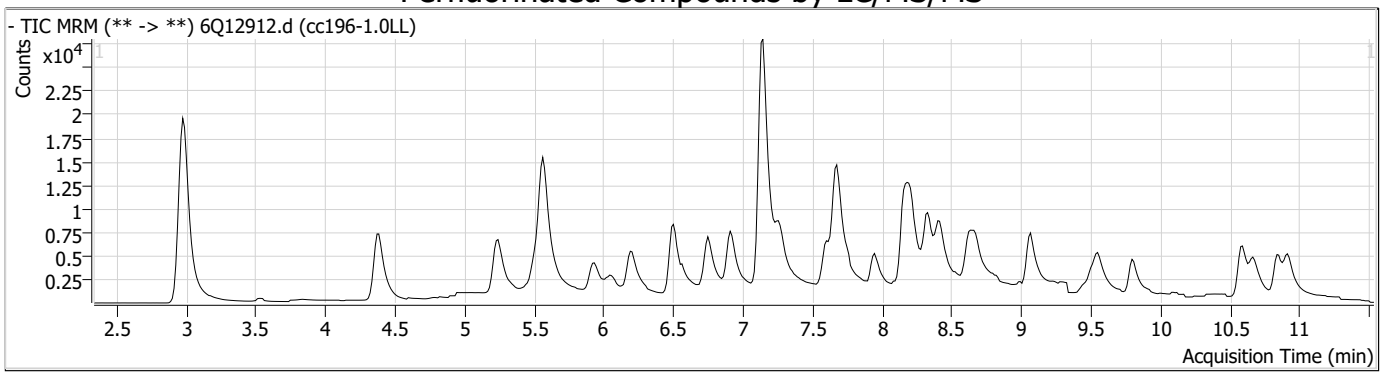
Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
		599.0 -> 98.8	333				
PFHpA	6.503	363.1 -> 319.0	4386	0.21	µg/L		100
		363.1 -> 169.0	552				
PFHpS	7.841	449.0 -> 79.9	823	0.23	µg/L		99
		449.0 -> 98.9	449				
PFHxA	5.566	313.0 -> 269.0	2994	0.23	µg/L		97
		313.0 -> 118.9	96				
PFHxS	7.275	398.7 -> 79.9	628	0.15	µg/L	m	78
		398.7 -> 98.9	506				
PFNA	7.677	463.0 -> 419.0	3840	0.20	µg/L		97
		463.0 -> 219.0	788				
PFNS	8.811	548.8 -> 79.9	772	0.21	µg/L		95
		548.8 -> 98.9	410				
PFOA	7.148	413.0 -> 369.0	5700	0.21	µg/L		100
		413.0 -> 169.0	767				
PFOS	8.347	498.9 -> 79.9	880	0.23	µg/L	m	70
		498.9 -> 98.8	521				
PFPeA	4.388	263.0 -> 219.0	3301	0.41	µg/L		100
PFPeS	6.581	349.1 -> 79.9	821	0.17	µg/L		70
		349.1 -> 98.9	589				
PFTeDA	9.806	713.1 -> 669.0	3481	0.23	µg/L		97
		713.1 -> 168.9	204				
PFTrDA	9.462	663.0 -> 619.0	3916	0.22	µg/L		98
		663.0 -> 168.9	282				
PFUnDA	8.637	563.1 -> 519.0	3475	0.20	µg/L		96
		563.1 -> 269.1	526				
11Cl-PF3OUdS	9.514	630.9 -> 450.9	7684	0.77	µg/L		94
		632.9 -> 452.9	2589				
9Cl-PF3ONS	8.676	530.8 -> 351.0	13126	0.78	µg/L		92
		532.8 -> 353.0	3669				
ADONA	6.766	376.9 -> 250.9	22956	0.76	µg/L		100
		376.9 -> 84.8	5080				
HFPO-DA	5.940	284.9 -> 168.9	1009	0.77	µg/L		98
		284.9 -> 184.9	127				
3:3FTCA	3.841	241.0 -> 177.0	428	1.09	µg/L		95
		241.0 -> 117.0	55				
5:3FTCA	6.206	341.0 -> 237.1	13619	5.08	µg/L		99
		341.0 -> 217.0	11810				
7:3FTCA	7.605	441.0 -> 316.9	9270	5.29	µg/L		90
		441.0 -> 336.9	18026				
EtFOSA	10.927	526.0 -> 219.0	759	0.20	µg/L		94
		526.0 -> 169.0	701				
EtFOSE	10.860	630.0 -> 58.9	1777	1.88	µg/L		100
MeFOSA	10.682	511.9 -> 219.0	685	0.22	µg/L		95
		511.9 -> 169.0	659				
MeFOSE	10.602	616.1 -> 58.9	2553	2.14	µg/L		100
PFDoDS	9.933	699.1 -> 79.9	384	0.23	µg/L		97
		699.1 -> 98.8	234				
NFDHA	5.470	295.0 -> 201.0	373	0.49	µg/L		98
		295.0 -> 84.9	186				
PFMBA	4.800	279.0 -> 85.1	959	0.43	µg/L		100
PFMPA	3.541	229.0 -> 84.9	911	0.43	µg/L		100
PFEESA	6.059	314.8 -> 134.9	6963	0.38	µg/L		99
		314.8 -> 82.9	182				

= Qualifier out of range, m = manually integrated, + = Area summed

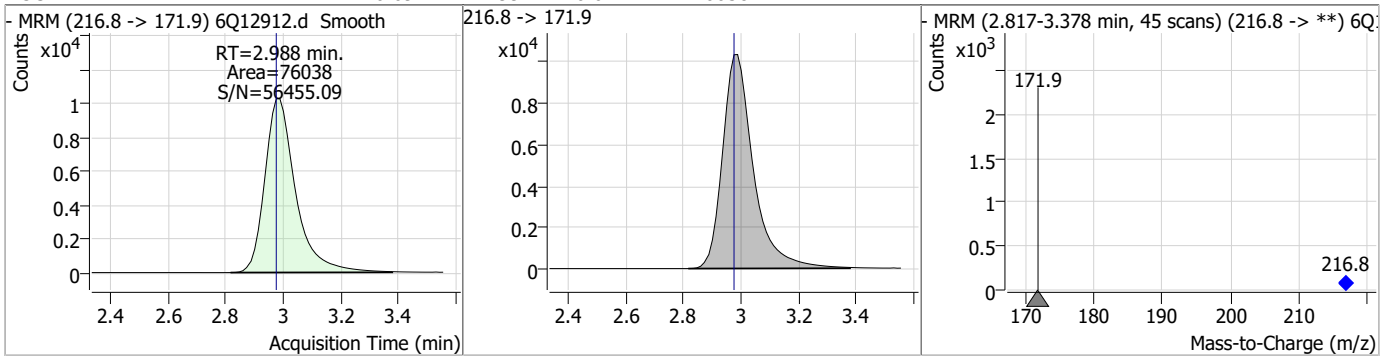
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

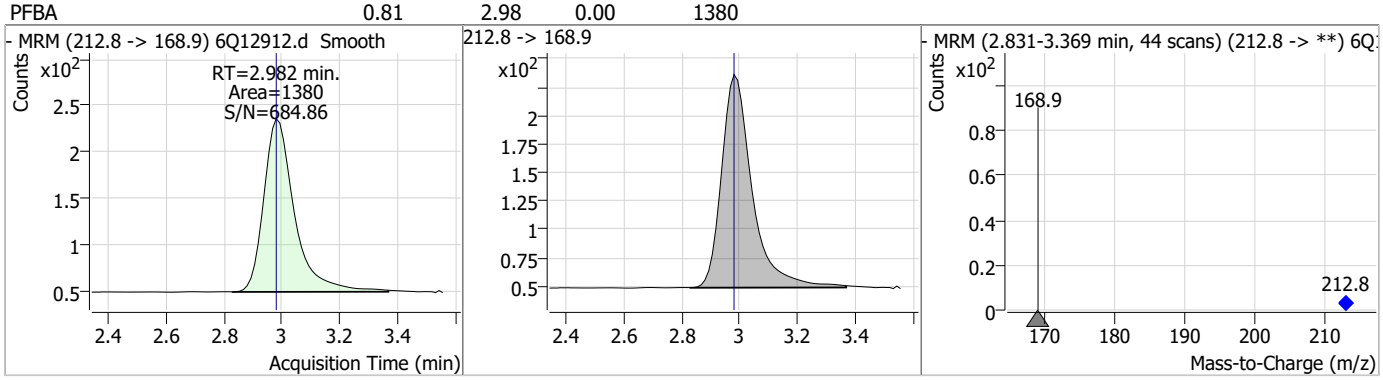
Perfluorinated Compounds by LC/MS/MS



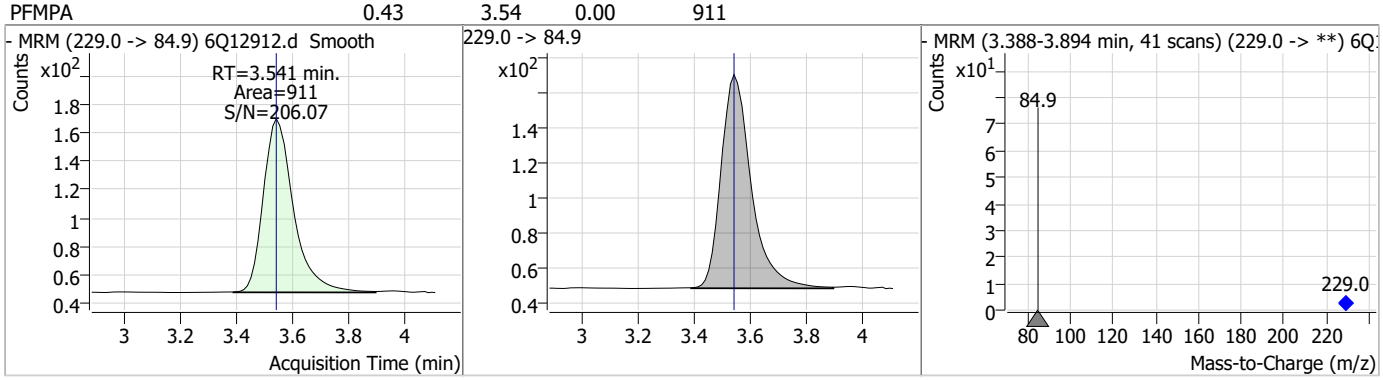
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.09	2.99	0.01	76038				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.81	2.98	0.00	1380				

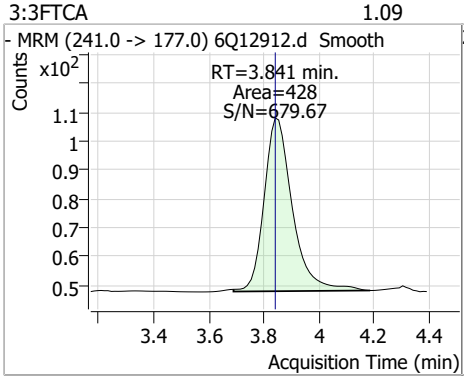


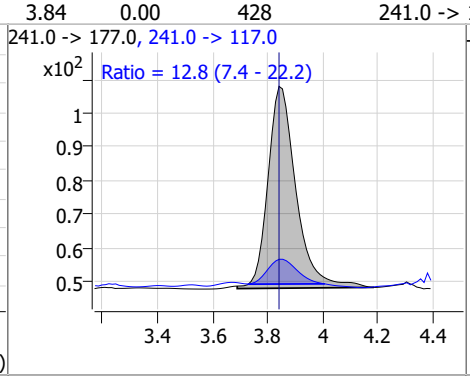
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.43	3.54	0.00	911				

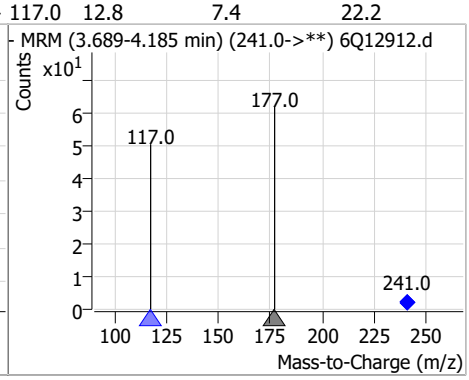


Perfluorinated Compounds by LC/MS/MS

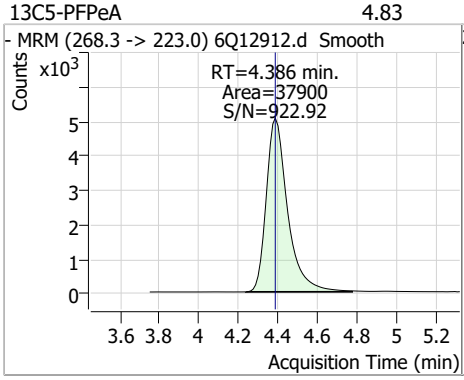
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.09	3.84	0.00	428	241.0 -> 117.0	12.8	7.4	22.2

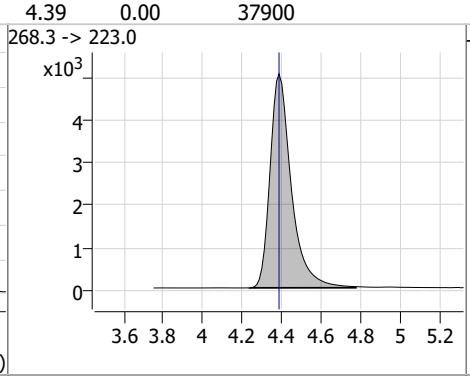


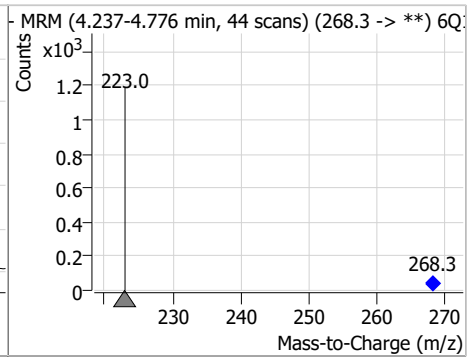




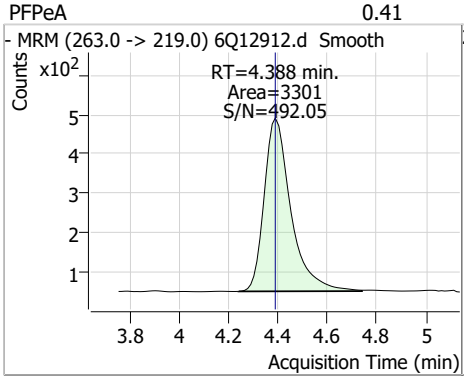
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.83	4.39	0.00	37900				

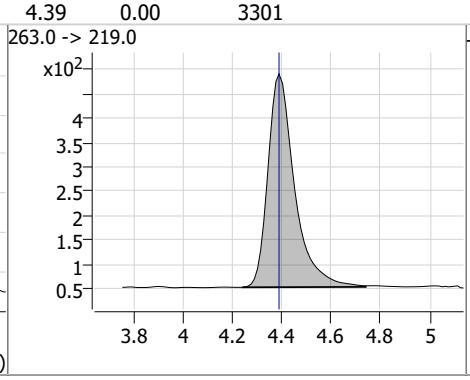


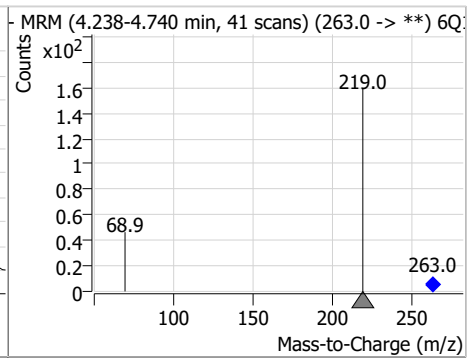




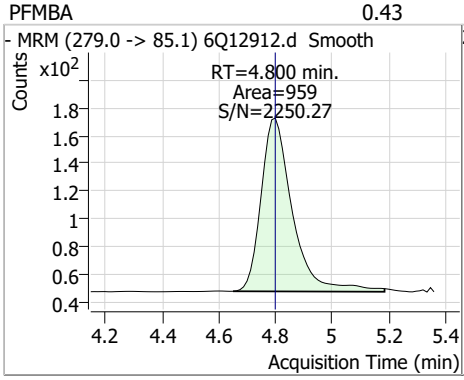
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.41	4.39	0.00	3301				

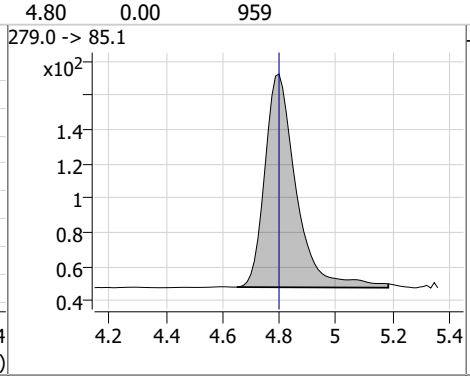


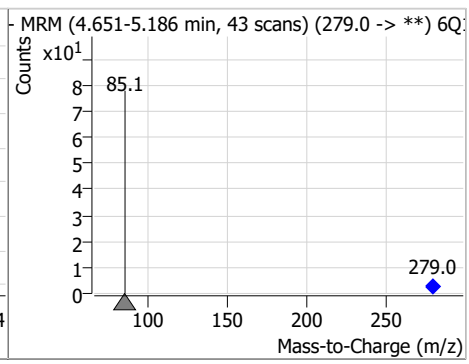




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.43	4.80	0.00	959				

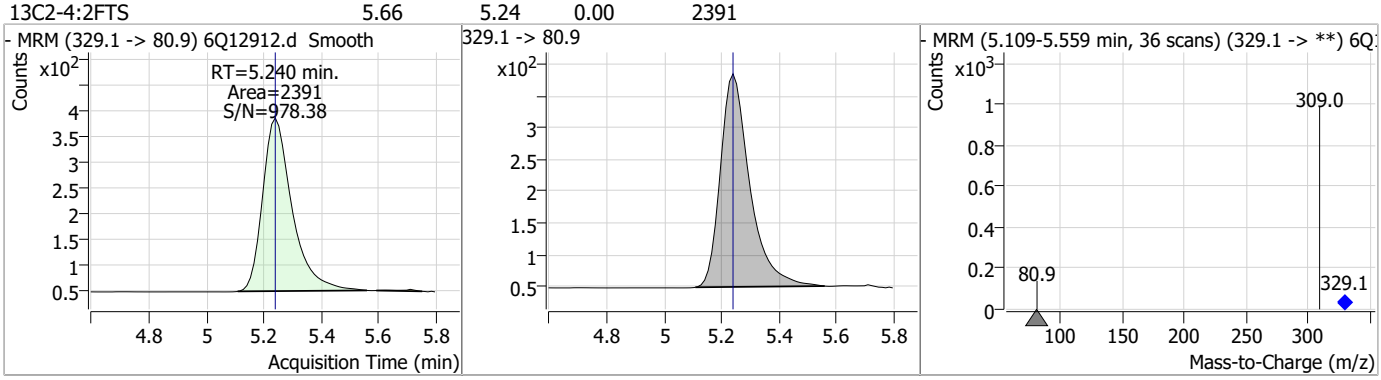




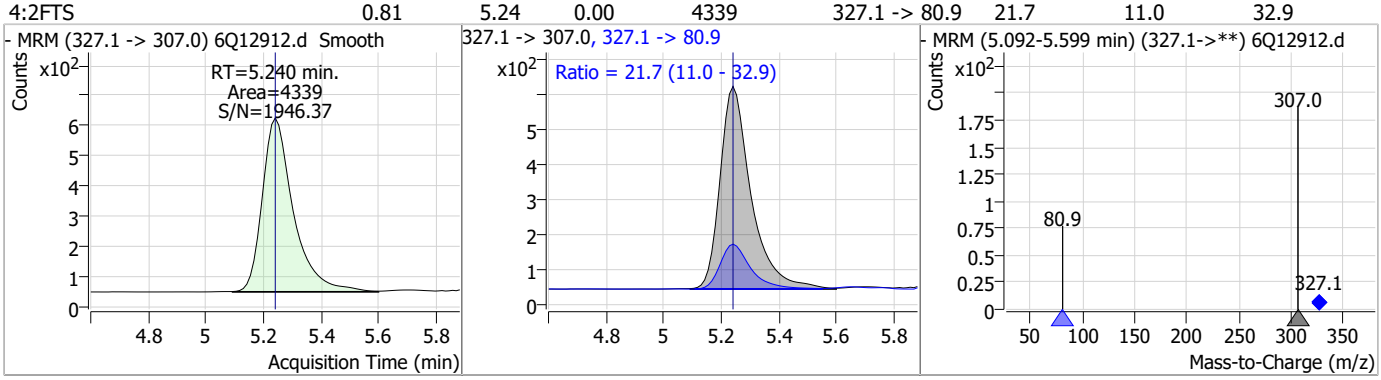


Perfluorinated Compounds by LC/MS/MS

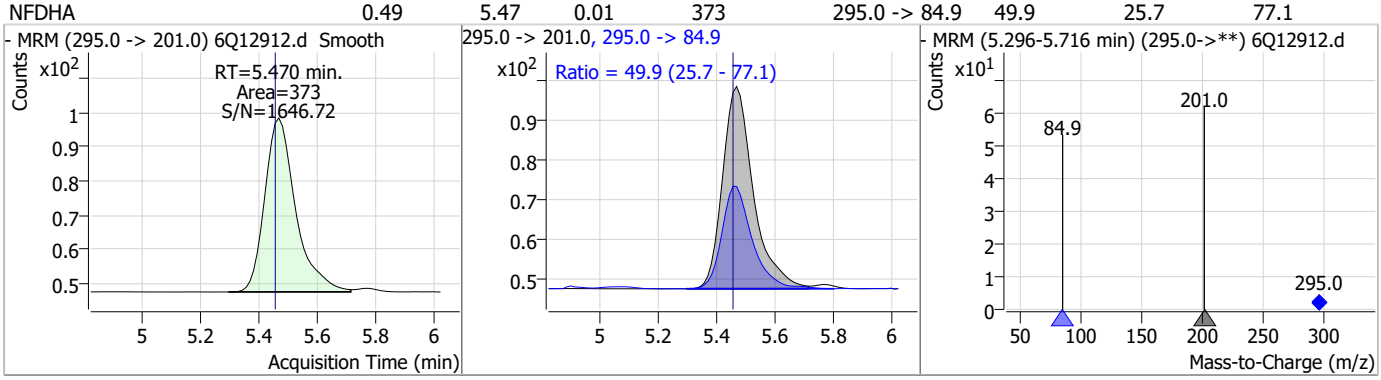
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.66	5.24	0.00	2391				



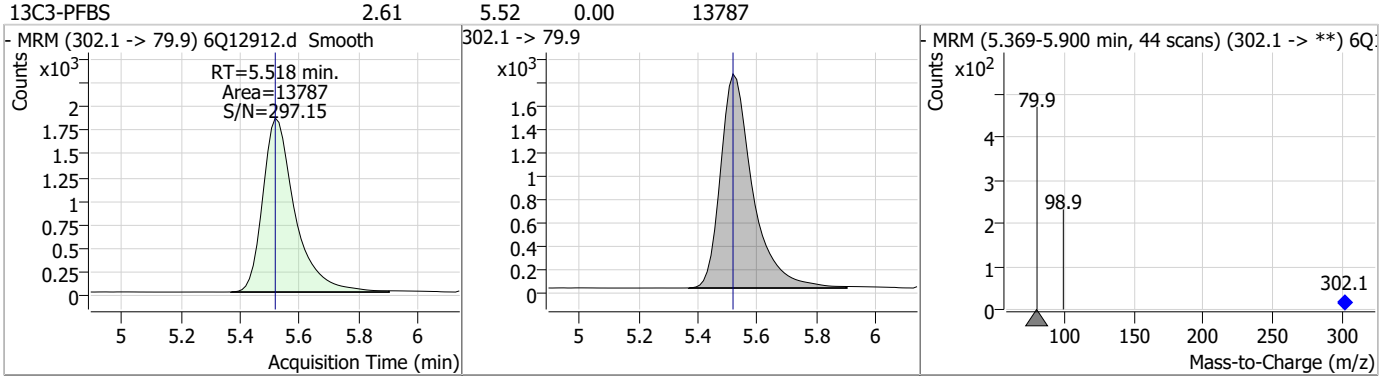
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.81	5.24	0.00	4339	327.1 -> 80.9	21.7	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.49	5.47	0.01	373	295.0 -> 84.9	49.9	25.7	77.1

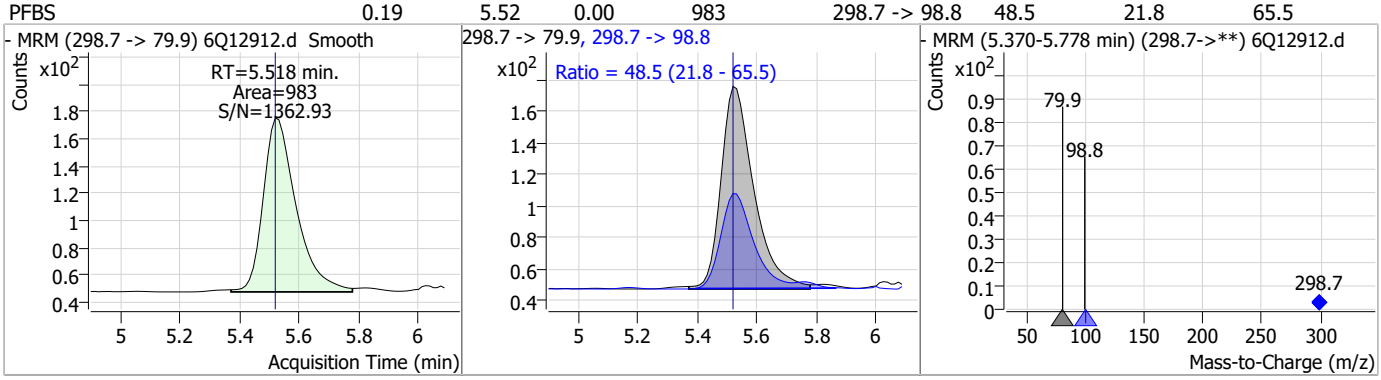


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.61	5.52	0.00	13787				

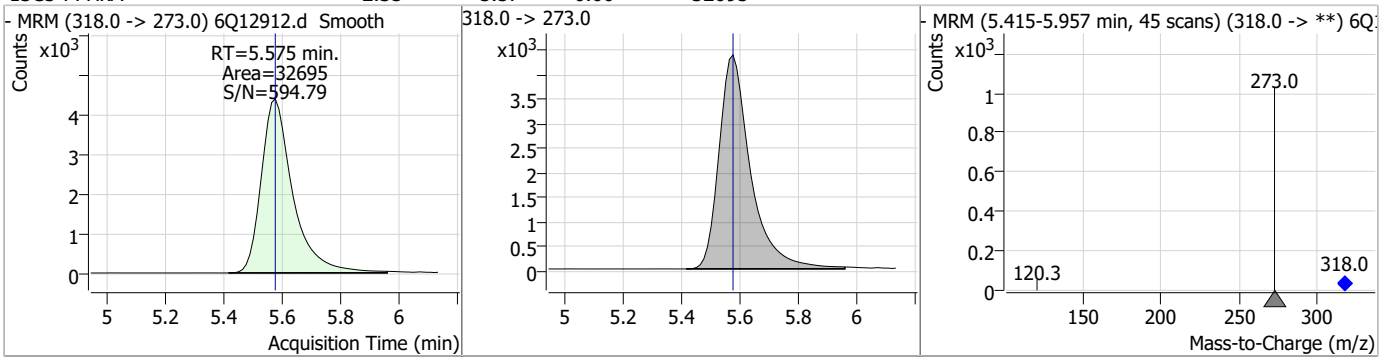


Perfluorinated Compounds by LC/MS/MS

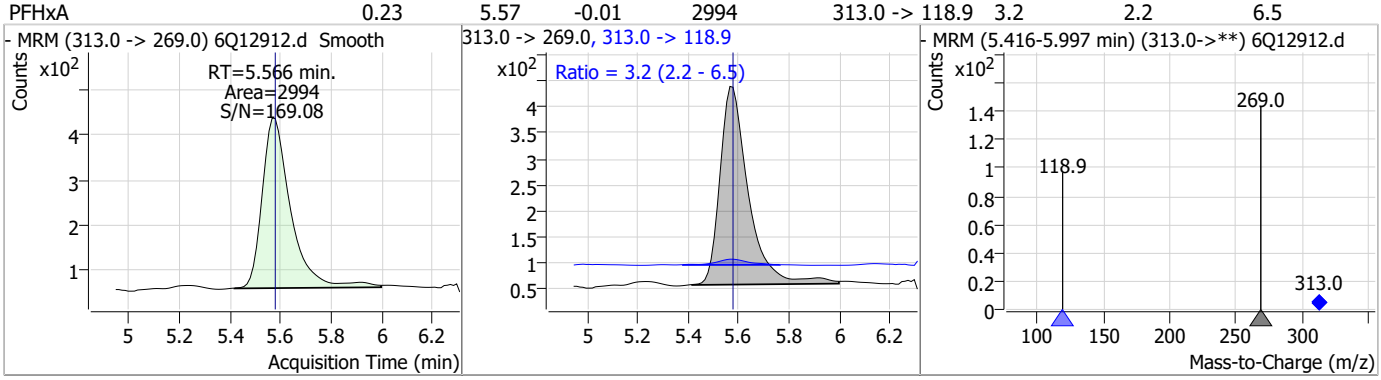
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.52	0.00	983	298.7 -> 98.8	48.5	21.8	65.5



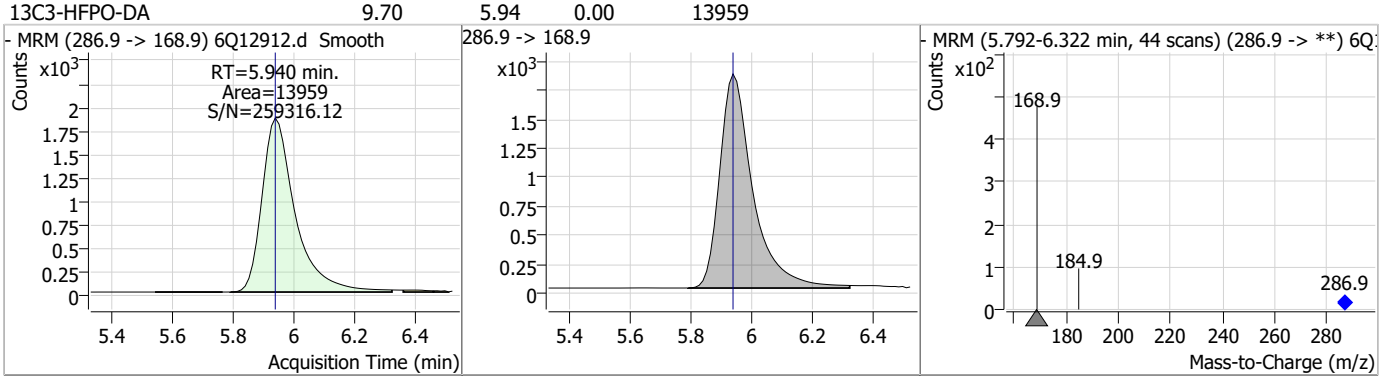
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.35	5.57	0.00	32695				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.23	5.57	-0.01	2994	313.0 -> 118.9	3.2	2.2	6.5

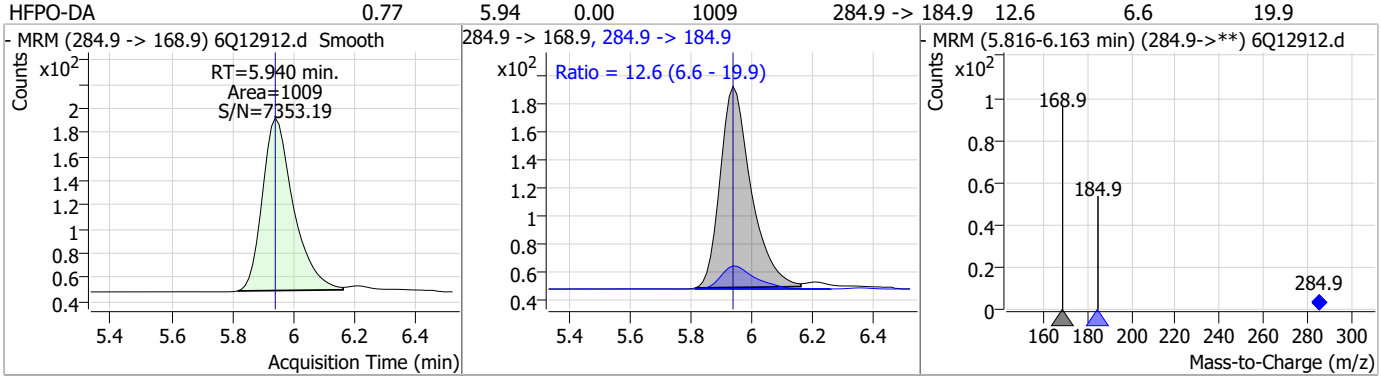


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.70	5.94	0.00	13959				

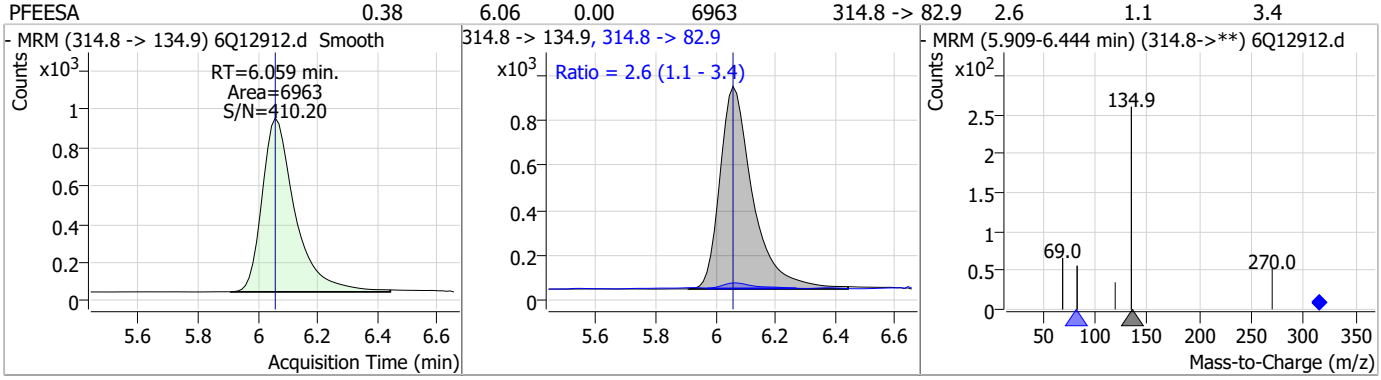


Perfluorinated Compounds by LC/MS/MS

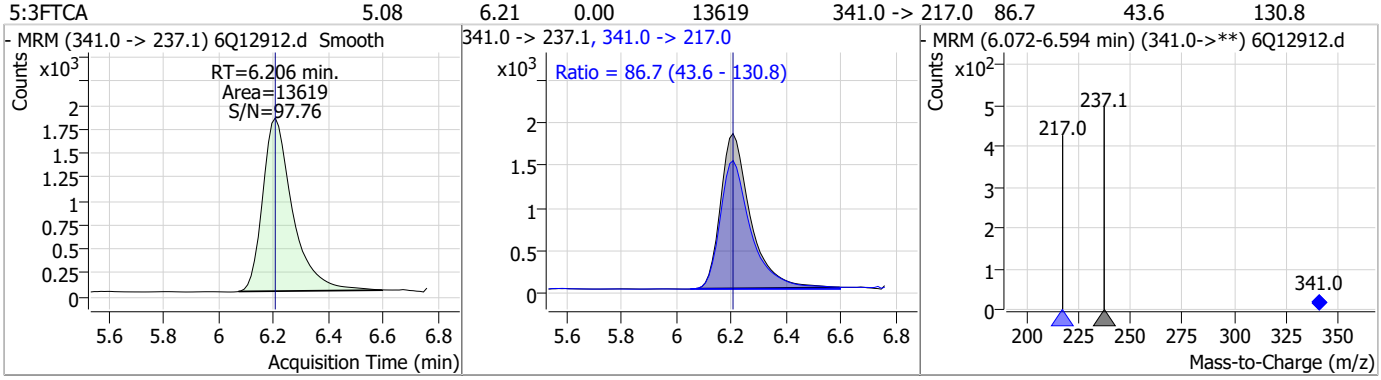
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.77	5.94	0.00	1009	284.9 -> 184.9	12.6	6.6	19.9



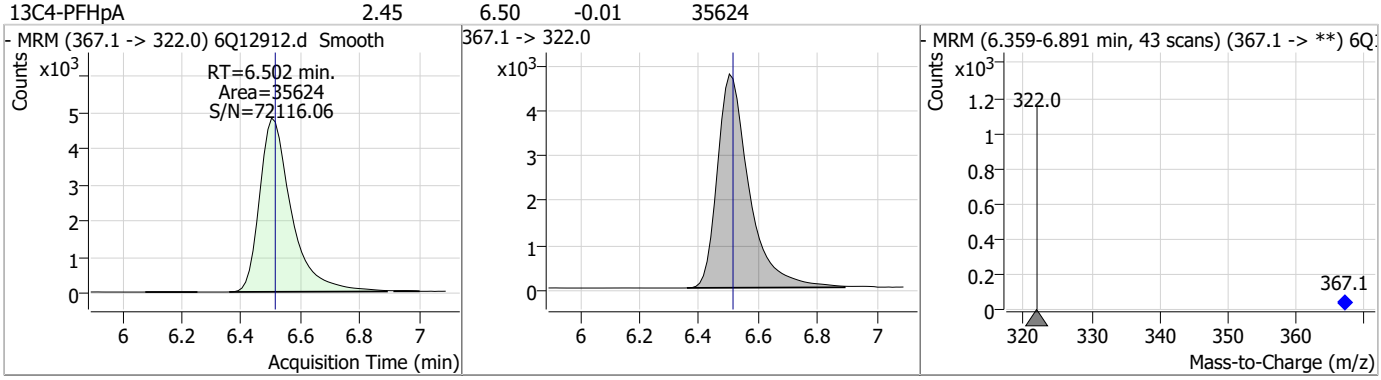
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.38	6.06	0.00	6963	314.8 -> 82.9	2.6	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.08	6.21	0.00	13619	341.0 -> 217.0	86.7	43.6	130.8

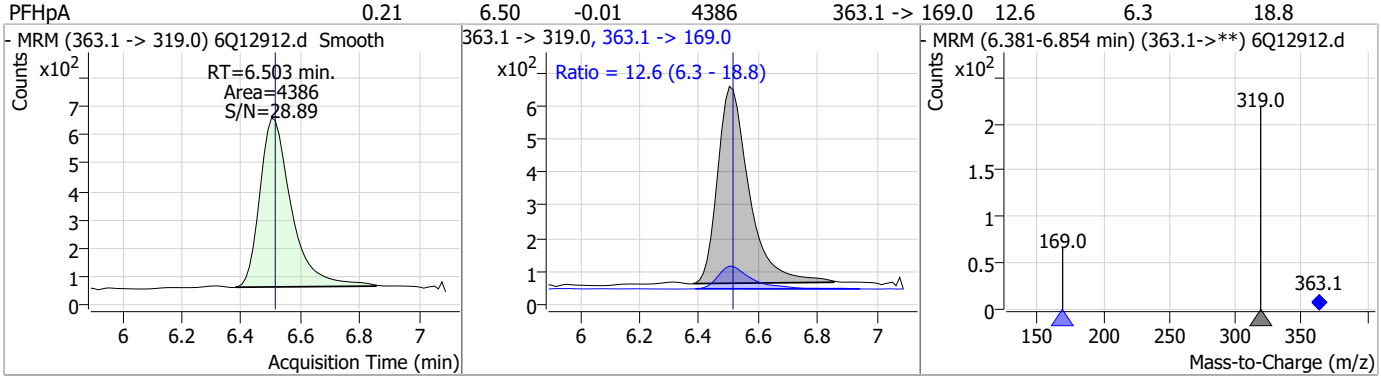


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.50	-0.01	35624				

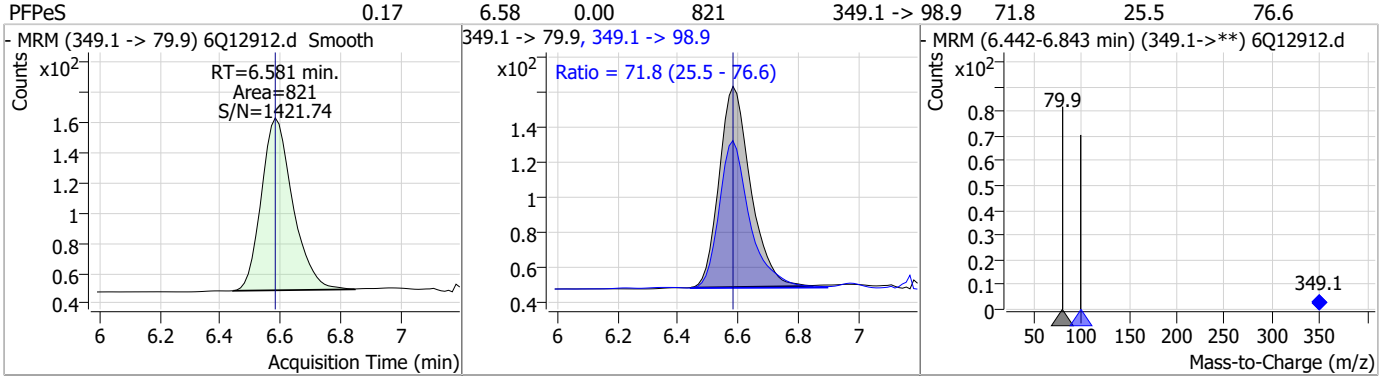


Perfluorinated Compounds by LC/MS/MS

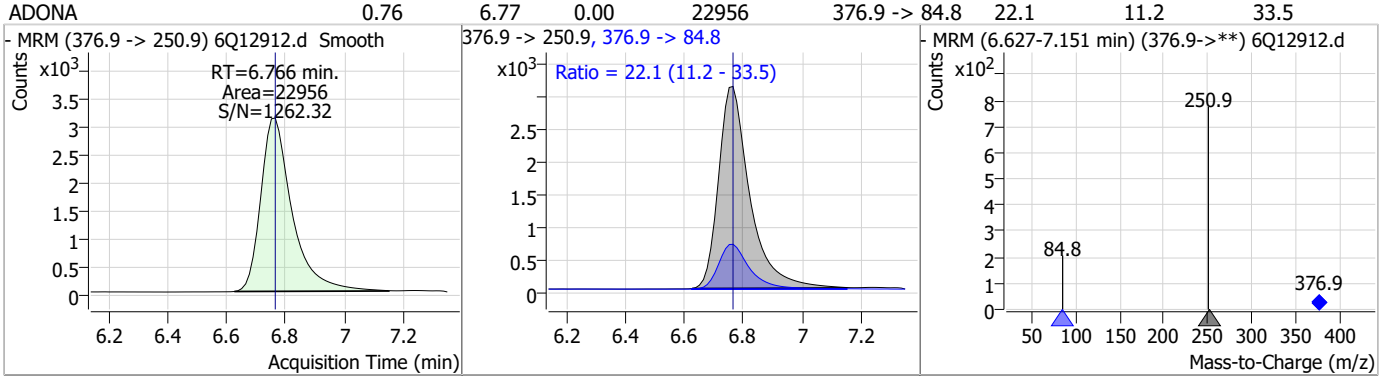
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.21	6.50	-0.01	4386	363.1 -> 169.0	12.6	6.3	18.8



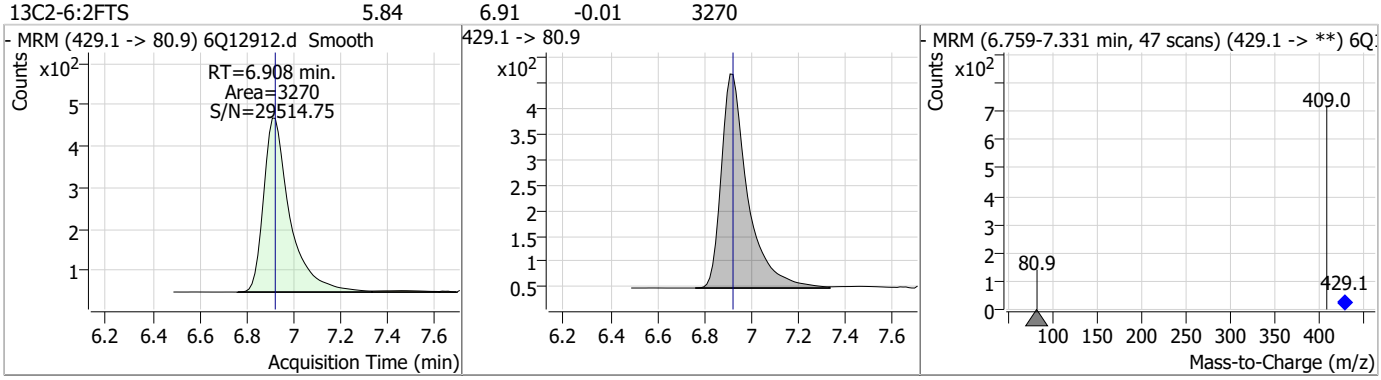
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.17	6.58	0.00	821	349.1 -> 98.9	71.8	25.5	76.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.76	6.77	0.00	22956	376.9 -> 84.8	22.1	11.2	33.5

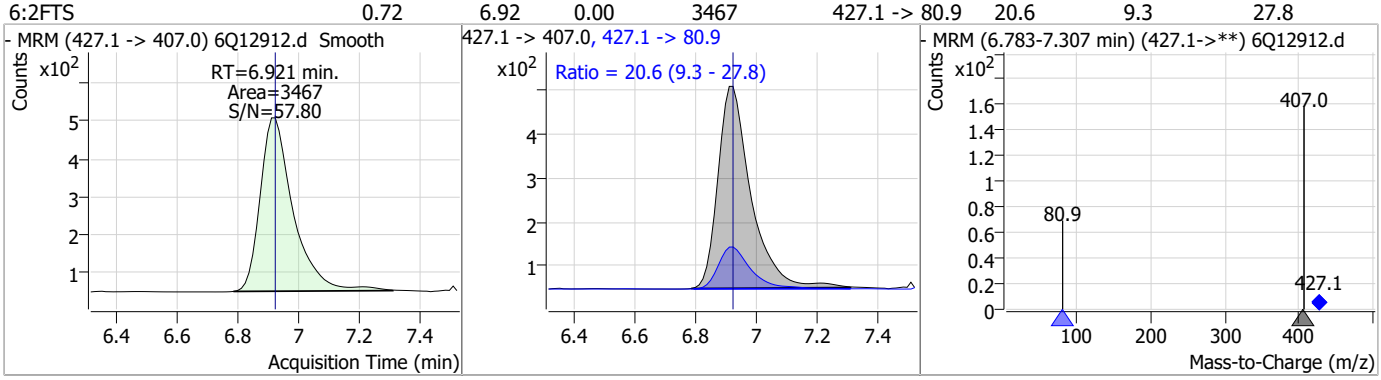


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.84	6.91	-0.01	3270				

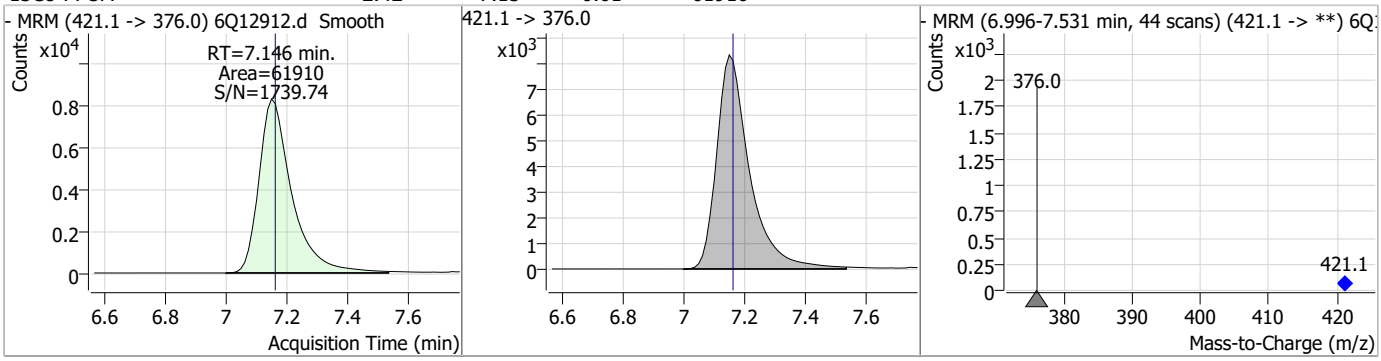


Perfluorinated Compounds by LC/MS/MS

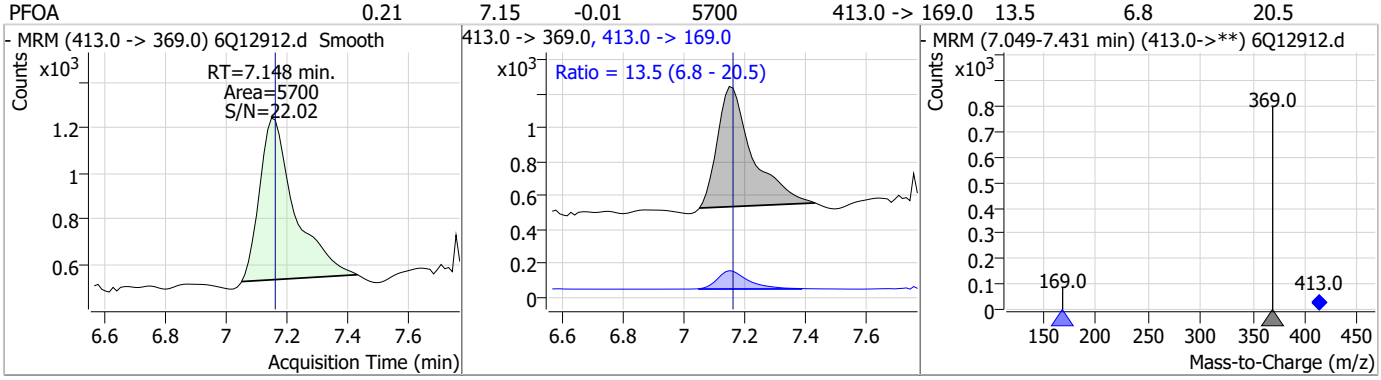
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.72	6.92	0.00	3467	427.1 -> 80.9	20.6	9.3	27.8



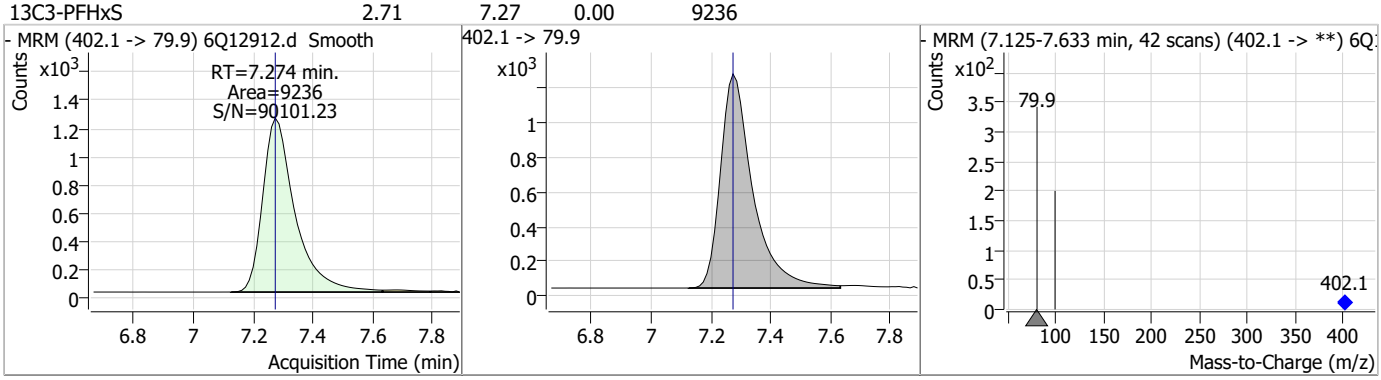
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.42	7.15	-0.01	61910				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.21	7.15	-0.01	5700	413.0 -> 169.0	13.5	6.8	20.5

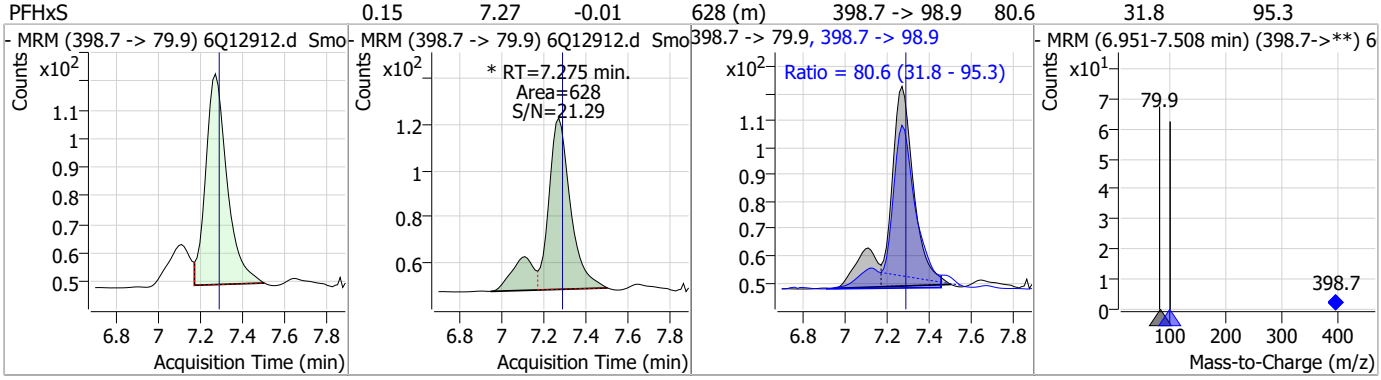


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.71	7.27	0.00	9236				

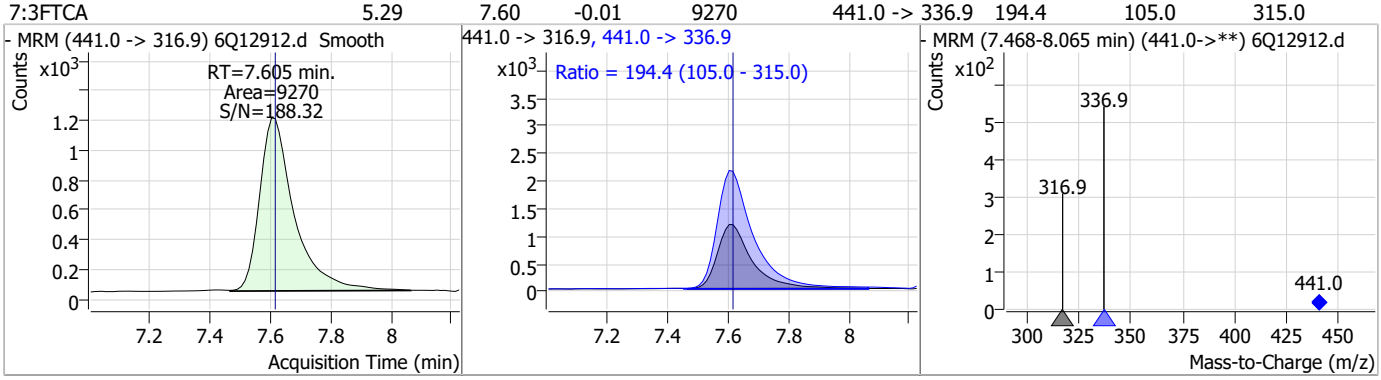


Perfluorinated Compounds by LC/MS/MS

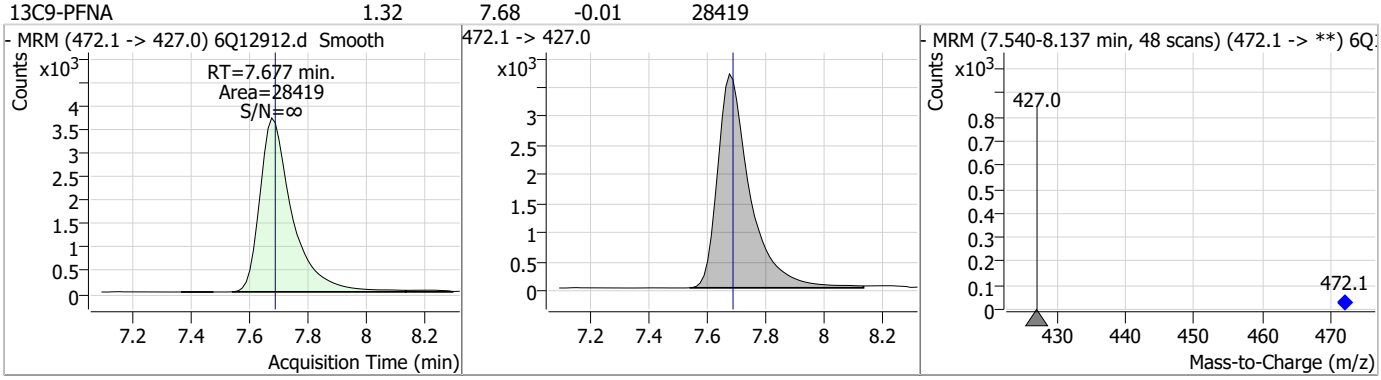
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.15	7.27	-0.01	628 (m)	398.7 -> 98.9	80.6	31.8	95.3



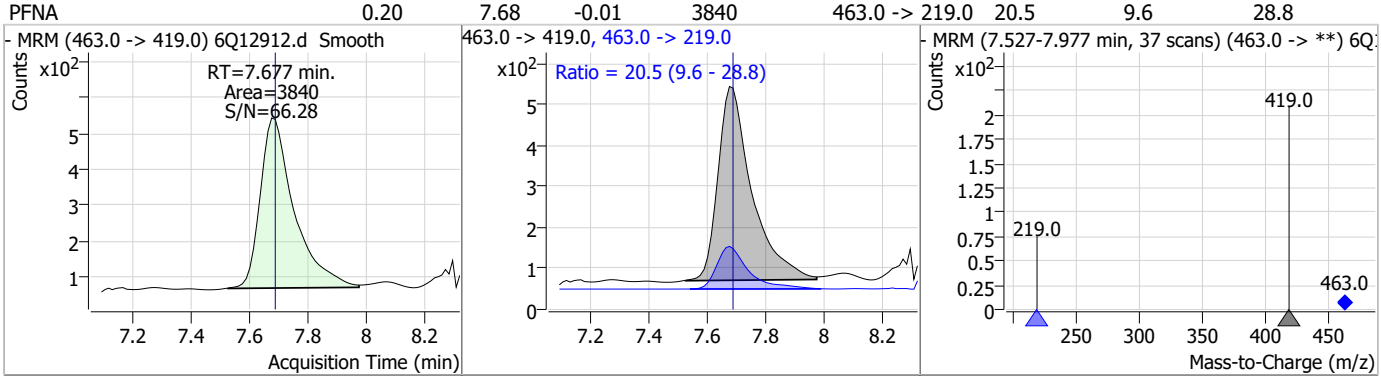
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.29	7.60	-0.01	9270	441.0 -> 336.9	194.4	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.68	-0.01	28419				

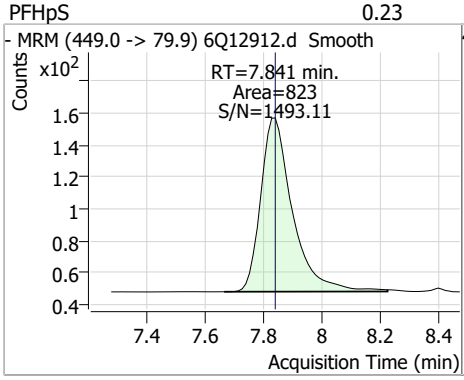


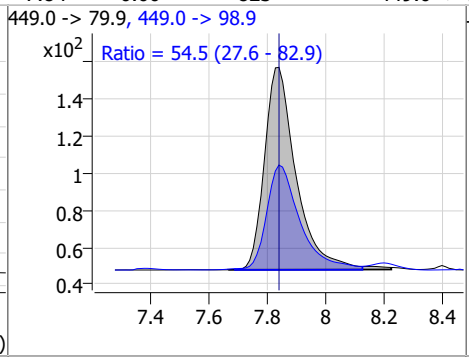
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.20	7.68	-0.01	3840	463.0 -> 219.0	20.5	9.6	28.8

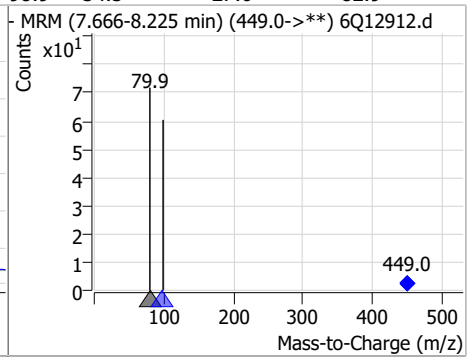


Perfluorinated Compounds by LC/MS/MS

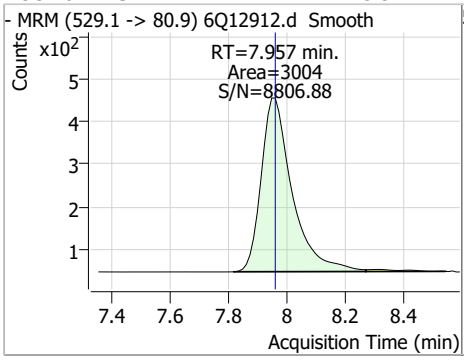
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.23	7.84	0.00	823	449.0 -> 98.9	54.5	27.6	82.9

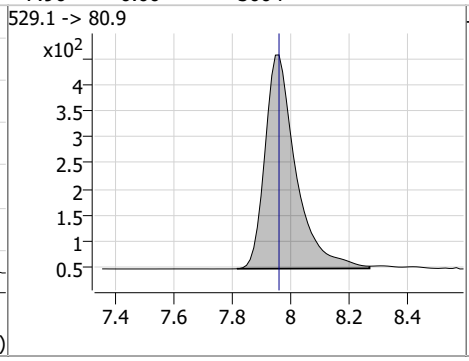


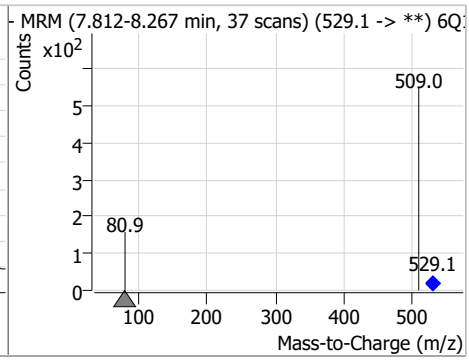




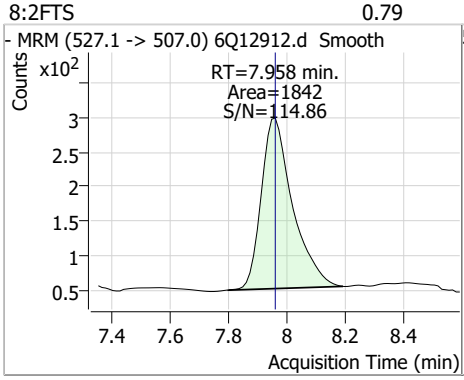
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.34	7.96	0.00	3004				

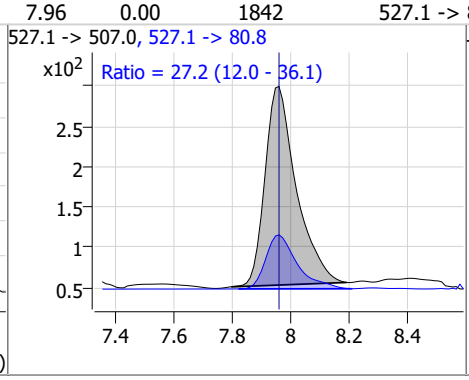


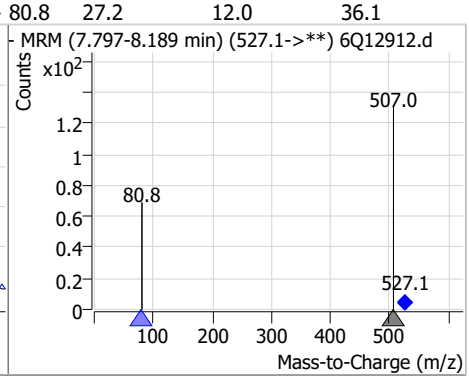




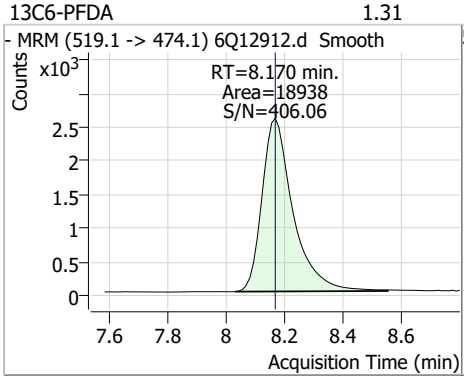
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.79	7.96	0.00	1842	527.1 -> 80.8	27.2	12.0	36.1

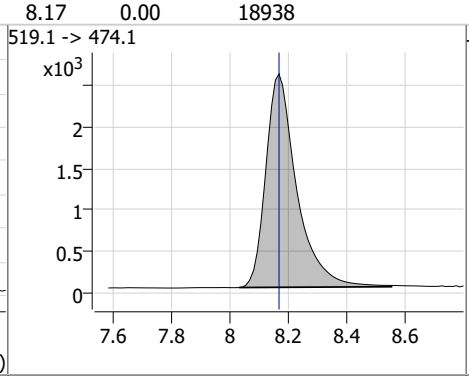


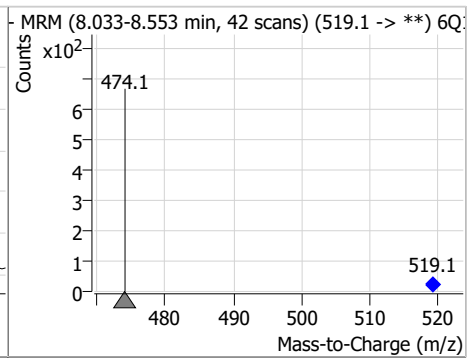




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.31	8.17	0.00	18938				

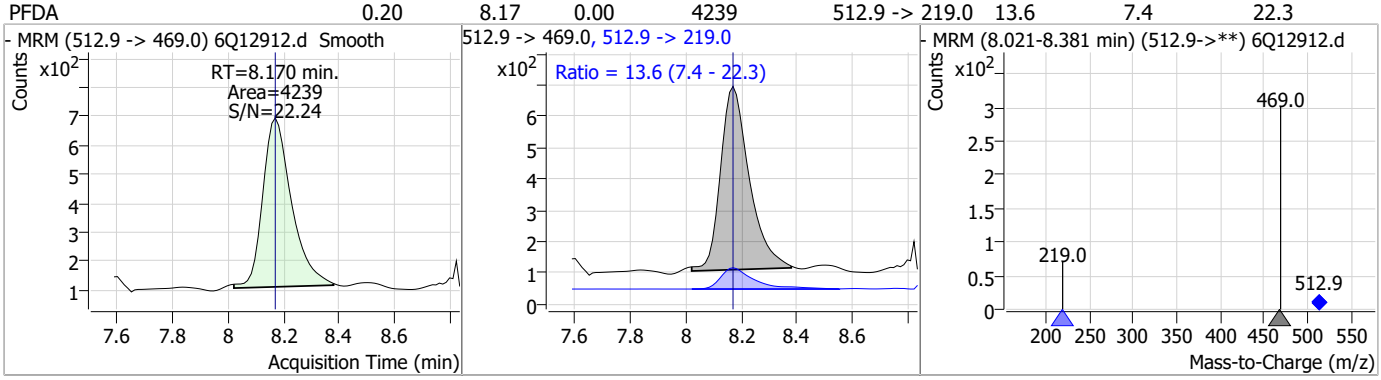




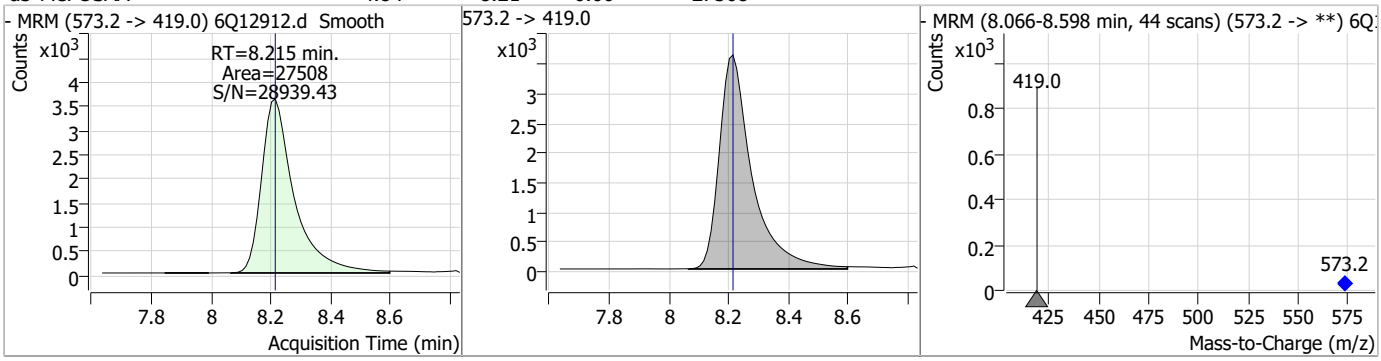


Perfluorinated Compounds by LC/MS/MS

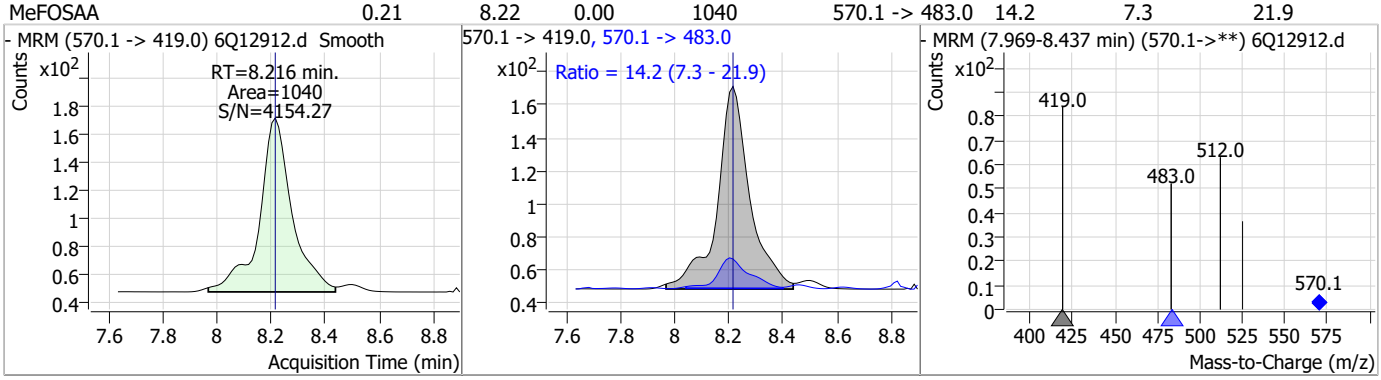
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.17	0.00	4239	512.9 -> 219.0	13.6	7.4	22.3



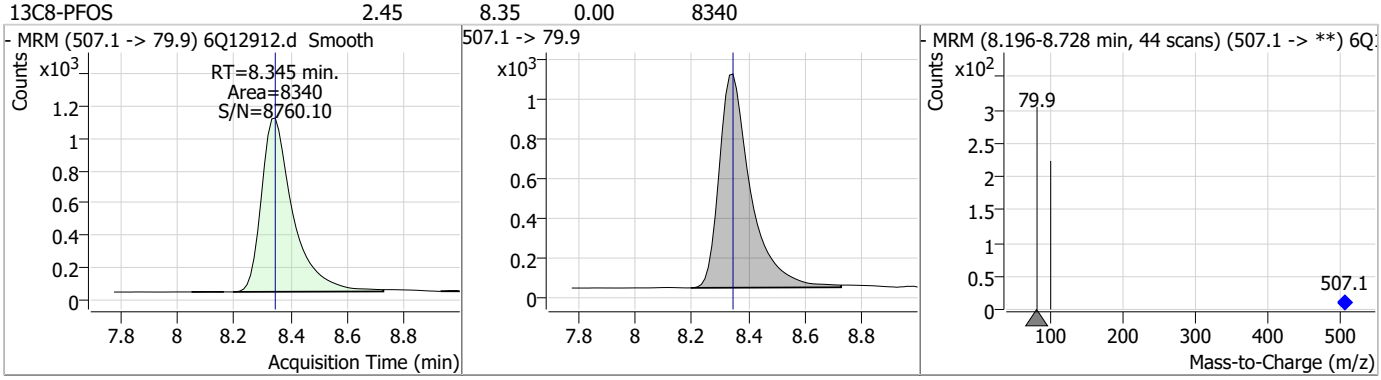
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.84	8.21	0.00	27508				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.22	0.00	1040	570.1 -> 483.0	14.2	7.3	21.9

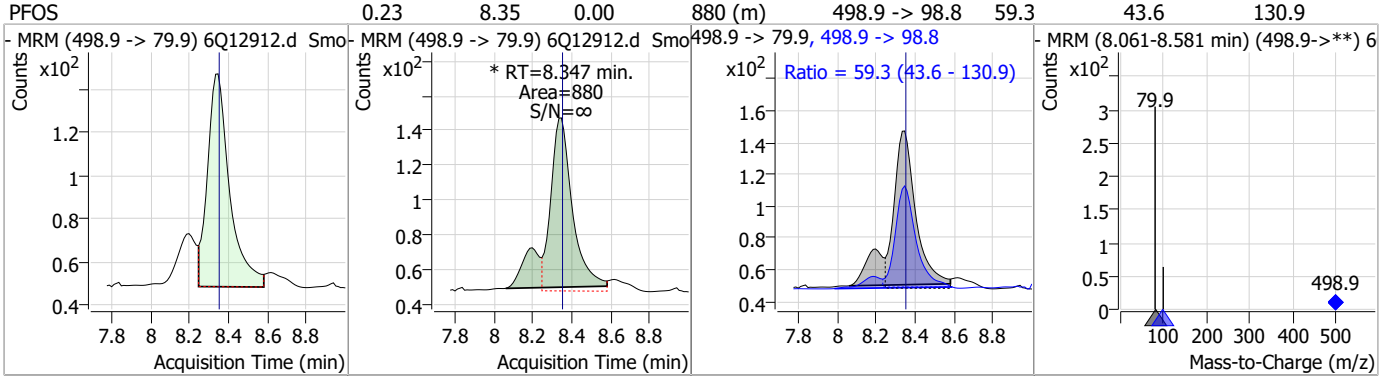


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.35	0.00	8340				

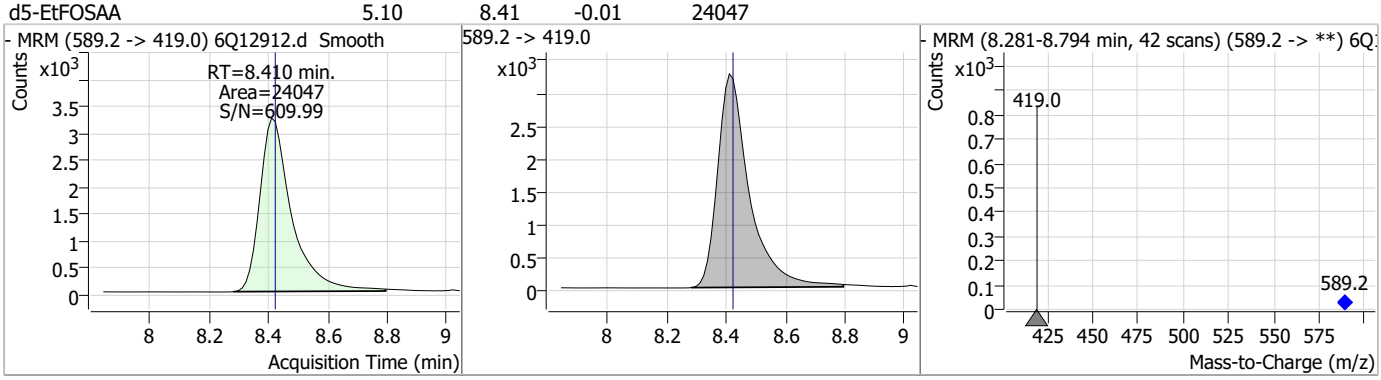


Perfluorinated Compounds by LC/MS/MS

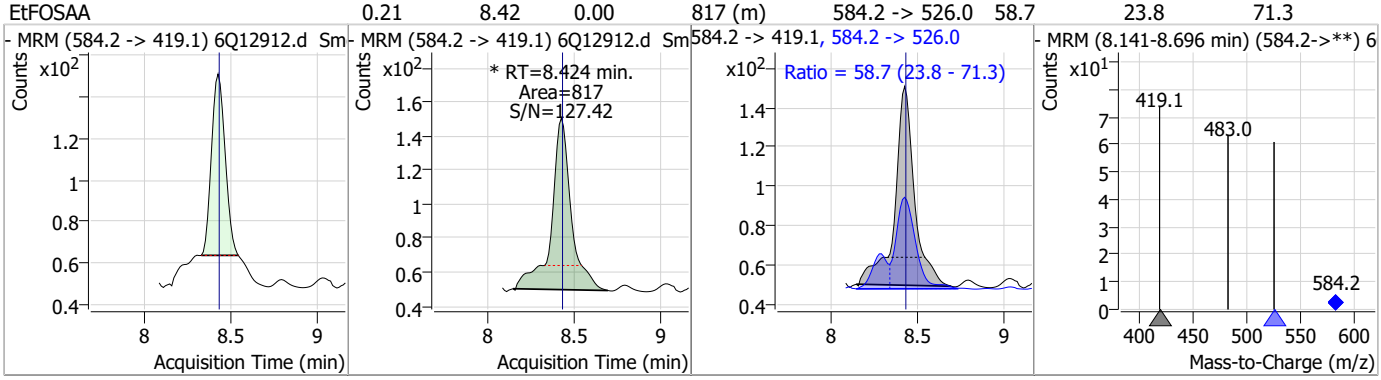
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.23	8.35	0.00	880 (m)	498.9 -> 98.8	59.3	43.6	130.9



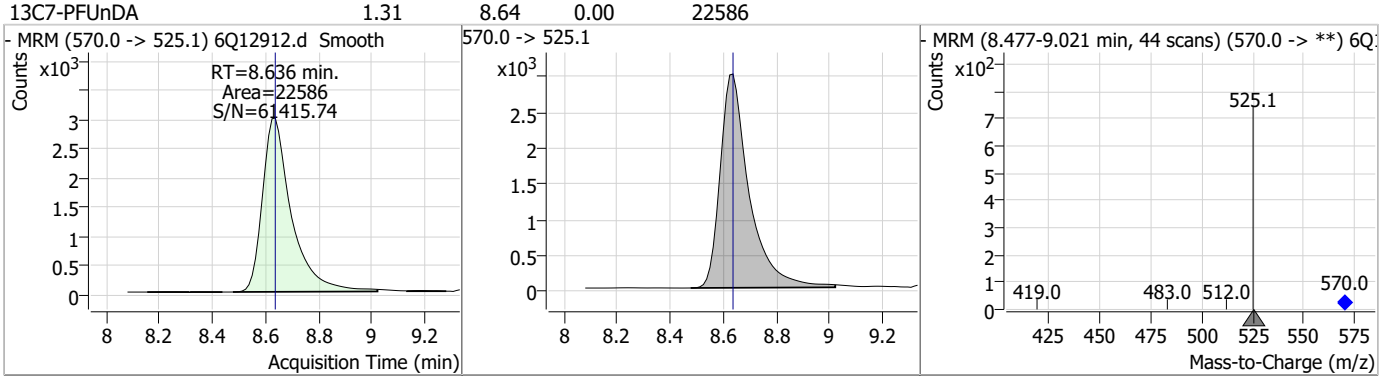
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.10	8.41	-0.01	24047				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.21	8.42	0.00	817 (m)	584.2 -> 526.0	58.7	23.8	71.3

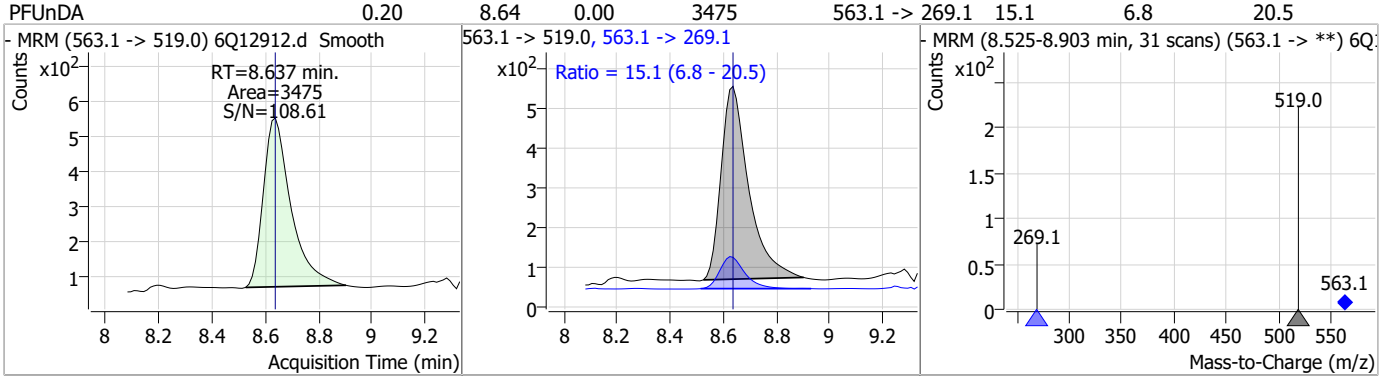


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	22586				

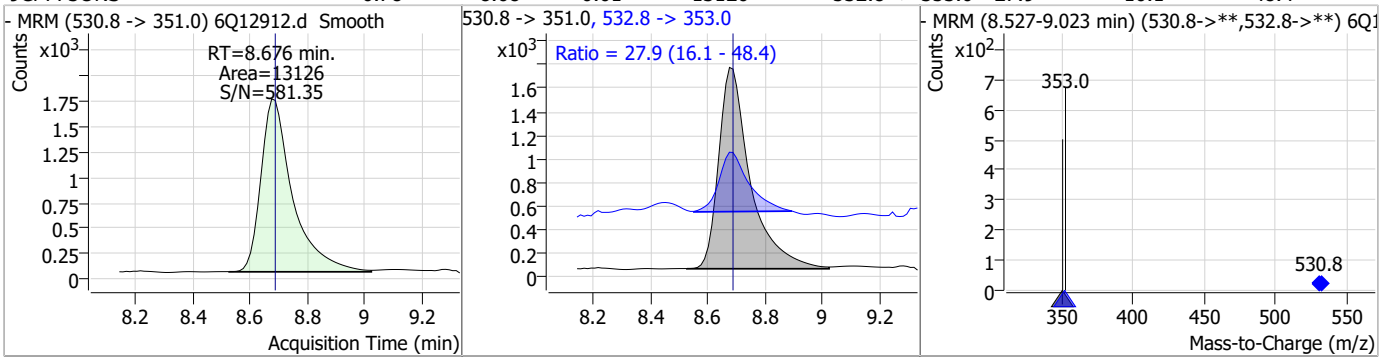


Perfluorinated Compounds by LC/MS/MS

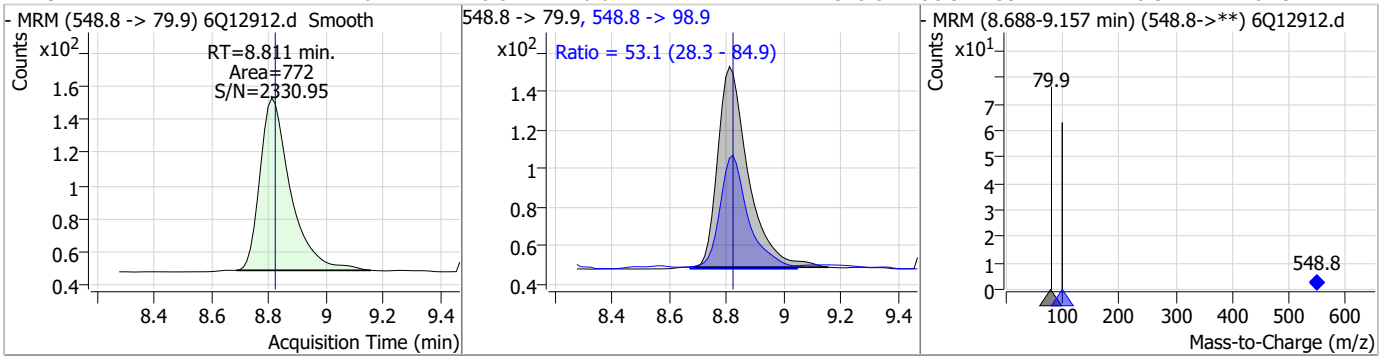
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.20	8.64	0.00	3475	563.1 -> 269.1	15.1	6.8	20.5



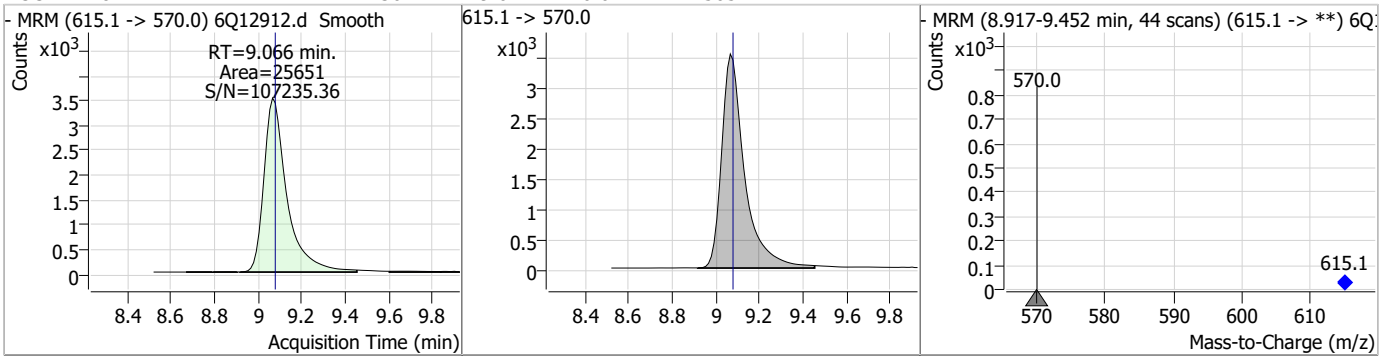
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.78	8.68	-0.01	13126	532.8 -> 353.0	27.9	16.1	48.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.21	8.81	-0.01	772	548.8 -> 98.9	53.1	28.3	84.9

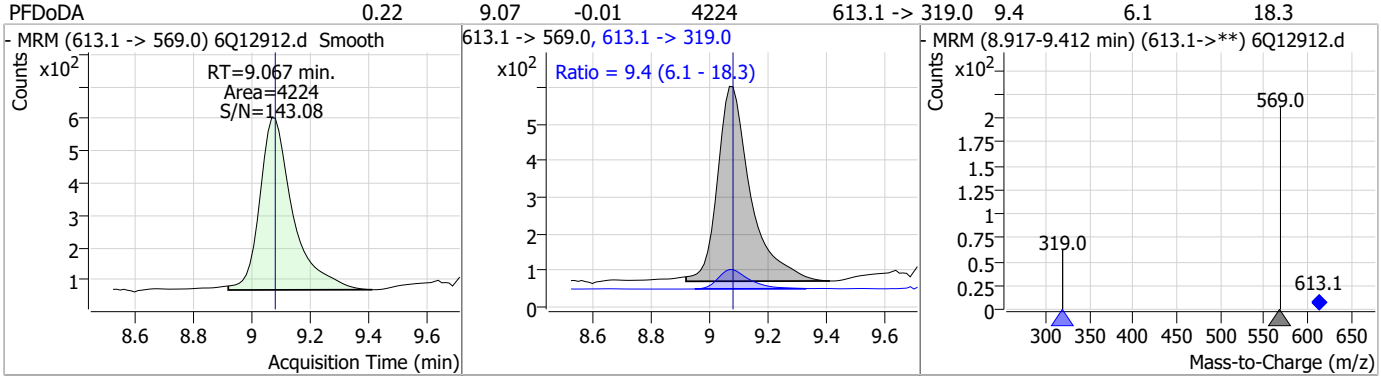


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	9.07	-0.01	25651				

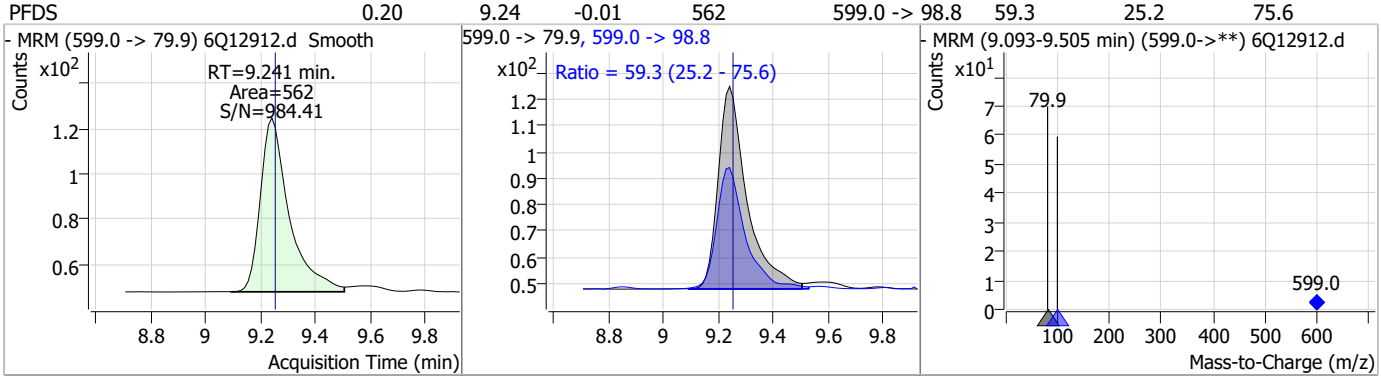


Perfluorinated Compounds by LC/MS/MS

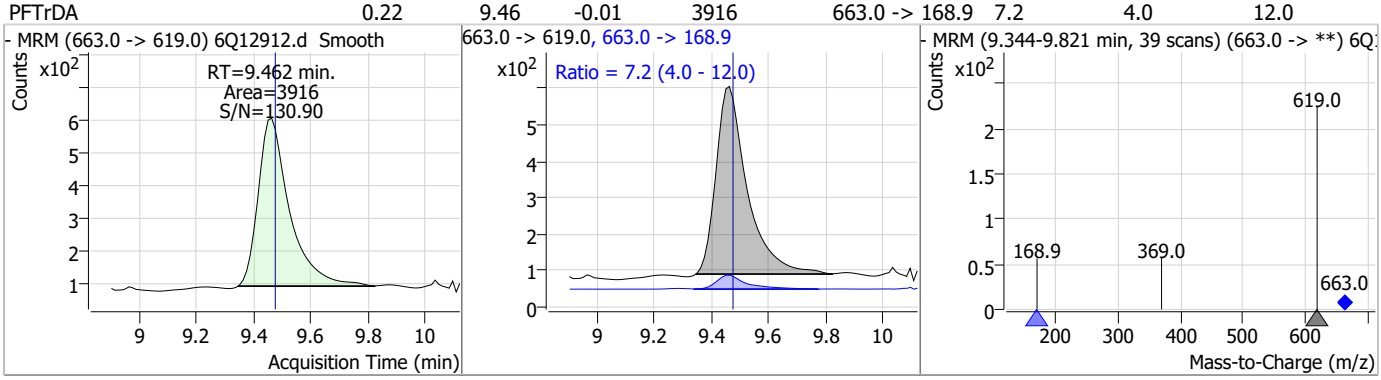
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.22	9.07	-0.01	4224	613.1 -> 319.0	9.4	6.1	18.3



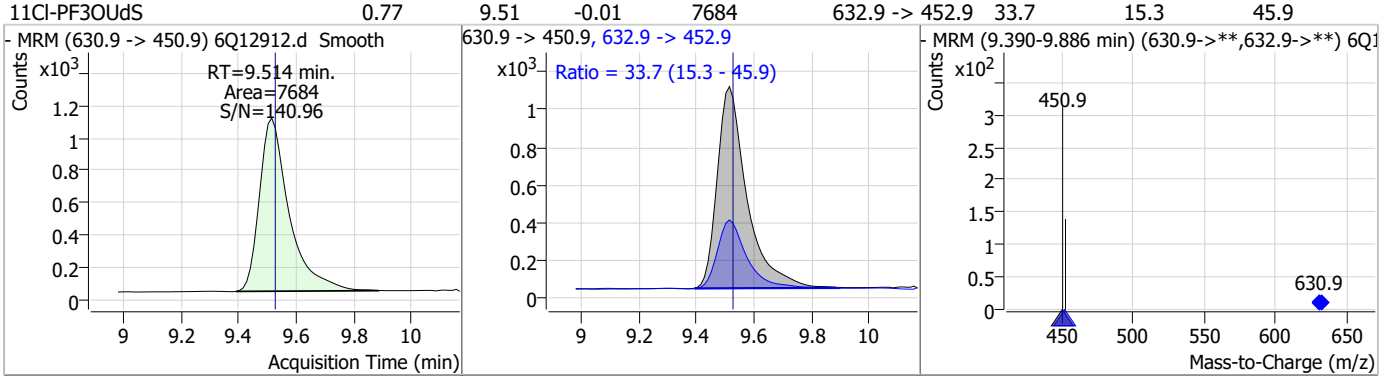
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.20	9.24	-0.01	562	599.0 -> 98.8	59.3	25.2	75.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.22	9.46	-0.01	3916	663.0 -> 168.9	7.2	4.0	12.0

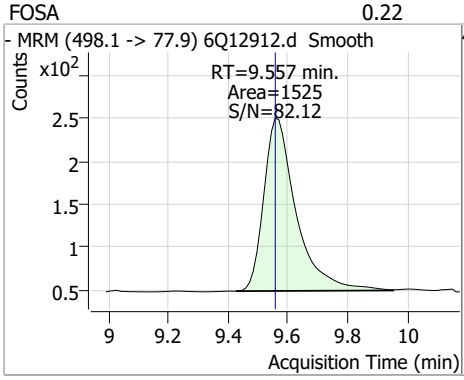


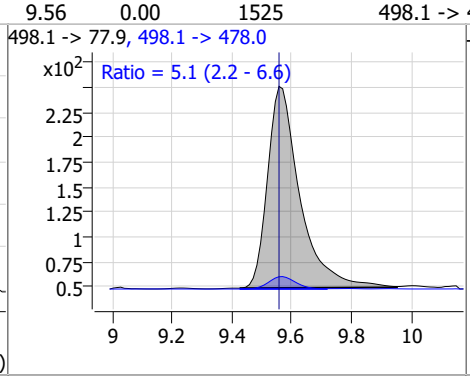
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.77	9.51	-0.01	7684	632.9 -> 452.9	33.7	15.3	45.9

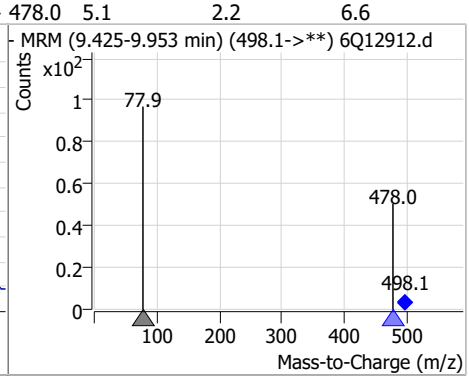


Perfluorinated Compounds by LC/MS/MS

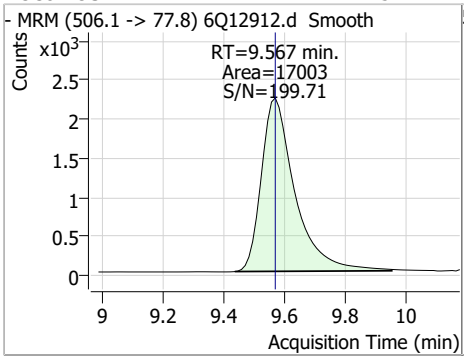
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.22	9.56	0.00	1525	498.1 -> 478.0	5.1	2.2	6.6

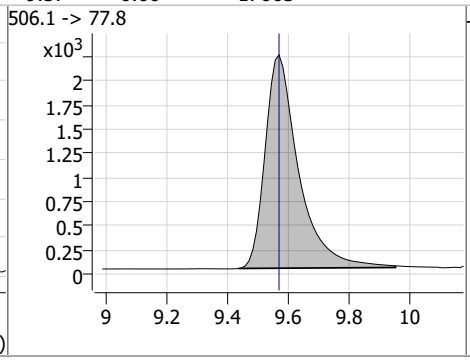


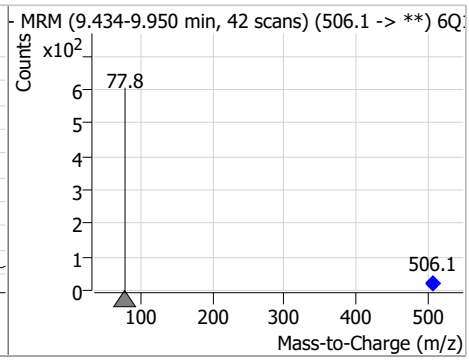




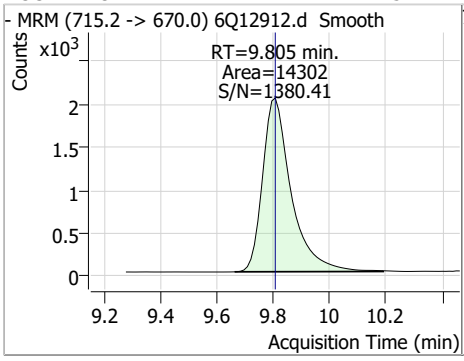
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.57	0.00	17003				

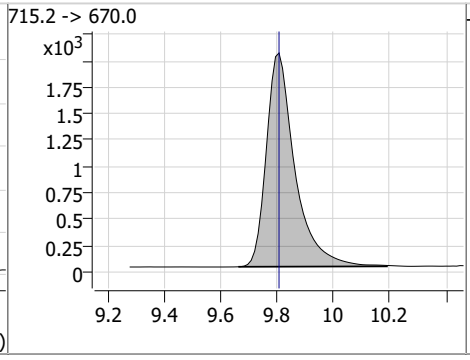


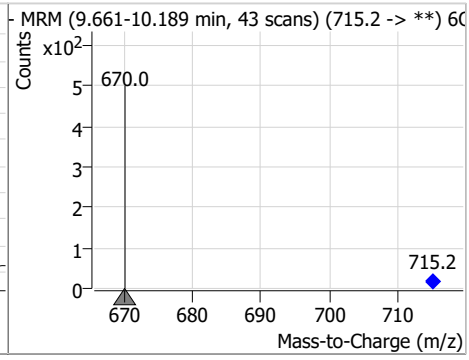




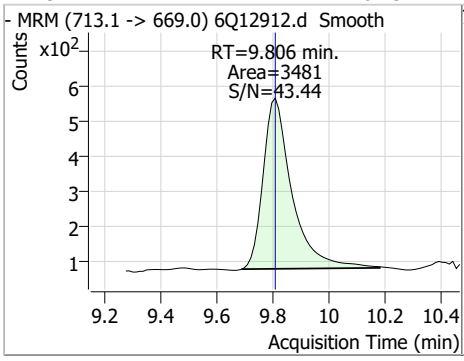
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.81	0.00	14302				

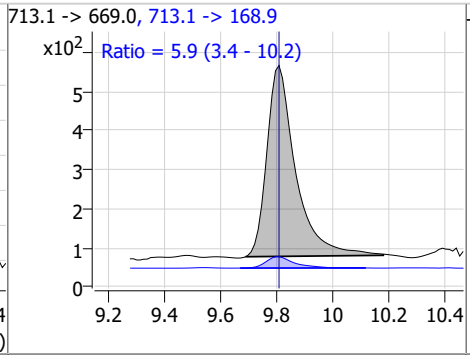


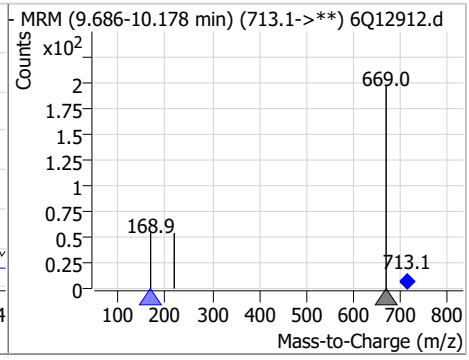




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.23	9.81	0.00	3481	713.1 -> 168.9	5.9	3.4	10.2

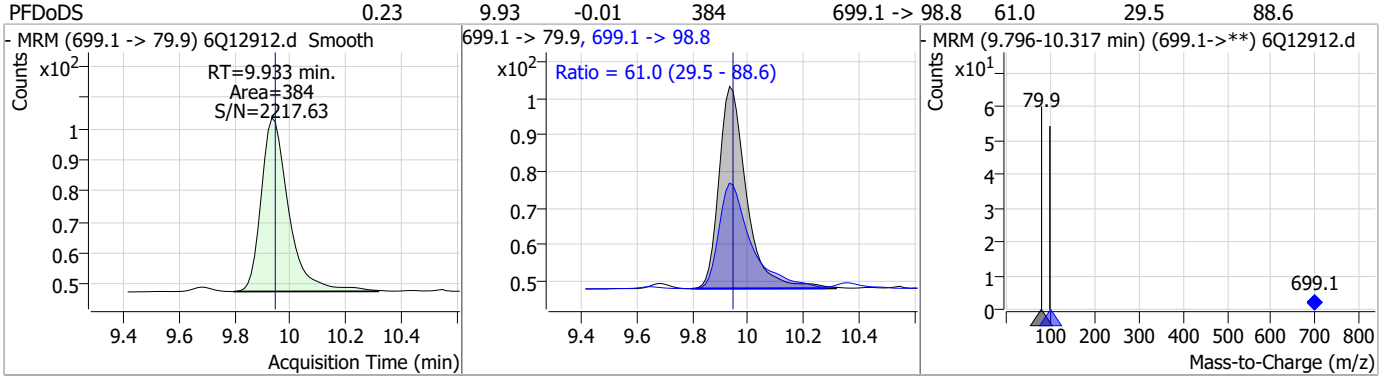




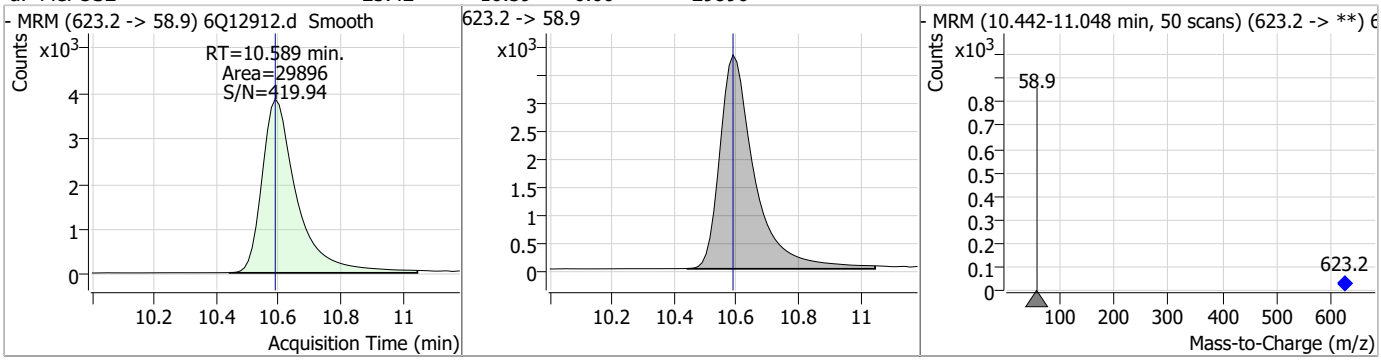


Perfluorinated Compounds by LC/MS/MS

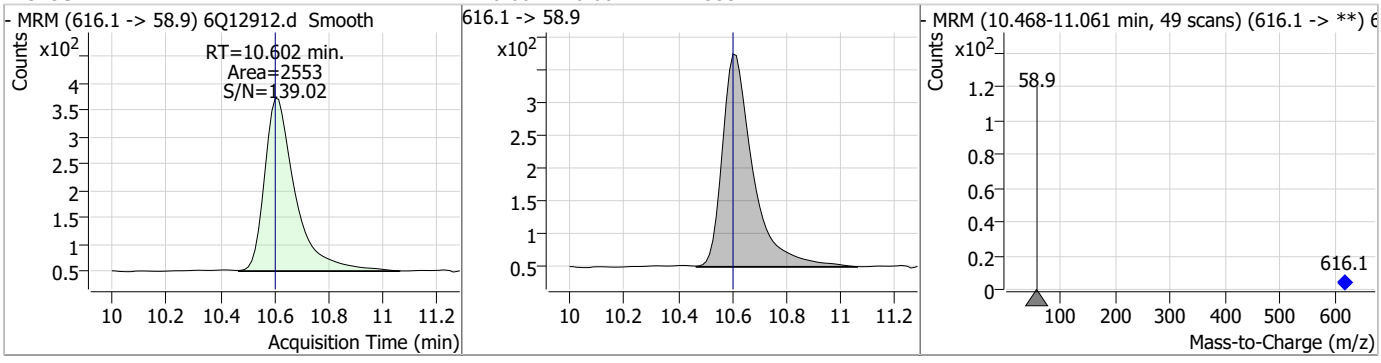
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.23	9.93	-0.01	384	699.1 -> 98.8	61.0	29.5	88.6



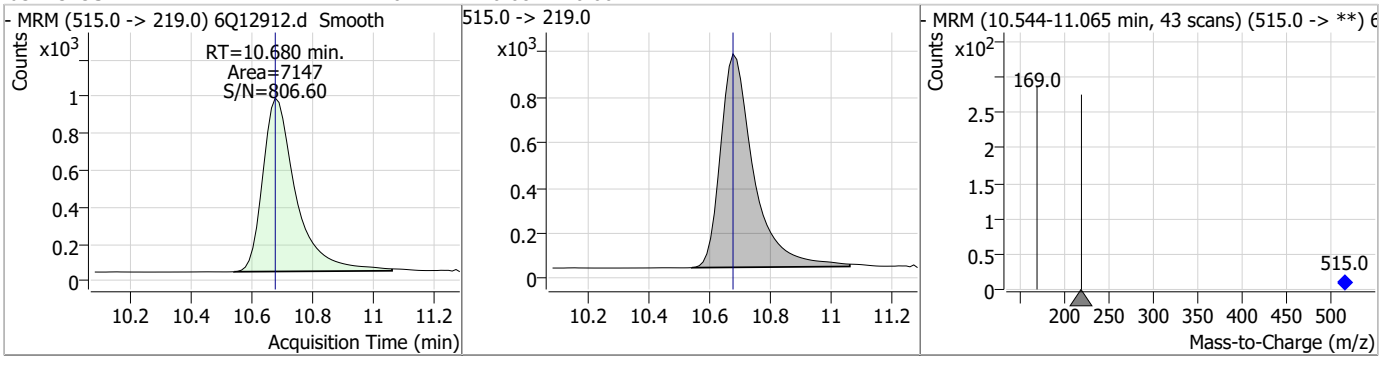
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.42	10.59	0.00	29896				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.14	10.60	0.00	2553				

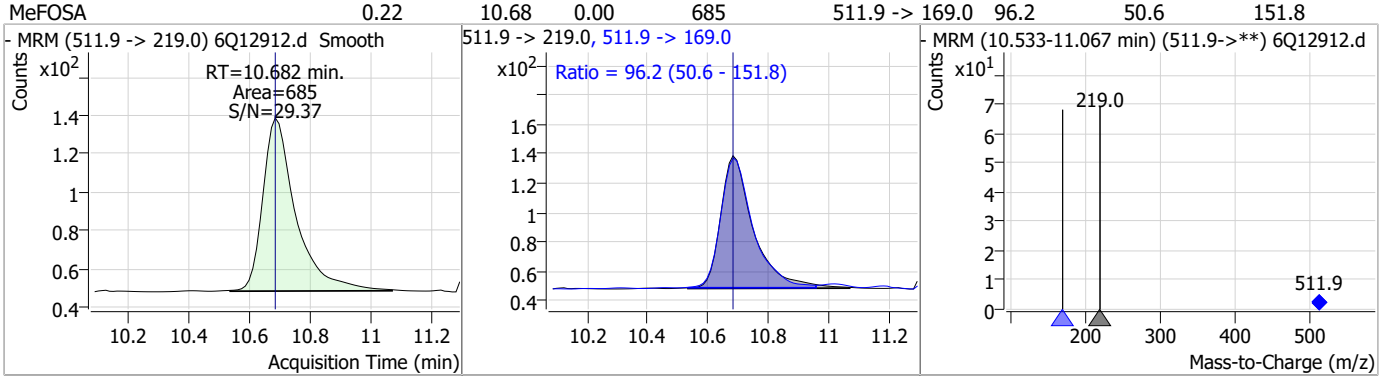


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.68	0.00	7147				

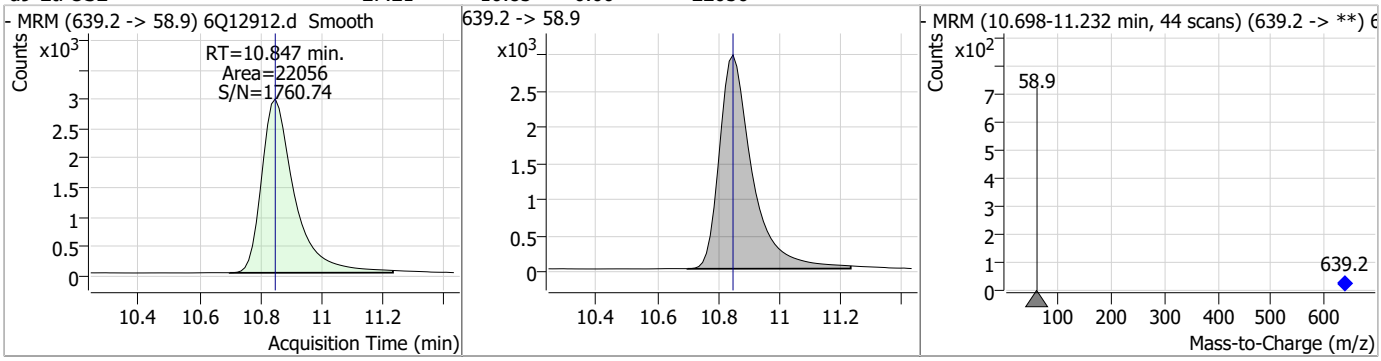


Perfluorinated Compounds by LC/MS/MS

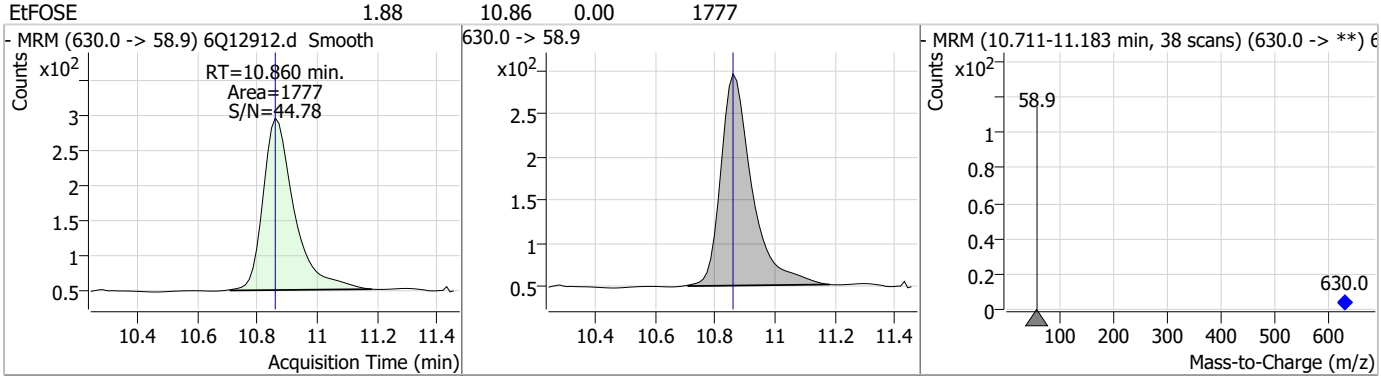
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.22	10.68	0.00	685	511.9 -> 169.0	96.2	50.6	151.8



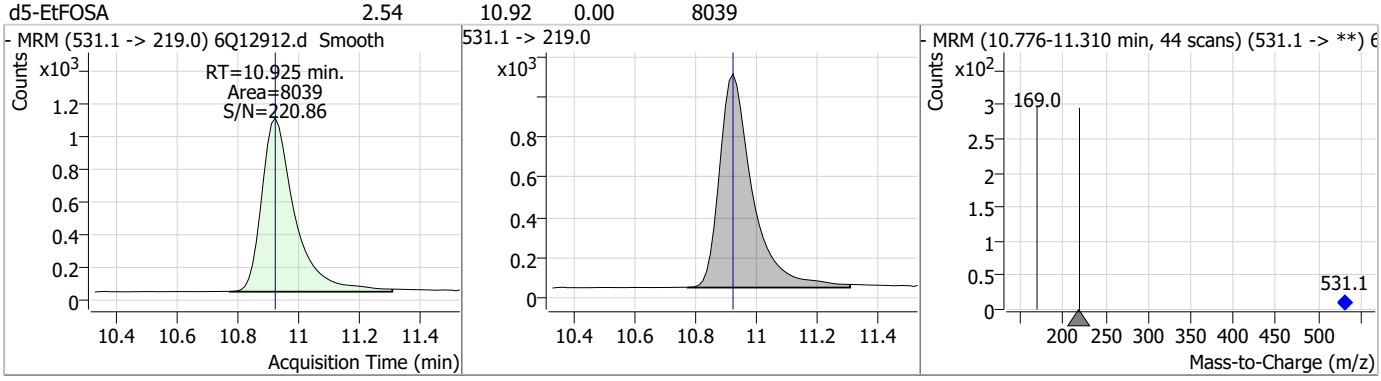
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.21	10.85	0.00	22056				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.88	10.86	0.00	1777				

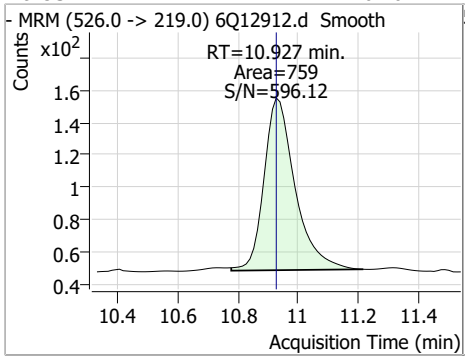


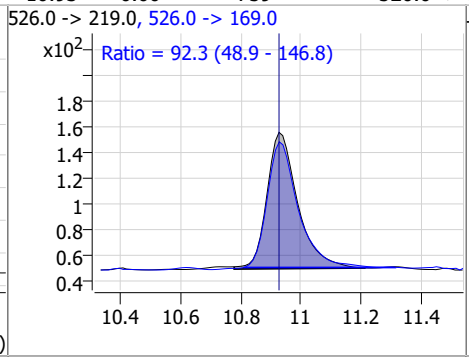
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.54	10.92	0.00	8039				

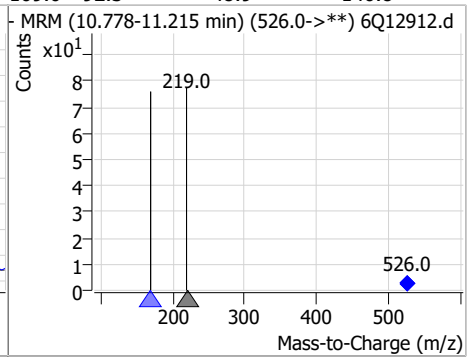


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.20	10.93	0.00	759	526.0 -> 169.0	92.3	48.9	146.8







Manual Integration Approval Summary

Sample Number:	S6Q198-CC196	**Method:**	EPA DRAFT 1633
Lab FileID:	6Q12912.D	**Analyst approved:**	02/06/23 11:00 Martha Valls
Injection Time:	02/03/23 16:33	**Supervisor approved:**	02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

SGS ORLANDO

LCMS6-6Q ANALYSIS LOG

DATE:	02/01/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M.Valls
RUN BATCH:	S6Q196

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	224857 W/5% CAN 220213 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2055-C
ICV STD LOT #:	LCMS 2041A/2042
ISTD/ID STD LOT #:	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q12715.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
2	6Q12716.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
3	6Q12717.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
4	6Q12718.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
5	6Q12719.d	P1-A1	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
6	6Q12720.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
7	6Q12721.d	P1-B4	RT BR-LN	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
8	6Q12722.d	P1-A1	ic196-0	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
9	6Q12723.d	P1-A2	ic196-1	1633full.m	Calibration	1.6/500	OP94819,S6Q196,500,,,5.0,1,water	✓
10	6Q12724.d	P1-A3	ic196-2	1633full.m	Calibration	4/500	OP94819,S6Q196,500,,,5.0,1,water	✓
11	6Q12725.d	P1-A4	ic196-3	1633full.m	Calibration	10/500	OP94819,S6Q196,500,,,5.0,1,water	✓
12	6Q12726.d	P1-A5	icc196-4	1633full.m	Calibration	20/500	OP94819,S6Q196,500,,,5.0,1,water	✓
13	6Q12727.d	P1-A6	ic196-5	1633full.m	Calibration	40/500	OP94819,S6Q196,500,,,5.0,1,water	✓
14	6Q12728.d	P1-A7	ic196-6	1633full.m	Calibration	100/500	OP94819,S6Q196,500,,,5.0,1,water	✓
15	6Q12729.d	P1-A8	ic196-7	1633full.m	Calibration	200/500	OP94819,S6Q196,500,,,5.0,1,water	✓
16	6Q12730.d	P1-A9	ic196-8	1633full.m	Calibration	1x	OP94819,S6Q196,500,,,5.0,1,water	✓
17	6Q12731.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
18	6Q12732.d	P1-B1	icv196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,,5.0,1,water	prep by NG
19	6Q12733.d	P1-B2	icv196-4	1633full.m	QC	100/500	OP94819,S6Q196,500,,,5.0,1,water	Full list lot
20	6Q12734.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,,5.0,1,water	✓
21	6Q12735.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q196,500,,,5.0,1,water	✓
22	6Q12736.d	P2-B3	op94938-bs	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
23	6Q12737.d	P2-B4	op94938-llbs:3	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
24	6Q12738.d	P2-B5	op94938-mb	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
25	6Q12739.d	P2-C3	FC1643-7	1633full.m	Sample		OP94938,S6Q196,550,,,5.0,1,water	✓
26	6Q12740.d	P2-C4	FC1643-8	1633full.m	Sample		OP94938,S6Q196,555,,,5.0,1,water	✓
27	6Q12741.d	P2-C5	FC1643-9	1633full.m	Sample		OP94938,S6Q196,545,,,5.0,1,water	✓
28	6Q12742.d	P2-C6	FC1643-10	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	rr1x for J value pfos
29	6Q12743.d	P2-C7	FC1643-11	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓
30	6Q12744.d	P2-C8	FC1643-12	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓
31	6Q12745.d	P2-C9	op94938-ms	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓
32	6Q12746.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95122,S6Q196,500,,,5.0,1,water	✓
33	6Q12747.d	P1-A1	iccb	1633full.m	Sample		OP95122,S6Q196,500,,,5.0,1,water	✓
34	6Q12748.d	P2-D1	FC1643-13	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓
35	6Q12749.d	P2-D2	op94938-dup	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓

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LCMS6-6Q ANALYSIS LOG

36	6Q12750.d	P2-D3	FC1643-14	1633full.m	Sample		OP94938,S6Q196,545,,,5.0,1,water	✓
37	6Q12751.d	P2-D4	FC1643-15	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	✓
38	6Q12752.d	P2-D5	FC1643-16	1633full.m	Sample		OP94938,S6Q196,550,,,5.0,1,water	✓
39	6Q12753.d	P2-D6	FC1643-17	1633full.m	Sample		OP94938,S6Q196,555,,,5.0,1,water	rr2x
40	6Q12754.d	P2-D7	FC1643-18	1633full.m	Sample		OP94938,S6Q196,545,,,5.0,1,water	rr1x co + 2x
41	6Q12755.d	P1-F4	fc1641-14	1633full.m	Sample	100/500	OP94914,S6Q196,530,,,5.0,5,water	✓
42	6Q12756.d	P1-F5	fc1641-15	1633full.m	Sample	100/500	OP94914,S6Q196,530,,,5.0,5,water	✓
43	6Q12757.d	P1-F6	fc1641-16	1633full.m	Sample		OP94914,S6Q196,550,,,5.0,5,water	✓
44	6Q12758.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95176,S6Q196,500,,,5.0,1,water	✓
45	6Q12759.d	P1-A1	iccb	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓
46	6Q12760.d	P1-F9	FC1904-2	1633full.m	Sample		OP95018,S6Q196,540,,,5.0,10,water	✓
47	6Q12761.d	P3-C1	FC1823-9	1633full.m	Sample	100/500	OP95176,S6Q196,66,,,5.0,5,water	✓
48	6Q12762.d	P3-C2	FC1823-11	1633full.m	Sample		OP95176,S6Q196,66,,,5.0,1,water	✓
49	6Q12763.d	P3-C3	FC1823-11	1633full.m	Sample	50/500	OP95176,S6Q196,66,,,5.0,10,water	✓
50	6Q12764.d	P3-C4	FC1823-13	1633full.m	Sample	100/500	OP95176,S6Q196,66,,,5.0,5,water	✓
51	6Q12765.d	P3-C5	FC1823-6	1633full.m	Sample	250/500	OP95176,S6Q196,66,,,5.0,2,water	✓
52	6Q12766.d	P3-C6	FC1641-4	1633full.m	Sample		OP94914,S6Q196,530,,,5.0,1,water	✓
53	6Q12767.d	P3-C7	FC1641-5	1633full.m	Sample		OP94914,S6Q196,520,,,5.0,1,water	✓
54	6Q12768.d	P3-C8	FC1643-5	1633full.m	Sample		OP94938,S6Q196,565,,,5.0,1,water	rr, data file skiped.
55	6Q12769.d	P3-C9	FC1643-5	1633full.m	Sample	100/500	OP94938,S6Q196,565,,,5.0,5,water	✓
56	6Q12770.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95176,S6Q196,500,,,5.0,1,water	✓
57	6Q12771.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP95176,S6Q196,500,,,5.0,1,water	✓
58	6Q12772.d	P1-A1	iccb	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓
59	6Q12773.d	P2-D8	op94945-bs	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	rr samples. No ccv
60	6Q12774.d	P2-D9	op94945-llbs:3	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	↑
61	6Q12775.d	P2-E1	op94945-mb	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	↑
62	6Q12776.d	P2-E2	FC1656-1	1633full.m	Sample		OP94945,S6Q196,555,,,5.0,1,water	↑
63	6Q12777.d	P2-E3	FC1656-2	1633full.m	Sample		OP94945,S6Q196,545,,,5.0,1,water	↑
64	6Q12778.d	P2-E4	FC1656-3	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	↑
65	6Q12779.d	P2-E5	FC1656-4	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	Vial punture error at 6:30AM
66	6Q12780.d	P2-E6	FC1656-5	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	RR
67	6Q12781.d	P1-D9	CCB	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓
68	6Q12782.d	P1-D9	CCB	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓
69	6Q12783.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
70	6Q12784.d	P1-B4	RT BR-LN	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
71	6Q12785.d	P1-A9	HIGH STD	1633full.m	Calibration		OP94819,S6Q196,500,,,5.0,1,water	✓
72	6Q12786.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
73	6Q12787.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,,5.0,1,water	✓
74	6Q12788.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q196,500,,,5.0,1,water	✓
75	6Q12789.d	P2-D8	op94945-bs	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	✓
76	6Q12790.d	P2-D9	op94945-llbs:3	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	✓
77	6Q12791.d	P2-E1	op94945-mb	1633full.m	Sample		OP94945,S6Q196,500,,,5.0,1,water	✓
78	6Q12792.d	P2-E2	FC1656-1	1633full.m	Sample		OP94945,S6Q196,555,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q12793.d	P2-E3	FC1656-2	1633full.m	Sample		OP94945,S6Q196,545,,,5.0,1,water	✓
80	6Q12794.d	P2-E4	FC1656-3	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
81	6Q12795.d	P2-E5	FC1656-4	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
82	6Q12796.d	P2-E6	FC1656-5	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
83	6Q12797.d	P2-E7	FC1656-6	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
84	6Q12798.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95176,S6Q196,500,,,5.0,1,water	✓
85	6Q12799.d	P1-A1	iccb	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓
86	6Q12800.d	P2-E8	FC1656-7	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
87	6Q12801.d	P2-E9	FC1656-8	1633full.m	Sample		OP94945,S6Q196,540,,,5.0,1,water	✓
88	6Q12802.d	P2-F1	FC1656-9	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
89	6Q12803.d	P2-F2	FC1656-10	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
90	6Q12804.d	P2-F3	FC1656-11	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
91	6Q12805.d	P2-F4	op94945-ms	1633full.m	Sample		OP94945,S6Q196,560,,,5.0,1,water	✓
92	6Q12806.d	P2-F5	op94945-msd	1633full.m	Sample		OP94945,S6Q196,560,,,5.0,1,water	✓
93	6Q12807.d	P2-F6	FC1656-12	1633full.m	Sample		OP94945,S6Q196,565,,,5.0,1,water	✓
94	6Q12808.d	P2-F7	FC1656-13	1633full.m	Sample		OP94945,S6Q196,555,,,5.0,1,water	✓
95	6Q12809.d	P1-A5	Ecc196-4	1633full.m	QC	20/500	OP95176,S6Q196,500,,,5.0,1,water	✓
96	6Q12810.d	P1-A1	iccb	1633full.m	Sample		OP95176,S6Q196,500,,,5.0,1,water	✓

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LCMS6-6Q ANALYSIS LOG

DATE:	02/03/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M.Valls
RUN BATCH:	S6Q198

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	224857 W/5% CAN 220213 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2055-C
ICV STD LOT #:	LCMS 2041A/2042
ISTD/ID STD LOT #:	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
168	6Q12882.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
169	6Q12883.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
170	6Q12884.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
171	6Q12885.d	P1-B4	RT BR-LN	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
172	6Q12886.d	P1-A9	High Std	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
173	6Q12887.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
174	6Q12888.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
175	6Q12889.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q198,500,,,5.0,1,water	✓
176	6Q12890.d	P4-A1	op95216-bs	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
177	6Q12891.d	P4-A2	op95216-llbs:3	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
178	6Q12892.d	P4-A3	op95216-mb	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
179	6Q12893.d	P4-A4	FC2175-1	1633full.m	Sample		OP95216,S6Q198,530,,,5.0,1,water	✓
180	6Q12894.d	P4-A5	FC2175-2	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	✓
181	6Q12895.d	P4-A6	FC2228-1	1633full.m	Sample		OP95216,S6Q198,540,,,5.0,1,water	✓
182	6Q12896.d	P4-A7	FC2228-2	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
183	6Q12897.d	P4-A8	FC2228-3	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
184	6Q12898.d	P4-A9	FC2239-1	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
185	6Q12899.d	P4-B1	op95216-ms	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
186	6Q12900.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
187	6Q12901.d	P1-A1	iccb	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
188	6Q12902.d	P4-B2	FC2239-2	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
189	6Q12903.d	P4-B3	FC2239-3	1633full.m	Sample		OP95216,S6Q198,540,,,5.0,1,water	✓
190	6Q12904.d	P4-B4	FC2242-1	1633full.m	Sample		OP95216,S6Q198,280,,,5.0,1,water	✓
191	6Q12905.d	P4-B5	FC2270-1	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
192	6Q12906.d	P4-B6	FC2270-2	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	d5-EtFOSAA HIGH, rr5x
193	6Q12907.d	P4-B7	op95216-dup	1633full.m	Sample		OP95216,S6Q198,530,,,5.0,1,water	✓
194	6Q12908.d	P4-B8	FC2270-3	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
195	6Q12909.d	P4-B9	FC2270-4	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	✓
196	6Q12910.d	P4-C1	FC2205-1	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	RR10X
197	6Q12911.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
198	6Q12912.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q198,500,,,5.0,1,water	✓
199	6Q12913.d	P1-A1	iccb	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
200	6Q12914.d	P4-C2	op95034-bs	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
201	6Q12915.d	P4-C3	op95034-llbs:2	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
202	6Q12916.d	P4-C4	op95034-mb	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

203	6Q12917.d	P4-C5	JD58609-2A	1633full.m	Sample		OP95034,S6Q198,4.99,,,5.0,1,soil	✓
204	6Q12918.d	P4-C6	JD58693-1B	1633full.m	Sample		OP95034,S6Q198,4.95,,,5.0,1,soil	✓
205	6Q12919.d	P4-C7	op95034-ms	1633full.m	Sample		OP95034,S6Q198,5.02,,,5.0,1,soil	✓
206	6Q12920.d	P4-C8	op95034-msd	1633full.m	Sample		OP95034,S6Q198,5.03,,,5.0,1,soil	✓
207	6Q12921.d	P4-C9	JD58693-2B	1633full.m	Sample		OP95034,S6Q198,5.02,,,5.0,1,soil	✓
208	6Q12922.d	P4-D1	JD58693-3B	1633full.m	Sample		OP95034,S6Q198,5.04,,,5.0,1,soil	✓
209	6Q12923.d	P4-D2	JD58693-4B	1633full.m	Sample		OP95034,S6Q198,4.96,,,5.0,1,soil	✓
210	6Q12924.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
211	6Q12925.d	P1-A1	iccb	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
212	6Q12926.d	P4-D3	JD58693-5B	1633full.m	Sample		OP95034,S6Q198,4.95,,,5.0,1,soil	✓
213	6Q12927.d	P4-D4	JD58693-6B	1633full.m	Sample		OP95034,S6Q198,5.04,,,5.0,1,soil	✓
214	6Q12928.d	P4-D5	JD58693-7B	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
215	6Q12929.d	P4-D6	JD58693-8B	1633full.m	Sample		OP95034,S6Q198,4.97,,,5.0,1,soil	✓
216	6Q12930.d	P4-D7	JD58693-9B	1633full.m	Sample		OP95034,S6Q198,5.01,,,5.0,1,soil	✓
217	6Q12931.d	P4-D8	JD58693-10B	1633full.m	Sample		OP95034,S6Q198,4.98,,,5.0,1,soil	✓
218	6Q12932.d	P4-D9	JD58693-11B	1633full.m	Sample		OP95034,S6Q198,4.99,,,5.0,1,soil	✓
219	6Q12933.d	P4-E1	JD58693-12B	1633full.m	Sample		OP95034,S6Q198,5.01,,,5.0,1,soil	✓
220	6Q12934.d	P4-E2	JD58693-13B	1633full.m	Sample		OP95034,S6Q198,5.03,,,5.0,1,soil	✓
221	6Q12935.d	P4-E3	JD58693-14B	1633full.m	Sample		OP95034,S6Q198,5.03,,,5.0,1,soil	✓
222	6Q12936.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
223	6Q12937.d	P1-A1	iccb	1633full.m	Sample		OP95034,S6Q198,5.00,,,5.0,1,soil	✓
224	6Q12938.d	P4-E4	JD58693-15B	1633full.m	Sample		OP95034,S6Q198,4.96,,,5.0,1,soil	✓
225	6Q12939.d	P4-E5	JD58693-16B	1633full.m	Sample		OP95034,S6Q198,5.04,,,5.0,1,soil	✓
226	6Q12940.d	P4-E6	JD58693-17B	1633full.m	Sample		OP95034,S6Q198,5.01,,,5.0,1,soil	✓
227	6Q12941.d	P4-E7	JD58693-18B	1633full.m	Sample		OP95034,S6Q198,5.05,,,5.0,1,soil	✓
228	6Q12942.d	P4-E8	op95035-bs	1633full.m	Sample		OP95035,S6Q198,5.00,,,5.0,1,soil	✓
229	6Q12943.d	P4-E9	op95035-llbs:2	1633full.m	Sample		OP95035,S6Q198,5.00,,,5.0,1,soil	✓
230	6Q12944.d	P4-F1	op95035-mb	1633full.m	Sample		OP95035,S6Q198,5.00,,,5.0,1,soil	✓
231	6Q12945.d	P4-F2	JD58693-19B	1633full.m	Sample		OP95035,S6Q198,4.99,,,5.0,1,soil	✓
232	6Q12946.d	P4-F3	op95035-ms	1633full.m	Sample		OP95035,S6Q198,5.04,,,5.0,1,soil	✓
233	6Q12947.d	P4-F4	op95035-msd	1633full.m	Sample		OP95035,S6Q198,4.95,,,5.0,1,soil	✓
234	6Q12948.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
235	6Q12949.d	P1-A1	iccb	1633full.m	Sample		OP95035,S6Q198,5.00,,,5.0,1,soil	✓
236	6Q12950.d	P4-F5	JD58693-20B	1633full.m	Sample		OP95035,S6Q198,4.97,,,5.0,1,soil	✓
237	6Q12951.d	P4-F6	JD58693-21B	1633full.m	Sample		OP95035,S6Q198,5.04,,,5.0,1,soil	✓
238	6Q12952.d	P4-F7	JD58693-22B	1633full.m	Sample		OP95035,S6Q198,4.95,,,5.0,1,soil	✓
239	6Q12953.d	P4-F8	JD58693-23B	1633full.m	Sample		OP95035,S6Q198,4.97,,,5.0,1,soil	✓
240	6Q12954.d	P4-F9	JD58693-24B	1633full.m	Sample		OP95035,S6Q198,4.97,,,5.0,1,soil	✓
241	6Q12955.d	P1-A5	Ecc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
242	6Q12956.d	P1-A1	iccb	1633full.m	Sample		OP95035,S6Q198,5.00,,,5.0,1,soil	✓

SGS

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221094	MeOH	Fisher	---	1/4/24	99.9%	92mL	100mL	92%	N/A	1/4/24	1/4/25	[illegible]
↓	↓	Lot: 219481	NH4OH	↓	---	9/19/23	100%	3.3mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	---	1/17/24	100%	17mL	↓	17%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	---	6/24	99.7%	0.625mL	↓	0.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PFOA DOD 22 2010	SGS Wellington	11/2/27	1/10/24	1.0ppm	400mL	4.0mL	0.1ppb	15% 2054	1/10/24	1/10/25	[illegible]
↓	↓	LCMS 1987	40 list ADDon#1	↓	---	3/21/23	1.0ppm	400mL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list Add on #2	↓	---	4/18/23	1.0ppm	400mL	↓	↓	↓	↓	↓	↓
↓	↓ LCMS 2054 →	LCMS ~~2052~~ 2054	Fose std.	↓	---	1/24/23 5/4/23	5.0ppm	400mL	↓	50ppb	↓	↓	↓	↓
LCMS 2054	Fose std	11336	N-Et-FOSE	Wellington	5/12/27	9/19/23	50ppm	200mL	2.0mL	5ppm	15% 2054	1/10/24	1/10/25	[illegible]
↓	↓	11338	N-Me FOSE	↓	5/12/27	9/19/23	50ppm	200mL	↓	↓	↓	↓	↓	↓
LCMS 2055 A-C	1633 Cal std.	10855J	PFAC-MxH	Wellington	9/14/26	1/7/24	1-4 ppm	250mL	1mL	62.5 ppb	1633 (1:1)	1/24/24	7/24/24	[illegible]
↓	↓	10853I 10853J	PFAC-MxI	↓	9/14/26	1/11/24 1/24/24	1-10 ppm	250mL	↓	62.5 62.5 125 ppb	↓	↓	↓	↓
↓	↓	11579B 11617A.	PFAC-MxF	↓	11/4/25	1/11/24 1/24/24	2ppm	500mL	↓	2ppm	↓	↓	↓	↓
↓	↓	10854I 10854J	PFAC-MxG	↓	3/4/25	1/11/24 1/24/24	2ppm	250mL	↓	12.5ppb	↓	↓	↓	↓
↓	↓	11492 11603.	PFAC-MxJ	↓	9/14/26	1/11/24 1/24/24	4-20 ppm	312mL	↓	312/1560 ppb	↓	↓	↓	↓
				~~Fisher~~										

AR MJ 1/24/23

* based on date opened as specified in each SGS - Orlando SOP.

SGS

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep Date	Exp. Date	Initials
LCMS 2041	Spike 1633 Cal std	10855H	PFAC-MxH	Wellington	9/14/26	12/28/23	1-4 ppm	250 µL	4 mL	62.5 125 ppb	1633 Mix	11/4/23	7/6/23	MV
↓	↓	10853H	PFAC-MxI	↓	9/14/26	12/28/23	1-10 ppm	250 µL	↓	62.5 625 ppb	↓	↓	↓	↓
↓	↓	11512B	PFAC-MxF	↓	01/11/25	12/28/23	2 ppm	500 µL	↓	250 ppb	↓	↓	↓	↓
↓	↓	10854H	PFAC-MxG	↓	3/11/25	12/30/23	2 ppm	250 µL	↓	125 ppb	↓	↓	↓	↓
↓	↓	10857J	PFAC-MxJ	↓	9/11/26 10/12/23	10/12/23	4-20 ppm	312 µL	↓	[illegible]	↓	↓	↓	↓
LCMS 2042	(Spike) Full list std.	11524	PFOA [illegible]	[illegible]	11/9/23 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
↓	↓	LCMS 1457	40 list ADDX	SGS N/A	—	3/21/23	1.0 ppm	400 µL	↓	100 ppb	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list ADDX	↓	—	4/4/23	1.0 ppm	400 µL	↓	100 ppb	↓	↓	↓	↓
↓	↓	LCMS 2012	FOSE std.	↓	—	5/11/23	5.0 ppm	400 µL	↓	500 ppb	↓	↓	↓	↓
LCMS 2043	List 40 (Sim) ADD-2N [illegible]	11355	d7-N-MeFOSE	Wellington	6/12/27	10/2/23	5.0 ppm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MV
↓	↓	11400	D9-N EtFOSE	↓	6/21/27	12/7/23	↓	200 µL	↓	↓	↓	↓	↓	↓
↓	↓	11115	M2-PFHxDA	↓	11/23/28	8/23/23	↓	[illegible]	↓	↓	↓	↓	↓	↓
↓	↓	10836	D-N EtFOSA	↓	12/30/25	8/23/23	↓	40 µL	↓	↓	↓	↓	↓	↓
LCMS 2044	1633 Solvent B	11387	Ammonium Acetate	Sigma Aldrich	—	9/19/23	99.9%	[illegible]	4 L	[illegible]	—	11/6/23	3/6/23	MV
↓	↓	224856	Water	Fisher	—	1/16/24	↓	[illegible]	↓	15:85 Acetone	↓	↓	↓	↓
↓	↓	220228	Acetonitrile	↓	—	9/16/24	↓	200 mL 100 mL	↓	↓	↓	↓	↓	↓

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SGS

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 1987	40 List Std ADD-ON #1	10726A	10:2 FTS	Wellington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	10/18/22	03/21/23	NG
		10840	L-PFDoS		07/01/26	10/18/23								
		10829	N-MeFOSA		08/03/26	08/23/23								
		10837	N-EtFOSA		08/03/26	08/23/23								
		10842	PFHxDA	NG 10/18/22	09/03/26	10/18/23								
		10841	PFODA		05/07/26	10/18/23								
	★	10684A	3:3FTCA PFPrPA		11/12/25	03/21/23								
		10685A	5:3FTCA PFPePA		11/11/25	08/23/23								
		10683A	7:3FTCA PFHpPA		11/12/25	03/21/23								
		11117	PFECHS		10/14/26	06/23/23								
		10762B	PFEESA		05/13/25	10/18/23								
		10763B	PFMBA PFSOHxA		03/31/25	10/18/23								
		10764A	PFMPA PFEOPeA		03/31/25	03/21/23								
		10765B	NFHDA 3,6OPFHpA		03/31/25	10/18/23								
					10/18/22									

* based on date opened as specified in each SGS - Orlando SOP.

SGS

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 1985A-B	List 40 ADD-ON ~~Isotope~~ Mix	11333	D7-N-MeFOSE	Wellington Labs	01/27/27	10/12/23	50ppm	200uL	20mL	1/5 ppm	95% MeOH 5% H2O	10/18/22	04/18/23	NG
↓	↓	11339	D9-N-EtFOSE	↓	01/27/27	10/12/23	↓	200uL	↓	↓	↓	↓	↓	NG
↓	↓	11115	M2-PFHxDA	↓	11/23/28	08/23/23	↓	40uL	↓	↓	↓	↓	↓	NG
↓	↓	10836	D-N-EtFOSA	↓	12/30/25	08/23/23	↓	40uL	↓	↓	↓	↓	↓	NG
LCMS 1986	40 List Std. ADD-ON #2	11224	FBSA-1	Wellington Labs	11/10/26	06/23/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	10/18/22	04/18/23	NG
↓	↓	11225	FHxSA-1	↓	12/29/26	06/23/23	50ppm	80uL	↓	↓	↓	↓	↓	NG
↓	↓	11140	L-PFPrS	↓	07/12/26	05/26/23	50ppm	80uL	↓	↓	↓	↓	↓	NG

NG 10/18/22

* based on date opened as specified in each SGS - Orlando SOP.

SGS

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2009 A & B	PFC Spike	11483	PFOA-DOD (28 comps)	Wellington Labs	08/05/27	11/08/23	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	11/08/22	05/08/23	NG
↓	↓	10839	N-Me-FOSA-M	↓	08/23/26	09/22/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11224	FBSA-1	↓	11/10/26	06/23/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHxSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	PFECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
LCMS 2010 A-B	1633 (spike) CAL. Std.	10855F	PFAC-MXH	Wellington Labs	09/14/26	11/04/23	1-4 ppm	250uL	4mL	62.5/125/250 ppb	1633 Mix	11/09/22	05/04/23	NG
↓	↓	10853E	PFAC-MXI	↓	09/14/26	11/04/23	1-10 ppm	250uL	↓	62.5/625 ppb	↓	↓	↓	NG
↓	↓	10856I	PFAC-MXF	↓	05/04/23	05/04/23	2ppm	500uL	↓	250ppb	↓	↓	↓	NG
↓	↓	10854E	PFAC-MXG	↓	03/04/25	11/04/23	2 ppm	250uL	↓	125ppb	↓	↓	↓	NG
↓	↓	10857D	PFAC-MXJ	↓	10/12/23	11/08/23	4-20 ppm	312uL	↓	312/1160 ppb	↓	↓	↓	NG
LCMS 2011	(spike) FULL List Std.	11440	PFOA-DOD(28)	Absolute	08/05/27	10/26/23	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	11/11/22	03/21/23	NG
↓	↓	LCMS 1987	40 List ADD-ON #1	—	—	03/21/23	1.0ppm	400uL	↓	100ppb	↓	↓	↓	NG
↓	↓	LCMS 1986	40 List ADD-ON #2	—	—	04/18/23	1.0ppm	400uL	↓	100ppb	↓	↓	↓	NG
↓	↓	LCMS 2012	FOSE Std.	—	—	05/11/23	5.0ppm	400uL	↓	500ppb	↓	↓	↓	NG
LCMS 2012	FOSE Std.	11336	N-Et-FOSE	Wellington Labs	05/13/27	09/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	11/11/22	05/11/23	NG
↓	↓	11338	N-Me-FOSE	↓	05/13/27	09/19/23	50ppm	200uL	↓	↓	↓	↓	↓	NG

*** based on date opened as specified in each SGS - Orlando SOP.**

10853

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXI

Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

PRODUCT CODE:	PFAC-MXI
LOT NUMBER:	PFACMXI0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
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

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

Table A: **PFAC-MXI; Components and Concentrations (µg/mL; ± 5% in methanol)**

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: _____ **Date:** 09/23/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXI0921 (3 of 5)
rev0

10854

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG1219
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	12/03/2019
LAST TESTED: (mm/dd/yyyy)	05/04/2020
EXPIRY DATE: (mm/dd/yyyy)	05/04/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
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 acids to their respective methyl esters.

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 07/30/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXG1219 (3 of 5)
rev2

10899

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native Per- and Poly-fluoroalkyl Substance Solution/Mixture

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0921
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	09/09/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), eight native perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, C_{10} and C_{12} linear; C_6 and C_8 linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of br-NMeFOSAA
Table C: Isomeric Components and Percent Composition of br-NEtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
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 acids to their respective methyl esters.

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INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXH; Components and Concentrations (µg/mL, ± 5% in methanol / isopropanol (2%) / water (<1%))**

Compound	Acronym	Concentration* (µg/mL)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	4.00	1
Perfluoro-n-pentanoic acid	PFPeA	2.00	2
Perfluoro-n-hexanoic acid	PFHxA	1.00	5
Perfluoro-n-heptanoic acid	PFHpA	1.00	7
Perfluoro-n-octanoic acid	PFOA	1.00	11
Perfluoro-n-nonanoic acid	PFNA	1.00	14
Perfluoro-n-decanoic acid	PFDA	1.00	18
Perfluoro-n-undecanoic acid	PFUdA	1.00	23
Perfluoro-n-dodecanoic acid	PFDoA	1.00	26
Perfluoro-n-tridecanoic acid	PFTrDA	1.00	27
Perfluoro-n-tetradecanoic acid	PFTeDA	1.00	29
Perfluoro-1-octanesulfonamide	FOSA	1.00	25
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	0.760	20
	N-MeFOSAA: ∑ branched isomers	0.240	17
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	0.775	22
	N-EtFOSAA: ∑ branched isomers	0.225	21

Compound	Acronym	Concentration* (µg/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1.00	0.887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: ∑ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	0.788	0.732	15
	PFOSK: ∑ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4.00	3.84	16

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 09/23/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXH0921 (3 of 11)
rev0

rec'd 10/31/22 11492

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
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

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Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: _____ B.G. Chittim, General Manager

Date: 10/02/2021 (mm/dd/yyyy)

PFACMXJ0921 (3 of 5)
rev1

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

11579 A-B
rec'd 12/27/22

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 01/12/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

11603
rec'd: 01/10/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: _____ **Date:** 10/02/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

11617 A-B rec'd 01/19/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: B.G. Chittim, General Manager

Date: 01/12/2022 (mm/dd/yyyy)

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native Fluorotelomer Propanoic Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native fluorotelomer propanoic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)**

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
3-Perfluoropropyl propanoic acid	FPrPA	4.00	A
3-Perfluoropentyl propanoic acid	FPePA	20.0	B
3-Perfluoroheptyl propanoic acid	FHpPA	20.0	C

Certified By: _____ **Date:** 09/23/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ0921 (3 of 5)
rev0

11512 A-B
rec'd 11/11/22

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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ble A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

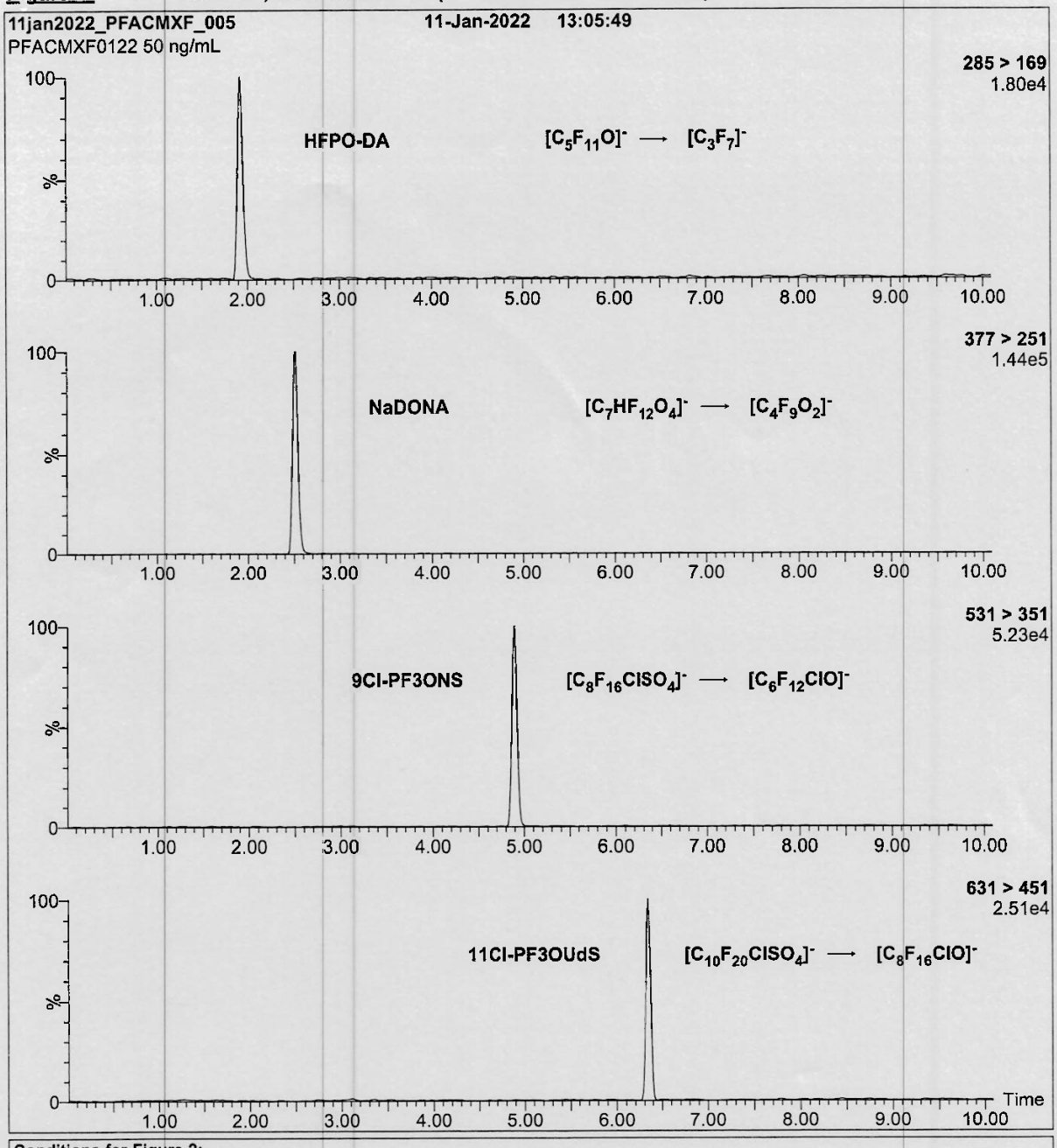
Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000*		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 01/12/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 2: PFAC-MXF; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (PFAC-MXF)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 6-60 (variable)

10683A

WELLINGTON LABORATORIES

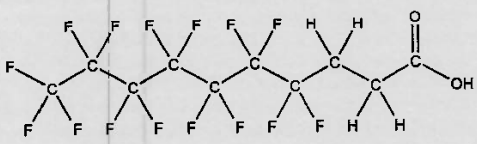
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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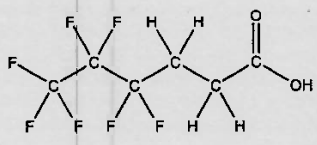
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid
LOT NUMBER: FPrPA1020

STRUCTURE:
CAS #: 356-02-5



MOLECULAR FORMULA: $C_6H_5F_7O_2$
MOLECULAR WEIGHT: 242.09
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
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% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ B.G. Chittim, General Manager
Date: 11/27/2020 (mm/dd/yyyy)

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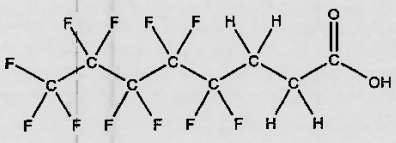
10685A

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPePA
COMPOUND: 3-Perfluoropentyl propanoic acid
LOT NUMBER: FPePA1120

STRUCTURE:
CAS #: 914637-49-3



MOLECULAR FORMULA: $C_8H_5F_{11}O_2$
MOLECULAR WEIGHT: 342.11
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/11/2020
EXPIRY DATE: (mm/dd/yyyy) 11/11/2025
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% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

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Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
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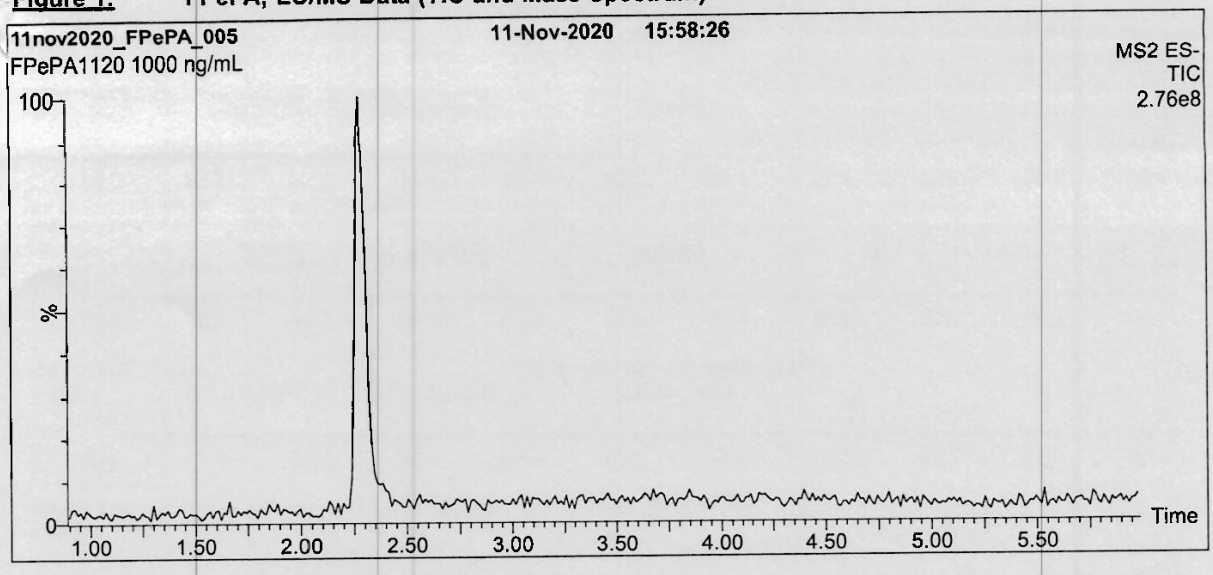
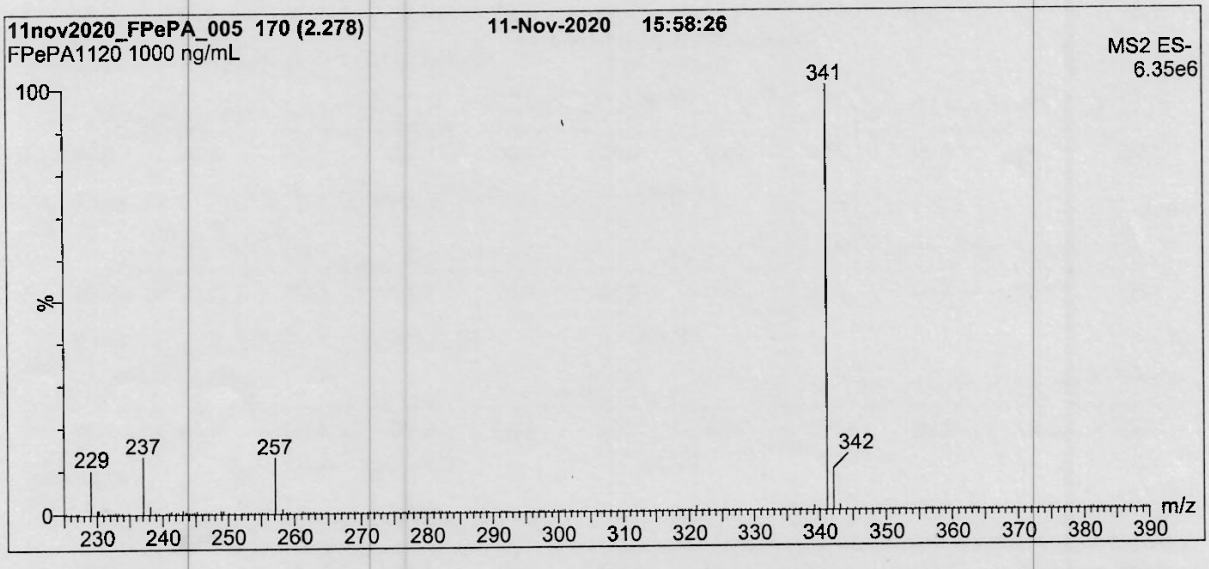
Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FPePA1120 (3 of 4)
rev0

10726 A

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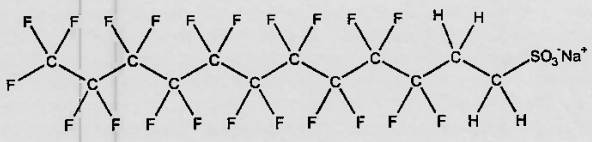
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221

COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: $C_{12}H_4F_{21}SO_3Na$ **MOLECULAR WEIGHT:** 650.18

CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol

48.3 ± 2.4 µg/mL (10:2FTS acid)

48.2 ± 2.4 µg/mL (10:2FTS anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/03/2021

EXPIRY DATE: (mm/dd/yyyy) 03/03/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: B.G. Chittim, General Manager **Date:** 03/05/2021 (mm/dd/yyyy)

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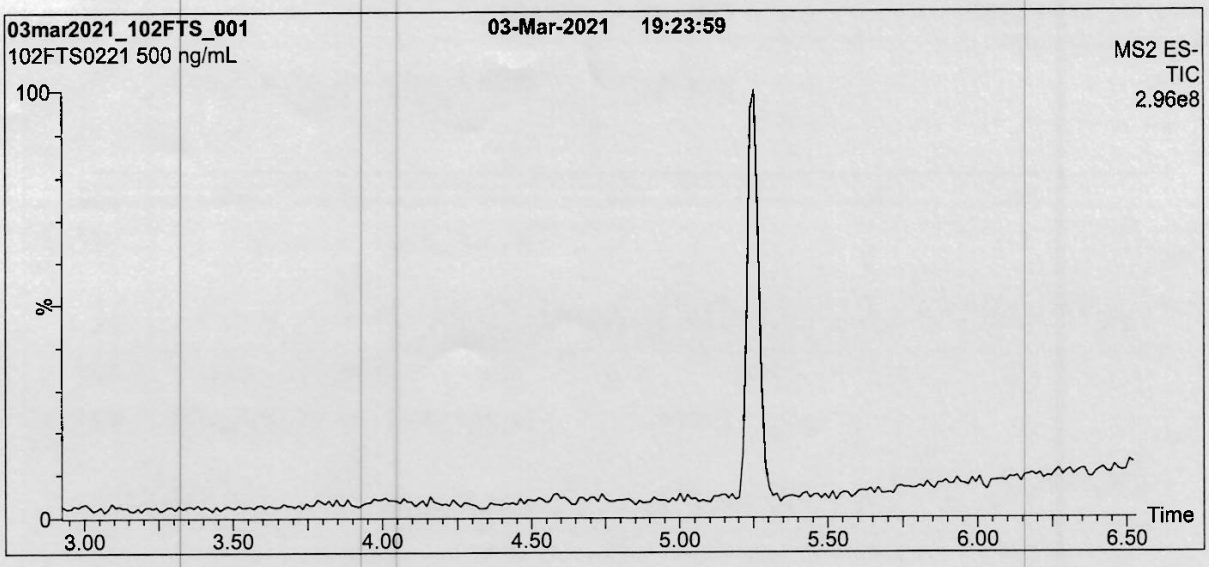
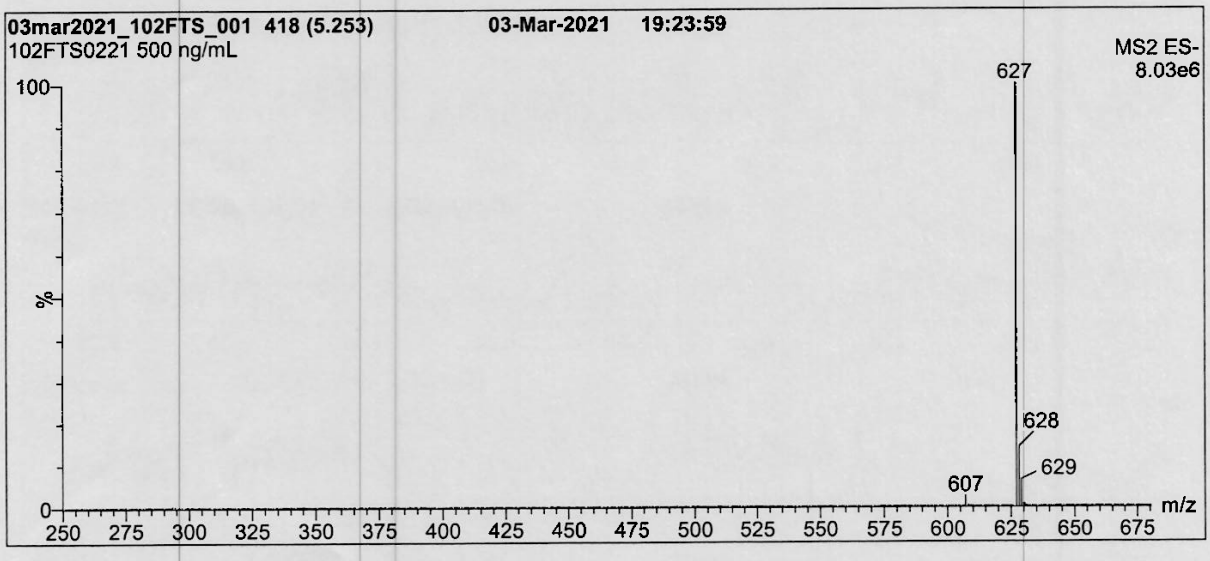
Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

102FTS0221 (3 of 4)
rev0

10762 A-B

WELLINGTON LABORATORIES

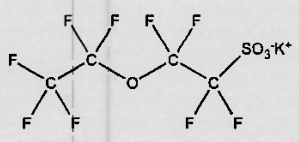
CERTIFICATE OF ANALYSIS DOCUMENTATION

rec'd 8/20/21 VPH

PRODUCT CODE: PFEESA **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: $C_4F_9SO_4K$ **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/29/2020 (mm/dd/yyyy)

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10763 A-B

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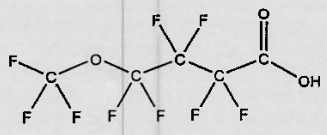
CERTIFICATE OF ANALYSIS DOCUMENTATION

rec'd WFU 8/20/21

PRODUCT CODE: PF5OHxA
LOT NUMBER: PF5OHxA0320
COMPOUND: Perfluoro-5-oxahexanoic acid
SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)
STRUCTURE:
CAS #: 863090-89-5



MOLECULAR FORMULA: $C_5HF_9O_3$
MOLECULAR WEIGHT: 280.05
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/31/2020
EXPIRY DATE: (mm/dd/yyyy) 03/31/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: _____ **Date:** 12/21/2020 (mm/dd/yyyy)
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10764 A-B

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

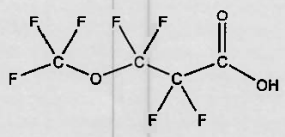
rec'd WEH 8/20/21

PRODUCT CODE: PF4OPeA **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: $C_4HF_7O_3$ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol, Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: _____ **Date:** 12/21/2020 (mm/dd/yyyy)
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10765 A-13

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rec'd WFH 8/20/21

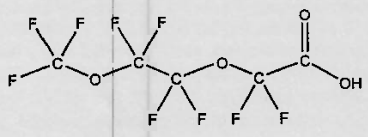
PRODUCT CODE: 3,6-OPFHpA

LOT NUMBER: 36OPFHpA0320

COMPOUND: Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #: 151772-58-6



MOLECULAR FORMULA: $C_5HF_9O_4$

MOLECULAR WEIGHT: 296.04

CONCENTRATION: 50.0 ± 2.5 µg/ml

SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: _____ B.G. Chittim, General Manager

Date: 05/27/2020 (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

10829

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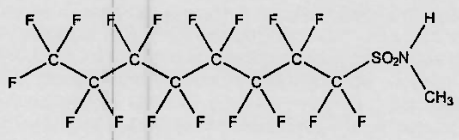
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide
LOT NUMBER: NMeFOSA0721M

STRUCTURE:
CAS #: 31506-32-8



rec'd WEM 10/5/21

MOLECULAR FORMULA: $C_8H_4F_{17}NO_2S$
MOLECULAR WEIGHT: 513.17
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: _____ **Date:** 08/04/2021 (mm/dd/yyyy)
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10837

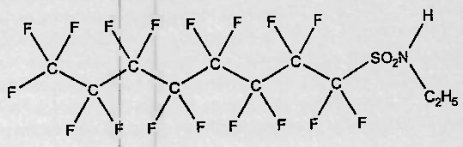
PRODUCT CODE: N-EtFOSA-M

COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0821M

CAS #: 4151-50-2

STRUCTURE:



MOLECULAR FORMULA: $C_{10}H_8F_{17}NO_2S$

MOLECULAR WEIGHT: 527.20

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 08/12/2021

EXPIRY DATE: (mm/dd/yyyy) 08/12/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: _____ B.G. Chittim, General Manager

Date: 08/16/2021 (mm/dd/yyyy)

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10

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CERTIFICATE OF ANALYSIS DOCUMENTATION

10840

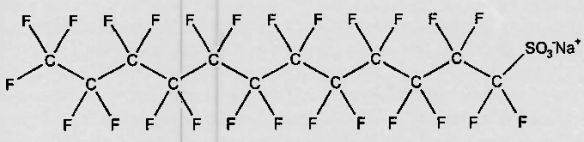
PRODUCT CODE: L-PFDoS

LOT NUMBER: LPFDoS0721

COMPOUND: Sodium perfluoro-1-dodecanesulfonate

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: $C_{12}F_{25}SO_3Na$

MOLECULAR WEIGHT: 722.14

CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 07/09/2021

EXPIRY DATE: (mm/dd/yyyy) 07/09/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

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Certified By: _____ **Date:** 07/16/2021 (mm/dd/yyyy)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

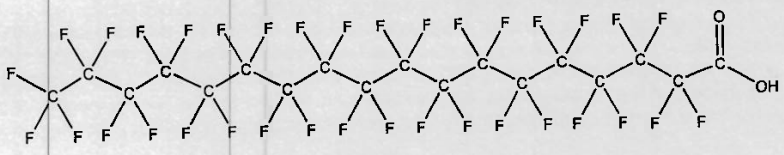
PRODUCT CODE: PFODA

LOT NUMBER: PFODA0821

COMPOUND: Perfluoro-n-octadecanoic acid

CAS #: 16517-11-6

STRUCTURE:



MOLECULAR FORMULA: $C_{18}HF_{35}O_2$

MOLECULAR WEIGHT: 914.14

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 09/03/2021

EXPIRY DATE: (mm/dd/yyyy) 09/03/2026

RECOMMENDED STORAGE: Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan 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.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ B.G. Chittim, General Manager

Date: 09/28/2021 (mm/dd/yyyy)

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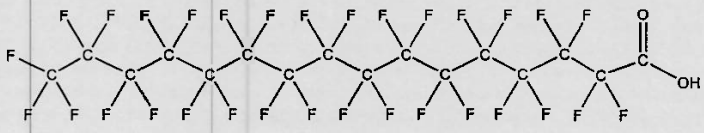
CERTIFICATE OF ANALYSIS DOCUMENTATION

1084 2 NG 01/18/23

PRODUCT CODE: PFHxDA
LOT NUMBER: PFHxDA0421
COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE:
CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
MOLECULAR WEIGHT: 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan 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:** 05/25/2021 (mm/dd/yyyy)
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11117

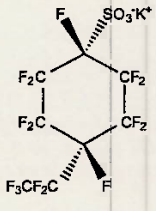
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

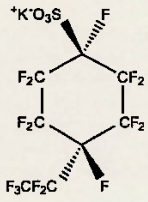
PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021

COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



cis-isomer



trans-isomer

MOLECULAR FORMULA: $C_8F_{15}SO_3K$ **MOLECULAR WEIGHT:** 500.22

CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol

46.2 ± 2.3 µg/mL (PFECHS acid)

46.1 ± 2.3 µg/mL (PFECHS anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 10/14/2021

EXPIRY DATE: (mm/dd/yyyy) 10/14/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis*/*trans* isomers of PFECHS at a ratio of 1:1.27 (*cis*:*trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/15/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

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11140

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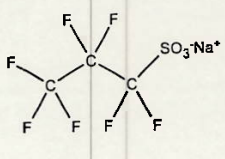
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPrS
COMPOUND: Sodium perfluoro-1-propanesulfonate

LOT NUMBER: LPFPrS0721

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $C_3F_7SO_3Na$
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
46.0 ± 2.3 µg/mL (PFPrS acid)
45.8 ± 2.3 µg/mL (PFPrS anion)

MOLECULAR WEIGHT: 272.07
SOLVENT(S): Methanol

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/12/2021
EXPIRY DATE: (mm/dd/yyyy) 07/12/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: _____ B.G. Chittim, General Manager

Date: 08/04/2021 (mm/dd/yyyy)

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11224

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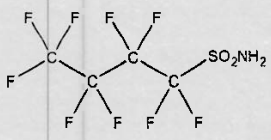
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
LOT NUMBER: FBSA1121I
COMPOUND: Perfluoro-1-butanesulfonamide

STRUCTURE:
CAS #: 30334-69-1



MOLECULAR FORMULA: $C_4H_2F_9NO_2S$
MOLECULAR WEIGHT: 299.11
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Isopropanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan 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:** 11/10/2021 (mm/dd/yyyy)
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11225

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CERTIFICATE OF ANALYSIS DOCUMENTATION

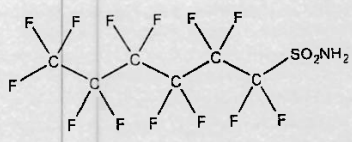
PRODUCT CODE: FHxSA-I

COMPOUND: Perfluoro-1-hexanesulfonamide

LOT NUMBER: FHxSA1221I

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA: $C_6H_2F_{13}NO_2S$

MOLECULAR WEIGHT: 399.13

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/29/2021

EXPIRY DATE: (mm/dd/yyyy) 12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: _____ **Date:** 01/10/2022 (mm/dd/yyyy)

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11336

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CERTIFICATE OF ANALYSIS DOCUMENTATION

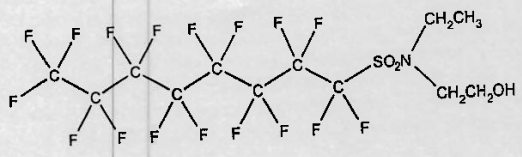
PRODUCT CODE: N-EtFOSE-M

LOT NUMBER: NEtFOSE0622M

COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA: $C_{12}H_{10}F_{17}NO_3S$

MOLECULAR WEIGHT: 571.25

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy) 05/13/2027

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By: _____ B.G. Chittim, General Manager

Date: 07/13/2022 (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

11338

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CERTIFICATE OF ANALYSIS DOCUMENTATION

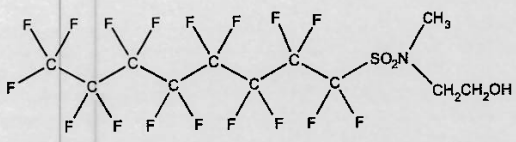
PRODUCT CODE: N-MeFOSE-M

LOT NUMBER: NMeFOSE0522M

COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)ethanol

CAS #: 24448-09-7

STRUCTURE:



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_3S$

MOLECULAR WEIGHT: 557.22

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy) 05/13/2027

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By: _____ **Date:** 06/14/2022 (mm/dd/yyyy)
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11383 A-J

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

7.9.1

7

MPFAC-HIF-ES
Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES0822
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	07/20/2022
LAST TESTED: (mm/dd/yyyy)	08/02/2022
EXPIRY DATE: (mm/dd/yyyy)	08/02/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12}, C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4, C_6, and C_8), three mass-labelled (one ^{13}C and two ^{2}H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^{2}H) perfluorooctane-sulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ^{2}H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
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 acids to their respective methyl esters.

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Table A: **MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)	Peak Assignment in Figure 1
Perfluoro-n-($^{13}C_4$)butanoic acid	MPFBA	2000	1
Perfluoro-n-($^{13}C_5$)pentanoic acid	M5PFPeA	1000	2
Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid	M5PFHxA	500	5
Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid	M4PFHpA	500	7
Perfluoro-n-($^{13}C_8$)octanoic acid	M8PFOA	500	10
Perfluoro-n-($^{13}C_9$)nonanoic acid	M9PFNA	250	11
Perfluoro-n-(1,2,3,4,5,6-$^{13}C_6$)decanoic acid	M6PFDA	250	14
Perfluoro-n-(1,2,3,4,5,6,7-$^{13}C_7$)undecanoic acid	M7PFUdA	250	17
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	250	19
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	250	23
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	500	18
N-methyl-d_3-perfluoro-1-octanesulfonamide	d-N-MeFOSA	500	21
N-ethyl-d_5-perfluoro-1-octanesulfonamide	d-N-EtFOSA	500	24
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	15
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	16
2-(N-methyl-d_3-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d7-N-MeFOSE	5000	20
2-(N-ethyl-d_5-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d9-N-EtFOSE	5000	22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid	M3HFPO-DA	2000	6

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-($^{13}C_8$)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)decanesulfonate	M2-8:2FTS	1000	960	13

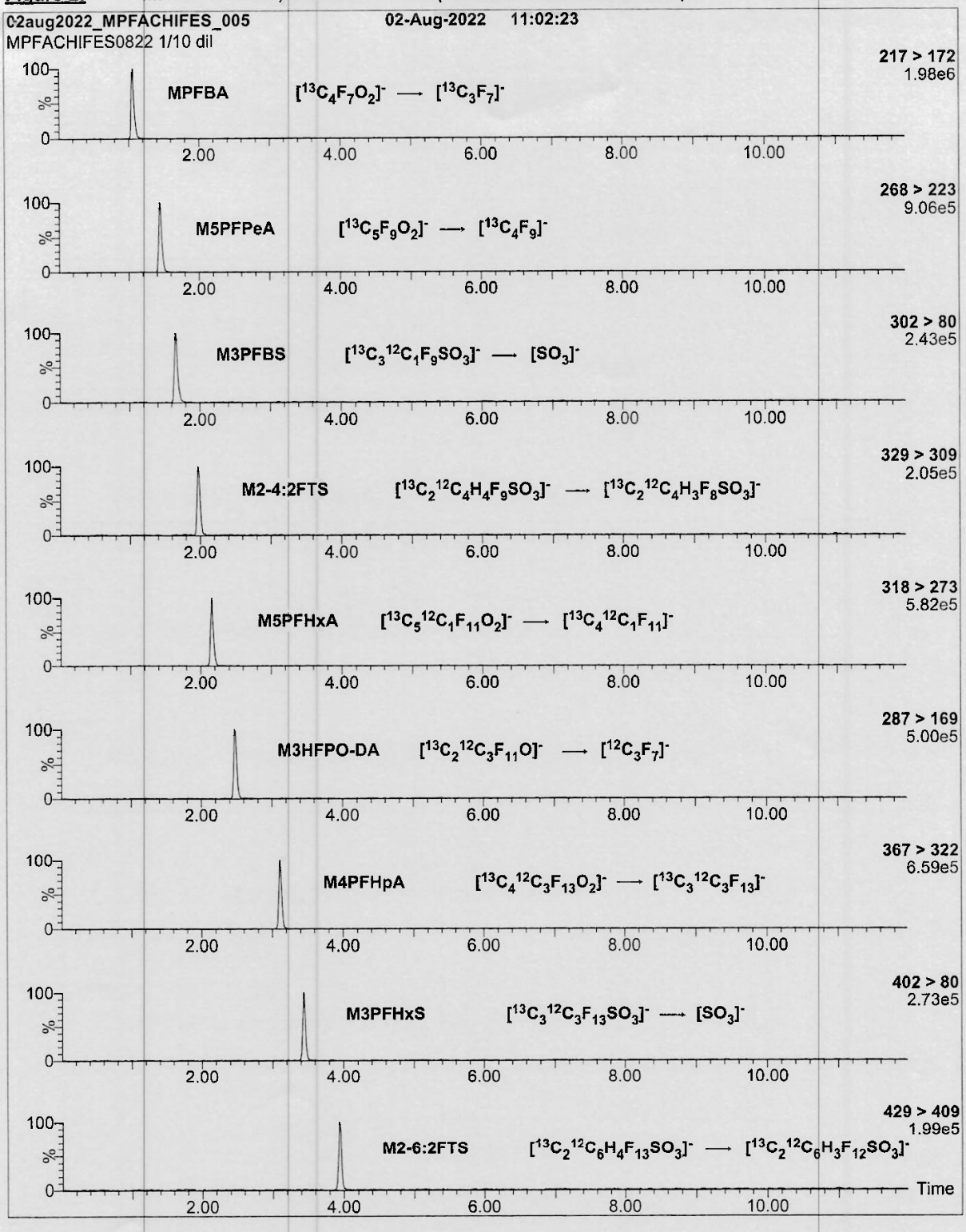
* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 08/02/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)

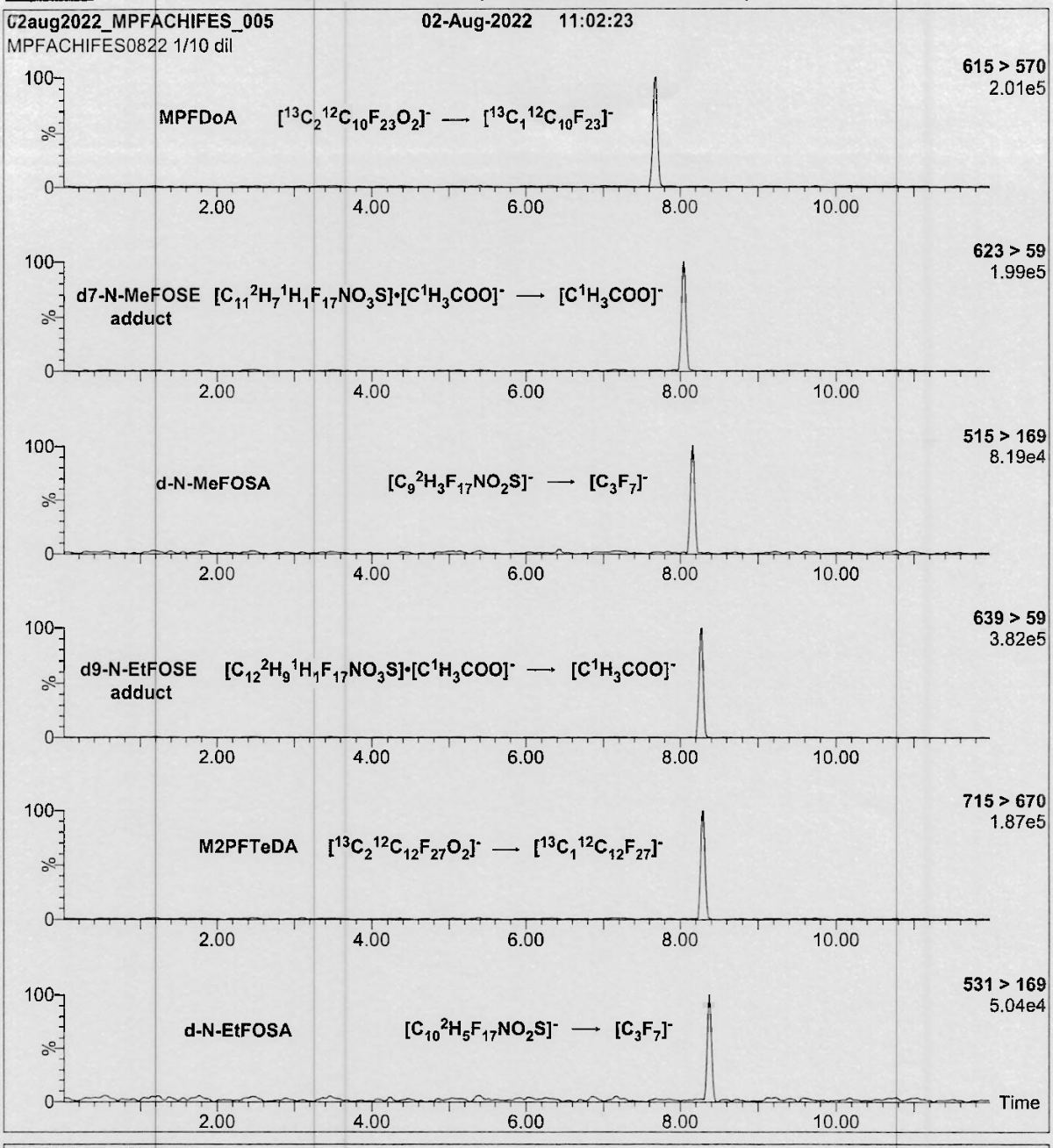
02aug2022_MPFACHIFES_005 02-Aug-2022 11:02:23
MPFACHIFES0822 1/10 dil



Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)
rev0

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 4-64 (variable)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES0822 (7 of 7)
rev0

11384 A-J

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance Injection Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-IS
LOT NUMBER:	MPFACHIFIS0921
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	09/07/2021
LAST TESTED: (mm/dd/yyyy)	09/07/2021
EXPIRY DATE: (mm/dd/yyyy)	09/07/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4, C_6, C_8-C_{10}) and two mass-labelled (^{18}O and ^{13}C) perfluoroalkanesulfonates (C_6 and C_8). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ^{13}C or >94% per ^{18}O.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
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 acids to their respective methyl esters.

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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-(2,3,4-$^{13}C_3$)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2-$^{13}C_2$)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4-$^{13}C_4$)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5-$^{13}C_5$)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2-$^{13}C_2$)decanoic acid	MPFDA	250		7
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium perfluoro-1-hexane($^{18}O_2$)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4-$^{13}C_4$)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

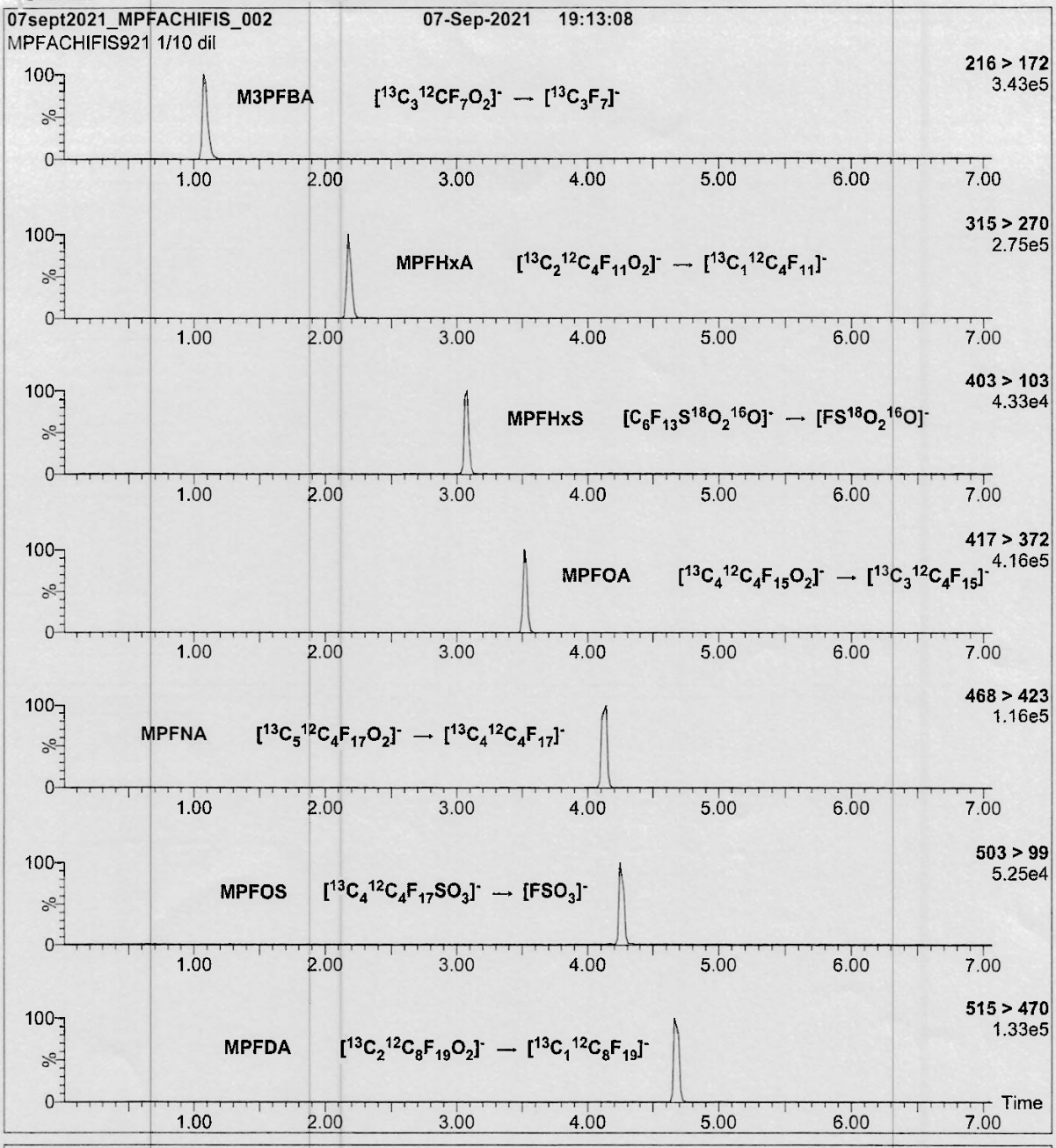
Certified By: B.G. Chittim, General Manager

Date: 10/13/2021 (mm/dd/yyyy)

MPFACHIFIS0921 (3 of 5) rev1

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.18e-3
Collision Energy (eV) = 4-64 (variable)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 01/30/23 09:00 {mm/dd/yy 24:00}

Date/Time Finished: 2/2/23 9:13 {mm/dd/yy 24:00}

Method: EPA 1633 Draft (QSM)

Balance ID: _____

Batch#: OP95216 Ext. By: GH Conc. By: _____ Vialed By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 95216 MB		500	7	N/A	25		5	E	
OP 95216 BS		500				200			
OP 95216 LLBS		500				80			
FC2175-1	2	530							
2	2	520							
FC2228-1	2	540							
2	2	560							
3	2	560							
FC2239-1	2	510							
2	2	560						E	
3	2	540	7	N/A				E	
FC2242-1	4	280	10	7					orange
FC2270-1	2	560	7	N/A					
2	2	520	8	6					
3	2	510	7	N/A					
4	2	520							
FC2205-1	1	520	7	N/A	25		5	E	orange, dirty
OP FC2239-1 MS	3	510	7	N/A	25	200	5	E	
OP MSD									
OP FC2270-2 DUP	3	530	8	6	25		5	E	

Comments:

EIS (SURR) ID: 11616D-F Conc: 250-5000 ng/mL Exp. Date: 01/20/24 Inj. By: GH Ver. By: DBL

SPIKE.1 ID: LCMS2055A Conc: VARIED Exp. Date: 07/24/23 Inj. By: GH Ver. By: DBL

SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____

NIS (ISTD) ID: 11615 A-C Conc: 250-1000 ng/mL Exp. Date: 1/26/24 Inj. By: FS Ver. By: MV

TurboVap Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

N-Evap Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 223231

Water Lot# OP95069

Acetic Acid# 194003

0.1M Formic PF251

1% NH4OH MeOH PF252

0.3M Formic Acid PF241

3% NH4OH Sol _____

5% Formic Acid PF203

SPE Lot # S22-006891

Syringe filter Lot # _____

pH paper Lot# 215322

Carbon Lot# 160898

Relinquished By: Gabriella Yachnot Date: 01/30/23

Accepted By: MJ Date: 2/2/23

1633 AQ extraction 042222.xls NF

7.10.1

7